Platform for trans-Academic Cooperation in Innovation (PACiNNO) Project

PACiNNO is a collaboration platform that connects into a single regional innovation system researchers and academic institutions, policy makers, and innovative companies of the eight countries belonging to the Adriatic region (Albania, Bosnia-Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia, and Slovenia). The goal of PACiNNO is to establish a platform for cooperation in research and innovation covering the whole Adriatic region. Targeting research institutions, policy makers and business entities, the project will help develop new bridges between the research and scientific activities, carried out at academic institutions, and the economic system, with specific reference to the technological needs of SMEs. More generally, PACiNNO is aimed at overcoming the main obstacles and barriers to the economic development of the Adriatic countries, fostering the competitiveness of their minor firms (both in the high-tech fields and in the traditional industries), and promoting the creation of innovative start-ups.

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REPORT – V 3.0

WORK PACKAGE 4: MICRO-FOUNDBATIONS OF INNOVATION

ACTIVITY 4.3: IN-DEPTH CASE STUDIES

UNVEILING MICRO-FOUNDBATIONS OF INNOVATION THROUGH CROSS-CASE AND CROSS-COUNTRY IN-DEPTH CASE STUDIES

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January, 2016
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Activity 4.3, described in this report, is part of Work Package 4, which centers around researching micro-foundations of innovation of companies in the Adriatic region. After a broad-based cross-national quantitative study and a narrower quantitative multi-level study of SMEs in the region, the in-depth action-oriented case studies represent the third qualitative stage of Work Package 4. The purpose of activity 4.3 was to enhance our knowledge about the processes driving creativity and innovation on the micro level of creativity and innovation in selected companies in the Adriatic region and propose (facilitate) interventions that would contribute to increasing the competitiveness of the participating companies. The insight is structured in a way that allows for a cross-case and cross-country comparisons as well as for adding to scientific knowledge. The activity featured a series of collaborations between research institutions and innovative, internationally-oriented start-ups or SMEs in the Adriatic region. In particular, researchers from eight countries in the region (in alphabetical order: Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia, Slovenia) have collaborated with 16 prudently selected companies. The collaboration between researchers and companies was intense and lasted between 5 months and a year. Cumulatively, researchers involved in this activity made 93 site visits, 119 interviews with firm representatives and a number of informal interviews, talks, phone-calls, conferences and other ways of communication with company representatives.

The work in this activity was based on principles of action research. The key idea of action research is to use a scientific approach to study the resolution of important social or organizational issues together with those who experience these issues directly (Coghlan & Brannick; 2014: 9). Therefore, we first gained an in-depth understanding of the processes in the companies to be able to design, together with the company representatives, actionable interventions. At the regional level, we reported 86 findings about processes within participating companies, identified 66 issues and proposed and facilitated implementation of 71 interventions. These results of our work, as elaborated in the remainder of this report, contributed to improving the observed processes in the companies. In addition, based on lessons learnt while interacting with practitioners, we generated potential generalizations that can be used as propositions guiding future research.

The structure of the report is as follows. We start by introducing the action research, describing its key characteristics along with presenting our research design and process. This methodological introduction is followed by reports of case studies from eight countries, two company cases per country. Each action research report features a description of the focal firm, which enables the reader to get to know the company and familiarize herself with the current situation in the company. Then we continue with a description of the action research process in the company and report on the general issues that were identified. Further, interventions that emerged from the action research process are presented and its observed effects are discussed. Finally, we evaluate the action research process in the company and indicate potential generalizations of problems and solutions based on the case. Afterwards, we perform a comparative overview, summarize our research work across cases/countries and discuss differences, similarities and interesting patterns. We conclude with a short evaluation of this work project activity and offer suggestions for further work in this area.
RESEARCH DESIGN AND APPROACH OF WORK PACKAGE 4.3
ACTION RESEARCH AND ITS KEY CHARACTERISTICS

Consistently with the purpose of work package 4.3 – to increase the competitiveness of selected small globally-oriented companies in the Adriatic region and to expand our knowledge about micro processes affecting creativity and innovation in these companies – we adopted a research design that anticipates strong involvement by both the researcher and the participating company. We opted for action research, which for Gummesson (2000: 16) is “the most demanding and far reaching method of doing case study research”. Action research is an emergent inquiry process in which applied behavioral science knowledge is integrated with existing organizational knowledge and applied to solve real organizational problems. It is simultaneously concerned with bringing about change in organizations, in developing self-help competencies in organizational members, and adding to scientific knowledge. It is an evolving process that is undertaken in a spirit of collaboration and co-inquiry (Shani and Pasmore, 1985). In practice, researcher and client collaborate in a cyclical process to solve a client’s problem and at the same time generate new knowledge (e.g., observation of novel phenomena, insight into the causal processes, and development of new propositions).

In contrast to the case study method (cf. Yin, 2014), which is relatively frequently used among researchers in the Adriatic region, action research is not very well known. Therefore, the work on activity 4.3 kicked off by introducing the action research approach to all participating researchers, who were then able to transfer the meaning and logic of action research to participating companies. This was done to make sure that the approach to case studies across countries was the same and the results across 16 companies within 8 countries are comparable in the end.

Although action research uses data gathering and analysis techniques that are familiar to a typical social science researcher (i.e., observations, surveys, interviews) its principles differ substantially from more traditional (objectivist) approaches. Action research is applied in a variety of professional fields such as education, health care, social work, community planning, and lately also increasingly in organizations, business and commerce (Stringer, 2014). Coghlan and Brannick (2014) list main characteristics of action research, which clearly demonstrate, how this approach differs from other approaches in social sciences.

To start with “Action research takes action”. In most scientific approaches researchers only observe something happening and do not get actively involved. In action research researchers do get involved and actively affect the unfolding of events. The above mentioned characteristic goes hand in hand with another key characteristic of action research, that is, “Action research is interactive”. Unlike other research approaches, where research subjects are (intentionally) excluded from designing and executing research, action research welcomes participation of client’s personnel in all stages of the research process – they are practically co-researchers; doing research with researchers and contributing both to solving of the problem and generating new knowledge.

While “Action research always involves two goals: to solve a problem and contribute to science” it is “fundamentally about change” (Coghlan & Brannick, 2014). Where ever it is applied it incurs change – either through planned interventions or simply due to interaction between the researcher and the elements of the focal system (e.g., through spill-over effects or by influencing cognitions of organizational members; mind also the initial comment about development of self-help competencies). A good metaphor for action research is also a live case study. This metaphor indicates that action research is usually conducted in real time, which means that time aspect of planning, observing and action need to be carefully considered upfront. Once interventions are proposed and implemented, the context in the focal organization changes, which makes comparable replications at a later point in time very difficult, if not impossible. The importance of change makes change management skills of researcher and participants pivotal for successful completion of action research projects.
Action research builds on holistic understanding of the focal system and demands a breadth of preunderstanding of the context (Coghlan & Brannick, 2014). This is the main connection point between a traditional case study and action research. Initial phases of action research feature intensive in-depth investigation of the case company and its context similarly to a case study research (cf. Yin, 2014). As already mentioned there are practically no limitations with regard to data gathering and analysis methods that can be used as part of an action research process – it only matters that the methods are aligned with the plan for adequately addressing the problem and in line with ethical norms for conducting research in social sciences. It is also worth mentioning here that action research requires understanding of the ethical framework, values and norms used in the particular context / organization. Finally, quality of action research cannot be judged by using criteria of positivist science, they have to be adapted to the different purpose of action research (ibid.).

Stringer (2014) describes the basic action research routine with words look, think, and act. More specifically, the action research process includes planning, gathering data, reflecting and analyses, and action – implementation of solutions. These activities do not unfold in a linear manner, but rather in a cyclical process, where action can be followed by further data gathering, analysis etc. Important activities in planning phase are getting to know the context (facilitating preunderstanding), establishing meaningful research design, establishing the right contacts, and ensuring an ethically viable research process. Before data gathering we have to frame the right research question together with the participants. We can then apply different data gathering methods such as interviews, focus groups, direct participant observation, inspection of secondary data (i.e., documents, records, reports, media), surveys, getting access to secondary data etc. Although both qualitative and quantitative methods can be applied in action research, qualitative usually prevail. In reflection and data analyses phase we first distill the data and then provide meaningful interpretation (together with the participants). It is important that sensemaking is done in collaboration with participants. The cycle concludes with designing interventions, administrating them, and observing participant response. After the cycle we summarize everything in a report.

It has already been mentioned that action research cannot be judged using the same principles as for positivist-oriented research. Therefore, it is essential for credibility of action research to guarantee rigor. Below, we list four factors that ensure that action research remains rigorous (Stringer, 2014). These factors have been also considered when designing the action research process for activity 4.3:

- prolonged engagement: data gathering methods have to allow for extended opportunities for participants to explore and express their experiences and perceptions (i.e., brief interviews do usually not provide sufficient information);
- persistent observation: the credibility of research is enhanced when participants consciously observe events, activities, and the context over a relevant period of time;
- triangulation: multiple sources of information have to be incorporated and cross-checked;
- member checking possibility: participants should be able to review and verify raw data, analyses and reports.
THE RESEARCH DESIGN AND PROCESS OF ACTION RESEARCH IN WP 4.3

Based on the key characteristics of the action research we developed a customized design for the purposes of our study. The core research approach and basic research process elements were standardized for all countries and the subproject leadership along with dissemination for information about action research was centralized. The rationale for this decision was to enable a comparative analysis across companies and countries (due to the same overall approach and principles that were disseminated and adopted), while at the same time allowing researchers to follow the principle of interaction in action research (i.e., they could determine how to design and implement research in specific organizations together with participants). The research process was divided in six phases, which we describe below. The process was discussed among the researchers during the course of the project and best practices have been shared. In the section below we also describe some of these best practices to facilitate future action research initiatives in the Adriatic region.

Description of Phase 1

Preparing the background of the theme. Literature review of microfoundations of creativity and innovation literatures was performed to allow researchers to bring (scientific) facts to the scene (cloud document solutions was used to facilitate this). Participants contributed their experiences, practical and contextualized knowledge and their cognitions. Relevant literature was revisited after specific problems were identified in various companies.

Recruiting companies. In this subphase we prepared proposals for companies and offered realistic research previews. It was of utmost importance that the companies were highly motivated to participate in the project. We already mentioned that companies were carefully selected. The recommended recruiting criteria were standardized for all countries:

- **company size**: between 10-50;
- **life cycle phase**: an established start-up or a well-functioning SME;
- **motivation**: a potential company should have interests for improvements in the broader area of microfoundations of innovation (at the level of individual members, their interaction and teams);
- **scope of business activity**: international.

Although we expected that this will be a demanding stage of the research process, it proved even more difficult than expected. First of all, the population of the appropriate companies was not very large. Second, we were not able to secure participation of a large majority of them. The main issue was that the companies thought that this project was going to incur additional demands on time for their employees or their management and they already felt overstretched or they were already involved in other internal projects and could not afford to start another one. A best practice to address this challenge was to tell participants upfront, what was the expected total amount of time that their employees and managers would need to invest in the project – the direct amount of time per employee was actually not that extensive. Third, there were fears of losing privacy, draining sensitive information or highly restrictive non-disclosure agreements (NDAs) by their clients. Frequently, the companies that agreed to cooperate demanded anonymity as a default and rather strict NDAs had to be signed by the researchers. A best practice that helped us was to offer signing of an NDA without hesitation early in setting up the project. Fourth, when discussing the project with the managers they often found some of the principles of action research unusual. For example, they were puzzled by setting goals together, learning what the main issues were before setting the agenda firmly, co-creation & co-operation, etc. This is natural as action research is sort of an amphibian – not traditional research, but also not a consulting project, especially in this region. We addressed this by investing a lot of time in properly explaining, what the purpose of the project was and how it was planned to unfold. It was essential for key

1After implementing the activity in a sample firm, we revised this recommendation and argued that companies below 20 employees are the best setting to be thoroughly explored by means of in-depth observation and to allow sufficient participation to individuals.
people in the companies to see this project as an important learning opportunity for them for relatively few resources invested – this proved to be a good value proposition for them.

**Description of Phase 2**

**Getting to know the organizations and their context.** This activity is in line with traditional case study research (i.e., examining secondary data, web presence etc). It was relatively straightforward, providing that the company was well represented on the web and that they had and were willing to share secondary information. Challenge was how to report this information when companies demanded anonymity and they were the only provider in the country. One solution to this challenge was to showcase company’s success; if the company excelled during the project, it was more likely that their representatives would reveal its identity at the end of the project. However, the companies were still cautious and preferred anonymity.

**Generating trust.** Initial contacts with companies were devoted to generating trust between the researcher(s) and the members of the focal organization. This proved to be the most important phase of the process. Even when companies agreed to participate, it took a while to generate trust with all the participating individuals. We addressed this important challenge by avoiding actions that could jeopardize trust and ensuring continuous engagement of participants during the whole duration of the project. We established that it was essential to get to know the companies and explore what drives their business world. We tried to generate trust with small helping acts and empathy. It was of utmost importance to generate trust also among the operatives – otherwise the bottom-up initiatives part of the project (when employees were encouraged to generate solutions) did not work that well. It proved to be a good practice to do a relatively informal introduction and ice-breaking session before the unstructured observation in a company began.

**Unstructured field observation.** Researcher(s) then spent extensive time in organizations as “flies on the wall” examining the daily work and innovation processes along with interpersonal dynamics in the companies. During this activity they took detailed notes for further analysis. It was a recommendation to make notes immediately, but also taking photos or audio recordings (where feasible) to remember the dynamic of the situation for later analysis.

During the course of the project we realized that small research-oriented companies with office or research work can be very boring places for direct observation if people work on reports, write code or do patents research on their computers. To address this challenge we recommended a side research on interaction modes that were in place at the company, and to examine daily and weekly dynamics to schedule field observations. In addition, we warned our researchers that their presence in the company was already unusual enough for the participants, so they should not make it even more demanding for the employees by frowning, shaking head during observation, erratic writing of notes etc., because people could transition into a defensive mode. The general advice was to be as unnoticeable as possible. In addition, we suggested that the a place, where they would be placed during the observation should be carefully selected and that they should try not to move around too much if not necessary. Space was also a very interesting part of observation: we examined the spatial arrangement on the site and how functional it was.

Sometimes during observations participants indicated that they expected an input (e.g., a comment from researchers). We strictly advised researchers not to interfere and wait for further stages of the project to offer advice.

Initial (preliminary) analysis of unstructured field observation and archival data was done before going to the next stage to define additional data demands and what the remaining questions necessary for understanding the situation were.
Description of Phase 3

Researcher(s) and companies jointly decide upon the core issue, research questions and objectives of the project. In this subphase we explicated the main research question and objectives of the project. The general recommendation to researchers was to engage in meaningful issues, that are of appropriate scope for the project. It is important to note that some issues that arose during the project were very important yet not related to the project directly and/or beyond the scope of the activity 4.3 or even the work package. In these cases, participants were directed to alternative sources and agreed to work on a challenge that was manageable and within the topic of the project.

Sourcing of information by applying multiple methods of data gathering related specifically to the core issue and the research questions. This part was again very similar to traditional case study research. It features interviews, focus groups, structured observation, surveys etc., frequently in multiple rounds. In several companies after initial field observation, interviews with managers, and secondary sources research we realized that we needed more information about the inception and company history. The latter seemed to have a strong effect on current development and how key challenges were approached. In addition, NDA allowing the financial and ownership data was examined with more scrutiny to facilitate better understanding of the situation.

Description of Phase 4

Analysis and interpretation of data. Qualitative and (less often) quantitative data from previous stages of the project were systemized, organized and analyzed. Content analysis was the prevailing method of analysis. Based on the analyses preliminary interpretation of data was done by the researchers.

Joint sense-making and evaluation of findings by researchers & participants. Consistently with one of the key principles of action research overall sense-making and final interpretation was done together by researchers and participants in an iterative process. The interaction mode usually consisted of a presentation of raw results by researchers, followed by interpretations by participants, and finally of developing a shared interpretation of the situation.

Preparing interventions. After developing a shared (consensual) interpretation of the situation we proceeded towards developing intervention to address the challenging issues that were identified. The interventions were again determined in a joint interactive process where both practitioners and researchers took part (e.g., interactive workshops, brainstorming session, and elements of design school approach were used to facilitate the development of solutions). On several occasions researchers prepared interventions in advance and then discussed their solution vis-à-vis others that emerged bottom-up in the above mentioned process. We suggested to researchers to particularly champion those initiatives, which were narrow enough to be addressed in the scope of the work package (project) and which had the potential to produce effects that are observable in a period of less than 3 months after the change had been implemented.

Description of Phase 5

Implementation of the intervention in real-life setting. The agreed-on interventions and their action plans were carefully described and put into implementation in a daily work/innovation process or social dynamics in the focal organization.

Monitoring and supporting participants. During and after the implementation of the intervention researchers followed developments in the company. Structured field observation, interviews and diaries were suggested to researchers to monitor progress and/or effects of the suggested intervention. During this phase researchers were not only monitoring company representatives but also served as motivators and sources of expert advice.
**Participatory evaluation of effects of intervention & feedback for the next cycle.** After the allotted time had passed the participants and the research team evaluated the effects of intervention and offered feedback for the next cycle (e.g., an interactive workshop, where effects, benefits and limitations were discussed; a short survey of participants involved in the intervention). In cases where interventions were not successful both parties searched for ways to redesign interventions or suggest alternatives.

**Description of Phase 6**
The last phase was about writing up research reports, performing (case and country) comparisons, and preparing for dissemination of conclusions and directions for future research. We standardized the structure of the report and the inputs for the comparative table (see descriptions of cases in the next section). Cross-reviewing was used to insure consistency and cross-learning among the researchers.

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2It should be noted that adding the researchers’ voice is important in the action research, hence, all individual reports are presented in the way they were originally written. This means that some reports were using singular personal pronoun “I”, while some were using plural personal pronoun “we”. Finally, some reports used “neutral” way of presenting the results.
IN-DEPTH CASE STUDIES
2.1. IN-DEPTH CASE STUDIES: ITALY

2.1.1. Case: modeFinance

Abstract
modeFinance is a credit risk assessment report company founded in 2009 by two academic researchers. The company started to gradually diversify its product portfolio looking for more scalability of its business and higher growth. However, several weaknesses remains and further decisions should be made in order to foster further growth.

Keywords: growth, modeFinance, scalability, business model, diversification

Introduction
According to many, start-up firms are companies that are constantly looking for a viable business model. The company described in this case study/action research makes no difference. In particular, the case illustrated in the following pages demonstrates that product innovation is key in the first phase of the life of a start-up firm (often, start-ups are literally “built-around” a technological innovation). However, as the business develop, other types of innovations become necessary to underpin the growth path of the company, and in particular, market innovation (market expansion) and process innovation. They are these two factors that contribute the most to make the business model of a start-up scalable and that support the growth of a company.

Description of the company
The credit risk assessment report company modeFinance was founded in September 2009 by Valentino Pediroda and Mattia Ciprian after six years of collaboration. Its headquarters are located in Area Science Park, Trieste, Italy. It currently employs five people, in addition to the two founders.

The firm’s product portfolio has changed slightly over time. The company was originally focussed on producing standardised reports for its sole client, Bureau van Dijk (which was also the provider of the raw data), using a proprietary technology developed in-house that represented the core asset of the company; the technology was, essentially, an algorithm, called Multi Objective Rating Evaluation, or MORE. Bureau van Dijk then sold modeFinance’s reports to its clients worldwide.

As time passed, modeFinance started to partly disengage from its sole supplier/customer and to develop new products—ones that were more customisable—to be sold independently. The firm’s first client after Bureau van Dijk, CHUBB Insurance, was a major player in the U.S. insurance market; CHUBB helped modeFinance to better structure its reports and to further develop its rating algorithm. modeFinance then produced new types of reports, which were more analytical and personalised and consequently more highly priced.

The next major step in the evolution of the company was the release in 2012 of an app called s-peek for iPhone- and Google-based smartphones and tablets. The aim of this step was to make the user experience simple and user-friendly: to standardise the service (i.e. to make it highly scalable) at a reasonable price. The app was released in a ‘freemium’ version: s-peek provides a certain amount of basic free information about the credit worthiness of any European company, but more precise information needs to be purchased.
modeFinance doesn’t yet have a specific target market; rather, it has several. Its services could satisfy the needs of companies of any size and from any industry. For example, PlusMORE is a product that targets professionals and credit management experts; AskMORE Basic focuses on small and medium-sized enterprises (SMEs) or individual entrepreneurs; s-peek is designed for the general public; and AskMORE Plus and SectorMORE target large enterprises or SMEs engaged in extraordinary corporate transactions (see Table 1).

For the firm, Bureau van Dijk still represents an important source of revenue. Indeed, clients of Bureau van Dijk can decide to subscribe to the rating service provided by modeFinance (but sold by Bureau van Dijk) for an additional fee. In this way, modeFinance serves, even if indirectly, nearly 300 customers worldwide. It serves several thousand direct customers through the s-peek app, although the app is not yet a self-sustaining investment.

Consequently, the firm is currently using different distribution channels in parallel: a direct channel for selling its customised reports (e.g. PlusMORE, AskMORE Plus, and SectorMORE), which account for nearly 60 percent of the company’s total revenues; an indirect online channel for selling the most standardised reports (such as AskMORE Basic), using the Bureau van Dijk platform, which accounts for 33 percent of revenues; and the direct online channel (s-peek), using a virtual shop for smartphone apps, which accounts for 3–5 percent of revenues.

Table 1: Product portfolio description

<table>
<thead>
<tr>
<th>PRODUCT</th>
<th>CUSTOMER SEGMENT</th>
<th>VALUE PROPOSITION</th>
<th>CUSTOMER RELATIONSHIP</th>
<th>CHANNEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>AskMORE Basic</td>
<td>General public and SMEs</td>
<td>Reliable rating system at a competitive price</td>
<td>No interaction. Completely standardised product</td>
<td>Indirect online (Bureau van Dijk)</td>
</tr>
<tr>
<td>AskMORE Plus and SectorMORE</td>
<td>Large enterprises or SMEs engaged in extraordinary corporate transactions</td>
<td>Highly customisable product at a competitive price</td>
<td>High interaction due to the small size of the firm. Direct contact with customers.</td>
<td>Traditional direct (normally on the initiative of the customer, after the experience with Bureau van Dijk)</td>
</tr>
<tr>
<td>PlusMORE</td>
<td>Professionals and credit management experts</td>
<td>Highly customisable product at a competitive price</td>
<td>High interaction necessary at the beginning due to installation and setup, based on customer needs.</td>
<td>Traditional direct</td>
</tr>
<tr>
<td>s-peek</td>
<td>General public and individual entrepreneurs</td>
<td>Free and easy to understand information (more specific information at a low price) on 30 million firms</td>
<td>No interaction. Completely standardised product</td>
<td>Direct online channel using a virtual shop for smartphone apps (Android and iPhone)</td>
</tr>
</tbody>
</table>
The competitive advantage of the firm clearly lies in the know-how that comes from the algorithm used to assess firms’ credit worthiness. This know-how is key, since the firm was created to exploit methodologies developed by the founders over several years of study and research. Such know-how also underpins the slow but continuous growth of the firm. Further, scalability requires efficiency; as a result, the firm has systematically pursued efficiency in its activities.

The firm uses a hybrid positioning strategy. The price positioning is lower than that of its main competitors (30 percent below the average) while the products provide comparable benefits and quality to the firm’s clients. Of course, although the firm cannot count on the same brand awareness that larger and more equipped firms enjoy, its small size provides modeFinance with a level of responsiveness that larger competitors cannot afford. Financial information: see Table 2.

The action research process

The first contact with the company related to the Pacinno project occurred in February of 2014. Guido Bortoluzzi met both of the founders at modeFinance’s premises and explained to both Valentino Pediroda and Mattia Ciprian the aims of the research activity to be performed.

Both founders agreed to participate in the activity by providing full availability for further interviews, and for ground research to be performed directly at the company’s premises. The company was visited a total of five times during 2014. The most important interviews were recorded and partially transcribed in summary form. The meetings were of variable lengths. The first meeting was short; its goal was to introduce the founders to the methodology and to fix the dates for the meetings that would follow. Both founders were present for this meeting. The two founders were then interviewed separately.

### Table 2: modeFinance’s financial information since its foundation

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues (euros)</td>
<td>294,153</td>
<td>357,926</td>
<td>242,762</td>
<td>147,205</td>
</tr>
<tr>
<td>EBITDA*</td>
<td>63,097</td>
<td>99,046</td>
<td>125,115</td>
<td>29,726</td>
</tr>
<tr>
<td>Earnings</td>
<td>11,384</td>
<td>6,863</td>
<td>25,650</td>
<td>1,014</td>
</tr>
<tr>
<td>Activities</td>
<td>406,039</td>
<td>214,464</td>
<td>190,450</td>
<td>65,585</td>
</tr>
<tr>
<td>Shareholders’ capital</td>
<td>252,110</td>
<td>55,727</td>
<td>48,865</td>
<td>23,216</td>
</tr>
<tr>
<td>Financial net position</td>
<td>-237,900</td>
<td>10,687</td>
<td>5,741</td>
<td>-19,741</td>
</tr>
<tr>
<td>Return on sales</td>
<td>6.05 %</td>
<td>4.53 %</td>
<td>18.83 %</td>
<td>4.49 %</td>
</tr>
<tr>
<td>Return on activity</td>
<td>5.42 %</td>
<td>8.53 %</td>
<td>24.03 %</td>
<td>10.09 %</td>
</tr>
<tr>
<td>Return on equity</td>
<td>4.52 %</td>
<td>12.32 %</td>
<td>52.49 %</td>
<td>4.37 %</td>
</tr>
<tr>
<td>Debt / equity ratio</td>
<td>n/a</td>
<td>1.30</td>
<td>0.60</td>
<td>0.00</td>
</tr>
<tr>
<td>Debt vs banks /sales</td>
<td>n/a</td>
<td>17.94 %</td>
<td>12.00 %</td>
<td>0.00 %</td>
</tr>
<tr>
<td>Debt / EBITDA* ratio</td>
<td>n/a</td>
<td>0.73</td>
<td>0.23</td>
<td>0.00</td>
</tr>
<tr>
<td>Capital invested rotation</td>
<td>0.72</td>
<td>1.67</td>
<td>1.27</td>
<td>2.24</td>
</tr>
</tbody>
</table>

* EBITDA = earnings before interest, taxes, depreciation, and amortisation
The meetings with Ciprian were organised both at the company’s premises (during lunch and post-lunch time) and in Udine, where Ciprian lives, in the late afternoon and evening. Each meeting lasted several (2–4) hours, and was fully recorded. The main themes explored with Ciprian dealt with the product portfolio, the supply chain, and the relationship with suppliers and clients.

The meetings with Pediroda occurred both at the company’s premises and at the University of Trieste. The meetings with Pediroda were shorter (from 1 to 2 hours). The main themes explored with Pediroda were the evolution of the product portfolio, the evolution of the relationship with the clients, and the revenue model.

Given the width of the themes explored with the two founders, the research team opted to use the ‘business model’ framework, and hence to focus the analysis on the elements constituting the firm’s business model. The aim was to check for overall consistency and coherence among all of the building blocks of the business model and to examine the relationships between the firm’s business modelling activities and its innovation performances.

**Data analysis reports**

In this section, we list the most relevant findings that arose from the earlier observations of the action research process. These findings can be considered to be a selection of basic building blocks that enable us to better understand the context and theme-relevant challenges.

**Finding 1:** The company focuses too much on the customisation of offers instead of scalability (necessary for maintaining a high growth rate).

**Supporting observations:** The majority (49 percent) of modeFinance’s revenues comes from selling high-profile, customisable reports (AskMORE Plus, SectorMORE, and PlusMORE). These projects create an important lock-in effect due to the necessary contracting time, the time required to build trust, the exchange of restricted information, and through the continuous interaction with customers. Despite the benefits of such business relationships, however, ‘too much love can kill’, to quote the band Queen. Customisation (if not ‘mass customisation’) is a natural obstacle to fast growth through business model scalability.

Indeed, to reach the firm’s goal of reaching a high rate of growth (as the founders declared, their goal is to reach revenues of a million euros within a three-year period), a more scalable business model is needed.

The attempt to make the business of the company more scalable came through the introduction of the s-peek app, which should have been an important vehicle of growth. The reality is that although the app is moderately popular (it has had three thousand downloads and users), the business is not yet self-sustaining. It would require a great deal of refinement and investment, especially in communications, since from a functional point of view the app seems good and the product has market potential beyond the Italian market. Indeed, at the moment s-peek is available in six languages and offers the possibility of searching for the financial data of firms located in more than forty countries.
Finding 2: Incomplete transformation from a ‘research-oriented’ to a ‘business-oriented’ mind-set.

Supporting observations: A portion of the company’s revenues still comes from public funds, and the relative importance of such funds has grown over time. Collecting such funds on a competitive basis requires time, dedication, and a ‘research-oriented’ mind-set. This is typical of researchers, who must constantly seek funding opportunities to support their research streams. But modeFinance is no longer a spin-off; the University of Trieste (formerly a shareholder of the company) withdrew from the capital of the firm in 2014. The company should aim to stand on its own two legs. Moreover, modeFinance is at an advanced start-up phase (it was founded in 2007), while the research on public funds is more suitable during the seeding phase.

On the other hand, the founders have long experience in research activities. Hence the opportunity costs of seeking resources—the effort required to obtain public subsidies—is moderate. In any case, there is serious risk in reducing the time allocated to commercial expansion, which should be the first priority during this phase.

Finding 3: Overly broad product-market strategy

Supporting observations: Over the years, modeFinance has introduced several different products that require specific support, development, and a team for promotion and commercialisation. Of course, different distribution channels were needed in order to better promote these products. For this reason, modeFinance has developed a multi-channel strategy. We assert that there are too many channels that require investments, effort, and attention, which at the moment modeFinance is unable to provide. Due to its scarce resources, it would probably be best to focus on one channel (the most promising one) and to develop that channel before launching new lines of business. After succeeding in that one line, it may be possible to explore different channels in order to boost the growth of the company.

In the firm’s early stage, the founders directed their efforts towards the production of standardised reports (for Bureau van Dijk) and towards a few customers who, satisfied from the reports obtained via Bureau van Dijk, had contacted them to obtain more detailed reports. In this way, modeFinance was satisfied with the indirect channel, probably because the growth was continuous and didn’t require significant investments.

Here is the problem: the company apparently did not create a process to systematically and proactively collect new customers, and relied too much on the business developed and mediated by Bureau van Dijk. Investments in salespeople devoted to such activity were made only in 2011 (and then again in 2012), when the company hired salespeople in order to support the development of the direct channel.

At the same time, the company launched s-peek in the direct mobile channel. Due to the small dimension of the firm (it is a micro-firm), it is likely that the company is dispersing its few resources across too many lines of business.

Finding 4: Too much focus on product, and not enough on sales.

Supporting observations: This point is directly connected with the previous one. Based on the content of the
interviews, it seems that the founders give too much importance to product development, and not enough to marketing and sales. Indeed, they declared that product development and reaching efficiency in operations are ‘very important’ for the success of the firm. This mind-set has led them to prefer investments aimed at fine-tuning their supply chain and improving the efficiency of the internal processes in order to keep costs down. As the founders like to repeat, ‘the products offered must be comparable, with a competitive price that allows a certain profitability’. This is true for every company, not only for start-up firms.

At the same time, they define marketing and sales activities as a ‘relatively important’ factor of success for the firm. This clashes with the main declared objective of the firm, which is to achieve systematic growth. Without strong and focussed promotion and commercial activity, it is unlikely to maintain market expansion at a good pace. As a partial confirmation of this, the company’s revenues fell by nearly 18 percent in 2013. It is possible that, in response to this warning signal, the company opened its capital to new investors with the aim of investing in new commercial officers and inverting this dangerous trend. This seems to be a successful method for achieving the firm’s goals; in fact, if the founders want their venture to reach 1 million euros in revenues in the next three years, they have to invest a significant amount of financial resources in marketing and salespeople in order to boost their sales, likely outside the original country. This leads us to the next finding.

**Finding 5:** *Growth or efficiency? A clear path should be decided.*

**Supporting observations:** The founders said several times that the long-term goal of the firm is systematic growth. This element seems to contradict the aforementioned constant focus on efficiency. The risk is to perform these two activities (growth and efficiency) in an unfocussed and non-targeted way. Indeed, the company has registered significant earnings (e.g. in 2011 the ROS was 18 percent). It is unusual to see a start-up pursuing a systematic growth strategy to reach such good economic performance. Normally, high growth occurs at the expense of profitability, since significant investments are required to boost and support the firm’s expansion into new markets.

**Finding 6:** *A global potential market; a local investor and business partner*

**Supporting observations:** modeFinance was born with the aim of pursuing systematic growth; since the beginning, it opened its capital to the entrance of third-party investors and partners. The first investor was Innovation Factory, which has held 18 percent of the company’s capital since the foundation of the venture.

modeFinance has operated globally since the beginning, leveraging on the ‘springboard effect’ guaranteed by its business partner, Bureau van Dijk, which operates globally and was its first customer and supplier of financial data.

The company took partial advantage of this effect. Some business relationships were independently established with foreign customers, such as CHUBB Insurance (from the United States) and other clients from the Netherlands. Further, the Italian market was not initially considered as an opportunity for business expansion because of the unpopularity of ratings-based reports among Italian firms that see such reports as mostly being ‘punitive’ in nature.
This strategy seemed to pay off; revenues increased from 0.15 to 0.35 million euros within two years (2011–2012); in 2013, however, the growth stopped, and revenues fell by nearly 18 percent. The founders faced this challenge by opening the capital to new investors, and looking for new financial resources to be invested in the development of the sales function. CGN Servizi Srl, a company located in Pordenone (near Trieste) that specialises in the production of software for professionals; and Friulia, an institutional finance company from the Friuli-Venezia Giulia Region, decided to acquire 20 percent and 10 percent of the firm’s capital, respectively. CGN allowed modeFinance to access Infocamere, without paying any fees, thus widening its financial data set. This allowed the company to create a new database and to release a service of consultation of that database, called SearchMORE, targeting the Italian market.

The decision to enter Italy seems to contrast with the firm’s initial idea. Considering the global potential of the firm, a U.S investor perhaps could have guaranteed better support for the international growth of the firm. This option was considered by the founders. In fact, while discussing the importance of the location for a start-up firm, they said that if the firm had been located in Silicon Valley, it undoubtedly would have experienced a higher rate of growth. At the same time, the company does not consider the U.S. market to be a potential target because of the differences in the legislation that renders the market of non-listed firms less transparent (and raw data less available) than in the European market.

**Identification of the core issues and argumentation**

After data gathering, the core issues have been identified and defined more specifically, as follows.

**Issue 1:** Clarification of the strategy: focus on profitability or on growth? Achieve goals via product customisation or standardisation? Or, a type of product that is both customised and highly standardised?

**Issue 2:** Focussed strategy needed: modeFinance has invested in too many products and distribution channels.

**Issue 3:** Over-estimation of the role of efficiency in growth and under-estimation of the commercial area (defined by the founders as ‘relatively important’).

**Issue 4:** The founders’ behaviour is rooted in the researcher mind-set; this leads to problems related to risk aversion, such as the constant researching of public funds and the search for profitability instead of growth.

**Issue 5:** Growth orientation on the entrance of investors focussed on the Italian market, rather than on an internationalised investor.

**Description of the suggested intervention(s), and its/their effects**

Based on the above issues, we have developed several interventions as a result of collaboration between company representatives and the researchers.

**Intervention #1: Search for global investors / global business partners in order to boost international expansion.**

Addresses issues 1, 3, 4, and 5.
**Suggested solution:** Look for new partners, in the form of simple business partners or global investors, with the aim of developing ‘multi-domestic’ strategies, which implies having ‘local units’ in other countries to accelerate the growth of the company in each market. The success of this strategy could also affect the mind-set of the entrepreneurs by definitively cutting the ‘umbilical cord’ that still binds them to the academic world.

**Purpose:** Growing internationally by relying on resources provided by third parties.

**Planning and implementation:** Six months are needed to find new potential partners, evaluating and selecting these partners, and signing contracts.

**Resources:** Essentially, time, to be committed by the founders. Some travel and accommodation expenses are also foreseen, for a maximum of €20,000.

**Participants:** The founders of the firm (Mattia Ciprian and Valentino Pediroda).

**Monitoring and evaluation:** Meetings are needed every fifteen days during the first six months to evaluate the ongoing situation in each new market. Periodical evaluations of results will be needed every three months after the process of international establishment.

At the moment, the company hasn’t found new sales partners abroad. We are fully aware that this activity requires some time even because it is highly strategic. Choosing a bad business partner is a mistake that modeFinance can not afford.

**Intervention #2: Focus the firm’s attention on a particular product and channel in order to avoid wasting resources across too many different activities.**

Addresses issues 1 and 2.

**Suggested solution:** The challenge is to find ways to reduce the human intervention to a minimum in the production of the most complex and customised reports (mass customisation strategy). A partnership with a company with complementary capabilities (management of big data, automatic information seeking and treatment, etc.) is required.

**Purpose:** By achieving this result, the company will reach a higher level of scalability of its overall business.

**Planning and implementation:** Six months for selecting the appropriate partner plus six months for developing a technological solution.

**Resources:** Essentially, time, to be committed by the founders during the first six months. Development costs could be significant during the following six months and are estimated to be around €30,000.

**Participants:** Only the founders in the first phase; all of the software developers in the second phase.
**Monitoring and evaluation:** Unnecessary in the first phase (only periodic meetings between the founders). Periodic inter-firm coordination meetings will be necessary in the second phase.

At the moment, the company has decided to follow a different strategy. Indeed, after the end of the action research, modeFinance reached an important milestone in its evolutionary process: it became an internationally accredited rating agency.

*There are obvious consequences from this step:* the company must now give priority to its internationalization.

However, given the fact that the company has now a potential international standing, the intention we “captured” from later talks is that the company would like to try to internationalize gradually without the support of external business partners.

This is an option that many firms choose. On the one hand, it has the “pro” of keeping full control of the process. On the other hand, it has the “cons” to slowing down what could be a faster process. However, given the fact that obtaining such accreditation is a time-consuming activity, we could not expect immediate reactions from competitors. Thus the company could benefit from a temporary competitive advantage that it could use to manage internally its international expansion.

**Recommendation for transferability of interventions and evaluation of its relevance**

Intervention #1 is determinant for exploiting globally the full potential of a promising start up. Many start ups fail to grow because they stick to their local eco-system and to the opportunities that this environment is able to offer them. By doing so they miss bigger opportunities provided by more supporting eco-systems. The majority of start ups are simply not aware of further business opportunities (business angels, accelerators, venture capitalists) because they lack the “weak” network ties (à la Granovetter) that could put them in contact with a more stimulating eco-systems.

Intervention #2 is necessary to support such start ups that are not able to manage strategically their product portfolio. By doing that they waste precious resources in unpromising businesses while failing to properly invest just on the more promising ones.

Some propositions based on the action research project in this company:

*Proposition 1:* Start ups having a global mindset joint with a high propensity to take risks (International Entrepreneurial Orientation) and an ability to extend their network contacts beyond their local environment, have more probability to grow in the long term.

*Proposition 2:* Start ups that focus at the same time on different dimensions of business model evolution (novelty, efficiency, complementarities, lock-in) have more probabilities to grow than start ups focusing just on one dimension.
2.1.2. Case: dX

LEVERAGING CROWDFUNDING TOOL FOR THE LAUNCH OF AN INTERNET OF THINGS (IOT) SOLUTION

Abstract
This document outlines an action research process conducted in an Italian ICT start-up DX, focused on Internet of Things (IoT) solutions. The study adopts the principles of action research to analyze the launch of an innovative product throughout a crowdfunding campaign. In-depth understanding of the internal procedures related to the market launch of a new product in DX was achieved by means of qualitative methods such as direct observation, interviews and interactive sessions. It facilitated the interventions related to the development of crowdfunding campaign for the future launch of DX’s innovative board.

Keywords: action research, new product launch, crowdfunding IoT

Introduction
This document outlines a case study and a subsequent action research process conducted in an Italian ICT start-up company. The company expressed a desire not to disclose its name and any data that could indirectly reveal its identity in reports coming out of the study (This information was available to the researcher, who personally signed a non-disclosure agreement with the company to comply with this request before starting the inquiry). Therefore, in this report a fictional name DX will be used to refer to the case firm and some data will be provided in broader categories in order not to jeopardize the company’s anonymity.

Description of the company
DX is a new ICT venture based in the north of Italy. It originated as a spin-out of an academic spin-off. While the mother company is focused on interface-machinery software development, DX has developed and patented a full stack platform made up of hardware units, and application programming interfaces (APIs), which uniquely simplify the communication between devices (tablets, smart phones, PCs), objects and people. In this vein, DX aims at providing an Internet of Things (IoT) ecosystem addressed to multi-industries’ innovative companies and makers.

The initial main customers came from the automotive industry. The focus on this industry, derived from previous spin-off’s experience, providing the company with specific knowledge and led to the development of the first patent that was implemented within three products developed for specific customers. Currently, DX is enlarging the spectrum of IoT to high-potential industries, such as home automation and household, and to makers/digital craftsmen.

DX can be considered as a born-global venture. Actually, it is present on the global markets, even if its focus is on European and U.S. markets. In 2013, a U.S. subsidiary has been established in order to better support the market penetration and expansion. Their solutions are sold primarily to original equipment manufacturer (OEM).

Their sales and marketing activates are targeted at direct contact with clients, relying on previous network developed by the mother firm (spin-off). Indirect contact through strategic partners are quite important, by means of workshops, and by attending specialized fairs (maker-fair) and conventions.
The company has no formal organizational structure. The work is divided by two main teams: R&D team (located in Italy) and sales/marketing team (located in California). The workforce has an homogenous educational background (ICT). Recently the first foreign citizen was hired, as marketing manager, to develop the U.S. market.

The CEO acts as boundary spanners, coordinating the activities of these two teams. The CEO is also the only founder involved in the management of the company. Two other original founders are completely involved in the mother company (spin-off) development.

In 2013, a big automotive industrial group invested in the firm’s equity.

**Description of the action research process**

Preliminary unstructured interviews with external experts were conducted in order to select relevant case studies. In particular, we interviewed three managing directors of three business incubators and an Investment Director of a venture capital fund. Their knowledge about the start-up scene allowed us to pre-select a list of 10 innovative companies. DX fitted well the criteria settled up front for the participating in the action research. It developed innovative solutions, it was present on the international markets, its size was quite controllable (around 20 employees), and the key personnel was motivated to participate in the project. DX was approached in the Autumn of 2014. The initial contacts were between researcher and the Communications Manager (CM). The goal of this part of the activity was to convince the CM that the firm’s cooperation on the project was useful for the company, that no confidential information will be communicated, and that the time spent by the company will be.

In this first meeting, the potential interventions stemming from the project was decided. On the basis of a specific internal needs, the intervention was aimed to analyze and improve the effectiveness of the launch of an innovative IoT solution that was internally prototyped.

Furthermore, mutual introductions and discussion were essential to create trustworthy climate. Next, the process were reiterated with the CEO, through two Skype call, aimed at presenting the project and, at the same time, better identifying internal needs and aims. The CM, on the behalf of the CEO, introduced and supported the collaboration in PACINNO project, in front of other employees, especially those ones that were involved in the development of the new board, from both a technological and marketing perspectives. As researcher, I introduced myself and explained the project and my presence inside their office, and answered questions from employees. From my perspective, the overall attitude among the employees at that time was “He’s a sort of consultant. And he is for free. It can be useful.” A major part of the initial activities was aimed at illustrating my role, and my activities within the firm. I didn’t feel any reservation and hesitance. Employees were quite used to have external professionals in their office and I was perceived like a consultant.

As regards data-gathering, the focus was on primary sources, i.e. unstructured observation, semi-structured observation, interviews. Secondary sources, web and archival records, was useful to better understand the company and its product portfolio.
The planning for observations was setting on the basis of the meeting of the team involved in the development of the new board, and the crowdfunding campaign. Furthermore, in order to better understand internal interactions DX provided hospitality in its coworking space (a position within their open office space) outside the meeting time. It allows researcher to observe dyadic interaction between employees (work and internal communications), group interactions among employees (e.g., R&D teams), interactions of employees with external actors (i.e., clients, partners, workshops, candidates) also. In fact, all these interaction modes unfolded in the open office space.

The data from direct observations and discussions was analyzed and discussed with other members of the research team. Especially, communication manager was an important support, that help me to better understand the internal processes, interactions, and also the technology beyond the IoT.

The total amount of observation of company members and interactions (meetings, discussion, social events) amounts to approximately 40 hours and the whole action research process unfolded over a period of 5 months, which means that data gathering was less prone to one-shot events, which could present a biased picture of the situation in the company. That said, we have to note that due to the dynamics of firm development the situation and the context of the firm today is considerably different to the one at the start of the cooperation. Similarly, some of the (implicit and explicit) messages that were sent to the firm representatives during the process might have already impacted the firm’s behavior and its developmental path. Finally, using multiple methods of interaction and data gathering, and multiple sources of data we were able to triangulate data, check for inconsistencies and explore reasons for them.

**Reports of the data analysis**

In this section we list most relevant findings arising from the earlier observations of the action research process. They can be considered as a selection of basic building blocks that enable us to better understand the context and theme-relevant challenges.

**Finding 1: Difficulty in distinguishing the physical/office space between DX and its mother company (the academic spin-off).**

**Supporting observations:** The office space is a big open space with several work positions (around 30). The employees of the two companies are ‘mixed’. This mix doesn’t reflect a project-oriented layout. The CM commented: “It’s a big mess. We are going to move to another space near here.” The move has become effective at the beginning of 2015.

**Finding 2: The level of prioritization of the launch of the new board (IoT solution) remains unclear**

**Supporting observations:** During the period, the project to launch the new board has suffered many stop-and-go. The CEO considered it important but non crucial for the growth of the company. In its view, the business model of DX relied on the development of strong relationships with OEMs rather than a ‘mass-market’ distribution. Thus, this project has been stopped several times during the 6 months of the action research.
Finding 3: Time-lapse between project teams activities and coordination/supervision provided by the CEO (that is working in the U.S. subsidiary).

Supporting observations: All the issues related to internal projects are discussed every afternoon (late afternoon) with the CEO, through Skype calls. All the meetings are scheduled by U.S. subsidiary (and the CEO). The morning in the Italian office seems to be like a “peaceful period” of workload.

Finding 4: Relative knowledge about crowdfunding platforms and campaigns among the team members and other employees.

Supporting observations: The idea of the crowdfunding campaign for the launching of the new IoT solution has been supported by the CEO, the CM and several employees. In reality, the knowledge about crowdfunding platforms, Kickstarter apart, is quite narrow. Only two employees (one is the CM) backed some crowdfunding campaigns and have a real knowledge of the process and its complexity. The crowdfunding campaign is perceived as ‘cool’ by other members and consistent with the innovative spirit of the company, rather than an effective tool to launch the new board.

Finding 5: The crowdfunding team involved in the campaign for the new board were composed by only one effective member (the CM).

Supporting observations: Several employees took part to the meetings related to the crowdfunding campaign with an high rate of turnover. The only member that took part to all these meeting, apart the researcher, was the CM, that acted as coordinator. My observation was that it was difficult to schedule meetings because the campaign was not considered as priority by the CEO and many people were quite overwhelmed with a range of individual work activities related other projects and day-by-day workload.

Finding 6: Professional developers, as the real target of the campaign, were confused (overlapped) with digital makers, that are real members of crowdfunding communities

Supporting observations: One of the main aim of the crowdfunding campaign was to reach a specific target, i.e. digital developers and makers, considered quite important for the growth of DX in a (quasi) B-to-C market, different from their main industrial customers (i.e.: OEMs). Actually, the real target market was composed by app developers and professional makers.

Identification of the core issues and argumentation
After data gathering, the core issues has been identified and defined more specifically.

Issue 1: Enhancement of the overall (shared) knowledge of crowdfunding campaigns and platforms among all the employees of the company

Issue 2: The participation of external professionals (social media strategist and business planner) in the crowdfunding team was needed.
**Issue 3:** Clarification of the target customers/backers as the first step of the crowdfunding campaign’s planning

**Issue 4:** Business plan for the campaign - i.e. budget, system of rewards, length of time, delivery and logistics, taxes, and other expenses - as a tool to share the same vision/aim for the new product launch

**Description of the suggested intervention(s) and its effects**

Based on the above issues, we developed some interventions, as a result of collaboration between company representatives and the researcher.

**Intervention #1: Sign in Kickstarter and Indiegogo (with a DX account) and support some (potentially competitive) projects**

**Addresses Issue 1**

**Suggested Solution:** The user perspective is essential to better understand the logic and the lifecycle of a crowdfunding campaign and to share this logic among team members. For this reason, I proposed to fund some crowdfunding campaigns on the two main international platforms in order to make really understand the constraints and the threats that potential backers have to overcome in order to sustain a campaign:

- Log-in on the platform is a time-consuming activity that could generate the switching of the potential backer;
- Each platform has its main digital payment system (Amazon wallet on Kickstarter vs. Paypal on Indiegogo) that could complicate the pledge;
- Cost for the delivery and customs that should be even higher than value of the donation
- Expected time for the delivery that should be coordinated through a dedicated customer service and delivery management

**Purpose:** Improvement of the overall knowledge of the crowdfunding (both platforms and campaigns) and enhancement of the capacity to detect new IoT solutions developed by competitors (through crowdfunding campaigns).

**Planning & Implementation:** The decision to pledge a campaign has been shared among all the staff members (of the Italian unit). An corporate account has been created with the DX name on Kickstarter. Three other team members created their own personal accounts. A meeting has been organized with three team-members in order to discuss the complexity of the funding from the user perspective.

**Resources:** Small amount of internal financial resources (100 euro)

**Participants:** All employees.

**Monitoring & Evaluation:** The CM is the only team member that was really committed in deepening the knowledge of the logic of crowdfunding. Other employees decided to sustain some campaigns in order to purchase some innovative digital devices rather than to better understand the crowdfunding logic.
**Effect of the intervention:** Crowdfunding is not yet considered as a simple funding tool by team members. It is now considered as a legitimation tool that enables the company to test its hypotheses on a target market and to co-create a new product with the support of its customers/supporters that became part of the entrepreneurial initiative.

**Intervention #2: Involvement/advisory of external professional in the DX crowdfunding team**

Addresses Issues 1 & 2

**Suggested Solution:** The effective development of the crowdfunding campaign is a time consuming activity that cannot be followed by a single team member (CM). The involvement of an external advisor with a great experience on the field has been suggested.

**Purpose:** This intervention was aimed at offering an-depth view of the implementation phase of a successful crowdfunding campaign on an international platform. At the same time, it represents a tentative to introduce an advisor able to support the internal effort.

**Planning & Implementation:** A informal meeting with a social media strategist has been organized by the researcher (that didn’t participate in the meeting in order to not influence the CM)

**Resources:** Previous informal relationship

**Participants:** CM and external advisor (hidden supervising of the researcher)

**Monitoring & Evaluation:** The meeting has been considered useful by the internal CM. The experience and the expertise of the external advisor has been considered essential for the effective launch of the product.

**Effect of the intervention:** The CM became aware of the essential role of an external expert for the launch of the campaign. Furthermore, this external advisor could simplify and fasten the internal decision process, that is quite constrained by the (absence of the) CEO.

**Intervention #3: Identification of the target customers for the crowdfunding campaign (new IoT solution)**

Addresses Issues: 3

**Suggested Solution:** Focus on a narrow target, i.e. professional developers, rather than digital makers. This target can be considered as a B-to-B customer’s target, composed by app developers able to create specific application with the naked board developed by Dx.

**Purpose:** To identify the real target customer segment for the launch of a new board (IoT solution).

**Planning & Implementation:** Small scale campaign focused on a narrow target
Resources:

Participants: CM, CEO, and other team members.

Monitoring & Evaluation: This target has been selected due to internal inability to develop an impacting user case and/or a plug-and-play device starting from the prototype of the naked board. This target is more consistent with the effective customers of these IoT solutions but it’s considered quite risky due to its limited size.

Effect of the intervention: The analysis of new target has generated a phase of reconfiguration of the business model architecture of the company, involving also the U.S. subsidiary (and the CEO).

**Intervention #4: definition of a BP in order to evaluate the overall sustainability of the small-scale campaign**

Addresses issue: 3 and 4 (see above)

Suggested Solution:

**Purpose:** Crowdfunding as a tool for the market legitimation of a specific solution (and the company) rather than a simple funding tool. The business plan for the crowdfunding campaign is not conceived as a cash flow generator. The business plan is project-oriented tool that allows to schedule and monitor the phases and the costs of the overall campaign.

**Planning & Implementation:** Small scale campaign, with a small overall funding target, and a focus on a specific group of customers. The rewards are focused on the boards (only). Some important issues have been analyzed, such as:
- System of rewards (as different bundles of rewards)
- Video production (and its cost)
- Operation planning and time schedule (for the board/reward production);
- Unitary cost for the production of the board/reward;
- Cost of the delivery;
- Extra-EU customs;
- Fiscal issues.

**Resources:** time needed for meetings and brainstorming

**Participants:** CM with the supervision of the CEO.

**Monitoring & Evaluation:** the BP for the crowdfunding campaign has been evaluated and adjusted several time by different team members (CM, CEO, CFO)

**Effect of the intervention:** BP of the crowdfunding campaign represents a tool that allows team members to negotiate and share the same vision and aim for the new product launch.
Recommendation for transferability of the intervention and evaluation of its relevance

The launch of the crowdfunding campaign has been postponed in 2016. Actually the company is focused on the development of a strategic partnership with a big-sized OEM based in U.S. and a campaign focused on a niche market different from the actual core market has been considered as not feasible in this specific period. The lack of a shared business model within the organization is one of the most important issues that the company will have to face in the near future. At the operative level, this ambiguity doesn’t allow to clearly prioritize the core internal projects. This is also the case of this specific project focused on crowdfunding campaign. Thus, the lack (or the presence) of a shared overall vision and business model architecture affected the development of each single project/action of the company.

As regards the specific case, i.e. the crowdfunding campaign, the action research approach created a space of interactions that enabled team members to share their main issues and concerns related to the project and to partly fill the gap of a shared overall vision. This process has been initiated by the external researcher, that acted as a knowledge source (through the internal seminar) and knowledge transfer facilitator (involving several team-members in the business plan development).

The activation of this internal knowledge transfer mechanisms facilitated also the development of an external knowledge source through the involvement of an external actor (consultant) in the project. This external actor provided additional knowledge on the launch of the new product that can be leveraged in the next future.
2.2. IN-DEPTH CASE STUDIES: SLOVENIA

2.2.1. Case: Avionic - Developing creative solutions for enhanced collaboration in a growing output context

Abstract
This document outlines an action research process conducted in a Slovenian aerospace company. The study is a part of the PACINNO project and represents an applied cooperation between a research institution and an innovative, globally-oriented SME. It adopts the principles of action research to improve collaboration and facilitate output growth in the focal company. In-depth understanding of the business and innovative processes in the company was achieved by means of qualitative methods such as direct observation and interviews. It facilitated development of focused small-scope interventions such as creating an initial system for collecting and visualizing data on the final assembly line (FAL) status, suggesting ways for efficient and effective onboarding of newcomers, and systemizing group/team interaction modes. Results of interventions are presented, applicability of interventions to other situations evaluated and propositions to be tested in further research offered.

Keywords: action research, collaboration, creativity, small scale production system, knowledge transfer.

Introduction
This document outlines a case study and a subsequent action research process conducted in a Slovenian aerospace company Avionic (the actual company name is not disclosed, but is available upon formal request by the participating researcher). The company agreed that the information about the research process, suggested interventions and outcomes can be published in a report. However, all additional information beyond this report may be subject to confidentiality issues and pending additional approval by the company.

The study is a part of the PACINNO project – a platform for cooperation in research and innovation – and represents an applied cooperation between a research institution and an innovative, globally-oriented SME. It aims to use the principles of action research to improve collaboration and facilitate output growth in the focal company. At the same time, it also generates knowledge about collaboration and innovative processes in these type of companies and provides opportunities to develop propositions for further (confirmatory) research. Finally, as the study of Avionic is accompanied by a study of another company in Slovenia and additional studies in the Adriatic region countries, it co-creates the potential for a comparative study, which is the next step of our project.

Every ambitious SME encounters the challenge of accommodating for the growing demand for their products or services. Important features of this phenomenon include the enhancement of the number of people being involved in company activities and the changing nature of interaction among employees (and other people involved in company processes). Therefore, as the demand for the product/service increases the company has to develop systems that are scalable. In Avionic, we examined the development of social side of their small scale, (semi-customized) production system. We looked at the physical and social context, in which employees produce small unmanned aerial systems (UAS), examined their interactions at work, and scrutinized the broader context, in which the company operates. This allowed us to gain an in-depth understanding of the manufacturing process (both technical and social) in Avionic. In turn, we were able to
design – together with the company representatives – simple and manageable interventions which, as we show, contributed to improving the focal process in the company.

The structure of the report is as follows. We start by a description of the focal firm, which enables the reader to get to know the company and familiarize her/himself with the current situation in the company. Then we continue with a description of the action research process in Avionic (a more general description of action research principles and a general research protocol that was pursued in this study will be addressed separately) and report on the general challenges that were identified. Further, interventions that emerged from the action research process are presented and its observed effects are discussed. Finally, we evaluate the research project and indicate potential generalizations of problems and solutions based on the study of C-Astral.

**Description of the company**

Avionic provides its customers with advanced small UASs (unmanned aerial systems; also unmanned aerial vehicles (UAVs), also less often remotely piloted aircrafts (RPA)). Their advanced aerodynamic UAVs can be equipped with different sensors and payload configurations depending on the demands of the customer. A typical package includes a UAV with the desired configuration, a catapult, an antennae system, and a ground control station. They also offer specialized training and service/support for their products.

The company can be classified among the aircraft and spacecraft manufacturers. It is registered as a private limited liability company. It employs up to 10 individuals (several more on the contractual basis) and is headquartered in Ajdovscina, Slovenia. The company’s revenues have reached beyond the 1 Mio € mark in 2014. The company could currently be classified as a customized production company with intense research and development (they have their own software and hardware laboratory for small UASs). Avionic has expertise and practical experience in aerospace, unmanned systems, electronics, communications, remote sensing, renewable energy systems, extreme environment operations, and logistics support.

Although the company was established in 2007, its beginnings go back to years 2003/2004, when it all started as a DIY (i.e., do-it-yourself) project (first with a radio guided zeppelin, later with the first UAV). It later came under the provision of an applied research project (CRP in Slovenian) in collaboration with University of Nova Gorica, Pipistrel and Fotona optika. While development of prototypes was successful at that time, access to market and unsufficient legislation basis represented major challenges to be addressed.

The company was founded by three partners. Each of the partners brought relevant complimentary expertise: market and industry knowledge; design and construction; modelling & assembly. Initially, the business was not going as planed and featured a lot of randomness. For example, from its early days the company wanted to supply to the military, but that only came true recently with an order for Italian army (UASs for surveillance purposes). By matter of chance their original main market niche was geodesy/cartography. Interestingly, the introduction to this niche was done through a Finish geodesy company, which made first acquisitions after a successful fair presentation (Avionic’s product Brown was praised as more accurate for mapping and developing 3D terrain maps). The Word of Mouth in the geodesy/cartography community and more intense sales/marketing initiatives (also web-based) opened doors for most of the sales over the next years. Ever since Avionic’s main market remained international/global market – domestic market has been marginal
for their development. Although the competition is getting fiercer (their main competitors are Trimbel and Perot), they retain competitive. Their solution is superior in accuracy; it remains in the air up to five times more as products of their competitors and can fly at very high altitudes.

As already mentioned the company produces a series of customizable Bramor UASs along with offering development, sales, leasing, and services related to the use of UASs (all the company’s UASs are registered trademarks). Avionic’s UASs are highly innovative and based on a blended wing body modular airframe, with an emphasis on the smallest possible T/O weight, advanced aerodynamics, electric propulsion, endurance, ergonomic design, user-friendly ground control stations, durability, and mobility. Its UASs products go beyond typical solutions available on the market; they are mostly being used for distinct civil and military applications, especially for dynamic and responsive monitoring of the earth’s surface from the air. In particular, Avionic’s solutions are suitable for surveying and remote-sensing applications in which standard surveying methods need to be replaced, and for operations that prioritize real-time observation and surveillance capability.

Avionic has a global presence, selling its products to the public, private, and academia sectors, primarily in the surveying, engineering, mining, agriculture, geology, and military industries. Its unmanned aviation systems products have been flown in all continents, including Antarctica and over the Arctic, while most of its customers come from Southern Europe and North and South America. The company sales and marketing activities are targeted at direct contact with clients and indirect contact through strategic partners by means of workshops, specialized fairs, and conventions. Furthermore, it also sells and markets its products with the help of resellers located in South Africa, New Zealand, Brazil, Malaysia, and Europe (e.g., Italy, Ireland, Spain, and Poland). Thus, it has established its own distribution network and is present throughout Europe, in North and South America, and in Asia. In the recent years, the company has produced on average about 4 planes per month. The production is steadily increasing in the last year.

Due to the nature of the product the company features a wide base of competencies including (among others) design, aeronautical engineering, R&D in the field of materials, expertise in manufacturing processes for compositional materials, electronics, telecommunication and energy systems, process control, remote sensing, and country/region-based UAS-related legislation. Thus, its key competitive advantage lies in the cross-disciplinary workforce, where software engineers work alongside modeling experts, aeronautical engineers, electrical engineers etc. The company has no formal organizational structure. However, as each individual is specialized in his or her own field, the division of tasks is relatively straightforward (specialization is high). Administrative and business functions have so far been executed by designated staff members and the founders, only recently a COO has been hired externally. The workforce is very homogenous, with most of the employees coming from the same region in Slovenia and they are predominately male. The founders hold an equity share; other employees are not included in the ownership.

Avionic has been recognized in public several times in the last decade. First, it is responsible for the first Slovenian unmanned aerial system test flight in 2005 with the Spectral System platform. Second, Avionic has established a UAS test flight facility and area in western Slovenia alongside the Slovene CAA. Otherwise, they tend to keep a low profile in the Slovenian public media space, focusing on their development and the global market.
Description of the action research process

Company Avionic was on the shortlist of companies that we wanted to recruit to cooperate with us on the PACINNO project because it was a good fit with the up-front criteria that we set for the participating companies. It had an innovative product, it was present on the global market, it operated in an interesting industry, it was of manageable size, it had well-established operations, and it was in located in the focal geographical area.

We first contacted Avionic indirectly through a personal connection with one of the founders of the company, but received no reply. We insisted and a second, this time face-to-face contact at the company location in Ajdovščina was made. The conversation with one of the founders (responsible for the production site) was successful – he agreed to cooperate in the initiative as long as the demanded input from the Avionic employees and interruptions of the work process was minimal. Although there was no need for extensive explanations we introduced the aim of the project and conveyed that our intentions were to help the company to improve. The suggestions for improvement should follow in the form of manageable and relevant interventions after a period of intense exploration of the company. We also expressed our willingness to undergo any non-disclosure processes if necessary. However, this was not deemed necessary as our interests were not in the UAVs’ technical aspects.

We followed up on a second meeting with the contact person and explained the intended process of the project in detail. The meeting experience was interesting – the meeting took place in a big open space at the company premises, which meant that all employees were able to hear all details of the conversation (Note: this was already a sign of a very open and informal culture at Avionic). This interaction was also used for the first interview with the founder, where he explained his view of the company development (history) to date. The rest of the employees were able to informally add details and their views where appropriate. A takeaway from this meeting was also a list of links and resources about the aerospace industry in general and UASs more specifically, which was used as an additional source of background information.

Due to the course of the project in Avionic (i.e., our promise to make minimal demands on their time) we were not able to take necessary time to build trust with the representatives of the company (NB for action project in a Slovenian biotech company this time was available). Rather, we immediately started direct observation in the company (8 employees were present on the observation day). The first direct unstructured observation lasted for a full work-day. Two researchers were present at the company headquarters, where we could observe and record anything that we thought was relevant to the project. The only exception were meetings, where the team discussed confidential client (order) information. We were also able to interact with the employees, if needed. However, we tried to refrain from interacting with employees on the first observation day unless they directly approached us (e.g., in one case an employee started a conversation about the purpose and the use of the research project and inquired about our experiences from other similar projects; in another case an employee started a conversation arguing that he would like to get to know better a person that was observing him at work). We observed the workflow in the office and we were present in the field (local airfield) at a test launch of a UASs, where a new camera/positional configuration were tested.

The unstructured observation produced rich qualitative data – we organized our impressions and cross-checked our sensemaking of the situation and the company before moving on with the project. We were able...
to observe typical interactions, workflow, physical layout of the site, and behaviors of employees. In addition, an unplanned event occurred in the field (i.e., severe weather conditions; failed launch of the UAS), which gave us the opportunity to observe behaviors and reactions in atypical circumstances.

Our personal evaluation of the first observation day was that the employees were relatively reserved to the observation experience. This could be attributed to the lack of time to develop trust with the participants, but also to situational constraints (i.e., time pressure due to a big and important order that had to be completed in short time). There was also variability among the employees: some embraced the presence of observers and acted very interested and friendly, others seemed indifferent, while a minority intentionally or unintentionally indicated that they felt annoyed by our presence.

We used the impressions from the first observation day and background information about the company to prepare for the second observation day. We decided for only one researcher to be present on-site (we felt that presence of two observers was overwhelming during the first observation day because of the low employee/observer ratio). Again the observation sequence took a whole work day. It unfolded in two locations: at the central workshop/assembly (also the location of the headquarters) and at the molding / casting workshop (approximately 3 km from the headquarters). There were also new developments in the company that happened in the time between the two observation days. First, the central workshop / office space were now separated (the total office space was almost twice in size at the time of the second observation in comparison to the first observation day). Second, two additional persons were present on-site: another founder and a newcomer introduced to the company by him, who was supposed to be hired by the company in the near future.

The second observation day was characterized by less reservations by the employees. The researcher was also invited to participate at the informal socializing event of the day – collective lunch at the nearby cafeteria. During the day the researcher had the opportunity to initiate a couple of in-depth conversations with Avionic people; including an informal discussion with the second founder Nejc Trošt (in charge of design) about his view of the company and its development.

During the last visit to the company one of the researchers held an extensive interview with the newly appointed COO. The discussion covered all aspects of company management as well as an introduction and an update of the current stage of the (action research) project. The site visit continued with a team of employees and researcher working on the interventions: prototyping a FAL visualization table; designing a newcomer’s first days in the company; and discussing current and potential future interaction modes with COO, who now took charge for bringing this area of in-company dynamics to a higher level.

As a result of data gathering, the field notes of the observations and notes from the interviews were produced. The notes included a sketch of the physical layout of the office space and (potential) interaction points. The data from the observations and discussions was content analyzed. In addition, the researchers’ impressions were explicated and discussed with other members of the research team to engage in a sense-making process.
Reports of data analysis
Based on analyses of the data from the observations, interviews, and secondary sources, we prepared the list of findings about Avionic. They should be viewed as a selection of basic building blocks that helped us understand the context and theme-relevant challenges that we address later with suggested interventions. Below, we list our findings and elaborate on them in more detail.

Finding 1: There is no clear visualization for tracking of the production status of orders

Supporting observations: During our observations we did not find any particular formal signs of which orders have the priority nor what is the status of a work-in-progress UAS. The team knows what is going on in the production site because there is a lot of (informal) communication among the employees; they even use nicknames for UASs to facilitate recognition of a specific WiP (work-in-progress). For example, somebody would raise his voice and shout: “Does somebody know when St. Nikolaj is coming out of the composition workshop” or “Does somebody know if S. has already finalized the circuit on the white one? I would like to continue to work on the plane, but S. went out to have lunch, so I don’t know if I can start working on it”. During the first observation we realized that the nicknames were also a way how they bring fun to work and how they facilitate easier recognition of a specific UAS. This system still functions relatively well at the moment, but can be challenging with increasing number of orders and people involved in the process. Avionic is continually expanding their production and the company expects that the demand in the coming years will continue to rise. When one is close to the limit of production capacity, any problem or deadlock can decrease the output. With increasing production the risk of mistakes, procurement inefficiencies and miscommunications also increases considerably. This makes the capability to quickly detect, react, and adapt to solve problems very valuable. Because of the nature of the production process of a customized UAS, it is important to have an overview of the status of production. During the observation, we did not find a dedicated point, where up-to-date status of all WiPs would be unambiguously visually displayed. Information was mostly scattered around on the detailed checklist accompanying WiP and in the transactional memory system of the employees.

Finding 2: The increasing output is causing demands for quick onboarding and effective knowledge transfer capabilities

Supporting observations: At one occasion during our work on this project the company received a larger order. The order seemed quite overwhelming for their capacity, so the team had an intense discussion if they can fill the order. It demanded extended period of intense overtime work. In the end, they completed the order in time, but it raised the question of hiring new people (assemblers in particular) and on boarding them quickly when if demand increases suddenly. Fortunately, the company is located in an area with a strong DIY and hobby-modeling background, which is helpful for recruiting appropriate candidates. However, these individuals still need to be brought to their optimal performance in relatively limited period. Knowledge and skills that new employees will need in order to be part of Avionic’s production team are specific and not codified (we have only observed some parts of the work process being photographed and described, yet this materials are still far from an operative procedures manual), and thus the transfer of the knowledge has been based on apprenticeship principles. The challenge is that potential mentors (masters) are themselves very busy. Therefore, these crucial employees have very limited time to do additional actives for mentoring/
teaching. If the company wants new employees to learn quickly to achieve normal productivity, it has to develop a system that will allow the knowledge and skills to effectively transmit to new employees.

**Finding 3:** Collective/group interactions among employees are relatively rare and rather unstructured.

**Supporting observations:** Most of their working time Avionic employees work individually, in pairs, or in small groups. Their working day is filled with daily activities (sometimes even fire-fighting), which does not allow much time to be allotted to developmental tasks. The climate in the company is very informal and based on DIY culture. Communication is very relaxed and informal. We even heard them singing while working. A lot of information is exchanged at breaks and lunches, when the employees go off-site and leave their work. Semi-formal group meetings are mainly intended for discussion of important decisions that affect everybody and usually unfold after the problem, dilemma, or opportunity arises (i.e., reactively). Based on the observation of the company, it seems that these meetings are not very popular. We observed one instance when after coming from this meeting one employee commented: “What a waste of time. Have we ever reached any agreements at these meetings? I’d better go back to work”. In general, the company has a shortage of opportunities when a larger number of employees discuss development-oriented issues in relation to companies that are not directly related to the current problem or intended for informal socializing.

**Finding 4:** The mindset of the majority employees is very (craft) production-oriented

**Supporting observations:** On several occasions during our time spent in the company we had feeling that most of the employees are highly enthusiastic about airplanes and identify themselves with the products. For example, several of them discussed that they either wishes to fly airplanes or actually have done it, while most of them were (have been) passionate hobby model planes builders. It seems that this passion also reflects in the perceptive of what really matters in a company. We could hear statements like: “It is more important to produce UASs of excellent quality today than dream about what the company could achieve in five years,” and “although I now work on more administrative tasks I am still capable (and happy) to put together an excellent UAS all by myself; sometimes I wish I had something tangible to show at the end of the workday”. These and similar points, of course affects the effectiveness of managerial and administrative roles in the company and eagerness with which they are executed. There also seems to be a considerable variability among the employees in terms of entrepreneurial passion and ambition.

**Finding 5:** The ergonomics and arrangement of work stations is not optimal

**Supporting observations:** Consistently with the informal work culture in Avionic the ergonomics and arrangement of work stations is also very lax. At the moment company is preparing a complete overhaul of the production site architecture and considering a transition to a new (larger) production site. Nevertheless, here are some of our observations about this topic. The workstations do not facilitate optimal posture of employees while working (the height of the chairs-tables is not aligned, some of the operations demand very unnatural postures); lighting in not optimal; assemblers use vacuum cleaners (creatively!) when grinding materials. It does not seem that the employees are bothered by this fact at the moment, however, in time these non-optimal arrangements could have an adverse effect on their productivity. A related issue is the arrangement of the tools as well as the arrangement of material and components in the warehouse (the latter is also not yet IT supported, which causes some difficulties in effective procurement).
Finding 6*: Intense international travelling and high workloads represent danger for burnout of some key employees

Supporting observations: Already during our visits we observed that the workloads are asymmetrically distributed. Some employees appear to be central points in the operational flow as well as the advice-providing hubs, which both result in high demands on their time (working overtime, weekends…). In addition, company also needs to do off-site (and frequently overseas) training and trouble-shooting assignments, which often means, that employees who are already exposed to extensive work-load, receive even more activities to be done. One of the employees commented: “It is great to work at this company, but sometimes also very hard. Keeping the pace with the work at headquarters, while at the same training clients and keeping them happy is a very tough challenge”. In addition, in line with the nature of the product (surveillance and mapping of areas that are difficult to access) foreign travels frequently include remote and dangerous (although exciting) locations. In the long term these dual responsibilities of the key team members are not sustainable. Thus, the company recently decided to employ a person, who would be dedicated to site visits and training at the client’s location.

Finding 7*: With the growth of the firm (career) development and appropriate inclusion of key individuals who are not owners of the company is becoming important

Supporting observations: The company has grown with the support of the founders/partners and several other key team members that are not included in the ownership of the company. As the company grows and its value increases, and externals start occupying important position to smoothen the company’s step to the next level, it becomes a legitimate question how to include key members of the core team, which are not partners to retain the sense of equity. The company has started the transition towards a more formal structure, where these individuals are taking more important (managerial) roles. In general, there seems to be a lack of conversation about how core team members see foreseeable future. Similar observation could be made for developmental plans of other Avionic employees (cf. the tour of duty idea). It could be that this was intentional among the core team members not to create conflict due to a lack of shared vision. However, it is a discussion that is notably absent and will emerged naturally when important decisions will need to be done if not initiated intentionally.

Identification of the core issues and argumentation
After data gathering and interpretation it seems that Avionic needs some initial formalization and structuralization efforts to prepare for the next stage of accelerated growth, while at the same time also not losing the roots to its DIY, hobby-modeling culture. Some of the issues raised in the previous section have already been addressed as we worked on the project. Below, we list issues that we will attempt address with our interventions.

Issue 1: In light of the increasing output (including sudden jumps in demand) the company needs to offer a better overview of the productions process; visualizations and later informatization of the process is necessary.

Issue 2: The company has to offer time-effective onboarding and knowledge transfer. While due to the nature of the skills and knowledge needed reliance on apprenticeship -based model of learning is appropriate.
it has to be facilitated by increased codification of the process and careful design of the onboarding/learning process to leverage mentors as much as possible.

**Issue 3:** Interactions above dyadic level in the company are either informal or ineffective. The company needs to introduce additional higher-level interaction modes that will facilitate coordination, knowledge transfer, absorptive capacity and development of a shared vision.

**Issue 4:** The company has to encourage employees to broaden their horizons and think about how they can develop further and contribute to the company.

**Description of the suggested intervention(s) and its effects**

Based on the above we developed the following three interventions, which are a result of collaboration between company representatives and the researcher(s). They are intended to improve the internal collaboration and facilitate/support the growing scale of production in Avionic.

**Intervention #1: Create a simple system for collecting and visualizing data on the status of the product during the production process.**

Addresses issues 1 and 3 (partly) (see above)

*Suggested Solution:* Create a simple system for collecting and visualizing data on the status of the UASs under construction. This should at least include information on the phase in which the production unit is located, the production time and the status of the process (this could be in the form of a traffic light analogy). Options for visualizing the situation range from a physical display on the magnetic board to a simple IT solution that displays it on a larger screen. At first, a simpler solution would be more appropriate. The company might consider keeping the nicknames of the planes on the board to introduce / conserve the element of playfulness.

*Purpose:* Uniform collection of data on the status of production and visualization will increase awareness of employees and increase their chances to react; long-term data collection improves resource planning for production, and visualization of the status enhances employees’ awareness of the productivity and quality of products.

*Planning & Implementation:* The aim is to prepare a system that will allow collection and visualization of data on the status of production leaving the project team (employees of Avionic) and the researcher will together prepare the proposal on a short meeting (at the time when there will be less orders); the composition of the team is determined by the willingness to cooperate and competencies of employees (by arrangement). The proposal shall then be debated for all employees and realized (first as a prototype to be refined as suggestions for improvement might be offered).

*Resources:* Time of the project team, material aids for visualization, database.

*Participants:* Project team (COO, production specialist, throughput specialist, researcher).
Monitoring & Evaluation: After the realization of the solutions it will be determined how the functionality of the solutions is working in practice: user feedback; estimates of changes in opportunities for resource planning.

Effects of the intervention: the prototype of the FAL (final-assembly-line) visualization board features a magnetic whiteboard with a fixed (15X16) grid structure. The information is visualized by magnets moving through the 7 broad phases of the production process. It also offers the possibility to signal priority of the order, type of the order, general comments (by using pen) and link to procurement status. The data about the production process is gathered by photographs two times a day (in the morning and at the end of the workday). After the FAL visualization board was developed it had an unintended consequence – the production / assembly team started having morning meetings at the FAL display table. It is a great prop to facilitate daily coordination in an effective way and organize work. When entering the production site, one only needs to spend a couple of moments on the board and you immediately know what is going on, where urgent situations are and how far beyond the delivery schedule the company is. The company is currently in the process of starting a project of informatization of the production process. When this is finalized this simple board described here might be replaced with an electronic version (featuring a screen and a database in the background).

Intervention #2: Design an effective onboarding system for newcomers (assembler).

Addresses Issues 2 and 4 (partly) (see above)

Suggested Solution: Prepare a program for onboarding and transferring knowledge to a new employee; the solution should contain a combination of ‘apprenticeship-based’ learning (systematic work with a mentor at work) and getting generally familiar with the operational processes in the company.

Purpose: An effective way to onboard new employees so that they can independently perform quality assembly work as quickly as possible; to enable new employees’ good integration into the team; to provide the opportunity for personal development through assuming new roles such as mentoring for existing employees; to optimize time spent on mentoring for the most frequent mentors (who are also otherwise very busy).

Planning & Implementation: The leader of assembly team and researcher together think about the necessary competencies of an UAS assembler and develop a simple program for onboarding/training newcomers to be successful on this position. The content, timing of the program and design (format, principles and structure of content) should be determined to guide the work processes. After the preparation of the program has been completed, there is a possibility that (part of) the program could be tested for bringing less experienced colleague at Avionic to a higher level.

Resources: Time of participants; tools for analyzing and documenting work processes, if necessary.

Participants: Project team (production specialist, COO, researcher).
Monitoring & Evaluation: Feedback on the program by mentors and employees involved in onboarding; implementation of a pilot program for newcomers (monitoring their learning curve and involvement in the collective/community).

Effects of the intervention: After the discussion with production specialist who already acted as a mentor several suggestions for improvement of the current onboarding process were suggested, especially for the first days of onboarding. The apprenticeship-based learning part is already done very well. The mentor has ample experience with training hobby-model builders in the local community, which can be nicely transferred to the Avionic setting. A typical newcomer (assembler) is usually recruited through this channel, which means that they already have some basic knowledge (e.g., about construction of model airplanes, about materials used, about aerodynamics etc), they know how to use the tools & technology and have the right skills and abilities (NB what counts for assemblers is their finger and hand dexterity; namely, some operations can only be done if the worker has sufficient abilities in this domain). The basic principles of training a newcomer being used in Avionic are: slow and steady progress to more demanding operations; independent work while being observed, advice and help needed. Mentor says “I rather spend more time in the beginning to get things right from start then spending time correcting false routines later. They start practicing on obsolete parts of an old UAS – when operation is mastered they can move and do the same operation on a real work-in-progress piece. If mistakes are made, the mentor tries to first facilitate learning from mistakes (What went wrong? How it should be done?), for more experienced pupils, however, he encourages them to repair the mistake. Avionic needs generalist assemblers so that they can be used in any phase of the production process. Therefore, newcomers are trained in a balanced way on a variety of operations. To leverage the learning effect he organizes the learning in cascade manner. Each assembler is taught in a way so that he can later train his less experienced colleague. When they both encounter difficulties he intervenes. Using this program an assembler with a hobby-modeling background can be trained the basics of production process in Avionic in about 14 days, while he reaches a comparable level to his peers in about 6 months after joining the company. There were issues raised about the problems at the very beginning of the onboarding process. We agreed on the following refinement of the routine. On the first day the newcomer can mainly observe what is going in the company (visit both production sites; get some materials about the company, its products and the work process; participate at a test flight; observe senior colleagues do their work and be exposed to demo Avionic UAS to see its components, available payloads, materials used etc. When more workspace is available there could also be a special post for learning and experimenting. To facilitate faster learning of the more advanced newcomers (and in fact some existing assemblers) they could also try the following: discussing frequent problems at assembly; including them in solving new problems when they emerge (asking their opinion). We also established that there is a positive psychological effect when assemblers are ready to teach somebody else – it boost self-confidence and ensure deeper insights into the operations.

Intervention #3: Facilitate development of effective group interactions in the company

Addresses Issue 3 in Issue 4 (partly) (see above)

Suggested Solution: Establish a regular (monthly / bimonthly) meeting on the event, where employees gather and discuss topics related to the development of the product and the opportunities that exist in the market in the most genuine way (e.g., short presentations, storytelling, reporting on interesting events with
customers, new technologies). The implementation must be strictly limited in time (e.g., 1 hour). At this meeting, they should never discuss operational issues, decisions that need to be taken, or similar topical issues.

**Purpose:** To spread awareness of the high development potential of the company; familiarization with the latest technological solutions, process improvements, etc.; diffusion of ideas of employees from different areas of specialization; cross-learning; broadening of the horizons; facilitating developmental potential of employees.

**Planning & Implementation:** A small group of employees with the assistance of the researcher will prepare a proposal for an introductory meeting (topic, any presenter, dates, manner of implementation of the event); the first event will take place, then on the basis of experience and reflection a proposal will be prepared for future events.

**Resource:** Space (even outside the company); equipment for presentations; any materials.

**Participants:** Project (organizational) team; all employees.

**Monitoring & Evaluation:** After a few iterations to cover concise feedback from employees; observation of one of its forthcoming meetings by the investigator (provide feedback).

**Effects of the intervention:** The company has embraced the idea to have regular developmental (bordering the horizons) gatherings, but has not yet implemented this intervention. Recently and especially after the arrival of the COO all employee meetings are becoming more carefully planned. He has also introduced leadership team meetings and is thinking of an ad hoc research & development meeting. In addition, some best practices for running and participating in these more formalized meetings are being disseminated to teach employees how to have effective meetings (this is very important because it will create a script that employees will follow later on). Then, there are the newly suggested daily at the FAL board meetings for the employees, which were also not in place at the time when this intervention was planned. In these circumstances, adding another meeting could be at risk of overburdening the employees with interaction modes, which could backfire. Therefore, we agreed with the representatives of the company that developmental meetings will be held monthly or bimonthly in the near future. Their structure was suggested to be the following: a short introduction by the COO about the current business performance and near future prospects; followed by a developmental theme as suggested above (e.g., currents in aerospace design; apps and UAVs; our competitors; customer trip adventure reports; new materials); and concluding with a discussion and time to socialize.

**Recommendation for transferability of interventions and evaluation of its relevance**
Transferability of interventions: In my view, intervention #1 is transferable to other small-scale manufacturing firms with long lead times. Intervention #2 is useful for situations, where onboarding could seriously increase the workload of key people, yet it is essential for further development of the company and where tacit knowledge is being transferred. Intervention #3 is generally applicable in smaller organizations, where most of the interpersonal interaction is dyadic, while group and whole collective interaction is scarce.
Some propositions based on the action research project in this company:

**Proposition 1:** Implemented interventions can have positive and negative spill-over effects. Positive spillover effects are more likely if more participants with heterogeneous KSA and perspectives are included in the team and are given enough autonomy to use suggested solutions in practice.

**Proposition 2:** As the action research project unfolds interaction with participants already starts to facilitate change; that is even before the planned interventions are implemented.

**Proposition 3:** Start-ups and growing firms are always stretched on time (α-human resources). This is not an issue of poor planning or lack of skill, but an underlying characteristic of small, growing companies.

**Proposition 4:** Assignment of an external COO/CEO and a move of founders to other less hands-on, administrative positions brings a relief not only to work-load of the founders, but also to other members of a small, growing organization. (NB the COO/CEO has to be an excellent fit with the company. Due to the fact that start-up companies usually cannot afford to provide the usual (corporate) conditions (e.g., compensation) for such professionals there also needs to be a special occasion (a set of circumstances going the right way) to establish an effective relationship between the firm and the external COO/CEO).

**Proposition 5:** If a company produces more than 5 ‘products’ monthly (e.g., UAS; consulting projects; buildings) and if lead times are longer than a month, then visualization of the production status helps facilitate the production process.

**Proposition 6:** When tacit knowledge is at stake in high growth small companies, dyadic learning initiatives can be based on the “cascading logic”, which means that everybody can act as a mentor for somebody who can learn from her/him. Time demands of teaching others is thus more equally distributed allowing masters to devote time also to other activities.

Some of my insights from this project:
- I realized I like small high growing firms and aerospace sector more than I thought.
- Being passionate about the product is necessary for success of start-ups, but it is also a double-edged sword for doing and growing business.
- Small growing companies are facing numerous people-related challenges and are usually very poorly equipped to address them.
ABOUT THE COMPANY:
Industry: Aerospace
Market: Global, B2B
Business model / Products: (customizable) UASs
Size / Stage of development: Small (<10 employees)
Key competencies: airplane design, small UAS assembly, UAS navigation, aeronautical engineering, compositional materials, electronics, telecommunication and energy systems, process control, remote sensing, country/region-based UAS-related legislation.

ABOUT THE MAIN ISSUE:
Main theme of the inquiry: Facilitating enhanced collaboration in a growing output context.

ABOUT THE ACTION RESEARCH PROCESS:
Process features: documentation, web sources, direct observation, interviews, prototyping; changes in the physical layout of the site; external COO recruited in the time of the project
Main challenges: establishing trust without the burn-in phase was difficult; continuous change; some rescheduling due to incoming rush orders;

ABOUT INTERVENTIONS:
Types of interventions: suggestions for better visualization of the assembly process status; systemic codified and tacit knowledge transfer to newcomers, integration of newcomers; group interaction modes, exploration mode, changing mindset (broadening horizons).

ABOUT EFFECTS:
unintended beneficial spill-over of FAL visualization boards; a set of suggestions for improving onboarding process featuring transfer of tacit knowledge.

POTENTIAL GENERALIZATIONS:
1. there are spillover effects of interventions (but they can be moderated); 2) action research always facilitates change, even without explicitly enacted interventions; 3) being stretched on time and HR is an intrinsic characteristic of small growing firms; 4) assignment of an external COO/CEO brings a relief to the founders and others; 5) visualizations of production process are useful for long lead time processes featuring more than a certain threshold of products per month; 6) cascading type learning is appropriate for small growing firms when tacit knowledge is at stake.
2.2.2. Case: BioXSoft company - Leveraging cooperation and creativity to create effective laboratory automation solutions

Abstract
This document outlines an action research process conducted in a Slovenian biotechnology company. The study is a part of the PACINNO project and represents an applied cooperation between a research institution and an innovative, globally-oriented SME. It adopts the principles of action research to improve collaboration and innovation process in the focal company. In-depth understanding of the business and innovative processes in BioXSoft was achieved by means of qualitative methods such as direct observation, interviews and interactive workshops. It facilitated development of focused small-scope interventions such as propositions for changes in the physical setting of the office space, inter-disciplinary knowledge transfer, changes in the group brainstorming process, and guidelines for employee development initiatives. Results of interventions are presented, applicability of interventions to other situations evaluated and propositions to be tested in further research offered.

Keywords: action research, laboratory automation, interdisciplinary work, collaboration, creativity, innovation

Introduction
This document outlines a case study and a subsequent action research process conducted in a Slovenian biotechnology company. The company expressed a desire not to disclose its name and any data that could indirectly reveal its identity in reports coming out of the study (This information was available to the researcher, who personally signed a non-disclosure agreement with the company to comply with this request before starting the inquiry). Therefore, in this report a fictional name BioXSoft will be used to refer to the case firm and some data will be provided in broader categories in order not to jeopardize the company’s anonymity.

The study is a part of the PACINNO project – a platform for cooperation in research and innovation – and represents an applied cooperation between a research institution and an innovative, globally-oriented SME. It aims to use the principles of action research to improve collaboration and innovation process in the focal company. At the same time, it also generates knowledge about collaboration and innovative processes in this type of companies and provides opportunities to develop propositions for further (confirmatory) research. Finally, as the study of BioXSoft is accompanied by a study of another company in Slovenia and additional studies in the Adriatic region countries, it co-creates the potential for a comparative study, which is the next step of our project.

The success of the innovation process in organizations frequently comes down to the creative potential of its members, social dynamics among them and outreach to external sources of knowledge and ideas. These phenomena were also the main foci of our inquiry in BioXSoft. We looked at the physical and social context, in which employees work, examined their formal and informal interactions leading to problem solving and idea generation/implementation, and scrutinized the broader context, in which the company operates. This allowed us to gain an in-depth understanding of the business and innovative processes in BioXSoft. In turn, we were able to design – together with the company representatives – simple and manageable interventions which, as we show, contributed to improving the focal processes in the company.
The structure of the report is as follows. We start by a description of the focal firm, which enables the reader to get to know the company and familiarize herself with the current situation in the company. Then we continue with a description of the action research process in BioXSoft (a more general description of action research principles and a general research protocol that was pursued in this study will be addressed separately) and report on the general challenges that were identified. Further, interventions that emerged from the action research process are presented and its observed effects are discussed. Finally, we evaluate the research project and indicate potential generalizations of problems and solutions based on the study of BioXSoft.

**Description of the company**

BioXSoft provides its customers with software solutions for optimization/automation of molecular laboratories. It is registered as a private limited liability company (in ‘Research and development in biotechnology’ section of the classification of industries) and was established as a spin-off of a national institute (initially a requirement of an international project unfolding at the institute) in the relevant field at the beginning of the decade. Currently, it employs about 10 people (FTE) and is slowly progressing towards the end of its start-up phase. The company is headquartered in one of the technological parks in Slovenia, where it rents office space for their operations. They maintain a close cooperation with the national institute, which is still involved in strategic planning and governance of the firm.

Their main products are IT solutions for frequently tedious and error-prone work in molecular laboratories: pipetting and documenting experiments (both products offered are registered trademarks of the company). Their solution for pipetting goes beyond traditional paper-and-pencil mode of operation and offers a tablet-supported smart environment, which is faster and reduces the likelihood of error. Documentation of experiments is, on the other hand, facilitated by an application that supports a researcher in planning, implementing and reporting experiments in a lab setting. In addition, they provide customized IT solutions for optimization/automation of lab work for their strategic clients. These solutions are built on a highly flexible and adaptable IT platform for automation of laboratory activities. Commenting on their portfolio, their representative notes that they are ‘riding the wave of automation and mobile/web application development that has been ubiquitous in other industries, but has not managed to reach the rather conservative molecular laboratories sphere’. Finally, the company also offers workshops for molecular laboratory methods in areas of their specialization.

BioXSoft is present on the global markets, selling their products to academia, private and public sectors, primarily in the health, food, environment and pharmaceutical industries. Most of their customers come from the broader region (central, southeastern Europe), yet they also important overseas clients. Their sales and marketing activates are targeted at direct contact with clients, indirect contact through strategic partners, by means of workshops, and by attending specialized fairs and conventions. An important market for the company is also the original equipment manufacturer (OEM) market, where big producers of laboratory equipment integrate the firm’s customized solutions in their products. They have established their own distribution network and are present throughout Europe, in both Americas and in Asia.

Beside the core IT platform, on which all of their solutions are based, their key competitive advantage lies in the cross-disciplinary workforce, which features both information technology and molecular biology.
competencies. In BioXSoft software engineers work side-by-side with molecular biologists. This means that software solutions are developed by addressing the practical needs of end-users directly. More specifically, the competencies of the company include: bioinformatics, data analysis, software development, experiment design, quality assurance, molecular lab setup, method validation, molecular biology, and laboratory automation. The company has no formal organizational structure, yet the work primarily gets done in two teams: R&D team and sales team. Administrative and business functions have so far been executed by a designated staff member, the CEO and external consultants. However, since this was overwhelming the extant CEO transferred to the Business developer position, and a new COO was hired on a full-time basis to carry out these activities. The Business Developer and the Head of the R&D are also among the founders of the company and hold an equity share; other employees are not involved in the ownership of the company. The workforce is very culturally homogenous, only recently the first foreign citizen was hired.

The company has been recognized in public several of times in the last years. In particular, they won the award for the best business plan and were among the finalists for the most innovative start-up company in Slovenia. In addition, representatives of the company featured in the media and in the professional press as examples of excellent implementation of an innovative business idea.

**Description of the of the action research process**

Company BioXSoft was on the shortlist of the companies we wanted to recruit to cooperate with us on the PACINNO project because it fitted well the criteria we set up-front for the participating companies. It had an innovative product, it was present on the international/global market, it operated in an interesting industry, it was of manageable size, it had well established operations, and the key personnel was motivated to fully cooperate in the initiative.

We first contacted BioXSoft through a liaison to recruit them for cooperation on the project. The initial contacts were between researcher and the CEO. The goal of this part of the activity was to convince the CEO that the firm’s cooperation on the project was useful for the company, that no confidential information will be jeopardized, and that the input of time from the company’s management and above all, from other employees, will be manageable. It was also made clear that the potential interventions/solutions stemming from this project would be aimed to improve the company’s internal collaboration and innovation process and that their scope of inquiry will be within feasible boundaries of the project.

By means of initial interactions, mutual introductions and discussion we managed to establish trust with the firm’s CEO and conveyed our benevolent intentions. We managed to generate a relatively high level of trust already at the start of the project. Next, we reiterated the process with all employees of BioXSoft. The CEO introduced and supported the collaboration in PACINNO project in front of the employees and made a clear statement that the demand on their time due to the project would not be problematic. The researcher then introduced himself, explained the project and answered questions from employees. My evaluation of the overall attitude among the employees at that time was they were willing to participate because they thought that they can only benefit from joining the project with relatively little investment of resources and risks. I also felt there was still some slight reservation and hesitance after this initial interaction with employees. This hesitance was then gradually reduced as the project evolved. A major part of the initial activities was aimed at elaborating on and illustrating what Action Research actually was and what company members’ roles in the process were.
We then together explored various data-gathering possibilities (considering demand for time, potential interruptions of the work process, effectiveness and efficiency of various methods for our aims). We agreed upon unstructured observation, semi-structured observation, interviews, secondary sources analysis (web), archival records (e.g., financial information), and observation of physical setting of the premises and artefacts. A crucial component for planning observations was setting an appropriate timing when more interaction(s) could be observed. We considered the following interaction modes: dyadic interaction between employees (work and internal communications), group interactions among employees (meetings – e.g., R&D team, sales team), interactions of employees with external actors (i.e., clients, partners, workshops, candidates). In addition, although not an interaction mode, individual work was also noted as a potential observation opportunity.

BioXSoft was highly supportive in providing us with effective schedule for unstructured observations as they suggested a day when many interaction modes took place. Specifically, the researcher was able to observe: individual work and dyadic interaction in normal work setting; job interview with an external candidate applying for a position in R&D; R&D team meeting; and strategic brainstorming session involving all employees and external experts from a strategic partner. In addition, interviews with selected individuals were made possible. All interaction modes except for the last one unfolded in the open office space or in the meeting rooms on the company premises. The strategic brainstorming session was organized in a nearby offsite location with meeting room facilities. As a result of data gathering field notes of observations and notes from interviews and were produced (audio recording of interaction modes and interviews was not taken to comply with the NDA requirements). The notes included a sketch of the physical layout of the office space and (potential) interaction points.

The data from observations and discussions was content analyzed. In addition, researcher’s impressions were explicated and discussed with other members of the research team to engage in a sense making process. Based on this process an interactive workshop for BioXSoft members was designed. The theme of the workshop was: Cooperation and idea implementation in BioXSoft. It was designed as a structured brainstorming session, where 2 teams first generated and then evaluated ideas for improving ‘creativity and idea implementation’ and ‘teamwork & cooperation’. The idea generation was facilitated with triggers and unexpected changes in the composition of teams, whereas evaluation was guided by voting for best ideas with regard to three criteria that were set in advance (the easiest to implement; the most funny; and the one with the highest potential). After the ideas were evaluated, BioXSoft’s employees prototyped potential interventions that could improve collaboration as well as the innovation process in the company. The results of the data gathering procedure and the outcomes (first pass suggested solutions) were documented and served as one of the inputs for determining interventions suggested below. These were then streamlined and adapted by the researcher to be discussed with the main sponsor of the project in the company. The most viable interventions were then selected for implementation.

During these phases of the action research we strived for rigor by prolonged engagement (the total amount of interaction with or observation of company members amounts to approximately 25 hours, which is more than 2 hours on average per member. The whole AR process unfolded over a period of 7 months, which means that data gathering was less prone to one-shot events, which could present a biased picture of the situation in the company. That said, we have to note that due to the dynamics of firm development the situation and
the context of the firm today is considerably different to the one at the start of the cooperation. Similarly, some of the (implicit and explicit) messages that were sent to the firm representatives during the process might have already impacted the firm’s behavior and its developmental path. Finally, using multiple methods of interaction and data gathering, and multiple sources of data we were able to triangulate data, check for inconsistencies and explore reasons for them. Firm management was an important partner in helping us explain the discrepancies, while findings that were robust across different sources and methods made as more confident to expose and discuss them openly and directly with the company representatives.

Reports of the data analysis
In this section we list and support relevant findings arising from the earlier stages of the AR process. They should be viewed as a selection of basic building blocks that helped us understand the context and theme-relevant challenges that we address later with suggested interventions.

Finding 1: The company premises (physical layout of the office space, office equipment/furniture, office arrangement) appear functionalistic and impersonal. It does not seem ‘playful’.

Supporting observations: The office space in the technological park includes two large rooms. In one room there are several desks with computers. The other room is partitioned in three smaller spaces: 2 glazed offices (one is a meeting room, the other a provisional lab) and transitional space featuring a desk, kitchenette and a couch. Equipment is highly functional/minimal (simple desk and chairs, mostly laptops without extra screens and keyboards); there are not many decorations, nor functional visual accessories on the walls. It can be seen that the design of office space was not given a lot of attention and that the reasons for that are also cost-based. The company has been highly economical and resourceful in this respect. For example: one of the rare pieces of furniture includes IKEA Expedit shelves. An employee commented: “We used this shelf as a part of the exhibition booth at a science fair in Germany, afterwards we thought it will be useful here.” The kitchenette is at the intersection between the two rooms and appears to be a natural point for facilitating serendipitous interaction.

Finding 2: The company has no visual repository for visualization of key challenges, (new) ideas and pressing problems.

Supporting observations: As noted in previous point the physical space does not feature standing visual displays where the above mentioned information is available (despite many empty walls). Based on the conversations in the R&D team we can establish that an IT solution for keeping up with the recurring and current problems exists (and is used at least by software developers), however there is a feeling that is not shared/adopted widely and that is used highly asymmetrically. No mechanism for tracing and documenting novel ideas (that are not directly trouble-shooting activities) and interesting questions was observed.

Finding 3: Interaction between employees and their absorptive capacity within the same type of competency profile is much stronger than between profiles.

Supporting observations: The R&D meeting featured a lot of specialized language that was difficult for the other profiles to completely and thoroughly understand (e.g., IT to molecular biology and vice versa).
Similarly, participation of IT specialists at the strategic brainstorming session was below average. They were mostly asked to speak up when there was a feeling that they are encountering an IT issue or when the group needed an evaluation of idea feasibility (e.g., the amount of time needed to develop something). The body language frequently revealed that there was a decline in attention when a colleague(s) from the other competency profile went to deep into their field (i.e., either discussing programming details or specifics from molecular biology knowledge domain). The head of R&D seemed to be fluent in both ‘technical’ languages at level well above other team members. S/he served as a liaison when the lack of absorptive capacity of others caused lack of understanding.

Finding 4: Work meetings feature a blend of daily operational and developmental issues. They are difficult to schedule.

Supporting observations: The observed regular meetings mostly featured discussions about day-to-day troubleshooting and coordination (scheduling) activities. There were also more strategic, developmental themes that arose, however, they could not be properly addressed during these meetings. Similarly, I have not observed any idea generation during the regular meetings (on the contrary, this was present at the strategic brainstorming session and at the interactive workshop). The context of meetings does not stimulate idea generation – it is more focused on productivity and quality.

My observation was also that in general it was difficult to schedule meetings because people were quite overwhelmed with a range of individual work activities. In these circumstances, meetings are often seen as a ‘waste of time’. This might have caused that when meetings were actually held, they had a relatively unfocused and long agenda. There were also comments about difficulties with alignment for synchronous meetings with overseas clients in different time zones, which appeared to be a work-life balance issue for some employees.

Finding 5: Acquiring (recruiting and selecting) talent with the right competency profile and a strong person-organization fit is highly demanding.

Supporting observations: There were explicit statements from BioXSoft representatives that right talent is difficult to find. These statements were shared among employees and managers alike. One of the employees commented: “We shouldn’t be only paying a lot of attention to finding interdisciplinary members, but also to finding people that fit the company and broader its horizons”. I witnessed a selection interview with a candidate for a temporary software development position. One issue is that the company does not completely fit a typical ‘bioinformatics’ person profile, so it truly needs to find an interdisciplinary individual that fits their operations (which is very hard, especially in the local labor market, but even internationally) or develop one through training and experience. Frequently software engineers ask about tentative ‘time to work on their own projects’ as an attraction factor of a company. IT specialists and molecular biologist seem to have a very distinct (and different) professional work culture and career aspirations.
Finding 6: At brainstorming sessions employees do not separate between generating and evaluating phases of the creative process

Supporting observations: At both strategic brainstorming session and the interactive workshop it was very difficult to make BioXSoft employees first generate and only then evaluate ideas. For example, when new ideas were generated, members participating in the session immediately started discussing and evaluating them. It took substantial effort to direct their attention to pure idea generation at the workshop. At the strategic brainstorming session this resulted in path dependence of the discussion, which digressed and was difficult to keep on track. My evaluation is that this is probably a result of a lack of experience with genuine creative process and analytical/research background of many in the company. The evaluation of ideas at the strategic brainstorming session was also not guided by preexisting criteria and by including most of the participants equally. It was rather done in an ad hoc manner with those that got most air time most strongly determining the final evaluation. In general, the participation of individuals at the strategic brainstorming session was highly skewed, probably due to the larger than usual number of people, perceived referent power by some individuals and merging of external and internal participants.

Finding 7: Brainstorming (creativity) parts of the meetings are not sufficiently planned, their role is unclear

Supporting observations: Generating and evaluating ideas is done ad hoc. There is no attention to create the right climate for generative productivity. No teasers, ice-breakers etc. are used to think out of the box. The role of brainstorming is not clear – that is, at the strategic brainstorming session the event started with short report of the analyses, continued with brainstorming and then returned to the same analysis (rating the four functionalities per solution) without meaningful input from the time-consuming evaluation of each and every idea separately (by the whole group in an auditorium setting). “We are going to go through all this together item by item”. Changing the structure to sub-groups was also not adopted to reinvigorate the participants. An additional comment here should also be that I have observed no signs of attempts to intentionally stimulate creativity in everyday work. It might be that the lack of emphasis on novel ideas is due to the focus of the company on an important strategic client, for whom the tasks are more prescriptive and on-demand.

*Finding 8: Minimum viable product (MVP) construct is not clear to all employees

Supporting observations: It seems that the conceptualization of the MVP is ambiguous and not shared among participants. In some discussions it resonated with the idea of the most basic version of the product. Testing MVP is also done through discussion in the group rather than experimenting it with typical and extreme users.

Identification of the core issues and argumentation

After data gathering and interpretation it appears that although interdisciplinary workforce is one of the key competitive advantages of BioXSoft there are still further opportunities to improve its innovative potential (e.g., by further improving the absorptive capacity and shared understanding among all profile groups). Further, there is room for improvement in usage of tools for generating ideas and intentional activities to facilitate idea generation and implementation process. Below, the core issues identified are listed and defined more specifically.
**Issue 1:** Due to high specialization of employees for their work area (and knowledge domain) it is difficult to ensure in-depth understanding of work area (and knowledge) of their coworkers, which results in suboptimal knowledge transfer (i.e., knowledge transfer between biologists and software developers could be further improved; knowledge transfer between various members of R&D and sales teams could be raised to a higher level).

**Issue 2:** At group meetings idea evaluation is rushed and starts before idea generation is finished causing an early stop to open, »outside the box« and associative thinking.

**Issue 3:** Due to space and budgetary limitations BioXSoft cannot afford a typical playroom that most innovative companies with abundance of resources can; however, physical setting is one of the more important features of work context that can spur creativity and idea sharing among employees.

**Issue 4:** Job applicants and employees have a desire to work on their own projects during work hours – this is desirable and allows for breakthrough ideas, prototyping and learning by experience; it is necessary, though, to find a suitable mode of operation and fit with the developmental needs of the company.

Description of the suggested intervention(s) and its effects

Based on the above we developed the following four interventions, which are a result of collaboration between company representatives and the researcher. They are intended to improve the internal collaboration and innovation processes along with strengthening employee commitment to generating and implementing creative ideas in BioXSoft.

**Intervention #1: Regular presentations by employees (»Friday BioXSoft« Event)**

Addresses Issue 1 and partly 3 (see above)

**Suggested Solution:** regularly scheduled presentations by employees; by means of a presentation an employee introduces a selected concept, procedure, challenge, solution, idea etc. from her/his knowledge/work domain; presentations should be easy to follow and focused; the selected themes should be interesting and useful for all/most colleagues.

**Purpose:** improving the understanding of content and ways of thinking of colleagues from other professional/work areas; diffusion of ideas from various work/knowledge areas; recognizing and getting to know specialized content from other knowledge domains; strengthening of shared mental models in the company; cross-learning.

**Planning & Implementation:** time and place should be scheduled in advance (e.g., 2 months in advance); the actual time should be set so that the majority of employees can be present; presentation should not be longer than 20 minutes (strictness in enforcing the length of presentations should apply!); considering the difficulty in scheduling meetings at BioXSoft not more than one presentation per month is advised; time should be allowed after the presentation for Q&A (30 minutes max); the event should preferably occur at the end of the workday/workweek with some time allotted for socializing afterwards; there is no prescription
how presentations should be held, yet they should be creative (e.g., non-PowerPoint-based presentations are desired); one option is that simple posters are made – these can later be posted on the walls of the office space to customize office space; the meetings can be held in the office and later offsite (also in the green areas surrounding the technological park).

**Resources:** materials for posters, presenting equipment, office space or outdoors space for meetings.

**Participants:** all employees.

**Monitoring & Evaluation:** first attempts of these meetings have already been made recently; the researcher will be asked to join one of the next meetings for observation and feedback; in the future short feedback by employees should also be gathered (and shared); a simple interface for gathering feedback should be developed.

**Effects of the intervention:** Friday meetings have been implemented in the company and are well accepted. Although it is hard to schedule them, they have been regularly attended by almost all employees. I have witnessed a recent meeting and my personal observation that substantial progress has been made since the last group event I was present at (in total I was part of 4 meetings during the work with the company. Notably the presentations were much sharper; the meeting was held in English due to a new hire; and content and social part were well integrated. The only potential refinement is streamlining – use less time for the presentations before lengthy presentations become the norm. This in turn could create problems for long-term viability of meetings. The partner and contact shared my observations and felt that these meetings truly contribute to better climate as well as knowledge sharing. We have also performed an employee survey with regarding this event. Employees were overall very positive about these meetings. They listed the following benefits: cross-learning (from other departments); staying in the current with developments in other teams; trust building, working climate boost; getting to know colleagues personally; transparency of the firm towards the employees (“open book policy”). The only downside was that, it in the words of one respondents, “eats the time needed to complete work activities” and is “logistically demanding”. Therefore, exact time limitations should apply and should be strictly obeyed to keep the momentum of the meetings.

**Intervention #2: Brainstorming for open idea generation**

**Addresses Issues 1 and 2 (see above)**

**Suggested Solution:** in contexts where lots of new idea generation is expected, employees have to be first reminded about what should be avoided (to prevent idea generation inhibitors); all employees should go through a showcase brainstorming session, where idea generation is clearly separated from idea evaluation (this was done in the workshop); standard brainstorming principles and criteria for idea evaluation relevant for BioXSoft have to be established; principles for encouraging original thinking should be posted on a highly visible space and communicated clearly.

**Purpose:** separation of idea generation from idea evaluation at group brainstorming meetings; increasing awareness that highly effective brainstorming is usually structured and planned.
Planning & Implementation: implementation of a showcase brainstorming session (done); explicit notifications (checklists) about rules and process of brainstorming should be carefully developed before they are brought into everyday practice; introduction of triggers and procedural features for out of the box thinking (e.g., recommendations to resources and examples).

Resources: brainstorming and idea generation accessories; code of brainstorming rules.

Participants: all employees.

Monitoring & Evaluation: observation of a brainstorming session in practice (results and participant observation); overview of/discussion about usefulness and novelty of suggested ideas/solutions.

Effects of the intervention: After the showcase brainstorming workshop the majority of employees were familiar with the guidelines for effective brainstorming. Based on the survey among employees they were included in brainstorming activities on average 4 times in the last 6 months. At the time of the evaluation, most of the majority of the employees did not explicitly recognize the ground rules of brainstorming, but they were familiar with the logic and implemented it in practice. According to the contact in the company the two phases of the brainstorming process (generation & evaluation) are now more likely to be clearly separated. Also, intervention #3 was helpful here as it provided physical space for first writing down ideas and keeping them in one place. That said, the results of the employee survey indicate that there is variability in the firm – R&D team does usually not separate the two phases, while employees in sales and administration usually do. The reasons could be in the differences in the nature of work among the teams, or that change in the ideation/conceptualization work process is more difficult to implement in R&D teams.

Intervention #3: Adjustment of space for serendipitous generation, testing and visualization of ideas (‘whiteboards’)

Addresses Issue 1 and 3 (see above)

Suggested Solution: BioXSoft has a relative new office space, which appears rather dry. We highly encourage that the company (employees) start introducing small items that would make the workspace more personal, vivid or even fun (e.g., funny posters related to the company business or operations; items that have numerous alternative uses; posters from Friday sessions). They should also find a simple way to write down and visualize their most pressing questions and interesting ideas/solutions (e.g., a writable wall).

Purpose: to create a space that facilitates creativity and provides visual aids for supporting creative/innovative process.

Planning & Implementation: I suggest that a group of employees takes over this assignment (volunteers if possible). All employees (including individual employees at the strategic partner) can be asked to bring a funny item that would nicely fit the room and make it more relaxed/fun. There should also be items present that remind employees of special (important and positive) events in the company history.
Resources: potentially money for buying small objects; optional erasable whiteboards and pens, relevant accessories.

Participants: a special task force (e.g., 3 employees) is involved more directly; all employees.

Monitoring & Evaluation: feedback and discussion with employees. Do they notice the changes in the physical working space? Is visualization of ideas done in a fun and especially useful way? What is the emotional reaction of employees to changes in the physical setting?

Effects of the intervention: The employees highly appreciated the whiteboards, which were used extensively, but did not notice other improvement in the physical work setting of the office. Here is where they differ with my before-after view. I thought that in the last 6 months the office space has become much more comfortable and present (at the beginning it was utterly functional and dull). Most of the employees like the idea of open-space office, yet at the same time they feel that more closed rooms would be needed for meetings. The installation of whiteboards was successful; all employees report to have used or have seen others use the whiteboards for a variety of purposes including writing down innovative ideas. Other uses featured: planning, taking notes, drawings (database diagrams; data-flow charts; Gantt charts), playing Pictionary!, for representing ideas that are difficult to put in words, to-do lists; ordering in food. All in all, we can argue that whiteboards were a very functional add-on to the physical layout of the office at BioXsoft.

Intervention #4: Work on own projects

Addresses issue 4 (see above)

Suggested Solution: the challenge should be addressed from two sides, bottom-up and top-down; employees, who would like to try working on their own projects, should be given a trial period and amount of time they can spend on their project; management should be acquainted with the idea of establishing alliances with their employees – part of this process should be discussion about employees’ individual missions in the company and how it can be supported by working on own projects.

Purpose: to allow the company to find new projects, which could become part of their operations and to link them with career aspirations of the employees (by means of ‘an alliance’)?

Planning & Implementation: we first familiarize the management of the company with the concept of alliance (home-reading); this is followed by a discussion about the book with researcher about potential implications for BioXSoft; in the second phase we allow employees, who would like to work on own projects, to spend a defined number of hours on such a project; after this trial period we follow up with employees to talk about their experience (positive, negative, how to conceptualize own project work in BioXSoft, main obstacles, how would this look like for real; discussion about potential results of these projects). If work on own project is accepted by employees and perceived useful by the company, we need to integrate individuals’ own projects with the developmental alliances we have with employees.

Resources: book Alliance, work time of employees (opportunity cost), work resources for working on own projects.
Participants: management, employees, who want to work on their own projects.

Monitoring & Evaluation: feedback by management and employees about work on own projects; thinking of the management about the usefulness of the ‘alliance’ concept for BioXSoft; implementation of useful own projects.

Effects of the intervention: From the results of the employee survey as well as from the interview with a company representative we can conclude that that this intervention was not implemented. The two leaders of the team were acquainted with the book Alliance and understood the main logic of ‘tours of duty’. One example in the firm was actually a good illustration of how this concept can be used for building long term mission-commitment for one of the key software engineers (extended sabbatical leave for continuous commitment and work on a product development). However, in the current stage of development of the firm, systematically working on own projects was not realistic. There was actually only one person that claimed that they in the last 6 months worked on an own project. According to this individual, the project challenged her/his capabilities and contributed to better performance at everyday work activities.

Recommendation for transferability of the intervention and evaluation of its relevance
In my view, all four interventions are widely useable for other small companies. They are not special with regard to the firm operations and business. They were just the interventions the company needed to address some issue on its developmental path.

Proposition 1: Change in the ideation/conceptualization work process is more difficult to implement in teams composed of individuals with technical and science background.

Proposition 2: Widely visible writing / reading space always has opportunity to be used for (unintended) functional use in a space, where members of the organization spend a lot of time.

Proposition 3: to follow the ground rules of the brainstorming process it is more important to be present at a showcase workshop flow than to be told or given explicit rules how to behave.

My learning experiences:
- Imaginary name Biosoft actually existed so I had to change the name.
- Closer collaboration with one member of the company during the AR process can result in asymmetries in implementation of interventions. We should balance our interaction with contacts in the company during the AR process.
- Working on own projects idea is actually very difficult to implement in practice.
ABOUT THE COMPANY:
Industry: Biotechnology
Market: International/Global, B2B
Business model / Products: (customized) specialized IT solutions for laboratory automation
Size / Stage of development: Small (<10 employees)
Key competencies: laboratory automation, molecular biology, software development

ABOUT THE MAIN ISSUE:
Main theme of the inquiry: Collaboration within the firm; facilitating idea generation & evaluation (innovation process)

ABOUT THE ACTION RESEARCH PROCESS:
Process features: documentation, web sources, direct observation, interviews, workshop, and qualitative employee survey.
Main challenges: absorptive capacity, cross-sharing of ideas; brainstorming session implementation, conditions for idea generations (physical setting, visualization); idea evaluation principles; work on own projects.

ABOUT INTERVENTIONS:
Types of interventions: process change suggestions; developing & diffusing principles; physical layout changes; home-reading & reflection; tryout period.

ABOUT EFFECTS:
installation of whiteboards had many positive unintended benefits; Friday events not only facilitated cross-learning but also built trust and highlighted transparency of the company towards the employees; the results of the brainstorming intervention were different for different teams.

POTENTIAL GENERALIZATIONS:
1. change in the ideation/conceptualization work process is more difficult to implement in teams composed of individuals with technical and science background; 2) visible writing / reading space always has opportunity to be used for (unintended) functional use in a space, where members of the organization spend a lot of time; 3) to follow the ground rules of the brainstorming process it is more important to experience them than to read or hear about them.
2.3. IN-DEPTH CASE STUDIES: CROATIA

2.3.1. Case: Pharma Ltd. - Strategic Awareness as a Precondition for Successful New Product Development Processes in SMEs

Abstract
This document outlines the action research process conducted in the Croatian company Pharma Ltd. The research was conducted within the PACINNO project and represents an applied cooperation between a research institution and an innovative SME. The principles of action research were adopted with the goal to improve collaboration and innovation process of the Pharma company. In-depth understanding of the internal processes in the company was achieved by applying qualitative research methodology (observation, interviews with the company owner and key employees and interactive workshops). The action research process enabled the identification of the main issues and propositions for interventions, such as development of a strategic development plan, identification of key stakeholders and steps for strengthening relationships, identification of the profile of key customer profile, analysis of potential marketing strategies and approaches, and diversification of the sources of funding for the development of new products.

Keywords: action research, strategic awareness, new product development

Introduction
This report presents the case study developed based on the action research conducted in the Croatian company Pharma Ltd. The company expressed a desire not to disclose its name and other data that indirectly reveal the identity of the company in the reports coming out of the project\(^3\). Therefore, in this report, a fictional name Pharma Ltd. is used to refer to the company that was in the focus of the action research process. Some of the data related to the company will be presented in a broader sense in order not to jeopardize the company’s anonymity.

This research was conducted as a part of the PACINNO project – *Platform for trans-Academic Cooperation in Innovation*, focused on establishing cooperation between research institutions and innovative, internationally-oriented SMEs. The principles of action research process were used in order to improve collaboration and innovation processes in the company. This research also enables creation of knowledge about the process of collaboration and innovation in this type of companies, and provides an opportunity to develop propositions for further research.

The action research in Pharma Ltd. is accompanied by similar research conducted in other companies in Croatia and the Adriatic region within the PACINNO project. This creates a strong potential for a comparative study, which represents the next step of the PACINNO project.

The report consists of the description of Pharma Ltd., description of the action research process conducted in Pharma Ltd., report on the findings and issues identified and propositions for interventions on the reported issues. The final part of the report presents the evaluation of the research project with special emphasis on the identification of the potential for wider generalization of the problems and solutions related to Pharma Ltd. case study.

\(^3\)Information about the company is available to the researchers, who personally signed a non-disclosure agreement with the company to comply with this request before starting the research process.
Description of the company

After several years of bad experience with partnership relations in company’s ownership and management, in 2007 the owner of the Pharma Ltd. company became the sole owner and director of Pharma Ltd., at that time a company with 3 employees.

In the beginning, Pharma Ltd. was a supplier of video surveillance equipment, but after some time they developed a system for monitoring staff attendance, which became a legal requirement in Croatia at the time. Through communication with its largest customer in the segment of monitoring staff attendance, Pharma Ltd. recognized the need for the development of quality specialized products for the pharmaceutical industry that would allow measurement of temperature and humidity in premises where pharmaceuticals are stored. Pharma Ltd. was systematically working on the creation of such a product for two years, development of which was financed exclusively from their revenue. After two years of development, Pharma Ltd. started selling their new product PharmaX to the customer they were developing it for, and later broadened their market and started selling the product to other customers in the pharmaceutical industry.

The market opportunity for the development of the PharmaX product was the fact that the FDA (US Food and Drug Administration) had issued a warning about the importance of increased attention because of frequent side effects of medication use, as a result of inappropriate handling and storage of the same. Legislative regulations extremely favour the application of the PharmaX product in the pharmaceutical industry, since it enables accurate and real-time measurement of the important factors that affect the conditions of storage of medicines (humidity and temperature).

The main product of Pharma Ltd. today is PharmaX, generating 80% of the company’s total revenue. Other activities are video surveillance and system for monitoring staff attendance.

The Pharma Ltd. company compiles the final product within its premises. Components come from China, and are sent to the partner in Zagreb, which connects the components using a CNC machine. The biggest cost in the product structure is the personnel cost.

Pharma Ltd. has protected the name and industrial product PharmaX in Croatia. The design of names, logos and promotional materials is exclusively focused on the use of this product in pharmaceutical industry (production, distribution, sales of pharmaceutical products), although it is possible to customize the product for other industries.

The company is planning to establish its own accredited calibration laboratory, for which they have already bought part of the equipment and have invested 26.300 EUR (they are currently using the services of calibration laboratories in Zagreb and Ljubljana). By establishing their own laboratory, they will be able to provide certification services to other companies.

The company’s main objective is to manage the entire process: from the manufacture of the product, through its installation at the end user’s facility, to regular product maintenance.

The company today has 10 employees. When employing, they are looking for young, bright people who are willing to work. None of the employees had the necessary qualifications for doing their part of the job within
the company, since this is a specific industry, because of which the character and the willingness to learn and work of the person being employed are of particular importance. The compensation for the work is in the form of a fixed salary and incentives, which are determined by the company’s owner and director on a monthly basis. The owner of the company believes that all employees are important and that it would be really hard to find a replacement for each of them.

In 2015, the company moved to new premises in a residential building, which is in the phase of finalization, with new offices, warehouse, laboratory and future laboratory for calibration of probes, and common areas (dining room and kitchen, future fitness premises). When organizing the offices in the new location, they decided to install glass doors in order to be more in touch with each other, and to find out as soon as possible if there was a problem or some new idea (without the need for reporting to others, phone calls, etc.).

The majority of pharmacies in Croatia that have the potential to buy PharmaX are already their customers (about 300 pharmacies), therefore they believe that it is time to broaden their market to include pharmaceutical wholesalers. They have already contacted the Croatian Chamber of Pharmacists and informed them about the product they offer, so the Chamber could recommend them as a supplier that has a product that meets the legal regulations within the industry. Furthermore, in cooperation with the Croatian Chamber of Pharmacists, they have organized a training course on which they have presented PharmaX to potential customers.

Competitors that offer similar, but technologically less advanced products, are located in Cakovec and Zagreb.

Currently, the biggest challenge for the company is the entry to foreign markets, but they have yet to solve the issue of technical support and equipment installation in foreign markets. They plan to further simplify the device and make a “kit” allowing self-installation of the device. Regarding the internationalization, the company intends to first focus on the region of the Western Balkans, where the implementation of the relevant regulations is still not strict. However, there is also no serious competition which could offer an alternative. The competition on other European markets (Germany, UK) includes products such as KESTO from a multi-national company, with offices around the globe, and Xweb. Both products have three components that are very similar to PharmaX. However, the design solution and implementation software are unique in all three products.

Description of the action research process
The Pharma Ltd. company was identified as an ideal candidate for participation in the PACINNO project because of its unique PharmaX product that was developed based on company’s internal innovative capacity and chosen from a list of innovative companies in the Adriatic region, generated by the Croatian PACINNO team manager. After having been contacted by the PACINNO research team manager, the manager of the company was open enough to invest his time and the time of his employees to engage in the research process, initially without a clear idea of the outcome and the benefits.

The first contacts were established between the company manager and PACINNO project team manager. The first meeting was dedicated to the presentation of the PACINNO project, explanation of the non-disclosure component of the cooperation, and description of the action research process with a special focus on creation of interventions aimed at improving the company’s innovation process, feasible within the boundaries of
the project. During this meeting, mutual introductions were made where PACINNO project representatives managed to establish trust with the company manager and conveyed their benevolent intentions.

The initial meeting was followed by the first meeting between researchers and managers. This meeting consisted of an interview with the company manager with predefined questions in the form of a checklist. During the interview, the manager openly discussed all the issues raised by the researchers. The next meeting was dedicated to conducting interviews with key employees of Pharma that were identified by the manager. The interviews were conducted with the technical manager, the sales representative and the person responsible for the accounting and financial aspects of the company. The manager introduced and supported the collaboration of the company and PACINNO project representatives in front of employees, which gave them a clear idea regarding their open engagement in the interviewing process. Interviews with employees were conducted in the manager’s office without the presence of other employees or the manager, just with the person interviewed. The interviews were conducted in a pleasant atmosphere; the employees were slightly reserved at the beginning, but gradually more and more open and collaborative. One of the employees made the comment that they were open to participate in “such kind of training sessions” in order to please the manager and contribute to whatever he believes might be useful for the company.

Based on the interviews conducted with the manager and employees, the researchers have identified several methodological approaches aimed at analyzing the internal innovation dynamics in the company and the flow of information and ideas between the manager and the employees, and among employees themselves. Because of the layout of the physical space of company’s offices, the researchers concluded that the observation process was not an ideal approach for capturing the interactions within the company. Together with the manager it was decided to take the time and organize a workshop with the aim to conduct situation analysis of the company, and define plans for the future.

The workshop involved the company manager and the key employees: technical manager, sales representative and accountant and researchers and representatives of the PACINNO project. The workshop was very dynamic and involved all the participants. A lot of important questions related to the company’s present and future were raised. Some of the questions were answered by the manager and the employees, but some were left for further consideration. The employees were open in their discussion, and participated actively. The manager did not hesitate to identify himself as the person responsible for implementing changes in future behaviour, in the same way as the other employees. Shortly after the workshop began, the manager decided to include another employee in the workshop discussion. Besides taking notes on the contents of the workshop discussion, the researchers also observed the discussion dynamics and behaviour of workshop participants. The workshop represented a facilitated strategic brainstorming discussion involving the manager, key employees and external experts (researchers). The workshop took place in the manager’s office. During the discussion the main points were written on the flipchart, and the whole workshop lasted about 4 hours.

The content of the data gathered during the workshop and interviews conducted with the manager and key employees was thoroughly analyzed. Researchers’ impressions were discussed with other members of the research team in order to build a common ground for the development of interventions. The final workshop was dedicated to the presentation of the findings, issues and proposed interventions
to the manager and employees. The most viable interventions were selected for implementation. After the discussion the final report was created and confirmed by the manager.

The whole action research process in the Pharma company lasted 5 months. It included a secondary research phase in which researchers collected information on company’s performance and the industry from secondary data sources. The secondary research was followed by primary research, which consisted of 5 visits to the company that lasted approximately 3 hours each. The most important partner in conducting action research was the company manager, who was open and supportive to researchers’ intentions to capture and analyse the real issues related to company’s performance and create propositions for its improvement.

Reports of the data analysis
In this section the findings from the previous stages of action research process in Pharma company are presented and supported.

Finding 1: The lack of defined and clear strategic orientation of the company

Supporting observations:
1. During the interview, the owner of the company and employees expressed their satisfaction with the successful development of the PharmaX product with currently, in the local market conditions, highly competitive technological performances that meet the demanding legislative regulations in the pharmaceutical industry.

2. At the same time, the aspirations for further development of the product with the aim of future placement of 1) the existing product with improved technological performances (self-installation kit) to foreign markets; 2) similar products with the capability to measure other sizes in other industries, to new customers, were recognized.

3. During the workshop a debate on the challenges of creation of new products, new markets and other possible combinations (Ansoff matrix) was conducted, with the aim to determine the strategy for future development of the company, taking into consideration the potential of the market, as well as organizational and financial resources of the company.

4. In that context, it is necessary to define possible strategic options of the development of the company, and choose an option that is realistically possible and optimal for the company.

5. By defining the company’s strategy and communicating that strategy among employees, efficiency and focus in the use of all resources (people, time, money) in the implementation of planned objectives will be ensured.

Finding 2: Underused market and profit potential of PharmaX in the domestic market

Supporting observations:
1. Through conversations with the owner and employees, the superior market position of PharmaX in Croatia
in terms of technology, compared to the competition, was evident, as well as that its market potential was only partially exploited (15/200 wholesalers and 300/1000 pharmacies).

2. Through the workshops it was determined that PharmaX has reached the stage of maturity in the product life cycle (in the technological sense), and that there is a pressure to maximize profits from sales of PharmaX, which requires investing considerable effort into sales.

3. Maximization of the market and profit potential of PharmaX is important because it will ensure profits, which could be further reinvested in the development of new or improved products.

4. When analysing the market potential, there is a clear orientation towards the pharmaceutical wholesale segment, compared to pharmacies, for which the representatives of the company believe that they to a large extent cover those pharmacies that are part of the target segment (higher quality pharmacies that are prone to and financially capable of applying the quality solution in the form of PharmaX, compared to competing products). The limiting factor for greater conquering of the pharmacies market is insufficiently clearly and firmly defined legislation, as well as currently very flexible monitoring of compliance with that legislation by inspectors.

5. When analysing the target market, the profile of the target customer is not clearly defined. During conversations, one big pharmaceutical company was often mentioned as the main representative of this group of customers, although through a detailed analysis during the workshop it was determined that that company was not a representative of the ideal target customer – neither by profit potential, nor by the ratio of invested time / profit, nor as the best reference with which the majority of other customers in the target segment of pharmaceutical wholesalers would identify and compare.

**Finding 3: The lack of financial resources to finance the development of new/improved products**

**Supporting observations:**

1. The PharmaX is currently at the stage of technological maturity of the product, and it is necessary to work on improving the product, i.e., develop a new product for the market.

2. The company has no available funds for financing development. Recently, company has invested in the purchase of new equipment for the calibration laboratory.

3. It was determined at the workshop that an investment of 9,200 EUR was necessary for the improvement and development of a new product.

4. One of the sources of funding should be the profits generated through aggressive sales of PharmaX on the pharmaceutical wholesale market in the next period (6 months).

5. Monitoring of alternative sources of financing (funds and other sources for funding innovation) is quite sporadic. Previous attempts did not result in financial success, which has, together with demanding and time-consuming documentation, further discouraged the company from trying to apply for grants or co-financed funds for innovation.
Identification of the core issues and argumentation
In this section, the core issues identified are listed and defined more specifically.

**Issue 1: The lack of defined strategic plan of growth and development of the company**

In order to harmonize 1) market potential and 2) real potential of the company, it is necessary to define a strategic plan for the development of the company, in order to determine: where the company wants to be and go in the next 3-5 years; what needs to be done to implement this plan.

**Issue 2: The lack of the strategy for profit maximization of the existing product (PharmaX) in the domestic market**

It is of crucial importance to maximize the profit and market positioning of the existing product PharmaX on the domestic market in order to fully capitalize the investment in the development of PharmaX. The unused market potential on the domestic market is related to the need of the clear identification of the target profile customer for the PharmaX product. This issue could also be blocking the available profit that could be reinvested into the development of a new product and the possible expansion into other related markets or foreign markets.

**Issue 3: The lack of a plan for the development of a new / improved product**

Considering the market potential and the real possibilities of the company, it is necessary to define what the “successor” of PharmaX will be, and whether the future of innovation is in product innovation, market innovation in terms of the sector to which the product will be offered, market innovation in geographical terms, and if yes - where (countries in the region or some other more distant markets). It is important to raise awareness of the factors that were crucial for the successful breakthrough of PharmaX in the Croatian market, and take these key factors into consideration when evaluating other geographical markets.

Description of the suggested intervention(s) and its effects
Based on the above identified core issues, the propositions for interventions are developed.

**Intervention #1: Defining the plan for the strategic development of the company**

*Addresses Issue:* 1

*Suggested Solution:* since there is extraordinary market potential for the development of the existing product, a new product in the same industry, a new product in other industries and the existing product in foreign markets, etc., it is necessary to define priorities and direction in which the company is going to strategically develop in the future.

*Purpose:* the purpose is the efficient use of all the resources towards the achievement of objectives, undertaking activities that enable a step closer to achieving the objectives. The goal is to determine to what the company will say NO in the future, because that means a departure from the path to achieving the strategic goal of the company.
Planning & Implementation: organizing several brainstorming meetings, which will define the possible paths of development, evaluate each of those paths with respect to the specified criteria, followed by the selection of the goals, defining priorities among selected goals, timelines and people who will be responsible for the implementation of individual strategic objectives.

Resources: time devoted to brainstorming; maybe several iterations will be needed, writing board

Participants: the owner of the company, key employees

Monitoring & Evaluation: insight into the document with the defined strategic development plan of the company, including all the important elements: defined priorities, timelines and people responsible for the implementation of individual strategic goals, and steps in the implementation of those objectives

Effects of the Intervention (3 months after the proposal): The company continued using and developing the drafted strategic plan after the workshop held with the researchers. Since the workshop, the company both developed a new product/innovation, equipped and certified its measurement laboratory and is in the process of entering two new foreign markets – Bosnia and Herzegovina and Macedonia. Due to the cultural and language similarities as well as the geographic proximity, the company will use the same strategic approach as in Croatia.

Intervention #2: Analysis of key external experts crucial for the implementation of strategic plans of the company, strengthening the relationships with key people and planning the further development of those relationships (know-who)

Addresses Issue: 1

Suggested Solution: For the implementation of plans and objectives it is of crucial importance to establish contacts, cooperation and build trust with people who influence the successful implementation of the strategic goals of the company. Therefore, all key people should be involved in further activities and be constantly updated about the company’s results and future goals. The company has so far gained great leverage by communicating with these key experts and key people in customer companies, which could potentially be even more valuable for the development of new products and staying up to date with the newest regulation in the area.

Purpose: establish and strengthen relationships with people who are of crucial importance for the success of the company

Planning & Implementation: identification of key people associated with the implementation of each of the future goals of the company; identification of key people who have an impact on the competitive position of the company in the region

Resources: time necessary for personal reflection, writing board
Participants: owner of the company, a person of trust outside the company structure, for the exchange and verification of views and attitudes.

Monitoring & Evaluation: creating a list of people, links with information on the quality of relations and plan for further development of relationships

Effects of the Intervention (3 months after the proposal): The company identified new potential partners in Bosnia and Herzegovina. Regarding the new measurement laboratory, the company has a representative from the pharmaceutical industry that is helping them in the process of accreditation. They also identified Pharmaceutical Chamber as a strategic partner in Bosnia and Herzegovina.

Intervention #3: Internal reorganization in order to implement the strategic plan

Addresses Issue: 1, 3

Suggested Solution: during the interviews and the workshop it was established that people who were expected to put a lot of effort into the sales activities of the company in the future did not have enough time to really commit to sales. If aggressive sales of PharmaX in the pharmaceutical wholesalers market are expected in the next 6 months, it is necessary to free up the time of people who will be responsible for sales, as well as to define sales targets. The second question – the person and time she or he will devote to the development of new product – since when, how much time per day/week, who will take care of the existing obligations of that person, what are the planned objectives and in what period.

Purpose: implementation of the planned goals

Planning & Implementation: defining people, tasks, priorities, time, harmonization of opinions of all the employees about that plan

Resources: time devoted to brainstorming; maybe several iterations will be needed, writing board

Participants: owner of the company, key employees

Monitoring & Evaluation: internal reorganization plan should be documented, with the key elements: who, what, until when, how much, and steps in implementation

Effects of the Intervention (3 months after the proposal): The company employed 4 new employees: 2 employees will work in the laboratory and R&D department together with the Technical Director and 2 of the new employees will work in the Service and Maintenance and Sales. This will be beneficial in the following period as the two employees originally holding these positions are currently on maternity leave.
**Intervention #4: Defining the profile of target customers**

Addresses Issue: 2

**Suggested Solution:** The main objective of defining the target customers is to find out who the customers we want to win over are and why. After defining who they are and why, their profile should be established, and the key people who will be making decisions on purchase of PharmaX should be identified and the relationships with these key people in potential customer companies should be built. Afterwards, it could be useful to perform interviews with the key customers in order to better prioritize their marketing activities and strategic direction. This is important also because these customers at the same time act as a valuable source of information for future innovation directions (user-driven innovation).

**Purpose:** Directing the attention and the allocation of resources, primarily the time of people who are in charge of acquiring customers with the highest profit potential, and who have the highest reputation within the segment of target customers and can help in acquiring new customers with their references and recommendations. The goal is to determine the priorities and to use time effectively, and NOT to waste time on the ones that are not important (reference or profit potential as a criterion).

**Planning & Implementation:** Analysis of the existing customers who are the most important reference of the company among potential customers, analysis of the database of potential customers, identification of potential customers who fit the target customer profile, analysis of profiles (of people we know and need to know to successfully make contact, establish trust and promote the product), taking action, interviewing the customer, identifying new marketing approaches

**Resources:** time devoted to brainstorming; maybe several iterations will be needed, writing board

**Participants:** owner of the company, key employees (Sales)

**Monitoring & Evaluation:** documented results of brainstorming – target customers with their profiles, created database of companies and set up for account management, increased sales targets

**Effects of the Intervention (3 months after the proposal):**
The company has established a need for a new product (transferable cooling chamber with PharmaX product inside) and offered it to existing customers.

**Intervention #5: Analysis of the used vs. possible/available marketing strategies**

Addresses Issue: 2

**Suggested Solution:** during the interviews and the workshop the used channels of product promotion were determined. The main objective of this intervention is to establish, on the basis of brainstorming, additional channels of promotion, with the emphasis on know-who, networking, promotion with minimum investment.
Purpose: since this is a B2B business – application of direct marketing is of the utmost importance, which includes establishing relationships with the key people in potential customer companies.

Planning & Implementation: brainstorming about the definition of potential marketing channels, evaluation of individual channels, selection of those that are considered the most efficient, identification of steps and costs for their activation.

Resources: time devoted to brainstorming; maybe several iterations will be needed, writing board.

Participants: owner of the company, key employees.

Monitoring & Evaluation: documented marketing plan with identified possible channels and channels that are selected on the basis of brainstorming, plan for the use of the selected channels, and monitoring of results achieved on the basis of new marketing channels.

Effects of the Intervention (3 months after the proposal): The company decided to pursue the effective marketing approach of preparing national seminars together with the Croatian Pharmaceutical Chamber on the theme of the legislative regulations in the pharmaceutical industry together with presenting their product portfolio which has enabled them to reach more of the targeted customer group and further position their brand.

**Intervention #6: Diversification of sources of financing of the new development, with defining those responsible for monitoring new sources of financing**

Addresses Issue: 2, 3

Purpose: The only certain source of financing of the new development is the reinvested profit; therefore it is necessary to focus on profit maximization from the current PharmaX product in the shortest possible period, particularly with regard to the identified stage in the life cycle of the product (maturity). In addition, it is necessary to identify new sources of financing, where the following strategies are possible: 1) internally define a person in the company who will be responsible for monitoring opportunities to use free or subsidized sources of funding for new product development; 2) connect to and develop relationships with an expert for the use of funds for financing the development of innovation in order to develop the project for Pharma, or become involved in projects with other partners.

Planning & Implementation: the decision on the applied strategy of monitoring potential sources of co-financing or grants that can be used to finance innovation.

Resources: the time of the person who will monitor sources of funding, and who will be in contact with a person outside the company that is monitoring sources of financing and timely inform / involve the company in new projects.

Participants: owner of the company, key employees.
Monitoring & Evaluation: defined persons in the company and outside the company who monitors sources of financing for Pharma, number of identified opportunities for project proposals, number of used opportunities.

Effects of the Intervention (3 months after the proposal):
The company has applied a project for national funding during the period, together with the help of the PACINNO researchers. However, the project has not been approved for funding (in the 3rd stage of evaluation). Further plans include applying the developed project proposal for the newly opened calls for national and EU funds that target innovative SMEs.

Intervention #7: Purchase of a bigger brainstorming board

Addresses Issue: 1, 2, 3

Suggested Solution: The board is a place of information and communication for the whole company but could as well be a place for brainstorming on company meetings. Therefore, the suggestion is to place a big whiteboard on the wall at the central office/meeting space.

Purpose: It would facilitate easier planning and give more space for writing down new ideas during the brainstorming sessions.

Planning & Implementation: The person responsible for purchases of the office material should find a suitable offer and buy the board. The board can be set up by the technical personnel.

Resources: 150 EUR

Participants: Owner of the company, Financial manager

Monitoring & Evaluation: purchased or not

Effects of the Intervention (3 months after the proposal): No data available.

Recommendation for transferability of the intervention and evaluation of its relevance
Based on the monitoring of effects of interventions it can be concluded that the majority of identified issues and proposed interventions were of substantial relevance for the Pharma company. Interventions #1, #3 and #4 could be easily transferable to other innovative companies in the Adriatic region since they relate to the more common issues of a small company that is growing rapidly and is in need of a strategic direction. Furthermore, identifying key customers that are generating the most profit is a crucial strategy, especially for SMEs with a lack of own resources for investment into new products and services.

The following propositions for further research on innovative processes in SMEs have been developed based on the action research conducted in Pharma:

1. Strategic awareness is a determinant of successful new product development process in SMEs.
2. Collaboration with key external partners who have an impact on the competitive position of the company in the region is an essential requirement for successful internationalization.

3. Creating trust and understanding with all employees (by the management) about the importance of their active involvement in the brainstorming sessions on company’s innovation and business strategy acts as a significant innovation enabler.

4. Working space organization that enables easy communication between employees and departments positively affects idea generation and operationalization in companies.

5. Communication and close collaboration with customers (users) is an important source of information for the strategy of development of future innovative products.

Former qualifications, skills and expertise of new employees are less important requirements for the successful development and marketing of innovations compared to persistence and motivation to learn.

Appendix 1: Growth strategies - ANSOFF matrix

<table>
<thead>
<tr>
<th>MARKET</th>
<th>PRODUCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXISTING</td>
<td></td>
</tr>
<tr>
<td>Conquering the most of the domestic market</td>
<td>Calibration of other sizes</td>
</tr>
<tr>
<td>Industry leader</td>
<td>Enhanced version of PharmaX</td>
</tr>
<tr>
<td>Increase the cost of entry for competitors</td>
<td></td>
</tr>
<tr>
<td>NEW</td>
<td></td>
</tr>
<tr>
<td>Entry to the regional market</td>
<td>Calibration of other sizes</td>
</tr>
<tr>
<td></td>
<td>Self-installation kit</td>
</tr>
<tr>
<td></td>
<td>Exit from the domestic market</td>
</tr>
</tbody>
</table>

Area of greatest risk

Appendix 2: Timeline

2015
Finished calibration laboratory
2 install. teams
Assistance for administration

2016
Expansion of the domestic market:
60 big customers
350 pharmacies
In the middle of the year self-installation kit

2017
2018
2019
2020
2.3.2. Case: VoiceHome Ltd. - Product Development (Never-Ending Story of Meeting the Criteria of the Market)

Abstract
This document describes the action research process conducted in the Croatian company VoiceHome Ltd. within the PACINNO project. The research is a result of cooperation between a research institution and an innovative SME. The principles of action research were adopted with the goal to improve collaboration among team members and innovation process of the VoiceHome company. The main focus of the research is to gain in-depth understanding of the internal processes in the company based on the application of qualitative research methodology (observation, interviews with the company owner and key employees and interactive workshops). The action research process further enabled the identification of main issues and propositions for interventions, such as development of a strategic development plan, development of a business plan for the new product line and development of development / improvement plan of the existing product.

Keywords: action research, product development, product commercialization plan

Introduction
This report presents the case study developed based on the action research conducted in the Croatian company VoiceHome Ltd. The research was conducted as a part of the PACINNO project – Platform for trans-Academic Cooperation in Innovation, focused on establishing cooperation between research institutions and innovative, globally-oriented SMEs. The principles of action research process were used in order to improve collaboration and innovation processes in the company. This research also enables creation of knowledge about the process of collaboration and innovation in this type of companies, and provides an opportunity to develop propositions for further research.

The action research in VoiceHome is accompanied by similar research conducted in other companies in Croatia and the Adriatic region within the PACINNO project. This creates a strong potential for a comparative study, which represents the next step of the PACINNO project.

The report consists of the description of VoiceHome Ltd., description of the action research process conducted in VoiceHome Ltd., report on the findings and issues identified and propositions for interventions on the reported issues. The final part of the report presents the evaluation of the research project with special emphasis on the identification of the potential for wider generalization of the problems and solutions related to VoiceHome Ltd. case study.

Description of the company
In 2009, CE, a researcher, got an idea to design a device that would allow disabled people to manage different functions in their environment by using their voice (HAV). In the same year, CE founded the VoiceHome Ltd. company, the main activity of which is the production and sale of aids for disabled people. An important competitive advantage of the company is in monitoring technology trends and their integration into products intended for disabled people. The company does not have competitors in Croatia, while the competitors in the region are, according to the owner’s opinion, less technologically advanced than HAV.
**Product portfolio**

HAV is an electronic system that helps people with disabilities to manage a variety of functions in their home by using voice commands. The first version of HAV was made by the owner, while two colleagues from the institution of his primary affiliation were involved in the production of other versions of the product. Each of the two colleagues received a 15% share in the company. The company is relying on outsourcing for the further development of the product, which is financed from own sources, as well as with funds from external investors. HAV currently operates in 6 languages.

The second product of the VoiceHome company is HAV 2 – a simpler device intended for foreign markets, with only a few functions and the possibility of easy installation (self-installation packages). The third product of the company is HAV INT (the name under which HAV will be presented in international markets). The fourth product in the VoiceHome’s portfolio is the product of the Swedish manufacturer EYECONTROL. VoiceHome is the exclusive Croatian distributor of this Swedish manufacturer’s offering of aids for disabled people, which are controlled by eye tracking. In sum, there are currently four key products in the company portfolio, three of which are own innovations.

**Company structure**

Currently, the company employs one person, who is responsible for the technical part of the work. In some stages of the development, VoiceHome had 3 employees, but revenues currently do not allow hiring of more people. In addition, the majority owner believes that the fixed costs of the company, including salaries, should be kept to a minimum, and would rather hire part-time associates than employ new people, depending on the needs of the business. Approximately 10 people are involved in company’s activities, who know each other, but it cannot be said that they function as a team.

In 2014, INV invested into the company on the principle of convertible loan (by the end of 2015, INV will decide whether to transfer this loan into equity – 10% of ownership). Besides acting as investor, INV is significantly contributing to the strategic development of the company by providing advice and contacts. CE is the key initiator and the strength of the company.

**Market and competition**

The users of HAV are disabled people. So far, 50 customers have been using HAV in Croatia, and only between 5 and 10 of them have paid for the system themselves. For other customers, the purchase of HAV was financed by someone else. The company tried to establish cooperation with associations of disabled people, but without success. After five years of experience in this area, CE believes that the only way of “selling” HAV is to be listed as an aid on the Croatian Health Insurance Fund list. However, the product is not completely ready for this distribution channel.

On the advice of INV, they have established contacts with institutions that provide care to people who are potential users, introducing them to the functionalities of HAV, and they expect the support from the parents of potential users in the process of lobbying towards the Croatian Health Insurance Fund.

Compared to the competition on the market (exclusively international, since there are no domestic suppliers), HAV is technologically better and cheaper product, but its major disadvantage is the unattractive exterior design of the box in which the HAV technological solution is embedded.
There are two competing companies in Germany, one of which is the word leader, but is using Siemens’ 10 year-old technology. CE has established cooperation with that company, which has become a strategic partner and is interested in the distribution of HAV INT on the German market, but with prior modification of the product design and features in accordance with the expectations of customers in that particular market.

EYECONTROL, the fourth product in the company portfolio, is provided by a Swedish manufacturer of devices controlled by eyesight. VoiceHome has entered into a contract with this company and is the general representative for Croatia. VoiceHome is planning to distribute this part of their product portfolio aimed at disabled people through a network of therapists in Centres for social welfare across Croatia.

The main problem of the company is the financing of the development of the own innovative product portfolio in order to meet the demanding criteria of the German market, as well as to meet all the preconditions for placement of the product into Croatian market with the support of Croatian Health Insurance Fund.

**Description of the action research process**

VoiceHome Ltd. company was identified as an adequate candidate for participation in the PACINNO project because of its innovative product portfolio that was developed with the purpose of assisting and helping the disabled persons. Despite being technologically advanced, the product is facing huge challenges with reaching the customers at both the domestic and international markets. Therefore, the company’s majority owner was interested to participate in the action research process, hoping that one of the benefits would be concrete propositions and ideas for improving the market penetration of the product.

The first meeting was conducted with the company founder and main shareholder, CE. During the first meeting, PACINNO project representatives presented the project, explained the non-disclosure component of the cooperation and described the action research process, with a special emphasis on the creation of interventions aiming to improve the company’s innovation process, feasible within the boundaries of the project. After the introductory part, the interview with CE was conducted, where he presented his views on the company’s past, present and future. CE was cooperative and openly answered all the interview questions. He was very interested in the next steps of the action research process, willing to make this process as much as possible useful for him and his company. He suggested reading the additional literature (the book „Traction”) that could provide useful insights in possible approaches to the market for start-ups. It was agreed that all PACINNO project team members would read the book, make notes and dedicate one workshop for discussing the main points of the book that could be useful for VoiceHome.

During the second meeting the interviews were conducted with company co-owners that possess smaller shares in the company. CE was neither supportive nor negative to the idea of interviewing other co-owners, because it seemed like he did not expect a huge contribution from their side, and he did not want their time to be wasted. However, he facilitated organisation of the interviews. Interviews with other co-owners provided extremely important information on the company internal dynamics and the process of product development. The interviews also enabled insights into the development of relationships between company co-owners as a team and the involvement of other, external people in the company processes.

During the third meeting a workshop was held that gathered all three co-owners and PACINNO project representatives. The purpose of the workshop was to discuss different selling approaches that could be
implemented by VoiceHome, based on the „Traction” book that was read by all participants. PACINNO team members prepared Power Point slides, for easier navigation through 19 channels that were described in the book. During the workshop it was established that finding the right channel is just one of the challenges of VoiceHome, but not the biggest one. Other, even more important challenges that were identified during the workshop were further development of the product for meeting the criteria of domestic and international markets, raising the money for financing product development and leveraging relationships and roles of the co-owners in a team. Besides facilitating the workshop discussion, the researchers and other PACINNO team members were focused on observation. The workshop discovered the dynamics and the nature of the relationship within the team.

The co-owners, especially CE, were very satisfied with the results of the workshop. It seemed like the workshop triggered the discussion on important issues related to VoiceHome among company co-owners that were neglected for a long time. The workshop ended with the identification of the future short-term and mid-term goals, and prioritization of the activities that should be taken in order to implement them.

The last meeting was focused on confirmation of the conclusions of the workshop, identification of situation analysis of the company, the main issues and propositions for interventions. All three company co-owners participated in the meeting.

The whole action research process in the VoiceHome company lasted 4 months. During the process a total of 4 visits to the company were made, with more than 20 hours of engagement. The data and information gathered through secondary research (prior to the establishment of the initial contact with company co-owners) and primary data (through company visits) were analysed and shared among all PACINNO team members (researchers and project representatives). The final results of the process are presented in this report, approved by the company owner.

Reports of the data analysis

In this section all relevant findings arising from the action research process are described. These findings represent the main points that were used for identification of the main issues and propositions for interventions in the company that are feasible during the period of the project.

Finding 1: A lack of a realistic and common definition of available resources, goals and actions necessary to realize the objectives

Supporting observations:
1. Based on the interviews conducted with the co-owners, it can be concluded that the material resources are exhausted, and that the enthusiasm is spent. The question that arises is who they can count on and how in the further phases of the development of the business.

2. Activities that have to be taken in order to continue with business operations represent a major challenge and primarily require commitment to the goals and operations.

3. Key question: are the co-owners willing to continue to invest their time, effort and money without compensation, and if yes – for how long?
4. Co-owners define business objectives in different ways:
   - Sufficient number of products sold in order to further finance the development – organic growth (Co-owner 2)
   - The aim is not only the maintenance of the operations, but also the growth of the company and profit (Co-owner 3)
   - The recognition in the market of assistive technologies, and profit (CE)

Finding 2: A lack of a defined business model – in Croatia and abroad

Supporting observations:
1. Co-owners believed that selling the product or finding an adequate distribution channel were their key problems
2. When they found a key partner – distributor for the German market – they realized that their product had certain shortcomings, and that it was not ready for sale in international markets
3. It is necessary to make a decision on the key segments of the business model
   - Should sales be a part of the business model of VoiceHome
   - Should they keep in the company those segments in which they are the best, and build partnerships with others who will be able to implement other phases of the business model
   - If yes – in which part are they the best, what can they realistically do, and what leave to someone else, if anybody?
   - Should they concentrate on B2B market outside Croatia and B2C market inside Croatia?

Finding 3: The product portfolio in various stages of product development and readiness for market

Supporting observations:
1. EYECONTROL products – ready for the market, but there is a need for better engagement (time and financial resources for marketing) in order to launch sales activities. The plan is to develop a sales network in which the main sales agents of EYECONTROL products would be therapists who would be buying the devices to provide treatment to patients, as well as sell them to patients for home use, with a certain commission fee.
2. HAV – ready for the Croatian market, for sale to individual buyers, but not for sales and marketing with the support of the Croatian Health Insurance Fund. High price and lack of interest are identified as key barriers for the purchase of the device.
3. HAV INT and HAV 2 – good potential, a crucial contact with the distributor for the German market has been established, but the distributor believes that the product is still not ready and that it has certain deficiencies that need to be improved. The co-owners estimate that 40,000 EUR and 6 months are needed in order to develop a product that will meet the requirements / criteria of the German distributor. The CEO (CE) is certain that the German distributors are willing to wait for their product to be upgraded.
   “2.400 EUR x 6 months for one person to work on the product development + design of the housing + making the mold ... altogether 40.000 EUR”
Distributor from Germany believes that the product should have a better design and some other essential elements, as well as simpler usage in order for the company to be able to successfully sell the product on the German market.

The ease of use is an important prerequisite for the sale of the product on the international market.

Finding 4: The lack of a defined sales plan, including measurable sales target in the next six months - year for HAV and EYECONTROL on the Croatian market

Supporting observations:
1. VoiceHome has become a part of the distribution network of EYECONTROL, as the general distributor for the Croatian market.

2. Co-owners are aware of the need for the quantification of objectives, in order to measure progress and achieve the goals.

3. Successful sales require commitment and defining of the sales plan, including the time needed for organization and monitoring of sales, further development of distribution channels and financial resources for marketing (product presentation). It can be concluded that co-owners are underestimating the difficulties of this particular segment, especially with regards to EYECONTROL devices, since the products themselves are of very good quality.

4. The goals defined by co-owners: sell 12 EYECONTROL devices and 6 HAV devices in the next 6 months (estimation based on the assessment of the market potential)

5. It can be assumed that not enough reflection on the differences between the buyer and the user of the device has been made, and based on that research, investigated how to approach the customers.

- Users: people with disabilities who cannot use their hands, but can talk
- Customers: family (spouse or another family member), or association
- Who are the customers – the decision-makers on the purchase of the device, or anything else related to the disabled person?

Finding 5: Lack of financial resources to fund further product development

Supporting observations:
1. From the interview, it was clear that financial resources for further product development do not exist.

2. Financial resources which could be used to finance further product development could be generated through aggressive sales of EYECONTROL devices.

3. It is necessary to analyse the profit margin of EYECONTROL products, market potential, consider the costs and make a plan of revenues and expenses, as well as of profits generated from the sales of EYECONTROL products in the next six months, one year, two and three years, etc.
4. When asked how much money they are willing to invest in any of the distribution channels in the next 6 months, they answered 700 EUR.

**Identification of the core issues and argumentation**

In this section, the core issues identified are listed and defined more specifically.

**Issue 1: The lack of a strategic plan for company’s growth and development**

Based on the realistic assessment and consideration of the resources company has at its disposal, and on opportunities for further business development, it is clear that the company lacks a strategic development plan – with a special emphasis on what is to be achieved, in what deadlines and with which resources, as well as what will the results of undertaken actions be.

**Issue 2: The lack of financial resources for further product development and company growth**

The findings indicate a clear lack of financial resources necessary in order to maximize the effort on further development of HAV INT and HAV 2 and preparation for the foreign market. The issue lies in determining the necessary sources of funding taking into account the current company resources (employees and knowledge) and product plans (EYECONTROL distribution) as well as benefits that could be extracted from external partnerships (therapists as a market channel).

**Issue 3: The lack of a plan for the development of the new / improved product**

Further improvement of HAV INT and HAV 2 products is the precondition for entering the German market, which requires time and money. “Time and money” should be analysed and a plan should be made – phases, the necessary resources and the people who would be involved in specific phases. The company lacks clear vision of the new product development with measurable goals, defined phases, and defined roles and tasks of individual team members.

**Description of the suggested intervention(s) and its effects**

Based on the above identified core issues, the propositions for interventions are developed.

**Intervention #1: Defining the strategic plan for company’s further development**

Addresses Issue: 1

*Suggested Solution:* since there are great challenges in launching further operations (each product has its own challenges and requires investment of time and money), it is necessary to make a plan and define objectives to be achieved, with which means, which actions should be taken, timeline, and priorities.

*Purpose:* knowing what is realistic and what is not (at least in this moment), as well as what resources are required and who is willing to invest them. It is important to define the timeline of activities – what is resulting from what, what is the prerequisite of what, and what is the result. An integral part of the
strategic planning process will be the testing of the business model, as well as the decision on what will be the future core business of the company and what will not (which segments of the production chain). During the development of the strategic plan, a particular emphasis will be given to the consideration of all the stages of product development, as well as to the way ahead of each product in order for it to be ready for sales.

**Planning & Implementation:** organization of several brainstorming meetings which will define the possible paths of development, evaluation of all these paths with the respect to specified criteria, after then the selection of objectives, definition of priorities among those objectives, timeline definition, and identification of people responsible for the implementation of certain strategic objectives.

**Resources:** time devoted to brainstorming, can take several iterations

**Participants:** co-owners of the company and the employee

**Monitoring & Evaluation:** insight into the document with the defined strategic development plan of the company, including all the important elements: clear priorities, timelines and people responsible for implementation of certain strategic objectives, as well as the steps in the realization of those objectives.

**Effects of the Intervention:**
The implementation of the intervention (3 months after the development of propositions):

The ownership structure of the company has changed. The founder of the company has remained with the majority of the company shares and the two co-owners have decided to sell the majority of their shares to the Croatian investor that has lately also financially supported and invested in the company. From the conversation with the founder, it is obvious that the main strategic focus of the company has changed and switched to the distribution of EYECONTROL and further advancement in the portfolio in cooperation with the Swedish partner. However, the long term plan is to reinvest the gained profits from EYECONTROL to the development of HAV-INT and placement on the foreign market. Regarding HAV2, the company received an inquiry from a big telecommunication company that is interested in placing the product to a different set of customers on the home automation market. They are currently in negotiations with the company.

**Intervention #2: Development of a business plan for EYECONTROL**

**Addresses Issue:** 1, 2

**Suggested Solution:** Market development for EYECONTROL products is a separate project, and it is necessary to be assessed and the best approach selected.

**Purpose:** assess the necessary resources, set goals, and plan activities in order to implement them. Besides the complexity of the task of market development for the EyeControl product, this is important because of further planning of profit generation, which will be reinvested into improving performances of HAV INT and HAV 2.
Planning & Implementation: organization of several brainstorming meetings which will define what can and should be done, and with which resources in order to identify people who will be involved in the development of the market for EyeControl products

Resources: time necessary for thinking

Participants: co-owners of the company, a person of trust outside the company structure, who is well acquainted with the market / product, for the exchange and verification of views

Monitoring & Evaluation: creation of a document – business plan with all the elements

Effects of the Intervention: The implementation of the intervention (3 months after the development of propositions):

The founder has worked extensively on the time plan of activities and the marketing plan for EYECONTROL as well as established a network of distributors for EYECONTROL, as it has become the company’s core product. The product portfolio has been extended with different assistive technology products that are being imported from partners abroad and sold on the Croatian market through a network of therapists that work directly with the interested buyers – mainly the parents and caretakers of children with severe disabilities. In this regard, three major events have been organized in three big cities in Croatia in order to gather the therapists and provide information on the use as well as showcase the products. Furthermore, a Facebook group has been created in order to share information and communicate with therapists on a common platform and a Facebook Ad campaign has been created in order to gain more visibility. Product brochures have been generated and extensively distributed at different events. For now, there has not been any serious increase in the profits from these activities, although it is going in a good direction and there are a lot of requests for information and quotations. The founder has started using the Customer Relationships Management (CRM) system.

Intervention #3: Creation of a plan for the development / improvement of HAV INT and HAV 2

Addresses Issue: 1, 3

Suggested Solution: the only secure source of funding for further development of HAV INT and HAV 2 is the reinvested profit gained through the sales of EYECONTROL products, therefore, it is necessary to make a good sales plan of EYECONTROL in order to be able to plan the further development of HAV INT and HAV 2.

Purpose: it is necessary to have the information on how much money will be needed and when, how will the development process be carried out and how much money / funds will be needed for each of the stages.

Planning & Implementation: defining people, tasks, priorities, time and harmonization of opinions of all the employees about the plan.

Resources: time devoted to brainstorming, can take several iterations
Participants: co-owners of the company, the current employee and FE (former employee)

Monitoring & Evaluation: development plan / documentation should be improved, including key elements: who, what, by when, how much, and the steps in implementation.

Effects of the Intervention:
The implementation of the intervention (3 months after the development of propositions):

The founder has identified external experts (freelancers) - developers using an online platform, who have been engaged on the further development of the new products. The planned time period remaining for completing the products is short (30 days) due to the fact that they are planning to participate on an important fair in the assistive technology products industry with the German partners. The company has financed these costs with own resources and has been working with the PACINNO project team on the preparation of project proposals for grant funding to facilitate further R&D, internationalisation and maximisation of the domestic market potential through non-profit associations as customers.

Recommendation for transferability of the intervention and evaluation of its relevance
Based on the monitoring of effects of interventions it can be concluded that a significant part of identified issues and proposed interventions were of relevance for the VoiceHome company. Intervention #1 could be easily transferable to other innovative SMEs in the Adriatic region that lack strategic focus or have such innovative products that can only be successful through placement on the foreign market. This represents a strategic crossroad for the companies and therefore, there is a need for implementing these steps (testing the business model and identifying the core business) prior to making a decision on the strategic path of the company.

The following propositions for further research on innovative processes in SMEs have been developed based on the action research conducted in VoiceHome:

1. Strategic awareness is a determinant of successful new product development process in SMEs.

2. A clear strategy on various innovation funding sources to be deployed is critical for the development of new products.

3. Collaboration with key external partners who have an impact on the competitive position of the company is an essential requirement for successful internationalization.

4. Creating trust and understanding with all employees (by the management) about the importance of their active involvement in the brainstorming sessions on company’s innovation and business strategy acts as a significant innovation enabler.

5. Business performance of academic research-based SMEs is challenged in the case of the lack of managerial personnel fully devoted to the company operations.
Communication and close collaboration with customers (users) is an important source of information for the strategy of development of future innovative products and their quick adaption during the innovating process.
2.4. IN-DEPTH CASE STUDIES: BOSNIA AND HERZEGOVINA

2.4.1. Case: Alpha Ltd. - Reinventing Strategic Documents For Improvement Of Performance Of Retail Company

Abstract
This document describes the action research process conducted in B&H distribution and retail company Alpha Ltd. The research idea and methodology originated from the IPA Adriatic PACINNO project. The study represents an applied cooperation between a research institution and an innovative SME with a national scope of operations and a potential to expand to foreign markets. In the national BH context, the Alpha Ltd. is viewed as innovative SME in terms of its marketing and sales methods. It applies the principles of action research aiming to improve collaboration and, to some extent, structure the process of introducing innovations (in the broadest sense) in the company. In-depth understanding of the business as well as internal managerial and operational processes in the company Alpha Ltd. was achieved by utilizing the qualitative methods such as direct observation and interviews with the owner and the most important internal employees i.e. stakeholders. As a result of action research some of the areas for improvement were identified and set of interventions of a smaller or somewhat larger scope has been developed accordingly. It facilitated the development of focused small-scope interventions such as propositions for improvement of promotional activities and review of company’s strategic documents as well as introduction of new approaches for measuring employees’ and company’s performance in general.

Keywords: action research; retail, strategy; innovation; market orientation

Introduction
This report describes the case study developed based on the action research conducted in the B&H company Alpha Ltd. The company explicitly insisted not to disclose its name or any other information that indirectly reveal the identity of the company in the reports coming out of the project. The researchers involved in the study and the Alpha’s management signed the Non Disclosure Agreement (NDA) that both parties agreed upon. NDA signing was a single key precondition requested by the company before starting the research. Therefore, in this report, a fictional name Alpha Ltd. is used to refer to the company that was in the focus of the action research process. Some of the data related to the company are presented in a broader sense in order not to reveal the company’s identity. This research was conducted as a part of the regional PACINNO project (Platform for trans-Academic Cooperation in Innovation) that aims to establish and strengthen cooperation between research institutions and innovative SMEs. As it was mentioned above, the principles of action research process were used in order to improve collaboration and innovation processes in the company. This research also enables creation of knowledge about the process of collaboration and innovation in this type of companies, and provides an opportunity to develop propositions for further research. The action research in Alpha Ltd. is accompanied by similar research conducted in other companies in B&H and the Adriatic region within the PACINNO project. This creates a solid basis for a comparative study, which represents the next step of the PACINNO project. The report consists of the description of Alpha Ltd., description of the action research process conducted in Alpha Ltd., report on the findings and issues identified and propositions for interventions on the reported issues. The final part of the report presents the evaluation of the research project with special emphasis on the identification of the potential for wider generalization of the problems and solutions related to Alpha Ltd. case study.
Description of the company

The company Alpha Ltd. grew out from the small family business established in 1998. Its main mission is to offer products and tools of the highest quality, affordable to domestic consumers. Over the course of almost twenty years in the business, Alpha Ltd. has recognized the increasing need for the tools of the highest quality that would meet the demands of the growing construction industry in the country. Striving to achieve market position and assure competitive advantages, Alpha Ltd managed to obtain exclusive distribution rights for one of the most recognized global brands of tools and bring it to the B&H four years ago. The size of the company and the number of clients grew accordingly.

Alpha Ltd, in no way participates in the production of the assortment it sells. The final products are being bought from the companies that produce them (and have intellectual and all other rights over the production) and imported into the country by Alpha Ltd. Hence, Alpha Ltd has business relationships with manufactures that it represents and maintains exclusive buying agreements that enable the company to cover B&H territory and market. In other words, Alpha Ltd. is the manufactures’ direct point of contact for prospective buyers (usually wholesale) of certain products. The company works with various groups of clients, more than 1,000 across B&H, from the major market chains to the small retail shops. At the moment, Alpha Ltd offers very diversified assortment of articles, where some of them are identified as the core assortment. In Alpha’s catalogues around 600,000 products can be found, ranging from hand tools to safety equipment, categorized in one of the following twelve groups: Equipment, Hand tools, Cutting tools, Cylinders and Locks, Ironmongery, Hand Sockets & Accessories, Construction program, Safety Equipment, Painting program, Tapes, Gardening program, and EVG.

The company moved its location several times across Sarajevo and, at the moment when this study is being conducted, it is planning to make another reallocation. While the central office is being situated in Sarajevo, Alpha Ltd’s sale staff cover the entire territory of the country.

Today, the company has 30 employees working in one of the five main departments: Procurement, Sales, Finance & Accounting, Marketing and Logistics. The owner of the company is also the general manager. It is important to note that Alpha Ltd. has developed a learning and knowledge sharing organizational environment. Additionally, the company is opened to providing internship opportunities and approximately hosts two interns at the time. Given the fact that majority of its employees work in the Sales department, the company implements a practice of engaging external experts that offer solutions for the issues that cannot be resolved internally, usually due to the lack of the specific expertise for the particular problem solving. For example, the company regularly collaborates with the marketing and finance experts that work closely with the management and heads of the Marketing and Finance Department in order to come up with some solution or strategy needed. Moreover, the Alpha Ltd. invests great deal of thought and effort into the training and education of its employees, hence it is often the case that sessions and workshops are organized in order to broaden the knowledge and skills of employees. So far, workshops have been organized mostly for development of IT, sales and managerial skills. It is important to emphasize that all sales staff receive special training after recruitment and before starting the job at the company. Also, Alpha Ltd. regularly organizes the education trainings that have a form of a three day event. The first day, lectures about basic theoretic concepts are being organized (covering the sales and most important information about the assortment the company sells) and the second day, practical exercises are conducted. The third day, practical demonstration
of the products usage is organized, and the biggest clients are also invited to attend this part of the training. In this process, two trainers are regularly engaged: one in charge of the sales and the other responsible for the products and tools usage.

Every year the company conducts strategic planning. For the year 2015, the company decided to aim for the following: 1) Market Development (increase in number of new clients in total and per every sales employee along with recruitment of two new members of the sales department); 2) Trade Marketing (activation of different categories per different months/seasons during the year); 3) More aggressive distribution of the core assortment and 4) Launching of the new products (introduction of the new category - Electronic Program).

It is important to point out that majority of sales (more than 75%) takes place in eight months of the year, from June to January. The high seasonality of the sales comes from the strong connection of the Alpha’s operations with the construction season. During the months when construction work is stopped in B&H due to the weather conditions, Alpha regularly deals with the serious drop in sales and therefore cash inflow as well. The main actions taken to overcome the seasonality problems relate to the discounts of certain products that should motivate the clients to buy outside of the construction season.

At the moment the study has been conducted the main problem that Alpha’s management identified, pertained to the three main issues. Firstly, the management admitted to be struggling with the management of sales assortment. The fact that 600,000 of products are being sold by Alpha Ltd, makes the process of sale assortment rather challenging. Management of inventory in stock and on-time procurement of products have also been identified as problematic. Secondly, the management wants to address the issue of the distribution development and thirdly, to further invest into the education of its sales employees particularly relating to the products description and installment collection techniques.

Additionally, long term development plans of Alpha’s management include international expansion outside of the borders of B&H. However, major hurdle to this plan comes from the fact that Alpha Ltd. has the official distribution rights for one particular brand it is selling only for the territory of B&H. For example in the countries in the region, that would be logical choice for expansion, other companies have the exclusive right to sell that particular brand. Also, this brand is probably the most important part of Alpha’s assortment and basically a key element of the company’s identity in B&H. This practically means that in order to go international, Alpha Ltd. would have to go through rebranding and probably to make a shift to another producer (brand) who is still not present in the B&H or in the region.

When it comes to the competition, it has been noticed that the competitors are copying some of the promotional activities and sales techniques. However, having in mind that Alpha Ltd. has the exclusive right to sell globally recognized particular brand of products, in B&H there is no threat that competitors would be in position to offer the same products.

Description of the action research process
The Alpha Ltd. company was identified as an suitable candidate for participation in the PACINNO project given the fact that it is a SME that is offering innovative products, when considered in B&H national context. Following the initial contact made by the PACINNO researchers, owner and the general manager of the
The short presentation of the PACINNO project along with the extensive presentation of the research with a special focus on the process of identification of areas for improvement and creation of interventions, feasible within the boundaries of the project was prepared and given by the researchers to the general manager only. The benefits for the company were particularly emphasized and also strong dedication to the confidentiality that would have been guaranteed in case that Alpha Ltd decided to take part in the research. It is important to stress, as it was stated above, that general manager has had positive experience with researchers and external experts who were involved in different trainings and education programs organized for the Alpha’s employees. Hence, the general manager was open to the cooperation from the very beginning with only one major request - signing of the NDA before the research has commenced.

Before meeting the employees, researchers interviewed the general manager following the predefined checklist and prepared questions. The idea behind this interview was to gain initial insight into the life and operation of the company that would be used not only for structuring of the research process but also for preparing the strategy for communication with the employees. During the interview, the manager openly discussed all the issues raised by the researchers. What followed next was the introduction of the researchers to the employees. The researchers presented their role and the aim of the study along with the techniques that were going to be utilized in the processes. Great initial boost for the study was yearly strategic planning event that took place right at the beginning of the research, that allowed the researchers to meet all the key employees more closely and to set up the timings for individual interviews with them. Also, this event was of great importance because researchers were in position to observe the group dynamics, communication amongst employees and different teams, process of idea sharing, course of action when addressing the issues etc. In accordance with the principles of the action case study research, from the very first introduction, researchers invested time and effort into building trustful relation with both employees and management in order to achieve authenticity of their findings.

Researchers were able to conduct interviews with heads of all departments and one employee per every department. The interviews were structured based on the previously prepared standardized set of questions for all interviewees. However, researchers allowed the opportunity for all participants to share thoughts and comments on the issues they perceive as important. In majority of the cases, the manager introduced and supported the cooperation of the Alpha Ltd. and PACINNO researchers in front of employees, which gave them a clear idea regarding their open engagement in the interviewing process. Interviews with employees were conducted in their own offices or in manager’s office (depending on the situation) without the presence of other employees or the manager, just with the person interviewed. The interviews were conducted in a pleasant atmosphere; the employees were slightly more cautious at the beginning, but gradually more and more open and collaborative. Led by the experience from the first few interviews, researchers noticed that all interviewees at the beginning of the sessions avoided to identify any area for improvement. However, as the interview went along and they become more and more relaxed they started to share their impressions more openly about the possible improvements without feeling that they are criticizing the company or the management.

Researchers were present at several other meetings of smaller or larger teams in the company. These events were great opportunity for identification of some issues that had not been brought up during the individual
interviews. Just like strategic planning event, these group meetings also gave researchers the chance to observe the group dynamics and communication, teams interaction, idea sharing etc.

The content of the data gathered during the interviews conducted with the manager and key employees as well as the observational findings were thoroughly analyzed. Researchers’ impressions were discussed with other members of the research team in order to build a common ground for the development of interventions. The researchers decided on the presentation of the findings, issues and proposed interventions to the manager and employees. The most viable interventions were selected for implementation. After the discussion the final report was created and confirmed by the manager. The whole action research process in the Alpha Ltd. company lasted 5 months. It included a secondary research phase in which researchers collected information on company’s performance and the industry from secondary data sources. Examples of the international best practice were also taken into consideration. After the first phase, researcher progressed to the next one that included 4 visits to the company that lasted approximately 2-3 hours each. The most important support in implementing this action research came from Alpha’s general manager/owner, who was highly collaborative and helpful in researchers’ endeavors to identify and analyze some of the actual issues pertaining to the company’s performance and develop proposals for improvement.

Reports of the data analysis
In this section, the findings from the previous stages of action research process in Alpha Ltd company are presented and supported.

Finding 1: The lack of comprehensive long-term strategic direction

Supporting observations:
1. During the strategic planning it became clear that the Alpha Ltd. annually makes rather extensive analysis of the previous business year in terms of the results achieved and issues that have arisen. Heads of different departments are included in this process by providing the statistics and results for their own departments.

2. Based on these results management (in cooperation with the experts) prepares the presentation of possible actions to be taken in order to address the key problems. The planning is made only for the next year with no references to the long-term or even middle-term period of time. It is not clear how do the annual plans fit into the bigger picture of company’s growth and development in the long run. It can appear that the company is too focused on current problems and results which do not allow the management or employees to think in broader terms.

3. Given the fact that Alpha does not develop middle or long term plans, it is not possible to develop operational plans that should be derived from adopted strategic documents that clearly indicate company’s direction in the future period.

4. During the interviews with the management and the employees it has been noted that the company does not have clear standing on whether or not to expand internationally, and if so, when to do it and how to overcome the rebranding problem that the management will be forced to address. In order to make such important decision, that would include giving up on the company’s most important brand in order to grow
internationally, the management has to have clear and comprehensive plan about the crucial priorities for company’s long-term future existence.

**Finding 2: Underdeveloped marketing activities and underutilized promotional potential**

**Supporting observations:**
1. During the team meetings it has been stated that majority of key promotional tools and selling techniques previously only used by Alpha Ltd are now being copied by the competitors. For example, in B&H major competitors have introduced printed catalogues of sales assortment and cardboard shelves at the points of sale which were all previously only used by Alpha.

2. Every year Alpha Ltd copes with the strong seasonal fluctuations of sale since 75% of annual sale is achieved during the construction season.

3. The Marketing Department has been established only recently, and operates since January 2014. Two younger employees work within the department while the external consultant is often included into particular tasks. Up until recently there were only sporadic promotional activities that have not been taken systematically as a part of a larger promotional strategy.

4. This finding also relates to the Alpha’s intention to grow internationally. Considering the fact that rebranding will be the key issue if the management decides to go further with the expansion, the Marketing department has to prepare the study on the rebranding impact and strategy of international expansion in general.

5. Having a clear set of innovative marketing and promotional measures would greatly help to obtain distinctive comparative advantages over the competition. They would also help to address the issue of seasonality of sales and international expansion that Alpha’s management is considering to implement.

**Finding 3: Lack of the employee’s performance measurement and quality management**

**Supporting observations:**
1. It is very commendable that management invests in training as well as the skills and knowledge development of its employees. There are a variety of different workshops, trainings and education sessions organized annually for the employees.

2. Also, company’s management heavily relies on the services and advices of the external consultants in three major fields: procurement/finance, marketing and sales. The question should be raised weather the appointments at the managing positions of different departments have been adequate, since the management is compelled to engage external experts to a rather significant extent. General manager, who is also the owner, carries by far the biggest responsibility and authority over running the company. However, from the interviews and during the observations it became clear that general manager is also included into making many of the decisions on the operational level, i.e. of lesser importance.
3. It has been brought up during the interviews that a lot of time employees feel like they are “distinguishing the fires at the last minute” and constantly working under the pressure, which is completely understandable given the challenging environment of conducting business and also highly competitive industry which Alpha belongs to. It has also become clear that it is sometimes hard to track achievement of the sales staff, to measure their performance and individual contribution to the overall sales. Revision of tasks and responsibilities for every working place, accurate measurements of employees’ performance and further improvement of the communication channels between different departments could add to solving this problem.

4. Following the analysis of the results of observations and interviews, the researchers noticed that company is facing problems with stock and assortment management. By looking into the examples of the best practice for companies of this type, it was concluded that the Alpha should introduce additional measurements such as key performance indicators pertaining to the company’s performance particularly in terms of stock management, sales and returns of the products.

5. The management may consider reorganization of working places in the company, given the strong usage of external expertise for some of the key elements of company’s operations: procurement, finance, marketing etc. The middle management should internally generate these advices. Introduction of KPIs for stock and sales management should also be implemented.

Identification of the core issues and argumentation
In this section, the core issues identified are listed and defined more specifically.

**Issue 1: The lack of articulated long-term strategic orientation and growth**

Although commendable, annual planning in the long run does not make much sense without comprehensive long-term plan. This is also particularly important since it will provide the management with the guidance when deciding whether or not to engage in the process of rebranding and go internationally.

**Issue 2: The lack of systematic marketing activities and underutilized promotional potential**

In the situation where Alpha is dealing with the competitors who have managed to copy some of its key promotional activities it is of utmost importance to offer new, innovative approaches that will be a part of broad, comprehensive marketing strategy. Additionally, for a company that is heavily exposed to the seasonal fluctuations of sale and therefore irregular cash inflow, innovativeness in promotional activities can be very important.

**Issue 3: The lack of the employees’ performance and the company’s performance measurements**

Alpha Ltd’s management relies greatly on the services of external experts in some of its key operations. Also, there does not seem to be established system of measuring individual employee’s performance. Key performance indicators should be introduced and constantly monitored to make sure the business is tracking to plan in terms of stock and product/assortment management.
**Description of the suggested intervention(s) and its effects**

Based on the above identified core issues, the propositions for interventions are developed.

**Intervention #1: Development of company’s long-term strategic plan**

**Addresses issue: 1 and 2**

**Suggested solution:** the company should primarily develop a long term strategic plan in order to provide more guidance in the process of annual planning as well as during the process of making key strategic decisions.

**Purpose:** the purpose is to ensure that the company, sometimes overwhelmed by daily issues, does not lose focus on what are the most important goals for the company’s future existence. It will be of great help for the management in the process of prioritizing what are the more and what are the less important actions to be taken.

**Planning & Implementation:** organizing managerial meetings and sessions between top management and heads of all departments. Managerial meetings will allow the top management to collect inputs from all departmental heads after which they will be analyzed, prioritized and compared with top management’s ideas pertaining to the company’s long-term strategic direction. After having every strategic goal thoroughly discussed, specific timelines with the operational details including the responsible employee per every activity and goal should be developed. Operational plans that will be derived from the strategic plan will also reinforce the communication of expectations from the top management towards the lower level employees.

**Resources:** time invested into the brainstorming and sessions;

**Participants:** the owner/general manager of the company, key employees (heads of all departments)

**Monitoring & Evaluation:** insight into the preparatory documentation as well as the final version of the long term strategic plan of the company, that should comprise of all the crucial elements: long-term goals, timelines and individual responsibilities for the implementation of every single strategic goal.

**Effects of the Intervention:** This intervention has been verified as feasible by the management. The benefits of this intervention are recognized especially in terms of long term growth and development that management aims for. Moreover, the fact that majority of information and preparatory activities can be assured internally and with no additional costs is another argument for the intervention. It should also be noted, that there is a possibility of engaging external expert for strategic planning that would help with the preparation of the final document and would provide management and employees with the knowledge that will allow them to design future long term strategic plans by themselves (in this case resources would also imply incentive for the external expert). Preparatory activities for this intervention have already been commenced and it is expected to have the long term strategic plan finalized by the end of the year the study has been conducted in.
**Intervention #2: Revision of company’s mission, vision and values**

**Addresses issue:** 1 and 2

**Suggested solution:** the company should reconsider its existing mission and also come up with the clear vision and set of organizational values that will be communicated to the employees and clients.

**Purpose:** the purpose is to provide further guidance to management and employees, to offer them stronger sense of the direction the company is going in. It will explicitly communicate where they want to be as an organization and along with the set of values would reinforce the sense of belonging to the company. Hence, it is important to assure inclusion of all employees.

**Planning & Implementation:** organizing brainstorming meetings and sessions that will be based on the process model (input - process - output) and will take into account the opinions and suggestions from all employees.

**Resources:** time invested into the brainstorming and sessions;

**Participants:** the owner/general manager of the company heads of all departments and all employees (there is also a possibility that top management will decide to include the external facilitator in the process).

**Monitoring & Evaluation:** insight into the preparatory documentation as well as the final version of the mission, vision and values documents. The achievement of the mission can also be tracked based on the predefined milestones.

**Effects of the Intervention:** Along with the first one, the management has also approved this intervention. The main arguments for implementing it pertain to internal benefits that this intervention will create such as stronger sense of company’s purpose and organizational values amongst the employees. It is also recognized that existence of company’s mission, vision and values brings the company closer to the internationally successful companies whose operations are regarded as the best practice in this business. Mission, vision and values will be disseminated both internally and externally, which will help the company to further differentiate its position in the minds of consumers. Revision of the key strategic document will take place and be finalized by the end of the year in which this study has been prepared along with the long-term strategic plan. This intervention and Intervention 1 will probably be implemented at the same time as a part of joint process that may require engagement of external expert.

**Intervention #3: Development of clear and innovative marketing strategy with emphasis on the digital strategy**

**Addresses issue:** 2

**Suggested solution:** the company should develop comprehensive, attainable and measurable marketing and promotional strategy. Some of the actions to be taken should include: improvement of the Alpha’s online
presence (redesign of the web page, online visibility, online approachability etc.), collaboration with TV shows and YouTube channels related to do it yourself projects and minor constructions (donation of materials in exchange for the company’s name to be explicitly mentioned several times and be visible during the entire show), development of the rebranding strategy with a clear set of actions, explicit propositions and assumed consequences of the rebranding etc.

**Purpose:** the purpose is to strengthen Alpha’s market position and visibility which will consequently bring more clients, opportunities and profit.

**Planning & Implementation:** organizing brainstorming meetings and sessions, led by the Marketing department that will be responsible for the strategy drafting. Before being presented to the Management, the Marketing department should make sure that achievement of every goal in the strategy is measurable, that there is a clear set of actions identified for every goal’s achievement, that resources (human and financial) for every action are stated, and that effects of every element of the strategy are expressed in monetary terms.

Resources: time invested into the brainstorming and sessions. Depending on the actions that strategy will include, it will require different amounts of financial resources (e.g. expertise for web page redesign and reconstruction and other activities)

**Participants:** the owner/general manager of the company, Marketing and Finance departments

**Monitoring & Evaluation:** tracking the results based on the milestones identified in the strategy. Insight into the implemented marketing activities and the financial effects of every activity.

**Effects of the Intervention:** This intervention goes along with management’s goals to enhance the marketing activities of the company where the first step of the process was establishment of Marketing Department (this happened the year this study was conducted). The intervention will be implemented aiming to achieve two main effects - better market positioning and overcoming the seasonality of sales that largely depend on the construction season i.e. weather conditions. The strategy is already being prepared and some of its effects (in terms of sales boost) will be measurable already at the beginning of the next calendar year given the fact that winter is usually the time when sales has significantly dropped so far.

**Intervention #4: Introduction of new assortment groups**

**Addresses issue:2**

**Suggested solution:** the company should introduce new assortment groups that would include the products whose sales is not strongly related to the construction determined by the weather conditions (outdoors construction).

**Purpose:** by introducing new products, Alpha would attract more diversified consumers and also would overcome the seasonality of the sales more easily since usage of new products would not be highly correlated with the weather conditions. Additionally, in case that management decides to go internationally and to abandon company’s most recognized brand, Alpha will need new strong brands in its offer to establish and keep the strong market position.
Planning & Implementation: organizing brainstorming meetings and sessions, market research and identification of the potential new brands and products to be included into the assortment, thorough analysis and selection, initial contacts with the producers, buying the test amount that would be used to inspect weather the demand for that particular product exists. In case there is a market for new products, Alpha should advertise it properly and include it in the regular assortment.

Resources: time invested into the brainstorming, market research and communication with the new supplier. Alpha could give up on some less profitable groups of products whose sales greatly depends on the construction season in order to assure resources for procurement of new assortment.

Participants: the owner/general manager of the company, Procurement, Finance, Sales and Marketing departments

Monitoring & Evaluation: tracking the results of sales.

Effects of the Intervention: The management is still considering this intervention since it greatly depends on the decision whether or not to go internationally in the upcoming period. However, the inclination of management so far is towards implementing it (even in a very small scope) because introduction of new products whose sale is not dependant to construction season (i.e. not sensitive to weather conditions) can help in stabilization of sales throughout the entire calendar year.

**Intervention #5: Building up the showroom**

Addresses issue: 2

Suggested solution: the company should construct a showroom at its new premises where the most important products of Alpha’s assortment will be exhibited. Additionally, there should always be one employee available for demonstration who would have the knowledge in sales to be present when the clients visit the showroom

Purpose: achieve distinctive advantage over competition, attract new clients who want to see the products before making the purchase, increase in sales, building closer connections with the clients, etc.

Planning & Implementation: designation of physical space for the showroom, equipping the space, furnishing the space - building/purchasing the inventory (shelves, tables for practical demonstrations), identification of the products to be showcased, written invitations to all clients to visit the showroom after opening it.

Resources: time and financial resources invested into the preparation of the showroom.

Participants: the owner/general manager of the company, Finances, Sales, Marketing and Logistics departments

Monitoring & Evaluation: monitoring the number of visitors to the showrooms, monitoring the number of sales arranged after the clients’ visited the showroom
Effects of the Intervention: This intervention was viewed as potentially useful and its effects are in alignment with management’s goal to innovate existing promotional activities that have been copied by competitors recently. However, the final decision on the exact time this intervention will be implemented has not been made yet.

**Intervention #6: Introducing the human resources manager position**

**Addresses issue:** 3

**Suggested solution:** the company should introduce human resource manager position that would be in charge for measuring performance of the employees, proposing the stimulation packages, keeping track on the individual employees’ results and identifying the need for the external expertise, training and additional education.

**Purpose:** to reduce the number of engaged external experts, to reorganize stimulation packages particularly for the sale department, to properly identify the need for additional education and training in certain fields for the employees

**Planning & Implementation:** to inspect weather there is already employed individual that has the knowledge and experience to accept this position. If not, recruit externally.

**Resources:** time and financial resources invested into recruitment and additional salary (if the person for the position is searched externally)

**Participants:** the owner/general manager of the company

**Monitoring & Evaluation:** monitoring the number of external experts engaged, the number of training and education sessions organized for the employees relating to their work, measures of improvement of employees individual performance etc.

**Effects of the Intervention:** This intervention has not been viewed as feasible at the moment since it brings changes of larger scope to the very organizational structure of the company. Also, the facts that this company still operates only nationally and is still small in terms of the number of employees, do not impose the need to introduce the human resource manager position yet. However, in case that the company achieves the desired growth rate in the medium and long run, implementation of this intervention will be, most certainly, reconsidered.

**Intervention #7: Introducing of the key performance indicators**

**Addresses issue:** 1, 3

**Suggested solution:** the company should introduce additional key performance indicators to be tracked and measured. They would be of great help in monitoring the achievement of operational and strategic goals for
the company. One of the main KPIs to be introduced should be Inventory value and carrying cost which would allow Alpha to accurately forecast and predict clients’ demand which is essential to managing inventory and anticipating procurement needs. Another KPI to be introduced is Sales order fill rates which would help Alpha to measure the time needed for an order to be completed from the very beginning i.e. building quotes to entering orders. With this KPI, Alpha would assure that there are sufficient items in stock to make delivery on time for every client. Moreover, Alpha should consider introduction of Returns due to improper delivery and defective items indicator. This indicator would allow the company the identify the crucial delivery problems and the products in the assortment that have often been returned as defective. With these KPIs, Alpha Ltd can differentiate itself from competitors who may not have complete supply chain visibility.

**Purpose:** to help the management in early detection of problems, to provide the company the opportunity to help with inventory carrying costs, to simplify the demand planning and product lifecycle management, to assure on-time implementation of corrective measures, to establish more efficient measurements of performance, to increase clients’ satisfaction

**Planning & Implementation:** The company should implement an ERP system solution like Microsoft Dynamics NAV that would help track all three proposed KPIs. It includes powerful and flexible forecasting tools that adjust to reflect real procurement requirements. Also, real-time Capable to Promise (CTP) and Available to Promise (ATP) functions of the system solution can help in accurately determining the delivery and logistics time. After purchasing the software, Alpha should designate and train employees who would work with it, create a dynamic plan of measurements, establish the timeline for tracking and reporting on KPIs and develop a set of corrective measures to be implemented when the discrepancy is found.

**Resources:** time and financial resources invested into finding and purchasing the most proper system solution for KPIs tracking. Time and financial resources for training of employees who would be responsible for the KPIs tracking and reporting.

**Participants:** the owner/general manager of the company and heads of all departments in the company

**Monitoring & Evaluation:** insight into the system solution that has been purchased and implemented, insight into the results of KPIs measurements and corrective actions taken, costs/revenue analysis before and after the introduction of KPIs etc.

**Effects of the Intervention:** The implementation of this intervention was seen as potentially very valuable to the company’s operations. In a way, it would help to built some sort of “quality management system” since it would allow continuous monitoring of achieved results, on-time detection of potential problems and early interventions aimed at solving them. However, management has still not reached the final decision regarding the system solution that will be purchased and introduced in order to assure measurement of key performance indicators. Also, selection of key performance indicators and consequent decision on software to be purchased will be discussed during the Strategic Planning event that will take place by the end of this year. It is researcher’s assumption that implementation of this intervention will eventually become inevitable, especially if the company continues to grow.
Recommendation for transferability of interventions and evaluation of its relevance

In my opinion, interventions #1 and #2 is transferable to other distribution and retail SMEs that are experiencing relatively rapid growth since it will help them to strategically identify and direct their future operations. Intervention #4 could be useful for SMEs whose sales revenues heavily depend on the weather conditions since it would help them attract more diversified consumers interested in products whose sales and utilization are not highly correlated with the weather conditions. Intervention #7 could be of use for other retail and distribution SMEs that aim to achieve greater efficiency in management of inventory in stock.

Based on this study it could be recommended for SMEs, regardless of their size, to:
- develop a clear, comprehensive long-term strategy in form of written document in order to strategically plan future actions and priorities;
- formally articulate company’s vision, mission and values and to communicate them to all employees;
- strategically address the seasonality of revenues in certain business lines by introducing new products whose sales are not dependant on the seasonal conditions
- introduce some form of “quality management system” that allows effective and continuous monitoring of achieved results. Based on the company’s operations and defined strategic direction, certain number of key performance indicators should be identified and continuously monitored. This will help the company to accomplish better efficiency and preventively act in order to avoid potentially adverse situations.
2.4.2. Case: Beta Ltd. - (great) Minds Think Alike or Not?

Abstract
This paper describes the action research process conducted in (B&H) full service agency for integrated marketing communications Beta Ltd from Bosnia and Herzegovina. The research idea and methodology originated from the IPA Adriatic PACINNO project. The study was conducted through an applied cooperation between a research institution and an innovative SME with a national scope of operations and on beginning of international expansion. In-depth understanding of the business as well as internal managerial and operational processes in the company Beta Ltd. was achieved by utilizing the research methods such as direct observation and semi structured in depth interviews with the CEO and employees. As a result of action research some of the areas for improvement were identified and set of interventions have been developed accordingly. Interventions are focusing on improvement of internal processes and on introduction of new approaches to HR practices within the firm. After four out of five proposed interventions were accepted, in Beta Ltd innovation performance was improved, expecting improvement in business performance as well.

Keywords: action research, full service marketing agency, Bosnia and Herzegovina, innovation

Introduction
This paper describes the case study developed based on the action research conducted in the B&H company Beta Ltd. The company explicitly insisted not to disclose its name or any other information that indirectly reveals the identity of the company in the reports coming out of the research, and finally from the project. Therefore, the researchers involved in the study and the Beta's CEO signed the Non Disclosure Agreement (NDA) that both parties agreed upon. NDA was a single key precondition requested by the company before starting the research. Therefore, in this report, a fictional name Beta Ltd. is used to refer to the company that was in the focus of the action research process. Some of the data related to the company are presented in a broader sense in order not to reveal the company’s identity.

The research was conducted as a part of the regional PACINNO project (Platform for trans-Academic Cooperation in Innovation) that aims to establish and strengthen cooperation between research institutions and innovative SMEs. As it was mentioned above, the principles of action research process were used in order to improve collaboration and innovation processes in the company. This research also enables creation of knowledge about the process of collaboration and innovation in this type of companies, and provides an opportunity to develop propositions for further research. The action research in Beta Ltd. is accompanied by similar research conducted in additional company in B&H and additional companies in the Adriatic region within the PACINNO project. This creates a solid basis for a comparison, which represents the next step of the PACINNO project.

In general, focus of the study was on innovations within the Beta Ltd, focusing on management of the firm, employees that are running those innovations, their social dynamics, dynamics between departments, work structure, sources of new knowledge, and facilities needed to improved innovations. Therefore, although we observed physical context of the firm, we gave special focus to observations of social context, formal and informal interactions during workdays within the firm but also during some special events (castings, pitch presentations) that are happening outside of the firm’s building. This allowed us to gain an in-depth understanding of all processes within Beta Ltd. In turn, we were able to design manageable interventions, which, we hope, are going to contribute to improvement of the innovations and finally firm performance.
This paper consists of the description of Beta Ltd., description of the action research process conducted in Beta Ltd., report on the findings and issues identified and propositions for interventions on the reported issues. The final part of the report presents the evaluation of the research project with special emphasis on the identification of the potential for wider generalization of the problems and solutions related to Beta Ltd. case study.

**Description of the company**

Beta Ltd. is registered as a private limited liability company, and is one of the leading and the most innovative agencies for integrated marketing communications in Bosnia and Herzegovina. Currently, it employs between 30-40 people. The company is headquartered in Sarajevo, where it owns own building for their operations.

Solutions they are offering to their clients goes beyond traditional marketing services that are being offered in Bosnia and Herzegovina. Moreover, they are able to provide full in-house marketing service, which includes own digital production to their clients, which is being their competitive advantage. Commenting on their work, their representative notes that they are ‘different because of their creative solutions and high quality digital production.” Additionally, competitive advantages, as seen by both employees and CEO, are family atmosphere within the company and work conditions in general.

Having in mind dynamic environment, globalized market and increasing competition Beta Ltd decides to do investments in a new business start-up driven with the knowledge and innovation. Therefore, Beta Ltd started 3 affiliated startups in 2014. Two of those are local SMEs (one is offering strategic services such as finances, legal service etc., while the other is specialized for all services that are related to media buying) while third one is startup that is started in collaboration with the foreign partner, and which is going to offer marketing products and services internationally. All four companies (Beta Ltd and three startups) are sharing resources and knowledge that is in the most of cases is coming from Beta Ltd.

Core values that are being promoted through Beta Ltd and affiliated Startups are:
- Transparency, trust and partnership in relationship with clients
- Excellence, proficiency knowledge, skills and expertise of employees
- Love and passion towards work

The workforce is culturally homogenous, employing local citizens, but some of them completed higher education abroad. Personal relationships and social interactions are very important within Beta Ltd. Birthdays and important events of employees are closely followed and celebrated together. Team buildings are organized regularly (minimum twice a year). As observed, but also confirmed by all employees through in-depth interweaves (nine), CEO is playing a crucial role in social interactions and human relationships and CEO is seen as role model, and parent figure for all employees.

The Beta Ltd has been recognized by professional public several times in the past years. In particular, they won different awards on the specialized marketing and design conferences. In addition, representatives of the company are featured in the media and in the professional press presenting examples of excellent implementation of an innovative business ideas, innovative products and services.
Description of the action research process

The Beta Ltd. was identified as a suitable candidate for participation in the PACINNO project given following criteria:
- It is SME with number employees between 10-50;
- It is a well-functioning knowledge-intensive, highly innovative SME;
- Beta Ltd is starting its operations internationally;

They expressed interests for improvements in the broader area of microfoundations of innovation. Following the initial contact made by the PACINNO researchers, owner and the CEO of the Beta Ltd. agreed to meet the team in order to find out more about the an offer to participate in the research. The short presentation of the PACINNO project along with the extensive presentation of the research process was conducted. Special focus in presentation was on the process of the research that will be conducted in order to identify areas for improvement and creation of interventions, feasible within the boundaries of the project. The benefits for the company were particularly emphasized and also strong dedication to the confidentiality that would have been guaranteed in case that Beta Ltd decides to take part in the research. It is important to stress out, as it was stated above, that CEO has had previous experience with research institution that is running this research in Bosnia and Herzegovina, hence, CEO was open to the cooperation from the very beginning with only one major request - signing of the NDA before the research has commenced. After this meeting and before meeting the employees, researchers interviewed the CEO following the predefined checklist and prepared questions. The idea behind this interview was to gain initial insights into the life and operations of the company that would be used not only for structuring of the research process but also for preparing the strategy for communication with the employees. During the interview, the CEO openly discussed all the issues raised by the researchers.

What followed next was the introduction of the researchers (two) to the employees. The researchers presented their role and the aim of the study along with the techniques that were going to be utilized in the processes. Great initial boost for the study were on-going projects that could be observed, such as big launching of full advertising campaign for a large client of the agency, presentation of the new internationally oriented spin off start-up, celebration of h anniversary of Beta Ltd. All those events allowed the researchers to get familiar with all phases that are being run as a part of the particular projects of Beta Ltd, collaboration among different departments, to meet all the key employees more closely in work environment and to set up the timings for individual interviews with them. Also, these events were of great importance because researchers were in position to observe the group dynamics, communication among employees and different teams, process of idea sharing, course of action when addressing the issues etc. In accordance with the principles of the action case study research, from the very first introduction, researchers invested time and effort into building trustful relation with both employees and CEO in order to achieve authenticity of their findings.

Together with CEO researchers explored various data-gathering possibilities (considering demand for time, potential interruptions of the work process, effectiveness and efficiency of various methods for our aims). It was agreed upon unstructured observations, semi-structured observations, in-depth interviews (with head of the each department at least), secondary sources analysis (web) and observation of physical setting of the premises and artifacts. A crucial component for planning observations was setting an appropriate
timing when more interaction(s) could be observed. We considered the following interaction modes: group interactions among employees and interactions of employees with external actors in person (i.e., clients). In addition, although not an interaction mode, individual work was also noted as a potential observation opportunity.

Researchers were able to conduct interviews with heads of all departments and additional employees appointed by the CEO. The face-to-face interviews were structured based on the previously prepared standardized set of questions for all interviewees. However, researchers allowed the opportunity for all participants to share thoughts and comments on the issues they perceive as important. Having said that CEO introduced and supported the cooperation of the Beta Ltd. and PACINNO researchers, that gave a clear idea to employees regarding their open engagement in the interviewing process. Interviews with respondents were conducted in their own offices or in meeting room (depending on the situation) without the presence of neither other employees nor supervisors, just with the person that was being interviewed. The interviews were conducted in a pleasant atmosphere, lasting between 45-90 minutes; the employees were slightly more cautious at the beginning, but gradually more and more open and collaborative. Led by the experience from the first few interviews, researchers noticed that all interviewees at the beginning of the sessions avoided identifying any fields for improvement. However, as the interview went along and they become more and more relaxed they started to share their impressions more openly about the possible improvements without feeling that they are criticizing the company or the management.

Researchers were present at several external events (e.g. Castings, Presentation of new Start-up). These events were great opportunity for identification of some issues that had not been brought up during the individual interviews.

The content of the data gathered during the interviews conducted with the CEO and key employees as well as the observational findings were thoroughly analyzed. Researchers’ impressions were discussed with other members of the research team in order to build a common ground for the development of interventions. The most viable interventions are presented in this report. The whole action research process in the Beta Ltd. lasted 5 months. It included a secondary research phase in which researchers collected information on company’s performance and the industry from secondary data sources. Examples of the international best practice were also taken into consideration. The secondary research was followed by primary research, which consisted of 8 visits to the company. The most important support in implementing this action research came from CEO, who was highly collaborative and helpful in researchers’ endeavors to identify and analyze some of the actual issues pertaining to the company’s performance and develop proposals for improvement.

Reports of the data analysis
Beta Ltd is one of the best functioning and most successful marketing agencies in BH. During action research it was very difficult to spot the room for significant improvement of processes that can bust innovations within the firm without creating bureaucratic atmosphere which is unacceptable in advertising industry. In this section we focus only on challenges that could be further improved. Findings that are presented should be viewed as a selection of basic building blocks that helped us to understand the context and theme-relevant challenges that we address later with suggested interventions.
Finding 1: The lack of shared vision of the Beta Ltd future among employees and firm management

Supporting observations: During the interviews, the both, management and employees expressed their satisfaction with the success of operations and market share in the local market. At the same time, the aspirations for further development of the firm, and future of the firm in general, is seen differently by management and by employees. While management sees future in doing business internationally, employees sees future of the firm through further development of the market position in B&H and in a new improved products offered locally.

Finding 2: Structured and scheduled regular (weekly) meetings as part of the corporate culture.

Supporting observations: Regular weekly meetings (among head of departments) are not scheduled. Indeed, it is difficult to schedule meetings because of industry dynamics, and broad range of individual work activities. In addition, there is a general attitude that meetings are a ‘waste of time’. However, regular weekly meetings could have a positive impact on idea generation and information sharing, since larger number of employees could be informed about ongoing projects that they are not in charged for directly.

As noted through observations the (project) meetings and brainstorming sessions are happening quite often (between members of different departments), but they are always related to particular ongoing project, day-to-day coordination and activities. Those brainstorming sessions are not moderated in a systematized manner, nor do they contain some teasers and ice-breakers for generating a larger productivity.

Finding 3: (new) Employees’ understanding of the work processes in other departments can be improved (recruiting, selecting and adapting)

Supporting observations: There were explicit statements that right employees and external collaborators (e.g. promoters) are difficult to find. These statements were shared by employees and CEO. During interviews, it was emphasized that new employees are usually starting to work on particular position for which they apply, without spending some (good quality) time in other departments. Indeed, they do visit other departments, for a few hours to meet people and to get familiar with the work of other departments. Sometimes, new employees do not understand a complete process of work, or what is needed by other department to finalize the project. This could be improved if new employees would follow/cover same work project through all departments.

In general, employees within the Beta Ltd have very diverse educational backgrounds that enchain their group dynamics and creativity. In the same time, due to their diverse educational backgrounds they can have difficulties to understand the work process in other departments except their own. For example account manager can have difficulties to perceive that creative department needs time to produce high quality creative solutions. In the same time graphical designers that are working within creative department, can hardly understand the role of stress and time pressure in the work of account mangers that is caused by constant communication with clients (i.e. who, very often, are not able communicate and explain what they really need and want and expect from the communication campaign).
Finding 4: Sometimes employees feel overloaded with the work

Supporting observations: Because of the specific situation in companies that are running their operations in B&H, and cutting down of marketing budgets the Beta Ltd is forced to act very carefully with employment of the new employees.

Finding 5: Attending professional events as entertainment

Supporting observations: The firm sends employees to professional events (e.g. marketing conferences, advertising festivals) very often. However, attending those professional events is sometimes seen as ad-hoc activity, not planned through personal development agenda of all employees. Since most of the employees are bellow 35, it not strange that they see those conferences and festivals as entertainment events, without obligation to attend sessions and to share obtained knowledge in structured manner with their colleagues.

Finding 6: Miscommunication and time lose caused by unstructured information sharing

Supporting observations: During brainstorming sessions, and during work on pitch presentations many novel ideas are being born but also most of those are being lost through the work process (which is normal considering contemporary advertising industry). However since there are no structured mechanism for tracing and documenting novel ideas, some of the great ideas are not being fully exploited. In addition employees do not use cloud software that would allow them sharing documents among people within one department and among departments. Having in mind that projects are lead by particular account manager, in some unexpected circumstances, when account manager is absent, it is challenging for other employees to continue the project running smoothly.

Moreover, following organization structure, account manager is the one who meets the client; take a brief from the client and passing information to other departments (events, creative department, production). It is happening that in communication tunnel, some information do not reach departments that are in need of particular information, or some information unintentionally are being filtered by account manager. This influences final output in a way that it is more time needed to create solution that will satisfy clients’ needs.

Identification of the core issues

After data gathering and interpretation it appears that although employees and work conditions in general are key competitive advantages of Beta Ltd. there are still further opportunities to improve its innovative potential. Further, there is room for improvement in usage of tools for generating ideas and intentional activities to facilitate idea generation and implementation process. Below, in cooperation with CEO the core issues identified are listed and defined more specifically.

Issue 1: Lack of shared vision on the company future

Issue 2: Lack of defined procedures that would improve internal collaboration an innovation processes

Issue 3: Facilities that would improve novel ideas generation and information sharing
Description of the suggested intervention(s) and its effects

Based on the above we developed the following interventions. They are intended to strengthen shared vision of the firm among employees and CEO, improve the internal collaboration and innovation processes in Beta Ltd.

**Intervention #1: Introducing regular weekly meetings**

Addresses Issue 2 and partly 3 (see above)

*Suggested Solution*: regularly scheduled weekly meetings of heads of all departments where status of ongoing projects would be shared and discussed.

*Purpose*: improving the understanding of challenges and issues that other departments are facing with in realization of different projects; diffusion of ideas; strengthening of shared mental models in the company; cross-learning.

*Planning & Implementation*: regular time and place should be scheduled in advance; meeting should not be longer than 45 minutes

*Resources*: presenting equipment, office space or outdoors space for meetings.

*Participants*: heads of departments.

**Intervention #2: Create visual repository of the strategic documents on the walls of the shared space (halls, meeting rooms) within Agency (Where are we now? Where we want to be in 2025? Where do you want to be in 2025?)**

Addresses Issue 1

*Suggested solution*: Creative department should develop a creative solution how to present vision of the firm on the walls in Beta building in order to introduce strategic vision to all employees.

*Purpose*: Ensure that the employees, sometimes overwhelmed by daily issues, do not lose focus on what are the most important goals for the company’s future. Therefore, it is necessary to clearly define strategic documents, and share the most important ideas among employees in a creative manner, so they can participate in reaching shared goals. By communicating strategic vision among employees, efficiency in reaching goals thorough optimal usage use of all resources (people, time, money) in the implementation of planned objectives will be ensured.

*Planning & Implementation*: organizing brainstorming meetings and sessions that will be based on the process model (input - process - output) and will take into account the opinions, suggestions and participation of all employees.

*Resources*: time invested into the brainstorming and sessions; paint
Participants: CEO, heads of departments, designers, all employees

**Intervention # 3: Building up the showroom for a new ideas generation**

Addresses issue 3

*Suggested solution:* Beta should construct a showroom wall were all employees could present their own novel ideas that can improve business operations of the firm. Quarterly, management board will assess ideas, and decide about starting implementation of one of those ideas as a new project.

*Purpose:* novel ideas generation.

*Planning & Implementation:* designation of physical space for the showroom

*Resources:* time of employees

*Participants:* all employees

**Intervention #4: (structured) Brainstorming for open idea generation**

Addresses Issues 2 and 3 (see above)

*Suggested Solution:* in contexts where lots of new idea generation is expected, when brainstorming sessions are happening quite often, employees have to be reminded about what should be avoided (to prevent idea generation inhibitors) during brainstorming sessions. All employees should go through a showcase of brainstorming session, where idea generation is clearly separated from idea evaluation. Standard brainstorming principles and criteria for idea evaluation relevant for Beta have to be established.

*Purpose:* Making differentiation between idea generation and idea evaluation at group brainstorming meetings. Increasing awareness that highly effective brainstorming is usually structured and planned.

*Planning & Implementation:* implementation of a showcase brainstorming session

*Resources:* time

*Participants:* all employees.

**Intervention #5: Introducing the human resources manager position/task**

Addresses issue: 2 and 3

*Suggested solution:* the company should introduce human resource manager position (or task that will be given to office manager) that would be in charge for recruitment, selection and headhunting of new
employees, designing of personal development programs, and monitoring of all employees through their professional development, keeping track on the individual employees’ results and identifying the need for the external expertise, training and additional education.

**Purpose:** to improve understanding of employees about all work processes, proper identification of need for additional education and training in certain fields for the employees, but also knowledge sharing.

**Planning & Implementation:** to inspect weather there is already employed individual that has the knowledge and experience to accept this position. If not, recruit externally if possible.

**Resources:** time and financial resources invested into recruitment and additional salary (if the person for the position is searched externally)

**Participants:** CEO and Management Board

**Effects of the interventions:**
Most of the proposed interventions (4 out of 5) were accepted in adapted manner and Beta Ltd confirmed that innovation performance was improved to some extant, expecting improvement in business performance in 2016 as well. Due to the NDA agreement more information on exact adaptation of proposed interventions and their implementation is available to researchers only.

**Recommendation for transferability of interventions and evaluation of its relevance:**
**General findings:**
- Being informed about firm strategic orientation is important for firm success and employees’ satisfaction.
- Knowledge, information sharing and trust among all employees and the management has positive influence on firm success
- All employees have to be educated about the importance of their active involvement in the brainstorming sessions if it is expected from those sessions to generate innovative business solutions.

**Transferability of interventions:**
Intervention #1 and Intervention #5 are fully transferable to all SME, without any limit in terms of size. Intervention #2 is useful for situations, where creativity of employees is out of huge importance. Intervention #3 is generally applicable in smaller highly creative organizations. Intervention #4 is applicable in SMEs where group interactions are vital for development and implementation of firm products/services.
2.5. IN-DEPTH CASE STUDIES: SERBIA

2.5.1. Case: IMP Automation & Control Systems - Leveraging Cooperation and Creativity to Create Innovative Tools to be Implemented in Automation and Control Solutions

Abstract
This report is oriented to outline an active research process conducted in the IMP Automation & Control Systems, independent legal entity established in 1997 as a spin-off company of the Institute “Mihajlo Pupin”. The study is a part of the PACINNO project and adopts the PACINNO principles of action research to improve collaboration and innovation process in the focus company. In-depth understanding of the business and innovative processes in IMP-Automation & Control Systems was achieved by means of qualitative methods such a direct observation and interviews. It facilitated development of focused small-scope interventions such as propositions for changes in the physical setting of the office space, inter-disciplinary knowledge transfer, applying the group brainstorming process, and guidelines for employee development initiatives.

Keywords: action research, cooperation, collaboration, creativity, innovation

Introduction
This document points out a case study and a latter action research process carried out in the IMP Automation & Control Systems in the PACINNO project framework. It aims to use the principles of action research to improve collaboration and innovation process in the focal company. At the same time, it also generates knowledge about collaboration and innovative processes in this type of companies and provides opportunities to develop propositions for further (confirmatory) research. Finally, as the study of IMP Automation & Control Systems is accompanied by a study of another company in Serbia and additional studies in the Adriatic region countries, it co-creates the potential for a comparative study, which is the next step of our project.

The success of the innovation process in organizations frequently comes down to the creative potential of its members, social dynamics among them and outreach to external sources of knowledge and ideas. These phenomena were also the main foci of our inquiry in IMP Automation & Control Systems. We looked at the physical and social context, in which employees work, examined their formal and informal interactions leading to problem solving and idea generation/implementation, and scrutinized the broader context, in which the company operates. This allowed us to gain an in-depth understanding of the business and innovative processes in IMP Automation & Control Systems. In turn, we were able to design – together with the company representatives – simple and manageable interventions which, as we show, contributed to improving the focal processes in the company.

The structure of the report is as follows. We start by a description of the focal firm, which enables the reader to get to know the company and familiarize herself with the current situation in the company. Then we continue with a description of the action research process in IMP Automation & Control Systems (a more general description of action research principles and a general research protocol that was pursued in this study will be addressed separately) and report on the general challenges that were identified. Further,
interventions that emerged from the action research process are presented and its observed effects are discussed. Finally, we evaluate the research project and indicate potential generalizations of problems and solutions based on the study of IMP Automation & Control Systems.

**Description of the company**

‘IMP-Automation and Control’ Ltd. is one of the most successful Serbian companies in the field of automation and control. It is usually the system integrator and project leader in most of the complex projects. This company focuses its efforts on high technologies applied to the management of large-scale systems in the electricity industry, water resources management, traffic and transportation, industry, as well as, on the development of the specific information systems like the access control systems.

R&D program of this company is mainly carried out in the field of operational research, expert systems, decision support, and electric power industry and information technologies.

In a field of Process Control Program, IMP-Automation & Control Systems provides to customers Design and development of Digital Control Systems (DCS) and Supervisory Control & Data Acquisition systems (SCADA) used for management and control of complex processes, Digital Control Systems for Thermal Power Plants and Hydro Power Plants as well as turbine control systems, Energy Management System Applications, designed for management, safety increase and performance optimization of the electro power plants, Measuring Equipment - System for Electrical Energy Consumption Data Acquisition, Recording and Processing for Accounting Purposes – ARES, electronic transducer of electrical quantities, electricity meters for accounting measurements at high voltage, etalon meters of electrical power, etc.

Development, design and production of information systems and management systems in traffic control and transportation systems, ITS, GPS and GIS systems is another field of expertise that this company has, as well as development, design and realization of dedicated information systems for access control and employees’ presence and working time records.

IMP-Automation & Control Systems provides its customers with Development of Hardware and Firmware, development and maintenance of Software Applications, Studies, design and realization of products and systems tailor designed and modified to meet exact customer needs, System design and integration, Consulting, Training and customer support.

IMP-Automation & Control Systems is present on the local and global markets, The Company has strong and systematized organizational structure, divided in departments. Seven departments consist company: Electric power system management, Real-time management, hardware development, hardware Manufacturing, Traffic management on highways, charging systems and access control, traffic and transport systems, Design and engineering systems. On the top of the company is CEO. More than a half of the “IMP-Automation & Control Systems” personnel are university graduates, with 10 % holding PhD and MS degrees.

**Description of the of the action research process**

IMP-Automation & Control Systems was our first choice for cooperation on the PACINNO project because it has originally designed products, it has significant share on domestic as well as on international market, it is present in more than one industry, it has well established and effective operations, and the majority of
employees were willing for cooperation. The initial correspondence was established between a PACINNO researcher and the Deputy Directors. Since, in previous years we have had an excellent cooperation in a various fields of business, we easily pointed out numerous benefits that can be achieved for both parties, and in the same time taking care of confidentiality for all collected inputs. It was also made clear that the potential interventions/solutions stemming from this project would be aimed to improve the company's internal collaboration and innovation process and that their scope of inquiry will be within manageable levels of the project.

After the initial correspondence with Deputy Directors, we have arranged a meeting with company’s CEO, who understanding the benefits for the company, was more than willing to ensure a solid basis for our further research. From the very beginning, high level of trust and availability from both parties was established. The CEO has organized a meeting with all main researchers in the company, so that we were able to present PACINNO project and to introduce the aims of the research properly. CEO supported our collaboration with employees from all organizational levels and made a clear statement that the demand on their time due to the project would not be any issue. PACINNO researchers explained the project and answered many employees’ questions. At the end of the meeting overall impression was very positive. Employees gave positive feedback and looked very interested in whole concept of our research. A major part of the initial activities was aimed at elaborating on and illustrating what Action Research actually is and what company members’ roles in the process will be.

The next meeting was arranged with key representatives of company departments. Beside researchers from all departments (Electric power system management, Real-time management, hardware development, hardware Manufacturing, Traffic management on highways, charging systems and access control, traffic and transport systems, Design and engineering systems), the meeting was attended by key personnel from financial, administrative and HR departments. The main reason for that was to increase researchers' awareness of importance of other departments that are not in main focus of the company.

With this group we explored all possible ways to collect various data necessary for successful research. We agreed upon unstructured observation, semi-structured observation, interviews, secondary sources analysis, archival records (e.g., financial information), and observation of physical setting of the premises and working space. An appropriate period of time was essential element for planning observations of interactions that could be observed. The following interaction modes were considered: dyadic interaction between employees based on a working process and internal communication, group interactions among employees on teams’ meetings in every department, interactions of employees with external actors (i.e., clients, partners), as well as individual work.

Representatives of every department provided us with weekly schedule of main activities so we could perform unstructured observations. With this timetable we were in a position to observe: every department’s weekly team meeting; brainstorming sessions involving all employees (also in every department separately); individual work and dyadic interaction in every-day working environment. In addition, interviews with selected individuals were made possible. All interaction modes were performed in the office space or in the meeting rooms of the department’s premises. As a result of data gathering field notes of observations and notes from interviews were produced.
After the completion of data collection, next step was analysis of collected data. Beside main researcher, other members of the research team took active part in the discussion. The results of the first bunch of gathered data were processed and the outcomes were documented and served as one of the inputs for determining potential interventions. The most feasible interventions were then selected for implementation.

Using multiple sources for data gathering and also using multiple methods of interaction and data, we were able to check for discrepancy and to explore reasons for them. The management team of the company was an important partner in helping us explain the inconsistencies, while findings that were tough across different sources and methods made us more confident to expose and discuss them openly and directly with the representatives of the company.

**Reports of the data analysis**

In this section, we list and support relevant findings that were raised from the earlier stages of the research process. They should be viewed as a selection of basic building blocks that had helped us to understand the context and to spot-relevant challenges that we address in this report, and hence suggest interventions.

**Finding 1: Premises in the company are badly organized and not fully renovated**

**Supporting observations:** Employees are accommodated in multiple locations and multiple objects. Working units inside the departments are divided in small offices. Average working space (office) is relatively small and only from 12m² up to 16m² in surface. Often, four employees work in one office. In assembling room for devices and systems, offices used for ongoing projects are not well-equipped - the furniture is very old and there is a lot of unsorted documentation.

The office space has been renovated in phases, as well as the supply of equipment. The dynamic of renovation depends on company’s cash-flow. At the moment 70% of all working space is renovated.

**Finding 2: The Company has a lack of necessary professional software for carrying out every day working activities.**

**Supporting observations:** The big issue for the company is paying the license fees for necessary software (taking into consideration the high prices of professional software and the large number of licenses required). Wherever possible, the company uses open source technology (Linux and Linux Real-time), but for the administration and communication purposes Windows workstation, Microsoft Office package, Visual Studio for developers and certain number of licenses are needed (only 50% of requested number have been provided from current projects). Additional funding is required for Windows server, Adobe Acrobat Pro, software packages for graphic design. The biggest need is however for optimization software and software for hardware development.

**Finding 3: Communication between sectors and decision-making at the sectoral level are unsatisfying.**

**Supporting observations:** Since the company has strong and systematized organizational structure divided in departments, communication and interaction between departments is pretty much inflexible and slow. The bottleneck is top management and all interactions need to be carried out in association with them.
Finding 4: One employee is engaged in several tasks

Supporting observations: Development, testing and quality control are not separated from implementation and maintenance. Because of that, there is always hold-up in the research process.

Finding 5: Marketing department is inefficient and all the activities carried out are inappropriate for this kind of company.

Supporting observations: Marketing department is not efficient/competent enough, and the provided support is on very low level. All the activities that Marketing Department should cover regarding final products are significantly below the expected level. There is not any kind of promotion of company or products in media, as well as any visual identity or recognizable trademark, which can point out the company among competition.

Finding 6: Absence of any planning for professional trainings for researchers and developers

Supporting observations: There is no coordination of planning of professional trainings for researchers and developers. The company sends employees to professional courses when there is explicit need for that (e.g. it is stated in the project description of a new project). The main reason for lack of specializations and trainings lies in the fact that all courses are pretty much expensive and demand absence from work. Absence from work is most probably bigger issue than expense, since all employees are overburdened with every-day working activities.

Finding 7: Organization and implementation of meetings are inadequate and poorly planned

Supporting observations: The regular weekly meetings mostly featured discussions about day-to-day troubleshooting and coordination of planned activities for that week. There weren’t any new incurred ideas during the regular meetings. The context of meetings does not stimulate procreation of ideas– it is more focused on productivity, quality and every-day activities and issues.

Since employees are pretty much overburdened with daily activities certain tension in communication was noticed.

Another easily noticeable oversight was absence of any type of records or meetings’ conclusion in written form (minutes from the meetings)

Finding 8: The Company relies mostly on own sources of funding

Supporting observations: The Company mostly relies on their own sources of finance, both in case of working capital, or investments. As external sources of revenues, commercial banks’ loans are used the most, followed by, but significantly less, loans from state funds and no foreign loans were foreseen. Foreign loans can became significant, more reliable and cheaper source of funding for new investments in company.
Identification of the core issues and argumentation

After studying and interpretation of the gathered data, it can be concluded that there are still further opportunities to improve company’s innovative potential. The improvements can be made correlated to working space, working tools, communication between employees, communication between top-management and engineers, marketing, planning of different types of activities, sources of funding. Further, there is also room for improvement in brainstorming process as well as in systematization of gathered ideas. Below, the core issues identified are listed and defined more specifically.

Issue 1: At the moment 70% of all working space in IMP-Automation & Control Systems is renovated. Other 30% includes changing windows and replacement of heating system (ejection of steam heating and switch to the hot water system). Only after this is done, the idea to make the modern office for employees’ creativity improvement can be taken into consideration.

Issue 2: At the company level, there is not any kind of brainstorming meeting separately organized. Mostly, during the regular weekly meeting, a short period of time is designated for collecting new ideas, which is not enough.

Issue 3: The time can be spent more productively if the company owns licensed software. In our opinion, everyday processes would be done quicker and with higher level of quality.

Issue 4: All employees have ambition to develop their working skills. This is possible only with appropriate and suitable trainings and courses. Unfortunately, employees are being sent to courses and trainings only in rare occasions, when a specific project requires that kind of activities.

Description of the suggested intervention(s) and its effects

Based on the above, we developed the following four interventions, which are a result of collaboration between company representatives and PACINNO researchers. They are intended to improve the internal collaboration and innovation processes along with strengthening employee commitment to generating and implementing creative ideas.

Intervention #1: Renovation and adaptation of offices for better working environment

Addresses Issue 1 (see above)

Suggested Solution: IMP-Automation & Control Systems has started renovation process a few months ago. At the moment 70% of all infrastructural work has been done. For completion of that work, it is still necessary to finalize the replacement of windows and heating system. When this crucial work is done, it will be necessary to start with office renovation. Since all offices are relatively small, and there is 3-4 persons per office, for more comfortable and productive working environment, we have suggested to merge at least two (preferable three) offices in one larger office with 6-10 engineers in it. In that way, interaction between employees can be improved, and the communication will be better. Even though the computer equipment is up to date, the furniture is pretty much old. Design and colors of furniture are from the end of 20th century, and need to be changed. Modern design and colorful working environment will increase productivity and work
efficiency. We highly encourage that the company (employees) start introducing small items that would make the workspace more personal, vivid or even fun.

**Purpose:** to create a space that facilitates creativity and provides visual aids for supporting creative/innovative process.

**Planning & Implementation:** A group of employees need to take over this assignment. They need to suggest how the new offices should look like, and what can make working environment “employee-friendly”.

**Participants:** all employees.

**Monitoring & Evaluation:** feedback and discussion with employees. (2 meeting with experts for energy efficiency)

**Effects of the intervention:** One of the conclusions of the discussion was that the management should ensure funding for large scale renovation and adaptation of offices. Therefore, representatives from this company participated in a proposal preparation entitled “Reconstruction and modernization of the Institute “Mihajlo Pupin” infrastructure in order to increase the energy efficiency of the building” (1 meeting). The proposal was submitted for a call announced by the Ministry of Education, Science and Technological Development, see call “Public call for proposals for the revitalization and development of research and education in the public sector” from 15/08/2015.

**Intervention #2: Establishing brainstorming meetings for open idea generation**

**Addresses Issues 2 (see above)**

**Suggested Solution:** In contexts where lots of new idea generation is expected, employees have to be first reminded about what should be avoided (to prevent idea generation inhibitors); brainstorming meetings need to be separately organized; all employees should go through a showcase brainstorming session. Standard brainstorming principles and criteria for idea evaluation relevant for IMP Automation & Control Systems have to be established; principles for encouraging original thinking should be posted on a highly visible space and communicated clearly.

**Purpose:** Raise the quality of products and services, and develop new products and services in company; increasing awareness that highly effective brainstorming is usually structured and planned.

**Planning & Implementation:** implementation of brainstorming meeting once a month; creating list of rules and process for brainstorming sessions (meetings); introduction of triggers and procedural features for open-minded approach. (1 meeting)

**Participants:** 1/3 employees, it was difficult to find a time suitable for most of the employees in the group because of their engagement with clients.

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Monitoring & Evaluation: on spot observation of brainstorming meetings; overview and discussion about benefits and advantages of suggested ideas and solutions. (1 meeting)

Effects of the intervention: The brainstorming was organized with one team leader. The next step was that the team leader discussed the possibility of realization of the initiative with the group representative. The analysis and observation has shown that the company has a rigid structure. All decisions are accepted / rejected on a company level by the director and his three assistant directors. Employees agreed that the most convenient way for them for brainstorming are informal meetings – coffees, lunches.

**Intervention #3: Finding new sources of licensed software**

Addresses Issue 3 (see above)

Suggested Solution: since the company needs to buy licensed software from their own funding, the easiest and the cheapest way to do so is to introduce a new budget line which will include supply of all necessary software and tools for more efficient and more successful every-day operations, e.g. in new project proposals. On other hand, top-management in cooperation with Quality Control department should find new cheaper and more reliable source for buying professional software.

Purpose: improving every-day operations; for a shorter period of time make more results; stay “up to date” with modern technology; increase productivity and efficiency;

Planning & Implementation: the list of new project proposals need to be done. On that list researchers and developers need to figure out the software that is urgently needed in the company. In the same time, top management should find new source of funding, which will be more reliable and cheaper from those that are currently used.

Participants: top-management, employees from the Quality Control department and researchers and developers. (1 meeting)

Monitoring & Evaluation: draft version of the needed professional software and the list of currently running projects have been presented to top-management.

Effects of the intervention: The purchase of new SW is now centralized and more effectively organized by the Quality Control department.

**Intervention #4: Upgrade of employees’ professional skills**

Addresses issue 4 (see above)

Suggested Solution: the challenge should be addressed from two sides, bottom-up and top-down; employees, who would like to upgrade their professional skills and knowledge need to take active part in finding suitable trainings and courses which will allow them to gain new experience and know-how. Acquired knowledge can
be transferred among employees through organization of internal workshops, and in that way expenses can be reduced; top-management should be aware that improvement of employees’ professional skills is a continuous process which nowadays have the biggest part in IT industry. Without newly developed skills, company can hardly continue to be competitive on open market (internal or external).

**Purpose:** to allow the company to find new projects, which could become part of their operations and to link them with career aspirations of the employees.

**Planning & Implementation:** The current situation was presented to the top-management of the company; this is followed by a discussion about the basic needs for professional development of employees; (1 meeting) in the second phase we have allowed employees, who would like to participate in trainings and courses, to present what kind of courses and trainings they would like to participate; also, they needed to find specific workshop that is available at the moment and persuade top-management for its necessity. After these interactions between top-management and employees, awareness of mutual benefits was highlighted, and the both sides have agreed that something need to be done in near future. (1 meeting)

**Participants:** top-management and employees

**Monitoring & Evaluation:** feedback by top-management and employees about participation on trainings and courses;

**Effects of the intervention:** Increased awareness about the needed professional skills. In the last year several exchanges of staff occurred between the IMP Automation & Control Systems and the mother company (Institute “Mihajlo Pupin”). Additionally, 7 engineers were employed with different past experience (from 2-7 years’ experience in the field), while 4 engineers left the company. The IMP Automation & Control Systems does not have enough projects that can finance trainings and courses for employees, therefore some of them have been transferred to the mother company where the employees can work on research projects and thus improve their education. All relevant employees were willing to attend professional SW development courses in order to advance in their careers and be more competent in completing the duties. In the first eight months of 2015, several employees acquired licenses from ORACLE, Microsoft and Alfresco, while the company succeeded to maintain the partner status in their professional improvements.
Recommendation for transferability of the intervention and evaluation of its results

ABOUT THE COMPANY:
Industry: ICT
Market: Local, Regional, International/Global, B2B
Business model / Products: (customized) specialized IT solutions for automation and control in the electrical industry, water resources management, traffic and transportation and access control systems
Earliest start / formally established: 1997
Size / Stage of development: Medium (<100 employees)
Key competencies: Design and development of Digital Control Systems, Supervisory Control & Data Acquisition systems, Digital Control Systems for Thermal Power Plants and Hydro Power Plants, turbine control systems, Energy Management System Applications, designed for management, safety increase and performance optimization of the electro power plants, Measuring Equipment - System for Electrical Energy Consumption Data Acquisition, Recording and Processing for Accounting Purposes – ARES, electronic transducer of electrical quantities, electricity meters for accounting measurements at high voltage, etalon meters of electrical power, Development, design and production of information systems and management systems in traffic control and transportation systems, development, design and realization of dedicated information systems for access control and employees’ presence and working time records.
University-affiliated (YES/NO): YES

ABOUT THE ACTION RESEARCH PROCESS:
Duration of the action research (months) ..................... 10
Number of researchers involved with the firm ................ 2
NDA agreement signed (YES/NO) ............................... No
Number of interviews held .................................... 8 formal, more informal talks
Number of site visits ........................................ 7
Number of employees involved ................................ all

ABOUT THE ISSUE:
Main theme of the inquiry: Collaboration within the firm; facilitating idea generation & evaluation (innovation process); employee satisfaction / ambitions; research potential; awareness about the ICT trends;
Process features: direct observation, interviews and meetings (7 new engineers have been employed, most of them with previous experience in the field)
Main challenges: cross-sharing of ideas; brainstorming session implementation, conditions for idea generations (physical setting, visualization); idea evaluation principles; Specific for this company -it was difficult to find a time suitable for most of the employees in the group because of their engagement with clients)

ABOUT INTERVENTIONS:
Types of interventions: process change suggestions; developing & diffusing principles; upgrading professional skills; improving every-day operations; raise the quality of products and services; suggestion for improvement of working conditions; ways of acquiring new staff
ABOUT EFFECTS:
**Description:** upgrade of professional skills by acquiring new employees; more efficient inventory of professional SW used in the company

POTENTIAL GENERALIZATIONS:
**Description:**
1. action research always facilitates change, even without explicitly enacted interventions;
2.5.2. Case: IMP Computer Systems - leveraging cooperation and creativity to create innovative tools to be used in public sector administration

Abstract
This report outlines an action research process conducted in the IMP Computer Systems, established in 1997 as a spin-off company of the Institute “Mihajlo Pupin”. The study is a part of the PACINNO project and adopts the PACINNO principles of action research to improve collaboration and innovation process in the focus company. In-depth understanding of the business and innovative processes in the IMP-Computer Systems was achieved by means of qualitative methods such as direct observation and interviews, as well quantitative analysis of innovations and human resources in the last ten years. The research facilitated development of a set of focused small-scope interventions such as propositions for analysis of the key public administration needs in the light of accession of Serbia to the European Union; reviewing and updating the product portfolio by studying the latest technological trends; fostering networking, marketing activities and inter-disciplinary knowledge transfer; applying the group brainstorming process; supporting employee development initiatives and changes in the physical setting of the office space.

Keywords: action research, cooperation, collaboration, creativity, innovation

Introduction
This document points out a case study and a latter action research process carried out in the IMP-Computer Systems\(^6\) in the PACINNO project framework. It aims to use the principles of action research to improve collaboration and innovation process in the focal company. At the same time, it also generates knowledge about collaboration and innovative processes in this type of companies and provides opportunities to develop propositions for further (confirmatory) research. Finally, as the study of the IMP-Computer Systems is accompanied by similar studies in the Adriatic region countries, it co-creates the potential for a comparative study, which is the next step of the PACINNO project.

The success of the innovation process in organizations frequently comes down to the creative potential of its members, social dynamics among them and outreach to external sources of knowledge and ideas. These phenomena were also the main foci of our inquiry in the IMP-Computer Systems. We looked at the physical and social context, in which employees work, examined their formal and informal interactions leading to problem solving and idea generation/implementation, and scrutinized the broader context, in which the company operates. This allowed us to gain an in-depth understanding of the business and innovative processes in the company. In turn, we were able to design – together with the company representatives – simple and manageable interventions which, as we show, contributed to improving the focal processes in the company.

The structure of the report is as follows. We start by a description of the focal firm, which enables the reader to get to know the company and familiarize herself with the current situation in the company. Then we continue with a description of the action research process in the IMP-Computer Systems (a more general description of action research principles and a general research protocol that was pursued in this study will be addressed separately) and report on the general challenges that were identified. Further, interventions that emerged from the action research process are presented and its observed effects are discussed. Finally, we

\(^6\)http://www.pupin.rs/en/imp-organization/
evaluate the results and indicate potential generalizations of problems and solutions based on this specific study.

**Description of the company**

IMP Computer Systems Ltd. is one of several independent legal entities established as a spin-off company of the Institute “Mihajlo Pupin” in 1997. It operates independently and is responsible for its own technical performance and financial results. It is an innovative high-tech company, almost 20 years present on market and a lot of solutions implemented in Serbia and the region.

The Company has strong and systematized organizational structure, divided in departments i.e. business information systems, special purpose systems, supervision and control systems and IT hardware equipment with infrastructural solutions. On the top of the company is CEO, supported by three director assistants. 68% of employees are university graduates (engineering diploma, at least four years of study). R&D program of this company is mainly carried out in the field of business information systems, expert systems, decision support systems, document management systems, image processing and video surveillance, and other. The company provides its customers with development and maintenance of software applications, studies, design and realization of products and systems tailor designed and modified to meet exact customer needs, system design and integration, consulting, training and customer support.
Description of the action research process

IMP-Computer Systems has been selected for cooperation on the PACINNO project because it is one of the most successful legally independent companies established by a state-owned research centre (the Institute “Mihajlo Pupin”). Previously, the company has participated in R&D projects supported by Serbian Ministry of Education, Science and Technical Development, however that financial support is negligible in comparison to the money earned on commercial market. The company has a partner relationship with biggest SW providers (ORACLE, Microsoft, Alfresco, etc), while the engineers have obtained professional licenses and certificates.

Prior to using qualitative methods, we conducted a quantitative analysis of the organizational structure, the human resources potential, product portfolio and innovation in the last 5 years. This data was partly obtained by the PUPIN HR Department and partly from their Web presentation\(^7\). The analysis of the collected data is given bellow.

The initial correspondence was established between a PACINNO researcher and the CEO by pointing out to him about the numerous benefits that can be achieved for the company from the analysis of their internal research/innovation processes. It was also made clear that the potential interventions/solutions stemming from this project would be aimed to improve the company's internal collaboration and innovation process and that their scope of inquiry will be within manageable levels of the project. The CEO was concerned about the confidentiality of the results, but that doubt was quickly removed.

The CEO organized a meeting with the main researchers in the company, so that we were able to present PACINNO project and to introduce the aims of the research properly. PACINNO researchers explained the project and answered many employees’ questions. At the end of the meeting overall impression was quite positive. Employees gave positive feedback and suggestions how to proceed with the research. A major part of the presentation was aimed at elaborating on and illustrating what Action Research actually is and what company members’ roles in the process will be.

The next meeting was arranged with key representatives of company departments. Beside researchers from all departments, the meeting was attended by key personnel from financial, administrative and HR department. The main reason for that was to increase researchers’ awareness of relevance of other departments that are not in main focus of the company.

With this group we explored all possible ways to collect various data necessary for successful research. We agreed upon unstructured observation, semi-structured observation, interviews, secondary sources analysis, archival records (e.g., financial information), and observation of physical setting of the premises and working space.

An appropriate period of time was essential element for planning observations of interactions that could be observed. The following interaction modes were considered: dyadic interaction between employees based on a working process and internal communication, group interactions among employees on teams’ meetings in every department, interactions of employees with external actors (i.e., clients, partners), as well as individual work.

\(^7\)http://www.pupin.rs/organizacija-imp/imp-racunarski-sistemi/, http://www.pupin.rs/reference/#informacionisistemi
Representatives of every department provided us with weekly schedule of main activities so we could perform unstructured observations. With this timetable we were in a position to observe: every department’s weekly team meeting; brainstorming sessions involving all employees (also in every department separately); individual work and dyadic interaction in every-day working environment.

In addition, interviews with selected individuals were made possible. All interaction modes were performed in the office space or in the meeting rooms of the department’s premises. As a result of data gathering field notes of observations and notes from interviews were produced.

After the completion of data collection, next step was analysis of collected data. Beside main researcher, other members of the PACINNO team took active part in the discussion. The results of the first bunch of gathered data were processed and the outcomes were documented and served as one of the inputs for determining potential interventions.

The range of potential interventions was discussed at 2 weekly meetings with the Head of the Institute “Mihajlo Pupin” and the most feasible interventions were then selected for implementation. The feasibility analysis took into consideration the time that employees have to spend as well as the financial resources needed for implementing the intervention, see Table below.

Table 1: Feasibility analysis related to the interventions

<table>
<thead>
<tr>
<th>Intervention domain</th>
<th>Title</th>
<th>Will this be completed within PACINNO?</th>
<th>Are additional funding needed?</th>
<th>Apply this intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marketing</td>
<td>Fostering marketing (branding) activities</td>
<td>Yes, marketing plan will be suggested</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Pre-sales activities</td>
<td>Analysis of key customers</td>
<td>Yes, instructions how to adapt to their needs will be delivered</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Human resources- staff development</td>
<td>Upgrade of professional skills</td>
<td>Yes, mentoring schemes will be in place</td>
<td>Yes, to finance the commercial courses for acquiring SW licences</td>
<td>Yes</td>
</tr>
<tr>
<td>Human resources- staff development</td>
<td>Applying the group brainstorming process</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Physical setting</td>
<td>Supporting changes in the physical setting</td>
<td>Partly</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Using multiple sources for data gathering and also using multiple methods of interaction and data, we were able to check for discrepancy and to explore reasons for them. The management team of the company was an important partner in helping us explain the inconsistencies, while findings that were tough across different sources and methods made us more confident to expose and discuss them openly and directly with the representatives of the company.

**Report on the quantitative data analysis**

**Finding 1: IMP-Computer Systems is a growing company**

The company is in expansion. The number of employees has increased by 18 in the last five years. 22% of employees are young researchers (with engineering degree, 28 years old or younger) with 3 or less than 3 years of working experience. 40% of newly employed in 2015 (4 out of 10 engineers) are females.

![Figure 2: IMP-Computer Systems – growing trends](image)

**Finding 2: Product portfolio has not changed in the last five years**

In the last five years the company worked on improvement of existing products and succeed to acquire new customers for them.

**Finding 3: Innovation**

Innovation in existing product portfolio lines is mainly driven by the need of the public administration or Serbian Army (special purpose systems).
Report on the qualitative data analysis (interviews)

In this section, we list and support relevant findings that were raised from the earlier stages of the research process. They should be viewed as a selection of basic building blocks that had helped us to understand the context and to spot-relevant challenges that we address in this report, and hence suggest interventions.

Finding 1: The Company relies mostly on own sources of funding, limited amount of money for R&O

Supporting observations: The innovation process must be a learning process. What has been learned and then implemented in existing products or delivered as a new product can be measure by the number of laboratory prototypes, demonstrators or pilot applications at customers. Currently the Company mostly relies on their own sources of finance, both in case of working capital, or investments. The company is very much interested to take part in interesting e.g. EU funded projects from the HORIZON 2020 framework, however has no experience in writing proposals.

Finding 2: The Company has a lack of necessary professional software for carrying out every day working activities

Supporting observations: The big issue for the company is paying the license fees for necessary software (taking into consideration the high prices of professional software and the large number of licenses required). Wherever possible, the company uses open source technology (Linux and Linux Real-time), but for the administration and communication purposes Windows workstation, Microsoft Office package, Visual Studio for developers and certain number of licenses are needed (only 50% of requested number have been provided from current projects). Additional funding is required for Windows server, Adobe Acrobat Pro, software packages for graphic design. The biggest need however for optimization software and software for hardware development.

Finding 3: Some employees are overloaded with work

Supporting observations: The company is a maintainer of many information systems that are used in Serbian government agencies. Because of the overall financial situation in Serbia, maintaining of the systems is paid however with difficulties. Therefore, the company is forced to acquire new projects (customers), while supporting the old ones. This cause a situation of unequally distributed activities i.e some have to work overtime on not so innovative jobs.

Finding 4: Unable to attend professional / scientific events

Supporting observations: The company sends employees to professional courses when there is explicit need for that (e.g. it is stated in the project description of a new project). The main reason this is because all professional courses are pretty much expensive and demand absence from work. Absence from work is most probably bigger issue than expense, since all employees are overburdened with every-day working activities. Although the company has many innovative products, they do not attend scientific conferences, because they do not have time to write scientific papers. Sometimes they are present at national fairs.
Finding 5: Premises in the company are badly organized and not fully renovated

Supporting observations: Because of the large number of hardware development projects and the recently hired engineers, there is an evident problem of office space (extra space is needed for larger simulation environments as well). Therefore, some of these activities (work on special-purpose systems and simulators) are placed in basement or ground floor. The company owns a building; however due to the recent expansion, some representatives of the company has offices elsewhere (in the circle of the Institute). In the last 3 years, the company made investments connected to the heating system, and as a result has reduced bills for heating. It is necessary to do replacement of windows that will further increase energy efficiency.

Average working space per employee is relatively small. Often, four employees work in one office (12m² up to 16m² in surface). Offices are not well-equipped - the furniture is very old and there is a lot of unsorted documentation. The office space has been renovated in phases, as well as the supply of equipment. The dynamic of renovation depends on company’s cash-flow. At the moment 60% of all working space is renovated.

Identification of the core issues and argumentation

After studying and interpreting the gathered data, it can be concluded that there are still further opportunities to improve company’s innovative potential. The improvements can be made correlated to working space, working tools, communication between employees, planning of different types of activities, sources of funding. Further, there is also room for improvement in brainstorming process as well as in systematization of gathered ideas. Below, the core issues identified are listed and defined more specifically.

Issue 1: Limited sources for financing marketing and R&D activities due to the financial situation in the country and the region.

Issue 2: Lack of awareness about networking possibilities in HORIZON 2020 framework; lack of overview about future ICT trends

Issue 3: All employees have ambition to develop their working skills and careers. This is possible only with appropriate and suitable trainings and courses. Unfortunately, employees are being sent to courses and trainings only in rare occasions, when a specific project requires that kind of activities.

Issue 4: At the moment 60% of all working space in IMP-Computer Systems is renovated. Other 40% includes changing windows and replacement of heating system (ejection of steam heating and switch to the hot water system). After this is done, the idea to make modern office for employees’ creativity improvement can be taken into consideration.
The Figure presents the technology transfer process that is in practice in the “Mihajlo Pupin” Institute and its daughter companies. The goal in the innovation process is to concentrate on research influenced by the “science push” factor, i.e. fashionable research trends, as well as the “market pull” factors, i.e. the needs of the industry. The technology transfer process includes a selection of research priorities in partnership with potential beneficiaries. In a full bidirectional partnership with the industry, PUPIN’s scientific board defines the priorities, research concepts and objectives; research centres apply for funding, test the concept in a demonstration prototype (straw man, proof-of-concept prototype, mock-up prototype), and make a viable investment proposition.

Based on the findings presented in the previous section, we developed the following interventions, which are a result of collaboration between company representatives and PACINNO researchers. They are intended to improve the internal collaboration and innovation processes along with strengthening employee commitment to generating and implementing creative ideas.

**Intervention #1: Fostering marketing (branding) activities; Reviewing and making plans for updating the product portfolio by studying the latest technological trends, networking, and inter-disciplinary knowledge transfer;**

**Addresses Issues 1 and 2**

**Purpose:** to critically evaluate the current products, take actions for updating the product portfolio and improve competitiveness

**Suggested Solution:** identify and study the public resources (conference proceedings) and experiment with open source solutions
Planning & Implementation: a group has been formed to critically evaluate the most attractive solutions current maintained at customer sites and define directions for further improvement of the products.

Participants: senior staff in reviewing/planning activities (1 meeting), young researchers in learning activities.

Resources: latest EU research projects on Big data, stream processing, mobile technologies.

Monitoring & Evaluation: feedback and discussion with PACINNO experts.

Effects of the intervention: Regarding marketing activities, the company decided to rely on internal resources because the products and services they offer are specific and can be presented at events organized for the target clients (government, army events). Senior researchers were present at most relevant ICT conferences in the first half of the year (ICIST & YuInfo 2015⁸, InfoTech 2015⁹), as well as at the international fair of arms and military equipment “Partner 2015”¹⁰.

Intervention #2: Analysis of business requirements of key customers (i.e. the key public administration needs in the light of accession of Serbia to the European Union)

Addresses Issues 1 and 2.

Purpose: get familiar with the public administration reform across Europe and its implementation in Serbia.

Suggested Solution: study the past EC funded activities related to public administration reform and the reports of national governments (2 meetings).

Planning & Implementation: relevant materials from recent EU funded projects (SHARE-PSI, LOD2) were sent to the senior staff.


Participants: senior staff.

Monitoring & Evaluation: feedback and discussion with PACINNO experts.

Effects of the intervention: As a result of this intervention senior staff members are more informed about the possibilities of the EU funds for research and development (Horizon 2020, Danube Transnational Programme, Adriatic-Ionian cooperation programme), however the company has not yet participated or submitted a proposal this year. Currently the senior staff is involved in maintaining the IT systems in several government institutions, hence is aware of the capacity building needs of Serbian institutions.

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⁸http://www.yuinfo.org/icist2015/
⁹http://www.infotech.org.rs/
¹⁰http://www.partner.mod.gov.rs/
**Intervention #3: Upgrade of employees’ professional skills**

Addresses Issue 3

**Purpose:** Review of career aspirations of the employees, Mentoring Schemes in place

**Suggested Solution:** the challenge should be addressed from two sides, bottom-up and top-down; employees, who would like to upgrade their professional skills and knowledge need to take active part in finding suitable trainings and courses which will allow them to gain new experience and know-how. Acquired knowledge can be transferred among employees through organization of internal workshops, and in that way expenses can be reduced; top-management should be aware that improvement of employees’ professional skills is continues process which nowadays have the biggest part in IT industry. Without newly developed skills, company can hardly continue to be competitive on open market (internal or external).

**Planning & Implementation:** The current situation was presented to the top-management (1 meeting) of the company; this is followed by a discussion about the basic needs for professional development of employees; in the second phase we have allowed employees, who would like to participate in trainings and courses, to present what kind of courses and trainings they would like to participate; also, they needed to find specific workshop that is available at the moment and persuade top-management for its necessity. After these interactions between top-management and employees, awareness of mutual benefits was highlighted, and the both sides have agreed that something need to be done in near future.

**Participants:** top-management and employees

**Monitoring & Evaluation:** feedback by top-management and employees about participation on training and courses; (1 meeting)

**Effects of the intervention:** Mentoring schemes exist inside the company, and when new employees are hired, they work with senior representatives in order to learn about the existing solutions that the company owns. The discussion revealed that young employees are willing to attend professional SW development courses in order to advance in their careers and be more competent in completing the duties. During 2015, several employees acquired licenses from ORACLE, Microsoft and Alfresco, while the company succeeded to maintain the partner status.

**Intervention #4: Applying the group brainstorming process and supporting employee development initiatives;**

Addresses Issue 3

**Purpose:** Raise the quality of products and services, and develop new products and services in company; increasing awareness that highly effective brainstorming is usually structured and planned.

**Planning & Implementation:** implementation of a showcase brainstorming session (done, 2 meetings);
Resources: brainstorming and idea generation accessories; code of brainstorming rules.

Participants: 1/2 employees; it was difficult to find a time suitable for most of the employees in the group because of their engagement with clients.

Monitoring & Evaluation: observation of a brainstorming session in practice (results and participant observation); overview of/discussion about usefulness and novelty of suggested ideas/solutions. (1 meeting)

Effects of the intervention: The brainstorming was organized with the team leader. The next step was that the team leader discussed the possibility of realization of the initiative with the group representative. The analysis and observation has shown that the company has a rigid structure. All decisions are accepted / rejected on a company level by the director and his three assistant directors. Employees agreed that the most convenient way for them for brainstorming are informal meetings – coffees, lunches.

**Intervention #5: Supporting changes in the physical setting of the office space for better working environment**

Addresses Issue 4

Purpose: to create a space that facilitates creativity and provides visual aids for supporting creative/innovative process.

Suggested Solution: IMP-Computer Systems has started renovation process 3 years ago. At the moment 60% of all infrastructural work has been done. For completion of that work, it is still necessary to finalize the replacement of windows. When this crucial work is done, it will be necessary to start with office renovation. Since all offices are relatively small, and there is 3-4 persons per office, for more comfortable and productive working environment, we have suggested to merge at least two (preferable three) offices in one larger office with 6-10 engineers in it. In that way, interaction between employees can be improved, and the communication will be better. Even though the computer equipment is up to date, the furniture is pretty much old. Design and colors of furniture are from the end of 20th century, and need to be changed. Modern design and colorful working environment will increase productivity and work efficiency. We highly encourage that the company (employees) start introducing small items that would make the workspace more personal, vivid or even fun.

Planning & Implementation: A group of employees need to take over this assignment. They need to suggest how the new offices should look like, and what can make working environment “stuff friendly”.

Participants: all employees.

Monitoring & Evaluation: feedback and discussion with employees (1 meeting).

Effects of the intervention: One of the conclusions of the discussion was that the management should ensure funding for large scale renovation and adaptation of offices. Therefore, representatives from this company
participated in a proposal preparation entitled “Reconstruction and modernization of the Institute “Mihajlo Pupin” infrastructure in order to increase the energy efficiency of the building” (1 meeting). The proposal was submitted for a call announced by the Ministry of Education, Science and Technological Development, see call “Public call for proposals for the revitalization and development of research and education in the public sector” from 15/08/2015.

Recommendation for transferability of the intervention and evaluation of its results

ABOUT THE COMPANY:
Industry: ICT
Market: Regional, Products mainly for Government2Government services, Government2Citizen services, Citizen2 Government services, however other products exist
Business model / Products: (customized) specialized IT solutions
Earliest start / formally established: 1997
Size / Stage of development: Medium Enterprise (<100 employees)
Key competencies: licenses and certificates from big players in software industry (Oracle, Alfresco, Cisco, Microsoft, Reichle & De-Massari), skills for development of technical and business information systems, DMS – document management systems, WMS – warehouse management systems, special purpose systems (radar modernization kits, simulators and trainers), supervision and control systems (image processing in quality control).
University-affiliated (YES/NO): YES

ABOUT THE ACTION RESEARCH PROCESS:
Duration of the action research (months) .................... 10
Number of researchers involved with the firm.................. 2
NDA agreement signed (YES/NO) ............................. No
Number of interviews held........................................ 10 formal, more informal talks
Number of site visits .............................................. 9
Number of employees involved .................................. all

ABOUT THE ISSUE:
Main theme of the inquiry: Collaboration within the firm; facilitating idea generation & evaluation (innovation process); employee’ satisfaction / ambitions; research potential; awareness about the ICT trends; awareness about the customer needs
Process features: direct observation, interviews and meetings (10 new engineers employed in 2015, all but one without previous experience directly from university)
Main challenges: cross-sharing of ideas; brainstorming session implementation, conditions for idea generations (physical setting, visualization); idea evaluation principles; Specific for this company - it was difficult to find a time suitable for most of the employees in the group because of their engagement with clients

ABOUT INTERVENTIONS:
Types of interventions: innovation process planning and change suggestions; developing & diffusing principles; raise awareness about the networking possibilities in HORIZON 2020; suggestions to improve product portfolio, to enhance innovations and to acquire new funding; suggestions for supporting employee development initiatives

ABOUT EFFECTS:
Description: improved collaboration - especially informal, increased number of requests for professional courses/licensing exams, more information about the capacity of the organization to develop and improve in many aspects

POTENTIAL GENERALIZATIONS:
Description:
1. action research always facilitates change, even without explicitly enacted interventions;
2. action research facilitates dialogue, fosters reflective analysis among the participants and supports team building
3. action research requires support, sponsorship, invitation or at least the acceptance of top managers
4. in action research it is better to concentrate on small actions but effective and introduce monitoring tools i.e. reporting to the sponsor (top manager)
5. to define an Action (Intervention) Plan that includes practical solutions to problems, the consultant (can be named Change Agent) have to get an understanding of the company overall situation
6. action research can bring to light important information about the capacity of the organization to develop and improve in many aspects

POTENTIAL GENERALIZATION FOR ICT SECTOR:
Proposition 1: An IT firm that relies on innovation should not only search for improvements of its current products/services, but also for development of new products/services.
2.6. IN-DEPTH CASE STUDIES: MONTENEGRO

2.6.1. Case: HEX Ltd.

Abstract
This document outlines an action research process conducted in a Montenegrin engineering company HEX Ltd. The case aims to strengthen relationship that exists between innovation and manufacturing in the company. In order to obtain high quality results in this study, interviews were conducted at all levels in the company, as well as analysis of the situation and possible directions of change. For that purpose, except interviews for this report, also were used methods of brainstorming and discussions in the focus groups. In the centre of this case are creative approaches of the company employees that are the primary source of innovative solutions which are mainly intended for companies in Montenegro and the region. On the other side, there are also severe aspirations for entering international markets, for which there is significant potential and real possibility.

Keywords: interdisciplinary work, creativity, innovation, collaboration

Introduction
This document outlines a case study that is a result of a research process conducted in a Montenegrin engineering company. The company expressed agreement regarding the use of the name of the company and a limited data regarding the operations and financial aspects of the company business for the purpose of the study. Therefore, this report will use a real name of the company. All other data, as previously stated will be used to refer the case firm in order not to jeopardize the company’s operations and business relations.

The study is a part of the PACINNO project – a platform for cooperation in research and innovation – and represents an applied cooperation between a research institution and an innovative, regionally oriented SME. It aims to use the principles of action research to improve collaboration and innovation process in the focal company. At the same time, it also implies the importance of cooperation in the implementation of innovative processes in this type of company with the aim of providing opportunities to develop new proposals for further research. Finally, as the study HEX Ltd. is accompanied by a study of one more company from Montenegro and additional studies in the Adriatic region. This process creates the potential for a comparative study, which is the next step of our project.

As it is well known in the theory, a great impact on the success of the innovation process in companies has a creative potential of company employees, adequate communication and connection between them but also external sources of ideas. Just as previously mentioned categories our research targeted similar factors of success in HEX Ltd. Special attention was focused on working conditions, in terms of physical and operational capacity, the environment and working conditions, and it’s all seen through the prism of networking of the employees within the company. During the study, we were able to recognize the level of the flexibility and communication skills that exists between employees, which was at a very productive level. That led to the situation where our questions and observations became part of their considerations for the future plans.
The methodology of this report is relatively usual and starts with a description of the company, which makes it easier for a reader to get familiar with the company in general but also to get an insight of the company’s performance, organizational and managerial structure, as well as its future potential. Then we continue with a description of the action research process in HEX Co (more general description of action research) and report on the general challenges that were identified. Finally, we evaluate the research project and indicate potential generalizations of problems and solutions based on the study of HEX Ltd.

**Description of the company**

HEX Ltd. is an engineering company specialized in developing custom electronic and mechanical devices to industrial customer requirements. The company was founded in 2012, and currently employs 9 skilled workers. In several cases the company had to employ more part-time experts and operators in order to comply with the demand for their products and services. The company has been established as a product of a long-term cooperation between university professors, assistants and students of the Electrical engineering Faculty.

The team is composed of engineers and PhDs in the field of electronics and mechanical engineering with long experience and recognized contributions in the development of hardware and software solutions in various fields of industry. Through the experiences, skills and knowledge that were accumulated at various projects and activities in which they have actively participated, founders have provided a significant potential to the company development.

The company is working in two different and separate business spaces. One of them is approx. 80m2 and another is 70m2 of direct business operations space. But with available open space and storage space the company operates in approx. 300m2. The mentioned space is not owned by the company itself but it is leased from private owners. The space is equipped with the highly specific technical equipment needed for every day operations. All of this equipment is owned by the Company itself. During the conversation with the director and employees we have found out that the space is not from the most importance to the employees because a great portion of their work is “on the spot” where it’s needed or so to say “on the field”. Thanks to the “open organization” structure and nature of work, it is possible that some of the task could be done even from home especially if it deals with software engineering. This allows the employees the full flexibility in terms of working space and gives them the maximum level of concentration to the task and also work time savings.

The company has two major units where it develops its products and services:

1. First unit is: SOFTWARE, ELECTRONICS AND DESIGN UNIT
2. Second unit is MECHANICAL TREATMENT UNIT

In these two units a variety of products and services are developed and produced. We will name majority of them, but the company has much more potential to develop even more services and products to its customers.

HEX has excellent cooperation with academic institutions in Montenegro, primarily with electrical and mechanical engineering Faculties of University of Montenegro. This enables the company to access the knowledge and human resources from the academic institutions. The company owners are originating from these two units of University of Montenegro and one of the owners is Prof. Zoran Mijanović who is a
permanent Professor at the Faculty of electrical engineering. This Faculty is one of the most successful ones in Montenegro with international recognition for producing excellent and skilled high educated individuals that are very respected on the domestic but also on international labour markets.

Additional services and products that company supplies are:

1. Printing on RFID cards
   - Printed RFID card of the highest quality
   - Mostly black and white prints, colour, gold, silver.

2. Electronics service
   - Repair of different types of electrical devices: inverters, rectifiers, UPSs, amplifiers, controllers, welding machines, cosmetic devices ...
   - Computer and computer equipment
   - Electronics service to industrial and construction machinery (water jet, CNC milling machines, presses, cranes, pumps, etc.).

3. Printed circuit board (prototype)
   - Creating a single-plate to the finished design or with electric schemes (service elaborate layout tiles)

4. Cutting cutter-TV
   - Cutting all kinds of self-adhesive foil
   - A wide variety of films, a variety of colours, matt / shiny, photo reflective, for outdoor use
   - Ideal for making warning signs, instructions, advertising.

5. Laser cutting and engraving
   - The ideal solution for cutting Plexiglas, cardboard, thermo-foil ...
   - Engraving Plexiglas to create labels, tags, decorative elements etc.
   - Possible purchase of materials and working with materials furnished by the customer
   - To create a design need any standard CAD file
   - Maximum dimensions of materials processing 1m x 1m

HEX Ltd is present on the regional markets, selling their products and services primarily to the business sector, especially to smaller industrial companies, but also to larger private companies and public sector. Most of their customers come from Montenegro, Serbia, Kosovo, Bosnia and Herzegovina, and other former republics of Yugoslavia. In the past few years they have started to offer their products and services to some EU member countries, such as Slovenia, Croatia, Austria, etc.

Company is using direct marketing activates oriented on the particular clients, indirect contact through strategic partners. Also, they are active participants of formal meetings and fairs, from their field of interest. So far the company hasn’t invested significant amount of funds into marketing activities because in previous years of business the market has proven to be in a need for the products and services that company offers and they didn’t have any problem with finding their customers. But, in the future as company expands there
might be a need for more systematic approach to the marketing as company is planning to launch products for wider use and international market.

As a company that is primarily oriented on the quality rather than the quantity, very important role of their strategic orientation is the supply market, which is mainly international companies, and with whom they have developed an adequate cooperation and collaboration.

The company generates major forces from the expertise and experience of people who are part of the organization. The company engages electrical engineers and IT programmers who are responsible for development of software, electronics and appliances to the design of a final product. All products for final use are processed in the engine room, and there are 3 employees with a university degree engaged with significant level of experience.

Organization and division of work is not formalized (mostly because it is a small company), which has caused the fact that all connections and communication among employees is very flexible and informal. This significantly improves the operations of the company and its performance, as well as overall productivity. This fact is very important when we talk about company productivity and efficiency. Namely, the “open organization” concept allows its employees to work in smaller groups and be very productive and efficient. This has a major impact on the quality of communication between employees and also to the transparency of all business activities within the company.

The main specificity of the company’s work is reflected in the large number of non-repetitive action tasks, which imply innovation and creativity in solving tasks. Almost every product and service are developed based on the wishes and needs of end users, and their production involves almost all employees in the company, in accordance with their expertise.

As the company is very innovative in what they do business on the market we were interested to find out how this innovation process is created, monitored and implemented. We have found very interesting details about this process. First off all, this company is mostly innovating when finding the adequate solution for the problem. So, the innovation idea comes from the process of finding out the solution. This is very interesting from the point of innovation genesis.

Second, the most of the innovations are not widely usable since they are solving particular problems to particular customer. This process created mostly unique solutions to already exiting processes.

Third issue is that all employees are innovators. Witch was a very interesting fact we haven’t seen so far. This fact can be linked to the problem of finding the adequate staff for the company needs.

Fourth finding implies that there is no structural innovation procedure in the company. The process is determined by the task itself and the need for the right solution. The innovation teams are created to solve the problems and they brainstorm, test and implement innovative solutions.
Description of the action research process

The company was contacted via TTO office of the PACINNO project at the Faculty of Economics of the University of Montenegro. Primary communication has been conducted with the executive director and to a large extent was based on personal acquaintance. After talks with the executive director who is also a co-owner and the presentation of the project idea and the development of this report, to our mutual satisfaction, it was concluded that one such activity can make a major contribution in linking science and research with business community. In particular, we talked about protection of identity and information regarding the company operations and accepted with great pleasure the willingness of the executive director to make the company name public for the purpose of this case, with our commitment to do everything within the limits of the possible and protect any information that could jeopardize the company’s operations.

As a result of earlier familiar ties with some of the managers from the company, interview has started very easily and brought us very fast to the heart of the project goals. We managed to achieve, a high level of trust and understanding. All of that was followed with a brief and very successful introduction with other company members. Employees showed significant interest for this study after we presented them the scope of the PACINNO project and main goal of this study.

Among the participants there was solitude and relaxation on both sides and all this resulted in the determination of the new terms in discussing the various aspects of the business. What the researchers noticed is a significant creative potential that exists among employees, with a great desire to learn novelties related to managerial and marketing skills. Very constructive atmosphere has led to the conclusion of the need for organizing training workshops or similar, that would improve transfer of acquired mathematical knowledge, which themselves emphasized as the necessity in order to further modernize operations and increase its efficiency and effectiveness.

Research team had no serious obstacles in conducting the research activities since it has been introduced from the CEO side as a friendly oriented team, with the willingness to try to develop a new mechanism which will bring some new energy and actions that could result with a specific benefit to the company’s overall operations.

The total number of hours that was dedicated to interviews and research activities was approximately 28 hours, which gives some 3 hours per employee. Total research process and preparatory activities took place in the period, which lasted four months, which gave a good basis for the collected data necessary for this report. For all that time, we had the opportunity to observe that the dynamics of working for the company is extremely high, and requires great effort and sacrifice.

HEX Ltd is very well known company in Montenegro, as well on the regional markets. Also they are recognized as a reliable partner and a problem solving company, especially with in the market of production (manufacturing) companies. Their presence in the media coverage is not on the satisfied level, but on the other hand it is a result of management decision since they are managing significant number of projects at any given time period.

This study’s findings are the result of the high degree of cooperation and trust between researchers on the one hand and employees of the company HEX Ltd. on the other hand, and it is the great achievement of this report that can be measured as well as cooperation of the creative contribution of all parties.
The whole action research process in the HEX Company lasted 3 months, which includes a secondary research phase from secondary data sources. The secondary research was followed by primary research, which consisted of 6 visits to the company that lasted approximately 4 hours each. The most important partner in conducting action research was the general manager and co-owner, who was very open and supportive.

First proposition of introduction of the formal ties within the company organization has been accepted with a slight reserve from the employees, but on the other hand, CEO and co-owners were more than acquainted with this kind of intervention and its necessity.

Reports of the data analysis
Data analysis was done in major sectors of business operations in the HEX Company.

The collection of data was done from desktop research, interview with the director and owners of the Company as well as with some (key) employees, visit of the company premises and conversation with some of the company’s customers.

Finding 1: The lack of formal organization of the company

Supporting observations:
1. Giving the fact that the tasks to be done are constantly changing and are not repeating, the organizational structure could not be strictly defined and had to be matrix and flexible.

2. This means that all employees are familiar with all of the tasks presented to the company and smaller teams are created to work on particular task with most expertise and knowledge in the area of the problem.

3. This means that several tasks could be under development and more teams are working at the same time with different, yet same teams.

4. There are no scheduled meetings of staff in the company.

5. The staff meets always when there is new task to be done or when the team encounter some kind of a problem and asks for other colleagues help.

6. The company has no secretary or professional accountant.

Finding 2: Undefined employment (human recourses) policy, related to recruitment phase.

Supporting observations:
1. All of the employed persons knew each other or they were employed on the basis of recommendation of the co-owners or employees.

2. The previous fact is a major reason that contributes to the good communication and skilled work process within the company.
3. It is noticeable if the business expands that the company will have major problems with finding adequate human recourses on the local market.

4. Human recourse factor is from greatest importance for the HEX Company since it cannot afford any employee that has less knowledge or experience or ability to innovate and adapt to new circumstances. In the future the company will work on internship program in order to create and find best candidates for future tasks.

5. All partners are responsible for the implementation of employment policies and employment of new workers. Employees are welcomed (it is desirable) to suggest the engagement of new employees

Finding 3: Innovation and production potential that exceeds the national market

Supporting observations:
1. The market for this company services and products are mainly smaller industrial companies but also any company with some form of automated production processes.

2. The market in Montenegro is relatively small in general but the market for the HEX Company is relatively big even in Montenegro, giving the size of the company and their expertise.

3. But the company is intending to expand the market on to the region and recently reaches Austria as most developed country where company has ever worked in.

4. The company has more demand than it can deliver so there was no need for traditional marketing activities so far.

5. In the near future the company intends to offer products for wider use on regional markets and therefore it has to put more effort and investment into the marketing process.

Identification of the core issues and argumentation

Issue 1: The lack of formalized communications of the company

Upon completed activities that were primarily focused on collection of data and their analysis it was found that although the employees in the company are one of the major advantages and potential for further development, there is a lack of formalized communications, which is focused on building strategic directions of growth and development. Specifically, employees are project-oriented and driven by the needs of their customer. Because of the dynamics of work process employees are not able to devote more time for further strategic development. During the conversation, both in groups and individually, it was noted that although employees in the company have a good understanding, there is a large degree of interest for their further improvement of the performance of the company.
Issue 2: The lack of (formal) methods for generating new business idea

Also, at the meetings it has been noted a need for a more proactive approach and better methods of generating and elaboration of business ideas. In the near future the need for a unique space that would serve to the company will be present and company will have to deal with this issue very soon.

Issue 3: The lack of policy for recruitment of new staff

As the major potential is being pulled out from the employees, the significant attention is being paid to their recruitment. The big constraint is the workforce that is available in the market and as the volume of work often exceeds the capabilities of the company, therefore there is a constant need for new, good personnel. The company and its employees are aware of the importance of quality human resources and are willing to educate and invest in staff development. Unfortunately, there is no policy that is designed since such activity so far was done on a situation and ad hoc basis.

Issue 4: Lack of the precise marketing strategy

So far company has not faced with a serious limitation in sales force, but looking forward in the future that will certainly become a one of the problems and limitation for growth. Even though they have a good connections with their users and customers, they are not very well known on the market. But, since the Montenegrin market is based on the open economy principle, and Montenegro is an EU membership candidate, in the future company will face some serious competition. This issue is followed by an issue of obtaining the appropriate licenses and declarations for selling to final beneficiaries. For this purpose, the company is forced to license and obtain relevant documents from institutions from the region which sometimes affect its performance on the market. However, as it was decided during the analysis of the situation, this problem is also the chance, because the procedures of licensing products create new opportunities that are primarily reflected on new markets (actually market niches) in neighbouring countries and most recently in EU countries.

Description of the suggested interventions and its effects

Analysing all the data gathered from this research and interview, the team that created this study came to several conclusions and recommendations in order to improve the HEX company business procedures and make their business more effective and efficient on a long run. Beside this, the company has major export potential that has to be worked on in order for them to be sustainable and competitive on regional and European markets.

We will present some of the suggested interventions in order to reach the goals mentioned above. Based on the above identified core issues, the propositions for interventions are developed.

**Intervention #1: Defining the new shape for the new communication in the company**

Addresses Issue: 1
**Suggested Solution:** In order to shorten the decision making time, the crucial thing is seen in developing communication channels in order to follow the raise of the obligations towards the customers and partners. This fact has huge importance especially if we take into account the importance of an innovation production process. Therefore, managerial and communication skills needs to be strengthen.

**Purpose:** the purpose is the efficient exchange of the information in order to make production process more effective and efficient. The goal is to establish secure and fast channels of communications in order to motivate quicker and good decision making in order to achieve goals of the company.

**Planning & Implementation:** organizing brainstorming meetings, in order to define the possible paths of development of reliable communication channels and communication plan. Also, it would be good to use brainstorm meetings for the evaluation of each of suggested solutions regarding the specified criteria, goals of the company and people who will be responsible for the implementation the objectives.

**Resources:** time devoted to brainstorming; writing board

**Participants:** the owners of the company, all employees

**Monitoring & Evaluation:** insight into the document with the defined communication plan of the company, including all the important elements: defined priorities, timelines and people responsible for the implementation.

**Effects of the Intervention (2 months after the proposal):**
The company continued using and developing the communication plan after the workshop held with the researchers, which already gave some positive outcomes especially in terms of decision making area. All employees have expressed a positive experience and actively participated in designing additional communication plan, in order to eliminate minor deficiencies in its functioning.

**Intervention #2: Defining the new shape of an organizational scheme in the company**

**Addresses Issue:** 1

**Suggested Solution:** company will very soon exceed its full potential of production in order to achieve customer satisfaction, therefore it is necessary not only in quantitative way, but also in qualitative (organizational) way to reorganize company’s potential. Previously stated is very important giving the fact that company will face problems regarding the deadlines, quality of services and recruitment of new skilled staff. As a first measure, it is recommended the division into two departments. First division would be in charge with current issues, while the second division will be focused on the development of new products / markets. In perspective, this should result in the creation of a strong and functional organization that would in the future be flexible with sufficient potential to respond to the challenges of achieving the vision and mission of the company.
Purpose: in order to establish better and more proactive organization in the company there has to be developed a new structure of organization in the company. Hex needs to prepare itself for the new upcoming international market orientation, and good and stabile organization is very important for achieving that goal. This is very important since informal way of internal organizational structure and activities are presenting limitation for future company growth. If this organizational structure is not in place company will have major problems when accepting larger projects, because it will not have proper line of command and responsibility.

Planning & Implementation: organizing “one on one” interviews with the key persons from the company, followed with brainstorming meetings, all in order to define the possible organizational charts.

Resources: time needed for the interviews and brainstorming; writing board

Participants: the owners of the company, management and key important employees

Monitoring & Evaluation: creating a list of key people, prepare an interview questions and brainstorming meetings.

Effects of the Intervention (4 months after the proposal): It is noted that informal organizational structure had a good influence on internal communication between employees so far but this is only achievable in smaller organizations with no large business projects. On the other hand, possible spreading on the international market will need some different and better organizational structure.

Intervention #3: Defining the new methods for the generation of new ideas

Addresses Issue: 2

Suggested Solution: Company has been developing from the bottom using innovative approach for problem solutions from their customers. Therefore, innovation is directly connected to the process of generating new ideas. So far, company employees showed up a significant level of the “new idea” approach, but that potential is slowing down while company is facing a huge number of duties that needs to be done in order to achieve customer satisfaction. In this respect it was suggested that it is necessary to form creative teams, on the multifunction level. Also, special attention should be given to a formal collection of ideas for a solution of the problem, by the existing users. It is recommended the creation of a unique database, which will be used for storage proposals of potential solutions.

Purpose: as an innovative oriented company, HEX needs to establish well oriented methods of generating new ideas. This is must be a priority task, since the company is in the area of non-repetitive production and therefore it would help in achieving strategic goals of the company.

Resources: time needed for the interviews and brainstorming; writing board

Participants: the owners of the company, all employees, target customers.

Monitoring & Evaluation: brainstorming questions, lists of target customers, project management chart.

Effects of the Intervention (2 months after the proposal):
New approach of generation of new ideas has a big influence on motivation of the people. Using informal, but also formal relationships within the company members has made a good potential for the new products. Judging by the feedbacks of the targeted customers, new project management system shows a good potential for a stronger communication in mutual projects.

Intervention #4: New orientation for the recruitment policy (new employers)

Addresses Issue: 3

Suggested Solution: very important part of a company's success were and are their employees, facing new adventures, problems and markets. Company needs to set a model for finding and recruiting new skilled people. Also, this is very sensitive question giving the fact that there are several issues regarding this questions. First of all, Montenegrin workforce market is very limited and it is very hard to find an adequately skilled persons. On the other hand, owners are not willing to change the work ambient within the company, which can easily be ruined if an inadequate person is hired. In order to define the good relations between employees and newcomers, it is necessary to establish a model of training process that can be used for finding and hiring a good skilled people.

Purpose: Very important issue for more productive business and expansion is more dedicated work on human resources development within the company. Namely, company has to develop a structure of training younger people as an internship programme that will enable them to choose the best ones that will be involved in future company expansion. This is also very important since the company has very or none managerial staff that has to work on more efficient business activities and facilitate smooth growth.

Planning & Implementation: training process, head hunting, using good contacts with academia.

Resources: time needed for developing training program; presentation for the students.

Participants: key company members, students.

Monitoring & Evaluation: evaluation of the training process, number of new employees.

Effects of the Intervention (3 months after the proposal):
Since the current staff capacities has a limitation in expanding production of an innovative and production activities on the market that could lead to long term problems with sustainability, therefore company started with the training process in order to secure new company members. According to the strategy of
the company, new employers will be in charge for the implementation of the daily based activities in order to get skills and experience that can in future be used for the new project development. Using its formal and informal positions in the society, managers have organized visits to academic institutions, and plans to maintain workshops on commercialization of innovations.

**Intervention #5: Developing new marketing strategy**

**Addresses Issue:** 4

**Suggested Solution:** missing of a formal marketing strategy or a marketing plan so far wasn’t a problem. Thinking about future operations and giving the fact that company is finding appropriate approach to enter on foreign markets, the lack of a marketing orientation is a serious problem. Also, the raise of a company operations must be followed by an adequate marketing strategy, so company can develop an instruments for facing with competition not only on the national, but international level as well.

**Purpose:** One major issue that was discussed with the founders of the company is a fact that company is not working on products development but working on innovation to solve concrete problems. This is not an issue per se, but from the market perspective, it can be. Namely, since there is no adequate marketing strategy or a marketing plan that employees can follow in the near future that can be an issue regarding the responsiveness of the company towards the present customers and facing the soon presence of the direct competitor on the national market. Facing the competition on the international markets where HEX wants to sell their services and products will be a major challenge.

**Planning & Implementation:** establishing stronger relationships with the key customers and new potential customers.

**Resources:** brainstorming; time needed for developing customer service model; questionnaires for the customers, analysis of the given data.

**Participants:** key company customers, potential customers, partners.

**Monitoring & Evaluation:** documented marketing plan with the proposition of the new possible marketing channels, set of the activities per each marketing channel

**Effects of the Intervention (2 months after the proposal):**
Based on the communication with the customers can be judged that major of them are very pleased with the previous cooperation. On the other hand, it is seen that new ways of the communication, especially internet based channels are something that the present and potential customers are very interesting about. Therefore, HEX started redesigning its web presentation. During the brainstorming process in which were involved not only employees but the customers as well it was stated the importance of the Social networking, which has been taken into a serious consideration.
Recommendation for transferability of the intervention and evaluation of its relevance

Company has achieved in the previous period to successfully respond on all demand requests from their customers and clients, but in the near future will face with some of the growth issues, one of the toughest one will be establishing a new organizational form with appropriate and effective communications channels. So far, the company had an informal organization, since all the people that are working within it, are familiar among themselves. Having in mind all the aspirations of the owners and management as well, in the near future this approach can been seen as a restrictive factor.

One of the most important issues, which company will have to face with in the near future will be a lack of good and skilled human resources. This is the reason, why it has been suggested trough the intervention of this particular case that company needs to develop a specific training process in order to secure the future work force.

Transferability of interventions: intervention #3 is transferable to the companies with the similar size and activities. Interventions #1 and #2 can be partially transferable, or even better used as a good practice model for other small and medium sized companies, especially in Montenegro. Similar situation is with the interventions #4 and #5, that can be generally applicable, but in a limited format, since they have to be specifically oriented based on the size and activities of the company.

Some propositions based on the action research project in this company:

Proposition 1: proposed and implemented interventions have succeeded in bringing some changes that company needed, but on the other side, these changes can harm to the company if they aren’t monitored and evaluated.

Proposition 2: company is focused on a problem solving solutions and in that sense needs to be more proactive and use its innovative potential.

Proposition 3: having in mid that HEX is a small company, one of the main difficulties is not only a lack of the human resources but lack of the skilled and trained people. That is why the interventions are proposed, and needs to be used in the future.

Through the analysing process and writing this case, authors have gained some impressions:
- Innovation orientation is a very important and it is known as growth factor, but in the case of a small company in small market such as Montenegro, that potential is more than crucial factor of the success of the company performance.
- Good and hospitable environment inside the company is a crucial, but as the company is expanding and rising, it should be shaped in some formal manner.
2.6.2. Case: Tour Via Me

Abstract
This document outlines a research process conducted in a Montenegrin company Tour Via Me, which operates as a curated online marketplace for group guided tours. The study is a part of the PACINNO project and represents an applied cooperation between a research institution (Faculty of Economics Podgorica, University of Montenegro) and an innovative, globally-oriented SME (Tour Via Me). The main goal is to improve work organisation and communication, as well as customer conversion, in the focal company. In-depth understanding of the business and innovative processes in Tour Via Me was achieved by means of qualitative methods such a direct observation, interviews, and brainstorming sessions. It facilitated development of focused small-scope interventions such as: using JIRA for project tracking and project management, and Slack for team communication; improving visitor to customer conversion; creating a unified voice of the company in social media, through a clear developed social media strategy. Moving to an office space that is more suitable for working was recommended as an intervention, but the company does not currently have the required financial resources to implement it. Since the company is currently in the process of raising a new round of financing, it has agreed to put new offices as one of its priorities.

Keywords: research, curated online marketplace, group guided tours, organisation, communication, customer conversion, innovation, user experience

Introduction
This is a report/case study built from a research process that has spanned a period of five months of research, interviews and brainstorming sessions. The company in question is Tour Via Me, a company that operates as a curated online marketplace for group guided tours. The company allowed for the use of its real name but asked for some of their operating procedures and data to remain classified, which is the reason why some data is given in broader strokes or excluded.

The activities were undertaken as a part of the PACINNO project – a platform for cooperation in research and innovation – and represent an applied cooperation between a research institution (Faculty of Economics Podgorica, University of Montenegro) and an innovative, globally-oriented SME (Tour Via Me). The main goal is to improve work organization and communication, as well as customer conversion and, as well as to produce a report that could be used as a type of best practices report that other companies can use, or as a guideline for other researchers to consider similar research projects, or new ones that would have a more in-depth approach.

This report will be accompanied by a report of another company in Montenegro, as well as additional reports from other countries taking part in the PACINNO project. This volume of data should prove to be very useful for both companies doing business in the region, as well as for further studies, comparative efforts and similar research projects.

The team tried to impart the level of communication and social dynamics within the company, as well as to describe the modus operandi of the team which, in our opinion, is one the main driving forces of the company’s success so far. We examined the structure, culture, interactions, work environment and the way
they all tie into the everyday activities and the broader context. All of this allowed us to make suggestions on areas that could potentially be improved or introduced.

The report consists of the following chapters – first, a general description of the company is given, so that the reader can familiarize themselves with the company in question. Second, a description of the research process is given. After that, we talk about the challenges that were identified and possible changes that could be introduced and the reasoning behind these suggestions. At the end, a conclusion is given with some recommendations both for companies and researchers wanting to follow up on similar topics.

**Description of the company**

Tour Via Me is a curated online marketplace for group guided tours. They sell group guided tours created and conducted by the world’s top notch tour operators through an innovative interaction-focused user experience design. They aggregate the best tours on the market, collect all relevant data about those tours, and present information in a simple and visually appealing way. Tour Via Me’s mission is to become a one-stop shop for group guided tours – the majority of the best group guided tours in the world to be found and bought on the website, and being the first thing that comes to people’s minds when they start thinking about finding and booking a tour.

The main challenge that the company is currently facing is establishing a position in the market since the number of site-visits is not at the level deemed necessary for successful customer conversion (as per the agreement with the company, we cannot divulge precise numbers on this topic). For this reason, the majority of efforts are currently being used in marketing and promotion of the product. The company leadership firmly believes that their current business model, choice of target market and data system are firm staples of a successful business.

The guided tours market (multi-day guided group) is a global 36 billion dollar market (according to the UNWTO World Tourism Barometer) which is highly under-served in the online world. It has no good aggregators, or a marketplace that will help travelers in their quest to find their next tour. This market existed since the 1950’s, and has been growing steadily over the years. According to UNWTO World Tourism Barometer, international tourism is set to hit a new record by the end of 2015 with over 1.1 billion international tourists travelling the world in one single year.

At the moment, travelers can only rely on Google and other search engines to search for these tours, only to find hundreds of tours scattered across many different websites (tour operators and smaller agencies) each of them providing a very different user experience, information density and service level. This makes the entire process very confusing and demanding time-wise, as people need to research every option not knowing if it will suit them and their needs.

Tour Via Me organizes and structures all tour information so that consuming it feels natural to a customer. This is achieved by extracting important data and visualising it through photos, places, categories, and maps, unlike a majority of competitors who usually rely on providing text-based information with a few photos. They employ data entry personnel who analyze the existing unstructured tour information provided by tour operators, cross reference itinerary destinations, points of interests and activities, and feed structured data
about meals, transportation, accommodation and other key parameters. As a result, a unique data system is created that enables the company to build very adaptable and highly personalised searching capabilities, and to create a rich and up to the point comparison engine for their tours. In addition, this allows for a sophisticated personal suggestion engine to be implemented and additional user-oriented features to be added. Coupled with reliable reviews, interactive map and rich media content, this allows users to easily find exactly what they are looking for and make an informed decision before booking their perfect tour.

The company recognizes their main competitive edge to be bringing new technologies and a modern user experience to a mature industry. They are offering customers a completely personalised experience, and a product that is adapting to their needs. They claim that nowhere else will customers find all relevant tour information with credible reviews in one place, presented in a personalised and visually appealing way. Pricing structure is such that the prices at the site are the same as if customers bought the tour directly through a tour operator - a best price guarantee is provided, and no booking cost is added to the price.

Tour Via Me already has an established core team of professionals who go way back together. They already received support by Eleven Fund Coöperatief U.A. (with 100,000 euros invested so far) and passed through their program, as well as the hub:raum Krakow training program. These programs included trainings in management, marketing, social media, sales, legal, R&D, HR and various other business-related areas.

**Description of the action research process**

While working on the previous parts of the Work Package 4 of the PACINNO project, the research team found considerable difficulties in identifying innovative companies in Montenegro, and even more so in contacting and attaining a rapport with these companies. A number of potential candidates refused to cooperate on the project – citing either an unwillingness to disclose any company information, or a lack of time to host a research team that would “negatively impact their daily activities”.

Tour Via Me was on the shortlist of five companies that were considered and it was chosen due to a number of reasons – it was a new, innovative small company that works as an online business (still relatively rare in Montenegro), has a very innovative product, is trying to be competitive in the global market and had already been recognized by a couple of accelerators and investment funds as having a viable business model. To be more precise, the company founders went through the program of the “hub:raum” accelerator in Poland, as well as the program of the “eleven” accelerator in Sofia, which invested in the company through two rounds of financing. Adding to this, it is a small company with a manageable size and with a team that was very appreciative of our efforts and wanted to accommodate the team.

The company was contacted through mutual acquaintance, which was one of the company mentors during their formative period. A meeting was set up with the CEO of the company with the main goal of presenting the research project and dealing with any insecurities regarding confidential information, jeopardizing the company’s day-to-day activities or negatively impacting the company operations in any way. Possible recommendations for improvements in company operating procedures were discussed as well as a draft agreement which would cover definitions of confidential information. It was also agreed that the company would be the first to receive the final report and have the opportunity to intervene if there are any passages that could in any way jeopardize the company.
The initial meeting was a success which led to a series of meetings with the goal of establishing the “rules of the process” as we called them – basically a roadmap of what would be done in the following period. At the time, Tour Via Me was contemplating a potential move to Ireland, which in the end did not go through, but that coupled with the summer holidays coming up made it paramount to make a plan that would allow us to finalize a report that would be of a high standard. After a couple of meetings we got to meet the team and introduce ourselves, and then plan out a schedule on which people we would be shadowing in different periods, organizing it in such a way to avoid negatively impacting everyday activities.

These meetings proved to us that the company was really keen on going through with the project, with the whole team being supportive of our efforts and wanting to participate. Of course, securing the support of the CEO first was a big milestone, and his enthusiasm basically “rubbed off” on the other employees. As far as data gathering tools were considered, we decided upon using both unstructured and structured observation, interviews with team members, analysis of company documents – both those available to the public and some internal documents, as well as observation of the premises and certain out-of-office meetings. A timeline was produced so that these activities would cover some of the more important activities but at the same time not be disruptive for the company environment.

It was also decided that the observation process should be “spread out” over a period of 4 months (time constraints of the project and the preparatory actions did not allow for more) so that we would exclude bias which could form with observations in a short time period. During this period we talked to each and every employee of the company and managed to get different perspectives on most if not all of the major company issues.

An important part of the research process was the ability to observe interactions both on a dialogue level, as well as in company meetings, brainstorming sessions and similar group interactions. The company was more than supportive in providing us with an effective schedule, the liberty to observe such interactions and with the founders continuously instructing employees to behave normally, with observations such as “Don’t look at them, they’re not here. Speak your mind.”

**Report of the data analysis**

In this section we list and support relevant findings arising from the earlier stages of the research process. They should be viewed as a selection of basic building blocks that helped us understand the context and theme-relevant challenges that we address later with suggested interventions.

**Finding 1:** *Company offices are actually a partially reorganized duplex apartment.*

**Supporting observations:** Because of clear and substantial cost savings, the company decided to rent a duplex apartment as their office space. However, the apartment couldn’t be fully reorganized into an office, since two of the founding members of Tour Via Me are also using the apartment as their full-time living space. Apart from the obvious cost savings, this type of office space is unsuitable for the company, and has several disadvantages. Physical layout of the office space, office equipment/furniture, and office arrangement are mostly nonfunctional, and result in increased inefficiency, because of cuts down in productivity. Lower floor includes living room, kitchen, dining room, one bedroom, bathroom and a terrace. Living room is used as
a workplace for 3 people and meeting room, with casual working style - low desks and sofas that are not ideal for working long time. Dining room is used to host 3-4 people that can work closely together. Walls are used for visual repository for visualization of key challenges, new ideas, brainstorming sessions and pressing problems. Upper floor is used as a living space for one co-founder.

**Finding 2:** Some of the more important team members, including the CEO and the Lead Designer often work remotely.

**Supporting observations:** Because of business reasons, but also because of personal commitments, the CEO and the Lead Designer are often forced to travel. This means spending significant time away from the office, and having to work remotely. As a result, regular team meetings are tough to schedule, which makes coordinating team activities harder, and decision making process slower. This especially targets day to day activities, but more strategic decisions are also impacted. Additionally, this situation can also cause issues with team dynamics, as well as company culture.

**Finding 3:** The company has only six full time employees, with a number of contracted employees from time to time.

**Supporting observations:** Having such a small team obviously has both advantages and disadvantages. The team is compact, determined, dedicated to company’s mission, and with every team member having a strictly defined role. This makes decision making process less complex, and workflow more productive. However, with each member being critical to company’s success, travel, sick days, and individual delays can prove to be serious bottlenecks. The practice of hiring contractors certainly helps, but it’s a costly and a time consuming process, with the outsiders lacking a real feel for the organization culture.

**Finding 4:** The founders have no problem asking for help, and have established a respectable team of mentors.

**Supporting observations:** None of the founders have any academic or real-life background in business and escorted tour industry. They are fully aware of the fact that they lack fundamental business skills, and have no problem asking for help. As a result, they have worked hard on establishing a network of mentors, which includes dozens of local and international experts. There are 5 mentors that are core in this group, supporting the startup in each step of their growth. Other mentors are helping occasionally, and when needed in the project. Business planning, marketing, product development, user experience design, and social media marketing are some of the areas in which these experts provide much-needed mentoring and hands on help.

**Finding 5:** All employees work together when it comes to introducing new concepts, procedures or ideas.

**Supporting observations:** With the Tour Via Me team being so small, the founders have decided that all employees should get a seat at the table, and have an equal share of voice when discussing day to day operations, including the introduction of new ideas, procedures, and concepts. This improves team dynamics, increases the innovation potential of the company, and helps strengthen the organization culture. On the other hand, this behaviour results in a process being more time consuming. Additionally, some (constructive) conflicts are certain to arise.
Identification of the core issues and argumentation

After data gathering, interviews, on-site visits we developed and presented our key findings. As a relatively young company, it was expected for Tour Via Me to have some growing-up problems and unresolved issues. While some of them could have been attributed to lack of funds, we managed to identify issues which could be solved with a better organization and with relatively small investments.

Issue 1: Due to a number of team members having to work remotely, it is difficult to coordinate team activities, which results in lower productivity and inefficiencies.

Issue 2: Because of budgetary limitations, the company uses a partially reorganized duplex apartment as their office space, which is unsuitable, and has several disadvantages.

Issue 3: The process of converting website visitors to customers is inefficient.

Issue 4: The company doesn’t have a clear social media strategy or a unified voice on different social media outlets.

Description of the suggested intervention(s) and its effects

Based on the above we developed the following four interventions, which are a result of collaboration between company representatives and the researchers. The interventions were devised by the PACINNO staff, then presented and fine-tuned with the Tour Via Me representatives.

Intervention #1: Use JIRA for project tracking and project management, and Slack for team communication.

Addresses Issue 1 (see above).

Tour Via Me was already using Kanbanize, visual management software that helps teams become more productive by applying lean principles to their work. However, they were not satisfied with results. Additionally, they were using Google Hangouts for team communication, which proved to be very confusing, disorganized, and difficult to search after some time.

Teams that need to be effective and efficient choose JIRA to help them capture and organize issues, assign and prioritize work, and follow team activity. JIRA is a flexible and scalable issue and project tracking product for software teams, which provides bug tracking, issue tracking, and project management functions. The programme works by connecting colleagues, activities and tools thus enabling them to work more efficiently. JIRA can be used to capture and organize team’s issues, prioritize and take action on what’s important, and stay up to date with what’s going on. As a result, the team can spend less time managing the work and more time building great software.

Slack is a team collaboration tool, which offers persistent chat rooms organized by topic, as well as private groups and direct messaging, as well as voice, video, and screen sharing. The purpose of Slack is to bring together internal communication and collaboration into one centralized hub, which makes communication more direct and transparent across the team. It replaces email threads and formal conversations with quick
and efficient short messages. All content inside Slack is searchable, including files, conversations, and people. Slack integrates with a large number of third-party services, including Google Drive, Dropbox, Heroku, Crashlytics, GitHub, Runscope and Zendesk.

The intervention required few resources and managed to greatly improve the efficiency of communication for the whole team.

**Intervention #2: Moving to an office space that is more suitable for working (more productive, suitable for meetings for part of the team, and they wouldn’t disturb others at their work...)**

*Addresses Issue 2 (see above).*

The team was already aware of the problems of the work space. The problem is that the company does not currently have the required financial resources to move.

Since the team is currently raising its new round of financing, it has agreed to put new offices as one of the priorities in their proposition. We fully expect the move to significantly improve the working efficiency by changing the work environment and thus helping the team members to better focus on their tasks.

**Intervention #3: Improving visitor to customer conversion.**

*Addresses Issue 3 (see above).*

At this point in time, attracting customers and closing sales is of paramount importance for the company. By analyzing the data and checking the various statistics we concluded that Tour Via Me attracted more than enough traffic, but had a big problem in converting these website visitors to customers.

This can happen due to a number of reasons - the product may be misleading or without enough information or trust. The layout could be confusing, or the visitors could lose their way during the booking process. In order to improve the general design and user experience, the PACINNO team proposed hiring an expert that would help in these matters.

The company hired Vera Kovacevic, a UX expert and consultant, that has been working with the team for the past month and trying to improve their conversion rate.

As expected, hiring an „outsider” disrupted the atmosphere and led to some small-scale conflicts, however the situation was resolved relatively quickly and the team members accepted the changes as something that would improve results.

While it is still early to evaluate the results of the work that was done (and is still being done), the first numbers are looking promising. Additionally, the intervention paved the way for Intervention #4 (see below) which proceeded much more smoothly.
Intervention #4: Creating a unified voice of the company in social media, through a clear developed social media strategy.

Addresses Issue 4 (see above).

The company did not have a social media strategy, and while it was present on some social networks the message that was being communicated was not clear, concise and unified across platform. This was viewed as a major issue, since a clear-cut campaign can help build trust and visibility, which are paramount to the type of business that Tour Via Me operates. Additionally, a well thought-out strategy can foster active users that become evangelists for the company, the care more about the brand and the product.

A social media expert Maja Jaredic was hired and helped create a unified Social Media Marketing strategy which includes a content management strategy for blogs, Twitter and Instagram. This change was much smoother to implement, in large part because of the previous experience which showed that outside help can be very important. Startup teams are usually close-knit and are relatively closed off to “outsiders”, and these two interventions helped foster trust and acceptance.

As in the previous case, it is still relatively early to gauge the effectiveness of the strategy, but some results are already visible. For example, the company’s newly created Instagram account already has 4,000 followers, and it is expected to have 10,000 followers by the end of the year. As a company in the tourism industry, this is a very important promotional tool.

Conclusion and possible transferability

All of the four proposed interventions produced positive results for the company – improved work efficiency, communication, online presence and customer conversion. While the long term effects would require a follow-up, the immediate impact is measurable and significant, leading our team to believe that the interventions were successful. As stated in the introduction – the main goal was to improve the processes and procedures in the company, as well as to produce a report that could be used as a type of best practices report that other companies can use. When it comes to practices that relate to organizational behaviour, there is always a risk in giving general recommendations, since no two companies are the same. The success of the intervention in Tour Via Me owes a lot to the time invested to get to know the company, the team, processes, ways of communication and dealing with issues. Such an in-depth analysis allowed the researcher team to carefully develop the possible solutions to some of the issues that the company faced.

Taking that risk into account, we can conclude that it is paramount for any company to develop a means of communication that will improve efficiency and help eliminate any miscommunications. It is relatively common for companies to stick to the communication model they were using for some time, even when it is obvious that the model is no longer adequate. The costs and time involved in changing it creates a sort of path dependence, where the team members are aware of the systems’ shortcomings, but are not prepared to change it since they overestimate the cost of change. It is imperative in these situations to have an individual (either an insider, or an outsider) that would serve as a catalyst for change, and encourage the implementation of the new system.
The second important issue is the close-knit nature of small companies, especially startups. Startup teams usually know each other for a long time, even before the company started to operate. Even when they bring in new people, the core team usually stays relatively closed off to other employees. This can be somewhat mitigated by better communication maps and on-site office organization. Also, involving external advisors or consultants could prove to be difficult especially when their area of expertise intersects with some of the core team members. In these situations, the CEO needs to inform the team members that the consultants are there to help, and not replace anyone. Furthermore, achieving “early wins” with these new concepts is of great help to get more people “on board” and support the new method. Positive experiences help make employees to similar interventions in the future, and allow for a more productive work environment.
2.7. IN-DEPTH CASE STUDIES: ALBANIA

2.7.1. Case: ABC Payment Service

Abstract
This report summarizes an action research process conducted in ABC payment service an Albanian financial, non-banking institution offering online and mobile payments in Albania. The study is in the framework of the PACINNO project and represents an applied cooperation between a research institution and an innovative, SME. It adopts the principles of action research to improve collaboration and innovation process in the focal company. In-depth understanding of the business and innovative processes in ABC was achieved by means of qualitative methods such as examine of secondary data (its website, publications or annual reports), a persistent observation, in depth interviews, unstructured field observations, interactive workshops. Through this action research process, it was possible to identify issues for improvement and suggest eventual solutions in promoting innovation and ensuring sustainable development.

Keywords: action research, market intelligence, non-banking institution, online payment service

Introduction
This document presents a case study and an action research process conducted in an Albanian financial, non-banking institution. The company before starting the observation process expressed the desire not to disclose its name and any data that could directly or indirectly reveal its identity in any document coming out of the study. Consequently, before starting the action research process the company signed a non-disclosure agreement. As a result, in this report an unreal name ABC will be used to refer to the company and some data will be presented in wider categories in order to respect the company’s privacy.

The study is in the context of the PACINNO project – a platform for cooperation in research and innovation – and represents an applied cooperation between a research institution and an innovative, globally-oriented SME. This action research was conducted by three researchers of the University of Tirana, partner of PACINNO project, which aims to use the principles of action research to improve collaboration and innovation process in the above mentioned company. Simultaneously it enables the provision of knowledge on processes covering cooperation and innovation relevant to the nature of the company and also opportunities to develop proposals for future research.

Finally, as the study of ABC is accompanied by a study of another company in Albania and additional studies in the Adriatic region countries, it co-creates the potential for a comparative study. Primarily to identify the profile of the company, the basic information was collected and then by applying the research approach a number of issues were observed and data were recorded a thing which have enable a thorough analysis (Susman, 1983). Before starting the action research the research group prepared a proposal for the company in order to motivate ABC to participate in this project. During the action research process, the research group requested the communication procedures through the company (organizational rules and procedures), their inter communication structure, how the process of the implementation of an innovative product or process is done, how new ideas are transformed into innovative projects, interaction with external factors their practices in solving different problems etc.
Afterwards the company chose its undertakings for the future considering the several options identified. Referring to the already collected information and data on the optional or already executed applications there was conducted analysis on the success of the interventions already done or to be foreseen for the future.

The main issues discussed in this report are: firstly, we have described the ABC Company by presenting its history, profile, market share, and processes. Secondly we continue with the description of the action research method applied in this study, by explaining the main motivation, the reason why this company was selected and the main challenges that the research group has faced during this process. Then we continue in the third part by presenting the data analysis and the main findings which will be followed by presenting the interventions that are needed.

**Description of the company**

ABC is the first financial non-banking institution offering online and mobile payments in Albania. In December 2009, Bank of Albania gave ABC the license to operate as a “payment and money transfer provider”, with headquarter in Tirana, Albania, situated in the center of the city. ABC uses an online payment platform which allows the company to offer financial services that are time saving and user convenience and eliminates the hassle of handling cash. The platform used by ABC offers services for its agents and clients. ABC has continuous collaboration with different financial and business entities, and public institutions that operate in Albania which are called agents or partners. This partnership includes businesses from the media, banking and telecommunication sector, and public institutions. Besides offering online payments and mobile payments, since the beginning of their activities the company has provided payment services directly to customers who pay in points of sales of ABC (walk-in customers).

ABC platform currently operates only within the Republic of Albania. The company has focused its activity only as operator of online payment, focusing on large businesses that are already mature and sell digital products (E-retailers). Referring to the stage that Albania is in the field of electronic commerce, the company is focused on groups of the population that are still outside banks, that encounter difficulties to access financial services, mainly those located in remote areas far from urban centers (the so-called “unbanked”), educating them gradually with the concept of online services and online payment, trying to be the first in providing these services to these groups. We should emphasize that the business model that the company has chosen does not leave behind those urban centers, offering ease and convenience services for people who are using “Smart phones”. Meanwhile they are working for the development of the directly ABC customers’ products by offering mobile payments and investing in mobile application development according to the latest technologies used by global operators.

ABC staff consists of 20 employees. The company has a formal organizational structure, and the work primarily gets performed by 5 teams and the Executive Director: Sales Department (one manager and two specialist), Client and Marketing manager (one manager and one specialist), Operational and Risk Department (one manager and two customer support specialist, offering customer support 24/7), IT Department (one manager and three software developers), Finance Department (one financial manager and five specialist) and one supportive staff. They are currently lying in two offices located near each other for more access among departments. Headquarters have four separate offices as follows: Office of the Executive Director,
Operations and Marketing Department, Department of IT, Office of the meetings and staff meetings. Other offices are divided into two separate offices: Department of Finance, Sales Department.

In 2014, they have launched a new mobile application for Android and iOS, product which is considered to be well received by clients and the number of users is growth (5000 users in 2013 to 6448 users in 2014).

Although in the recent years, banks have been the most active companies offering electronic payments, they believe that the online payment service or mobile payment service has not been the focus of most of them, especially compared with other activities considered as the priority, such as the collection of deposits and lending service. It is worth noting that their key competitive advantage is their focus on the group of the population that is still outside banks. Regarding other operators in the market, judging mainly from their promotional campaigns they are mainly focused in money transfer instead of online payments. Cooperation with public institutions is a priority for the company; currently they are offering 3 payment services toward public institutions such as utility payments (including automobile fees, electricity payment and the bill for water supply). The workforce is very culturally homogenous; they have only Albanian employers. The work for the new mobile application for Android and iOS was conducted by the collaboration of the ABC IT staff and a firm that develops applications (outsource service). ABC is among the first companies to support new talents in promoting them in various fields, but above all in the field of information and communication technology. They have participated in different start-up activities for young entrepreneurs and considered these events as an opportunity for network and talent pooling. New employees, willing to develop professionally were recruited in these activities. We can mention projects in the field of technology information on other areas such as Imagine Cup, the various Startup; fairs organized by some universities; network support to the organization of Junior Achievement of Albania; Albanian Skills etc.

In 2014 they were awarded with the price “Golden Bee” for the Information Technology as the business of the year in this field, activity organized by the Ministry of Economic Development, Trade and Entrepreneurship.

**Description of the Action Research**

With the intention to obtain cooperation with other companies on PACINNO project, several companies were contacted; still not many of them were willing to participate. One of the companies which initially agreed to cooperate for this work package, later after contacting the CEO and introducing the project to the staff, it withdrew. Eventually in the Start-up event held by Tirana Business Park, we met CEO of the ABC Company. It was an advantage that ABC Company matched the recommended criteria of the project and agreed to participate with the research team. We considered ABC as innovative because has introduced recently an innovative product (mobile application for Android and iOS). It represents a company in terms of turnover and the number of employees (that is a SME). The company size was between 10-50 employees, so as per the project instruction it comprises a manageable size, and has shown interest in improvements in the broader area of innovation and has demonstrated that they have a long term strategy to extend their company even in other countries of Balkan region. The final reason why the company was chosen is that the staff was motivated to cooperate in this project.

Initially the research team had a meeting with the contact person for the PACINNO project in Albania and the CEO. The goal of this meeting was to properly explain the aim of the project and its future development so that the CEO and the Sales manager could be convinced to join the project.
As the issue of respecting the firms’ privacy and building trust beforehand was very crucial, consequently the research team explained to the company that no confidential information will be exposed. Before starting the action research process the company signed a non-disclosure agreement. Furthermore, WP4_act.4.1 “Survey of Innovative Companies” questionnaire was filled out from the company to get a general idea of the company and gather enough information for researchers to decide on the next steps. Next, we presented the process to all the employees of ABC Company. The Operations and Marketing Manager introduced the aim of the PACINNO project in front of the employees and stated that the demand on their time due to their involvement in their project would not be problematic. After an introduction to the project and research objectives, questions were posed to the company representatives (The Operations and Marketing Manager), aiming to get a general overview of the company. We explored various data-gathering possibilities from in depth semi-structured interviews, to secondary sources analysis (web and annual report) and observation of physical setting of the offices. The members of the research team processed independently the information received so far from the semi-structured interview and it was decided that further analysis will follow. On a second phase of visits and observations in the company, independently researchers scheduled meetings to further analyze, by posing questions to the staff members and validating the findings reached so far. Researchers spent time at the company premises observing the staff interaction, communication etc. The employees were supposed not to feel the presence of the researcher while at work and they should feel comfortable.

A preliminary report was prepared by researchers on the findings, issues and proposed solutions. These proposals were presented to the company staff and interventions were discussed. Feedback on the proposals and initial decisions to follow up some of interventions suggested, completed the action research cycle and enabled the researcher to complete the report.

One of the main challenges that the research team had to cope with was “Access”, referring to the obtaining of accurate qualitative and quantitative data into the organizational system which would enable the undertaking of the research. Considering the complexity of the project, the research team managed to obtain the primary access (through the agreement of the CEO to participate in this research). However further access was not sufficient. It implies access to documentation, data, people, and meetings. Assigned staff members were willing to provide the research team with the required qualitative information, considered by us researchers as valid due to their experience and long time in the company, but quantitative data were limited. According to the company policy financial data are considered confidential while other data, such as market share, were not available.

Report of the Data Analysis and Findings

Finding 1: The Company does not seem to engage in systematic market research.

Supporting observations: This is a drawback for a company in the processes of maturing and increasing sales. Still they continue to apply informal approaches of retrieving information from the market without conducting sufficient market surveys. The company management take it for granted that their services are not provided by other companies as identified by them through the observation of the promotional campaigns of other companies. This perception might lead them to insufficient turn over in the future. It is clear that
market surveys would provide the company with clear information not only on the competitors but also on the clients’ preferences so that the new foreseen services (tax online payment) be included as services in the future to meet with the clients’ expectations.

**Finding 2:** *In order to promote innovation employees’ training would be indispensable, not only referring to the technical staff but also to the supportive ones (marketing and sales).*

**Supporting observations:** Despite the fact that the company uses policies to identify and attract future talented employees it does not go beyond that. Further approaches should be undertaken in order that the employees get constantly trained and qualified for their job, which is to the benefit of the company. While various opportunities are offered for technical IT staff, supporting staff covering marketing and sales operations don’t have the same opportunities.

**Finding 3:** *Innovation in the company is mainly generated through a top-down approach.*

**Supporting observations:** There are 15 professional employees, very committed to their job. However there is lack of planned activities to involve employees in innovation processes. Meetings organized are mainly operative and decisions are taken for follow up. Referring to innovation the real driving force is the Executive Director. The informal connections of the Executive Director have enabled the company to find and establish partnerships.

**Finding 4:** *The company offices appear to be small and narrow.*

**Supporting observations:** The advantage of the company offices is that they are in the central area of Tirana. However, they are not spacious and in particular the meeting room could not hold a sufficient number of participants. They are currently lying in two offices located near each other for more access among departments. They have got the basic equipment such as desk, chairs and pc. Decoration and visual accessories on the walls were mostly missing.

**Identification of the core issues and argumentation**

ABC Company is in its growing phase and is now facing an increased competition. The below raised issues should be addressed in order for the company to have a sustainable growth and boost innovation.

**Issue 1:** The Company should be continuously informed about the targeted customers’ needs and satisfaction with the service offered.

**Issue 2:** ABC Company doesn’t have full and structured information on its position toward the competitors.

**Issue 3:** Training as a tool to boost innovation, is not part of human resource management policies.

**Issue 4:** The Company doesn’t have planned activities reserved for generating innovative solutions from the staff.

**Issue 5:** Company premises are small and not always following the ergonomic principles.
Description of the suggested intervention(s) and its effects

**Intervention #1: Regularly conduct structured and full market study**

Addresses issue 1 and 2

*Suggested solution:* Before 5 years when the company started its operations, was the only one offering this service. Possible clients as well were not informed about the services and technology acceptance was in a different/lower level. Now competitors have entered in the market and ABC Company needs to understand its competitive advantages, service values the clients appreciate and expectations, market niches and competitors behavior. A market survey conducted by a third party would provide valuable information to the company and orient its innovations interventions.

*Purpose:* Feed in the company with structured full information on the e-payment services and clients.

*Planning and implementation:* This activity should be commissioned. The contracted company should work with the managerial staff on the study objectives and provide to the company all the necessary information.

*Resources:* Outsourced company service in the marked or benefiting through business supporting projects, managerial staff (7-10 working days).

*Participants:* Managerial staff and the outsourced company.

*Monitoring and evaluation:* ABC Company managerial staff should have clear expectations on the market study outcomes and afterwards will design evidence based development policies and strategies, including innovation in the product, service and organization management.

*Effects of the intervention:* Market study is not considered a one-time activity but a continuous market information system to be used as a feedback and monitoring system as well.

**Intervention #2: Design innovative generation training activities for all staff**

Addresses issue 3, 4

*Suggested solution:* Supporting and technical staff capacities are enhanced and product, service or managerial innovations are introduced. A new training policy could be introduced.

*Purpose:* increase staff capacities on generating innovative solutions

*Planning and implementation:* managerial staff drafts the new policy on training

*Resources:* managerial staff (2-3 working days). An HR expert could be consulted (0.5 working days)
Participants: managerial staff on drafting the policy, all staff in implementation

Monitoring and evaluation: Indicators such as policy drafted, hours of training received, number of employees trained, innovative ideas presented, innovative solutions implemented, could be used for monitoring.

Effects of the intervention: Within a few days, the company managers identified capacity building activities that would enhance innovation and ensure sustainable development. They are asking for support on company preparation for international standards such as ISO-27000.

Intervention #3: Schedule innovation generation activities with all staff members

Addresses issue 4

Suggested solution: Planned activities e.g. “innovation day”, “new way forward” etc., at a certain frequency, e.g., the third Friday of every month. Idea generation group activities such as brainstorming could be applied.

Purpose: To generate new ideas, include employees in decision making, and enhance the team spirit.

Planning and implementation: managerial team to schedule this regular meeting.

Resources: all employees, 2 hours per month, one office space, flipcharts, coffee break etc. It can be organized as a staff retreat as well.

Participants: all employees

Monitoring and evaluation: person responsible for HRM in the company can keep track on the process. Minutes are taken and innovative ideas are further discussed by the managers on the feasibility. An employee satisfaction questionnaire could be used as a monitoring tool regarding employee inclusiveness, motivation and engagement.

Effects of the intervention: After discussing this suggestion with ABC Company staff, it was welcomed and considered as a valuable comment and easy to be implemented.

Intervention #4: Rearrange the office space toward a more ergonomic and creativity generation environment

Addresses issue 5

Suggested solution: actual office redesign to create the perception of a wider space, glass walls can be used, pictures, colors etc.

Purpose: Studies on ergonomics support the fact that work environment layout, colors and equipment, influence employee productivity.
Planning and implementation: An interior design specialist can be hired

Resources: interior design project and implementation (reconstruction)

Participants: managerial staff and external expert

Monitoring and evaluation: assigned staff member could supervise the works; pre and post survey on employee satisfaction could be performed.

Effects of the intervention: When this option was discussed, company staff considered this a very important and feasible option. Even if from the outside it seems superficial, a relaxing and motivating working environment helps the employees being more creative at the same time.

Recommendation for transferability of the intervention and evaluation of its relevance
Transferability of interventions: In my view, intervention #1 is transferable to other start-up firms and SME in the market. Intervention #2 is transferable to all other start-up firms and SME managers identified capacity building activities that would enhance innovation and ensure sustainable development. Intervention #3 is generally applicable in smaller and medium organizations, where idea generation group activities such as brain storming could be applied. Intervention #4 should be applied in all firms because a relaxing and motivating working environment helps the employees being more creative at the same time.

Some propositions based on the action research project in this company:

Proposition 1: The Company needs to understand its competitive advantages, service values the clients appreciate and expectations, market niches and competitors behavior.

Proposition 2: A market survey conducted by a third party would provide valuable information to the company and orient its innovations interventions. This will feed in the company with structured full information on the e-payment services and clients.

Proposition 3: Supporting and technical staff capacities are enhanced and product, service or managerial innovations are introduced. A new training policy could be introduced.

Proposition 4: Planned activities e.g. “innovation day”, “new way forward” etc., at a certain frequency. Idea generation group activities such as brain storming could be applied to generate new ideas, include employees in decision making, and enhance the team spirit.

Proposition 5: Actual office needs to redesign to create the perception of a wider space, glass walls can be used, pictures, colors etc. Studies on ergonomics support the fact that work environment layout, colors and equipment, influence employee productivity.
2.7.2. Case: D&M Consulting Services

Abstract
This paper summarizes an action research process conducted in DM Consulting, an Albanian IT and HRM service provider company. The study is a part of the PACINNO project and represents an applied cooperation between a research institution and an innovative, globally-oriented SME. It adopts the principles of action research to improve collaboration and innovation process in the company. In-depth understanding of business and innovative processes in DM Consulting was achieved by means of qualitative methods such as direct observation, interviews, interactive workshops and desk research on company secondary data such as publications and report. Through this process, it was possible to identify issues for improvement and suggest eventual solutions in organizational innovation and enhancing innovation through employee empowerment.

Keywords: IT services, HRM services, innovative SME, qualitative research, organizational innovation, employee empowerment

Introduction
This report presents a case study developed through an inside research methodology. The research is based on “Action research” approach, which focuses research in action rather than research on action by aiming taking action and creating knowledge or theory about that action (Brannick & Coghlan, 2007). This study relies within the frame of PACINNO project – a platform for cooperation in research and innovation and was conducted by three researchers of Tirana University, partner in Pacinno project. Following the selection criteria proposed for the company to be analyzed through this action research, such as the innovative profile of a SME. The company selected is DMCS (D&M Consulting Services).

Following Susman (1983) five phases to be conducted within each research cycle while adopting an action research approach, initially, after basic information was gathered and company profile was defined, particular issues were identified and further data were collected for a more detailed diagnosis. This was followed by a postulation of several possible solutions, from which the company decided on its actions to be implemented. Data on the expected results of the occurred and/or tentative intervention were collected and analyzed, and the findings were interpreted in light of how successful the action has been or is expected to be with reference to industry standards.

During the action research implementation, we inquired many aspect of the organization that are crucial in capacity building and innovation generation. Aspects such as: communication channels and their practices, team work and problem solving practices, process of generating new ideas and transforming into projects, interaction with external factors and awareness toward new developments of the markets. This report is organized into 6 sections. In the first section a general overview of the DMCS Company is presented, its roots, profile, organization and its position in the market. The second section is dedicated to the action research approach followed in this study. The reasons why this company has been selected, the process of first contacting and the trust building is explained, meeting sessions and rigor check are covered in the second session. Section three is dedicated to the data analysis and findings, which then lead to the next part of the study presenting the identification of the needs proposed for interventions and its process.
**Company Description**

DMCS, founded in 2005 and headquartered in Tirana, Albania, offers a range of products and services in IT (Information Technology) and HRM (Human Resources Management), the two inter-related units of the company. DMCS has 11 full time employees and offers its project based and standard services in the region and beyond.

The IT division includes 7 full time employees. It is also the company main business unit and characterized by a high rate of internalization. DM offers web, mobile & social media applications, websites, E-Commerce Solutions, digital marketing strategy and develops and executes SEO, SEM, internet marketing, social media marketing, email marketing, content writing, blog management tools, press release distribution and other high profile IT solutions in the frame of contract specifications. DMCS offers its personalized and standard products to individuals and organizations from private and public sector. The company was selected as project partner in international projects, offering IT solutions and consultancy in market access databases (CEFTA), financial stability benchmarking system (USAID), order in the community (Ministry of Interior), etc.

A total of 3 staff members are engaged in offering HR services at DMCS, such as headhunting, executive search, training, assessment centers and other HR supporting services for both individuals and organizations, mainly private. Both, IT and HR units have a mutual collaboration in offering the brand products. HERA is the DMCS in-house developed HRMIS, applied by many national and international clients; and www.duapune.com the portal where are registered most of the job applicants and institutional clients for HR services.

The company is member of many international IT associations. DMCS CEO holds the position of Board Chairman of Albanian Information Communication Technology Association (AITA), he is Head of HR Committee at American Chamber of Commerce Albania, and President of Albanian Fulbright Alumni Association (AFAA). DMCS has a high visibility by actively and continuously participating in national and international forums, fairs and other activities related to IT and innovation. DMCS is actively involved in start-up activities and the founder of this company is speaker and jury member in national and international events for start-up companies such as Start-up live Tirana, Start-up weekend Tirana etc.

DMCS is known as a successful innovative company in the local and regional market by introducing new home designed products (such as HERA) and continuously developing IT based solutions. The company is operating in national and international markets, offering services in Kosovo, Greece, etc., and operating in partnership in the region and beyond like Moldova, Georgia etc.

DMCS and some distinguished staff members have been awarded the industry international certifications and standards to offer IT services. As a company, DMCS is acknowledged by ISO 9001:2008 standard on quality management system and the IT Mark certification for the improvement of processes of small and medium size companies in the ICT sector. DMCS is the only company in Albania that holds a CMMI (Capability Maturity Model Integration) awarded to the head of IT sector. The company invests in internal staff continuous development and training and benefits from the outsourced experts by collaborating with part – time associates and part time employees in project bases.
Description of the Action Research

This action research was conducted for DMCS, which completed the required criteria set for this purpose. Following Pacinno project leading partners in this assignment, the selected company should represent a highly innovative profile, preferably in the IT field, representing a company in terms of turnover and number of employees considered a SME, with well established procedures, involved in start-up activities, stable in local and preferably international market. The above mentioned profile is supposed to facilitate the chosen approach for research and findings will contribute to innovation state of art in the country.

DMCS was first selected as a possible company for this action research because it fulfills all the selection criteria. After the first contact, CEO was willing to participate and welcomed the research team. Furthermore, WP 4.1 questionnaire was filled as well to get a general overview of the company and gather sufficient introductory information for researchers to decide on the next steps. A step by step description of the research is provided in the table below.

Table 1: Step by step description of the research process

<table>
<thead>
<tr>
<th>STEP</th>
<th>DESCRIPTION</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Selection of the company</td>
<td>DMCS fulfills all the selection criteria for an action research</td>
<td>Company was selected</td>
</tr>
<tr>
<td>2. Contact DMCS</td>
<td>DCM CEO was contacted for possible collaboration</td>
<td>Agreement reached</td>
</tr>
<tr>
<td>3. Defining the innovation profile</td>
<td>Initial information was received from the company by through the WP4.1 questionnaire.</td>
<td>Company innovation profile was roughly designed.</td>
</tr>
<tr>
<td>4. Secondary data analysis</td>
<td>Assigned researchers reviewed company publications and other relevant information available</td>
<td>Available information on the company was gathered</td>
</tr>
<tr>
<td>5. Designing the research</td>
<td>Assigned research team was consulted with the guidelines delivered by WP4.3 leading partner. After further readings on action research, the research design was drafted.</td>
<td>Research design with objectives, type of investigation, extent of researchers interference, timeline of the study and task division, study setting (as expected), data collection methods and how the data and information will be analyzed</td>
</tr>
<tr>
<td>6. First meeting in the company</td>
<td>Research team met with 2 key employees at DMCS. After an introduction to the project and research objectives, questions were posed to the company representatives, aiming to get a general overview of the company. Further research steps were discussed and agreed.</td>
<td>Research team presented the research approach and agreed on the research approach. Initial general information was gathered.</td>
</tr>
<tr>
<td>7. Processing data from first meeting</td>
<td>Three members of research team, processed independently the information received so far and extracted fields of information to be filled in 2 main components of DCMS.</td>
<td>It was decided that further analysis will follow in 2 main sectors/departments. Tasks were divided among the research team based on expertise and availability.</td>
</tr>
</tbody>
</table>
In initial phases, secondary data were reviewed to establish a general overview of the company. More specifically, the researchers were introduced with “DM Consulting Services” company through its website dm-consulting.biz where information on the company profile and services is offered, as well as company publications and reports. The next step followed was establishing direct connection with the management team and planning an appointment. The first contact with the CEO of the company was facilitated by the representatives of Pacinno project in Tirana. The first visit of the researchers was in the offices of the DCMS Company with the HR Services General Manager and the IT Services Manager. The aim was to establish direct relationship, introduce, share experiences and generate trust.

During the introductory visit, the researchers broadly presented the scope of the project, partners involved, the background researchers and their professionalism. This phase was completed successfully which lead to the continuation of the process. This first meeting was held at the DMCS offices. The company representatives presented and shared the company profile, vision, general overview, and position in the market, importance and adoption of the innovation philosophy by the company. Detailed notes were taken by the researchers for the next step analysis. During the first meeting with key managers of the company, researchers had an unstructured field observation.

<table>
<thead>
<tr>
<th>Observations made</th>
<th>Initial findings validated</th>
<th>Information gathered</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCM CEO was contacted for possible collaboration</td>
<td>Initial information was received from the company by through the WP4.1 questionnaire.</td>
<td>Company innovation profile was roughly designed.</td>
</tr>
<tr>
<td>9. Observation in outdoor activities</td>
<td>During the research period, DMCS participated in Tech fair. Members of the research team spent a whole day in this activity by observing DMCS showcase.</td>
<td>Company external communication approach was observed</td>
</tr>
<tr>
<td>10. Drafting the research report</td>
<td>Research team drafted the first draft of research report focusing more on the company profile and major findings</td>
<td>First draft report was prepared and preliminary findings were discussed with the company</td>
</tr>
<tr>
<td>11. Presenting research findings to the company</td>
<td>Consolidated findings were presented to the company</td>
<td>Handed to the company</td>
</tr>
<tr>
<td>12. Feedback on possible implementation</td>
<td>Research team welcomed feedback on the findings and suggestions.</td>
<td>Feedback on final recommendations was not received</td>
</tr>
<tr>
<td>13. Finalizing the research findings, analysis and conclusion</td>
<td>Research team finalized the draft report in English following the guidelines previously distributed.</td>
<td>Final report prepared</td>
</tr>
</tbody>
</table>

In initial phases, secondary data were reviewed to establish a general overview of the company. More specifically, the researchers were introduced with “DM Consulting Services” company through its website dm-consulting.biz where information on the company profile and services is offered, as well as company publications and reports. The next step followed was establishing direct connection with the management team and planning an appointment. The first contact with the CEO of the company was facilitated by the representatives of Pacinno project in Tirana. The first visit of the researchers was in the offices of the DCMS Company with the HR Services General Manager and the IT Services Manager. The aim was to establish direct relationship, introduce, share experiences and generate trust.
Initial information was collected from the two main divisions of the company. While in the field of IT services very detailed explanations were presented by the General IT Manager. Extensive information was provided regarding IT innovative services and projects involved. The same approach and an open conversation were conducted with the HR Services General Manager. She presented the projects involved, collaboration with organizations, and the successful innovative portal on Head Hunters. Through semi-structured interviews held with units’ managers, a general knowledge on the projects involved, products and services delivered, team composition and collaboration with clients’ information was obtained.

By the end of our first meeting we concluded on the continuation of the process, which covered the unstructured observation, semi-structured interviews/observations, secondary sources data, visits in the offices in the company and direct contact with employees. The researchers proposed that preferably the visits, observations could be carried out during peak hours. The next steps and visits were structured differently. Researchers were divided as per the academic competencies and matching fields in the company. Two researchers were dealing with the HR field in the company and a third one with the IT sector.

During the second phase, the interviews were more in-depth, the conversation was opened, and the researchers had access in the offices and could meet the employees. These meetings were characterized by a twofold communication where researchers were asking questions and giving their insights, and employees/managers providing information and validating the researchers findings so far. Visits occurred during routine, normal day in the company. During these visits, researchers conducted field observation on the daily work flow, internal communication, office space arrangements, tools used etc. Special focus was drawn to understand the flow of new and creative ideas generated within the team members in the company.

Company was observed also during a Tech fair organized in the city, which helped the researchers better analyze DMCS communication with clients, staff interaction etc.

Data gathered through the above mentioned steps, helped the researchers draft the findings and recommendations which were shared with the company. It was not possible to follow the actions taken and observe the eventual changes, but feedback received from the company on the findings and recommendations, were evaluated in terms of readiness shown and expected impact.

Taking into consideration the complexity of the research, one of the main challenges was the “Access”, referring to the ability to get accurate qualitative and quantitative data into the organizational system which would allow to undertake research. Once we had completed and obtained primary access (through the agreement of the CEO to participate in this research), secondary access was not fully achieved. Secondary access mean access to documentation, data, people, and meetings. Assigned staff members were willing to provide us with the required qualitative information, considered by researchers as valid due to their experience and long time in the company, but quantitative data were limited. Financial data are considered sensitive following the company policy, even though we asked for indexed and contextualized data, such that do not release sensitive information. The research team went further by suggesting how to gather and assemble the information in such way. Nevertheless, company representatives were not willing to collaborate in such intent and were highly reluctant afterwards. Other data, such as market share or financial indicators, were not made available since were considered confidential. Not signing a contract of confidentiality beforehand, might have had influenced in this behavior.
Once the researchers finalized the findings discussed in principle with the company managers, the research team had difficulties to schedule meetings to discuss these findings and get their final feedback. A summary of the report was sent by email to the managers but no feedback was received as well. The effects of intervention in this report are based on the discussions with the managers on preliminary findings, this because the mutual participation was not such at the end of the process.

**Report of Data Analysis and Findings**

**Finding 1:** The Company invests in idea generation but the novelties generation follow more a top-down than a down-top approach.

**Supporting observations:** There are 11 properly trained and energized full time employees working at DMCS, carrying local and international experience in this specific sector, involved in designing the IT solutions and offering HR services. The nature of the process in developing the services for the clients is such that employees themselves have to design different features in the solutions and services, especially in Information Technology and Electronic Business. Although of a great importance, employees are putting their efforts in implementation and the company doesn’t consider them as the idea generation motor. The employees mentioned that new ideas were shared with the respective head of department and in each case creative ideas were shared with the CEO. Weekly formal Monday meetings were a practice to brief the upcoming week activities. The real company driving force is the company CEO, a very successful entrepreneur with a wide network and high visibility and his role is irreplaceable in the company. Majority of DM links with the market and partners, are made possible through his distinctive profile and abilities. On one side this a company advantage but on the other side it creates a very high dependency and DM would hardly progress as a corporate.

**Finding 2:** An employee friendly environment is created but employees do not receive incentives if innovation is brought to the workplace, neither this is a performance evaluation criteria.

**Supporting observations:** A positive environment is created within the company and one could feel this when observing the way staff communicates within the department, among departments and with the managers or CEO. DMCS supports staff developments and has invested in their training and certification. In addition a special focus was given to enforce the social network among company members by putting in the “agenda” late Friday – team spirit. Even though, not all incentives are used to boost innovation. The company has plausible day to day controlling and reporting techniques (Mantis system – open source work activity tracking system), has annually KPIs in individual, department and organization level, but performance indicators are more focused to task completion and don’t include innovation brought at work. Also, higher innovation from employees is not followed by compensation.

**Finding 3:** The Company applies nonsystematic methods to retrieve information from the market.

**Supporting observations:** DMCS is in its growth to maturation phase and increase sales is declared as the main strategic orientation, although the company has informal procedures of information retrieved from the market and doesn’t conduct holistic market surveys. This is more evident for the HR services component which is a sector growing in the country. Full market survey is not considered indispensable since is rather
easy to be informed in a small country like Albania, about competitors, their market positioning, eventual competitive advantages, products offered, prices, etc. DMCS objective is to strengthen the positions of HR services, especially headhunting and its job portal, but is not using market survey as input for these future steps. Information from customers is retrieved by continuous customer surveys.

**Finding 4:** Company development has been more reactive to previous projects than proactive following a strategic plan.

**Supporting observations:** Analyzing the way the company evolved, we could say that the HR sector is not exploiting the market opportunities. It was an innovation of its own designed from the internal staff but now a clear way ahead should be designed for this unit, based on accurate information coming from the market. Furthermore, this service happens to be a priority at DMCS (as said by the managers) the development strategy on a certain market needs to be based on evidence.

The same can be said for the IT division. The retail market is not a considerable market source regarding sales. The company operates mainly on project basis and on grant donations. Taking in consideration the specificities of the Albanian market, company profits are mostly from CEO networking and contract arranging with NGOs and public institutions, rather than offering standard solutions or competitive specialized IT solutions. In the IT sector most of the products usually delivered such as mobile applications, content management, and UI design are outsourced or commissioned. What is mostly done internally are feasibility studies required by relatively big donators or projects that require mostly theoretical input and no implementation, and web applications or customized software that require implementation.

**Finding 5:** Often, the Company motivation to innovate in IT solutions, is impeded by customers’ ability to take full advantage of the services provided.

**Supporting observations:** DMCS and its team are ready to provide the opportunity for better understanding of e-business, either in terms of preparing the website, electronic commerce, digital marketing and any other form that allows the use of information technology, and its modern tools for a better business and more developed. In other words, we can say that, their team of IT experts excels in developing IT services, such as consulting on the preparation of technical specifications, business continuity, disaster recovery plans, system integration, IT strategies, e-Business and e-Commerce strategies, models and implementation solutions that enable our clients to employ breakthrough concepts and technologies to increase efficiency, revenue, and cut costs. But, the majority of companies as potential customers, does not have sufficient knowledge about DMCS, and how their investment in e-solutions can produce more benefits for their businesses and their ability to compete in the local market but also globally.

**Finding 6:** Product and marketing innovation, is rather more developed than organizational innovation.

**Supporting observations:** DMCS business model is characterized by the duality in the services offered. The two components, IT and HR function like “communication vessels” in designing and developing solutions for individual and organizations. IT based solutions per se, are innovative and continuously upgraded. HR services become novelties (at least in Albanian market) when IT component is added. E.g., facilitating
employment services through job portal duapune.com or training offer through duatrajnim.com portal, make the HR services in the same time more attractive and reachable for outside clients, increasing this way the marketing innovation (by building up new distribution channels) and offer to the company possibility for a more efficient and innovation oriented business model, not yet fully exploited. Structural and organizational innovations need to be developed.

Identification of the core issues and argumentation
DMCS is developing it key competencies as a company and is gradually turning these in competitive advantages. Innovation is without any doubt the company strategic orientation, even though further opportunities need to be exploited to make use of this innovation potential. For the time being, innovation is somehow fragmented and not diffused in all company processes. Below are raised the main issues identified and in the next section, possible solutions are discussed.

Issue 1: The company has unstructured market information for all the services is currently offering while states sales growth as strategic orientation.

Issue 2: The Company invests in designing products for clients who take partial benefit compared with the full potential use.

Issue 3: Organizational innovation in the company is not in focus while the maturity phase is reaching.

Issue 4: Innovation is rather coming from outside and the company directors/managers than the employees.

Issue 5: Not explicit tools/procedures are applied to stimulate and gather innovative solutions from employees.

Description of the suggested intervention(s) and its effects

Intervention #1: Redesign internal staff policies to ensure positive reinforcement for generating innovation.

Addresses issue 4 and 5

Suggested solution: Redesign internal staff policies to offer positive reinforcement in the form of rewards, bonuses, special privileges, comp time, and prizes in cases of innovation solutions coming from them. Innovation could be translated as KPI and performance evaluation criteria eventually.

Purpose: Increase staff efforts orientation toward innovation and create an innovative oriented thinking.

Planning and implementation: External assistance from an HR consultant could be used. As part of the process, HR component staff members can brainstorm possible solutions. All staff members should participate in this process. The final proposal should be widely consulted in the company.
Resources: HR consultant (7-10 working days), 2 HR specialist in the company to be involved as requested.

Participants: Internal HR specialist with the consultancy of an HR and an innovation consultant. All staff members to be included in the feasibility and final consultation phase.

Monitoring and evaluation: The redesigned policies shall be developed following the active participation approach. Solutions have to be widely and in-depth discussed, and once they are understood and agreed upon, they become official procedures.

Expected results: External assistance from HR consultants and HR internal staff find creative solutions for internal staff policies, including here adequate criteria for performance evaluation.

**Intervention #2: Define market indicators to be used in future strategic orientations.**

Addresses issue 1 and 2

Suggested solution: Conduct a full market survey in the IT and HR service market.

Purpose: Make the company aware of the information that could be retrieved from such an exercise and decide on periodic indicators needed for an evidence based decision making. Both company positioning in the market and clients profiles could be explored. This could be considered as a capacity building exercise in order for DMCS to independently conduct market research in the future.

Planning and implementation: An experienced company in market research is hired. DMCS could assist in designing supportive IT based tools for data gathering and manipulation.

Resources: market research Company outsourced (50 working days), 1 IT specialist in the company to be involved as requested.

Participants: When the market research study is designed, company managers but also other employees need to be involved in order to make the best use of this research, not only for the information possible to be retrieved but also the process, so that in the future this process could be coordinated in-house. Company managers and 1 IT specialists will work more closely to the marketing research team.

Monitoring and evaluation: Managers and IT specialist will ensure that this initiative is on track. Level of expected indicators and other newly suggested base for decision making will be presented that can offer the opportunity for new strategic orientations. Full evaluation would be possible only after the study is completed, data from the survey are compared with the data actually used in the company and the results of eventual initiatives based on these data are measured.

Expected results: Even that nowadays a market survey is not considered a priority for the company, due to future growth and expansion that the company aims to, defined market indicators need to get their importance in order to be used as future strategic decision making tool.
Intervention #3: Organizational redesign toward a more organizational innovation business model

Addresses issue 3, 4 and 5

**Suggested solution:** The Company should create internal mechanism to ensure structural and procedural organizational innovation. DMCS should be considered as a learning organization and the procedures to ensure this should be enabled. As a diagnostic tool, the Harvard Business model for learning organization could be used, available for free at: os.hbs.edu.

**Purpose:** Enforce process innovation, differently known as organizational innovation.

**Planning and implementation:** This is suggested to be an internal process. Harvard Business survey for learning organization could be filled by all staff members and then compared. The ultimate goal of this procedure is to map the learning organization features of DMCS by confronting different views and reaching a common understanding of AS-IS. Once the problems are identified, concrete procedural and structural reformation could be taken to create a supportive learning environment, ensure concrete learning processes, and apply the leadership model that reinforces learning.

**Resources:** Time spent for the above mentioned tasks. The coordinating team can spend a total of 4 working days each on this task.

**Participants:** An internal team with participants from both departments, headed by the CEO could be created for this purpose.

**Monitoring and evaluation:** The survey has to be periodically conducted to keep track on the progress.

**Expected results:** Adaption of a specialized international business model enforcing learning organization, in order to ensure organization reformation toward a more innovative and supportive learning environment within the company.

**Recommendation for transferability of the intervention and evaluation of its relevance**

In our understanding, all three interventions suggested are sound and well augmented based on systematic research, market research, and academic literature. Evaluating the outcome we find that it is easily replicable to other companies close to maturity phase, and can be generalized to other cases as well. After the fast growth phase of small-middle size companies, mainly driven by the market and other external factors, the companies needs to sharpen their view for the future and make prudent steps, that’s why the information on the market and customers is very important (#2). On the other side, companies in this stage of nearly maturation, despite the sector they operate, need to develop their own business model that better fits their capabilities and goals. One other characteristic of companies in such stages is that they have the capability and the power to educate the market even the product is new and untested. (#3). For sustainable results, companies should consider employees as partners, as resources and sources of competitive advantage. The HRM policies and practices should be aligned with the business strategy and training policy in this regard is crucial because increases the value of the human capital (#1).
As closing remarks for this sub-section is worth mentioning that: Most big businesses in Albania, now days are dominant and have a considerable market share just because of the fact that they were the first in the market and not because of innovation activities, human capital, or even market competition. After more than two decades “industry disruptions” is being observed in Albanian economy, however, only in certain industries because of huge discrepancies among sectors. For example, in several industries small disrupters are taking advantage of their organic organizational structure and behavioral capabilities. Audretsch & Acs (Acs & Audretsch, 1987) suggest that the small size of firms is not certainly a disadvantage in comparison with large firms, because they have ability to innovate “that offset the advantages of large scale”. Nevertheless, in Albania this is noticeable only in certain industries. When it comes to the IT industry the disrupters have still a long way to do.

Preposition 1: The Company clearly defines market indicators, client profiles and keeps track on market oriented performance indicators by regularly conducting market research.

Preposition 2: The Company puts more focus on informing the client on the benefits of the product offered. When appropriate, designs a “simpler” product to increase efficiency.

Preposition 3: Human resource practices, especially training, are redefined to stimulate innovation. Already trained and more senior employees, serve as mentors. Also, at the company are organized various activities, rather informal ones (like retreat etc.), based on free sharing of opinions and ideas with the innovation theme.
2.8. IN-DEPTH CASE STUDIES: GREECE

2.8.1. Case: Casa Parlante - A living history museum

Abstract

This case study presents an innovative museum in Corfu. The study is part of the PACINNO project – a platform for cooperation in research and innovation and describes how the museum “Casa Parlante” was created and what innovations it incorporates. It is a living history museum operating in the old town of Corfu and it combines historical elements about Corfu from the 19th century with industry standard technological innovations. The challenges and opportunities are presented. The study concludes with the interventions proposed to address their identified issues.

Keywords: innovative museum, living history, technological innovation

Introduction

This is a case study for the living history museum “Casa Parlante” that operates in the old town of Corfu since the beginning of 2014. Casa Parlante was chosen because it is a unique type of museum in Corfu, and it combines historical elements about Corfu from the 19th century with industry standard technological innovations. The study is a part of the PACINNO project – a platform for cooperation in research and innovation.

Through robotics and interactive multimedia technologies, the Casa Parlante offers visitors an alternative presentation of local historical data on a snapshot of time with high interest. The idea of being presented historical events through representations outdoors or in specially designed buildings is a relatively new approach that is becoming increasingly popular in Europe. Unlike traditional museums, the visitor can observe the lifestyle of the inhabitants and experience, through an accurate representation, their daily routine. In this way, the social and political situations of the time may be reflected and help into preserving cultural heritage. It also is an additional attraction for visitors who are interested in learning more about the rich history of Corfu, thus strengthening the local economy. Therefore, the Casa Parlante is an example of how an institution can contribute both to the promotion and preservation of the culture of a place, and be a profitable business. The Casa Parlante presents a business of particular interest as it is a living example of how to display the local history through an innovative approach. Through the Casa Parlante, it is made clear how innovative ideas can arise when combining different fields of knowledge, and how they can lead to new forms of entrepreneurship. All these factors led to the development of the case study for the Casa Parlante.

The structure of the document is as follows. First, we present a description of the company, its profile and its innovative activities. Next, in section 3, the research methodology followed is described. Section 4, presents the findings of the analysis along with the issues identified from the challenges. Section 6, presents the proposed interventions to address the challenges in the market.

Company profile and innovation activities

Casa Parlante presents an urban mansion of Corfu in 19th century, with moments of everyday life of a noble family of that time. It aims to make the visitor to live in a moment of history in Corfu, “taking” him back in time. The journey starts from the moment someone enters the area of the house. All rooms generously offer
the ambience of a bygone era, fully furnished with furniture, lighting and household objects from that era. This experience is enriched with images and everyday moments and smells (e.g., the smell that can emerge when preparing food in the kitchen by the cook) and as the visitors enter the rooms of the house, they may see the habits of the whole family presented in front of them with moving human figures. The visitors may also see the tasks for which the servants were responsible.

The historical center of Corfu and its special atmosphere rose to the idea of building the Casa Parlante. Architecture specificity combined with the fact that the town of Corfu maintains the vitality of that era until today, was the occasion for Catherine Radu and Theodora Efthymiou to implement their idea. Their aim was to find the way in which the visitor would be led in the paths of the past in real time, just as the history of the place is consistent with this in the most realistic way. In order to realize their vision, the two Corfiots participated in the competition of “Greek Entrepreneurship Prize” and the idea was among the four winners for the year 2013. The competition is held annually with the support of the Libra Group and offers financing, support services, and mentoring from a veteran consultant-mentor. The level of funding given to Casa Parlante in the competition amounted to 150.000,00 €.

Since early March 2014 Casa Parlante is open to the public and located in the heart of the historic center of Corfu, on the Street Nikiforou Theotoki. The Casa Parlante offers a complete experience to its visitors and to anyone who is interested to learn about the culture and history of Corfu. In this way, the visitors can experience realistically moments from the past of Corfu and have a more detailed picture of how the inhabitants of that time lived. The integration of modern technological means, such as the robotics technology, offer a special feature by making the visitors feel more than casual observers, but allows them to live in a moment of time in the history of Corfu, which intersects with the present thus making them a part of that history. The philosophy of Casa Parlante is that the more complete the experience is, the more complete will be the knowledge the visitors will gain in terms of culture and civilization of 19th century in Corfu.

Corfu, due to the significant geographical position, has been conquered many times. More specifically, the influences received by the Venetians, the French and the English, which are evident to this day in the historic town center and create a special atmosphere, helped in raising the economy, the trade and culture. The peak of prosperity was during the early decades of the 19th century, which resulted in urban mansions to be the centers of intellect and art of that time. Indeed, the economic domination and commercial links of the aforementioned conquerors lead Corfu in a parallel development path, enabling contact with the Western centers of commerce and art. These three different conquerors, by having a rich artistic tradition influenced accordingly the artistic expression, resulting in many new ideas and increased creativity. At the same time, the first Greek University (Ionian Academy) is created, as well as the establishment of the Academy of Sciences (from the French, 1808-1809), and the establishment of the first private art school in Greece (by Paul Prosalentis in 1811, which is made public in 1815 following a decision of Thomas Maitland). Studying various sources suggests that the development of Corfu was flourishing in this period (early 19th century), a time that the town’s mansions were the center of intellect and art. Therefore it is considered that the 19th century is the heyday of the image of the island, which is reflected even today in the historic center of Corfu Town. Casa Parlante attempts to take the guest at that time, and through a tour in a mansion house of the time to learn more about the history, culture and habits of both the nobles and the ordinary people.
It is important to for the reader to understand how the guests experience a visit to the museum. Guests enter a reception area and from there they are led to the dining room and the office of the house. Then, they enter the master bedroom and bathroom and the children’s bedroom. From there, they continue to the “secondary” rooms of the house, which is the staff room, the kitchen and of course the wine cellar and storeroom. The route starts from the main entrance of the mansion and ends with leaving from the service door. All rooms are decorated with furniture of the era, tables and the corresponding decorative relics of the family.

Beside the innovative idea of a living museum in Corfu, the Casa Parlante incorporates a series of technological innovations designed to offer the most possible realistic representation of a Corfu mansion of 19th century. To account for the way a family lived at that time, robotics technology was used for the simulation of all the people. More specifically, they settled nine anthropomorphic robots for the different family members. There are the couple with their two children, the grandfather and grandmother, the servants, and one teacher. Each of them performs specific movements and they are located in different rooms of the house. In detail, the visitors can see the music teacher showing children how to play the piano, while the cook is in the kitchen, and depending on the time of day preparing breakfast, lunch or tea. The house also changes in relation to the time of day, so besides the decoration, clothing and furniture, the visitors can see the habits and the program followed by a noble family of 19th century in Corfu. The curation of robots and their makeup is undertaken by Alachouzoi Bros, who are well known in showbiz for special effects (special make up effects) for both robots and humans. Their work has given the robots a natural appearance that is hardly distinguished from human figures. The programming of the robot is curated by Mr. Nikos Baziotis who specializes in robotic technology. Human models “come alive” through programmed microcontrollers, which are configured in in way so that the robots can operate both as a team and individually.

Description of the action research project
The two researchers that were responsible for this case study, have used semi structured interviews with two the creators of Casa Parlante, and have spent time observing their innovative activities while the museum is open to the public. The process was conducted during January – June 2015 and the researchers visited the museum four times in total to understand how the guests experience their visit and also to conduct the interviews with the creators. Casa Parlante offered full cooperation. During the observation of the Casa Parlante activities, the researchers gained in-depth insights about its strategy, and challenges and opportunities that arise by operating a type of museum that is not common in Greece. Thus, the researchers have analyzed the market and the competition of Casa Parlante and present the challenges and potential opportunities for it. Further, the innovation activities are described in detail, followed by suggestions for future goals that emerged during the interviews, the observation, and their analysis. The company has agreed on their usefulness and is already considering their integration on their overall business strategy.

Reports of the data analysis
The findings from the action research process are described below. All findings are supported by observations made during the monitoring period.
Finding 1: The company operates in a market that is rather new in Greece but has potential to evolve

In the market of Greece, examples of living museums are scarce despite the fact that they are quite popular in foreign countries. Now in Corfu, there is nothing similar, even though until the mid-90s a similar museum operated, named the famous "village of Boua". The "village of Boua" in Danilia of Corfu became an emblem of the heroic era of Corfu tourism of the decades 70s - 80s. It was a "thematic village" which was an exact copy of a Corfu village of the 19th century.

Finding 2: The company is aware of the best live museums that operate around the world

One of the most famous live museums is the museum "milestones" located in Hampshire UK. The "milestones" consist of a cluster of streets and houses in representation of the Victorian era. It began operating in 2000 and since then, it has become one of the most popular destinations in the area. The "milestones" includes a typical English pub of the season, a railway station, a traditional iron workshop, an exact replica of the house of the era, and a toy shop. The "milestones" is designed to attract visitors of all ages. For children there is a store with traditional sweets and the opportunity to dress just dressed the children of the Victorian era. Older people can visit the pub where you can find coffee, tea, and beer served to the sounds of live music from the pianist of the restaurant. Such museums are located in several cities in Europe and some of the most popular include: The Roman museum located near Stuttgart and represents a Roman villa of the 2nd century AD., The ethnographic museum of Etar located in Gabrovo Bulgaria and presents the lifestyle of the 18th century inhabitants and the Ntanslant Gammelgården in Sweden, where guests can experience the lifestyle of a rural family of the 19th century.

Finding 3: The company has to compete with the alternative choices of tourists that visit Corfu.

Although the Casa Parlante has no direct competition in the local area, there are many governmental institutions and Non Governmental Organizations active in the field of culture. Specifically, in the historic center of Corfu town there is a large number of museums (Asian art, archaeological, banknotes, Dionysios Solomos, ceramic art, Serbian) as well as other attractions of special interest (old & new fort, palace of Saints Michael and George Liston, church of St Spyridon, reading company). Although these places do not directly compete with Casa Parlante they are alternative choices for tourists to visit while in Corfu. The large number of museums, attractions, and other points of interest in the historic center of Corfu Town present a challenge for Casa Parlante, because in order to emerge it should invest in advertising.

Finding 4: The local competition of the company has established ways of reaching out to tourists

One of the obstacles that Casa Parlante is required to address, is that the above attractions are well known and highly advertised by both travel guides and internet sites. In addition, the location of Casa Parlante is at a very central position, however it is on a floor of a building. It is therefore difficult for people with disabilities to visit it and it is also hard for someone to notice it on the street it they don’t know where to look. This adds great pressure on managers of Casa Parlante, on how to publicize their existence and how to make it easier for visitors to find them. As tourism is the largest source of revenue for museums and other attractions there is fierce competition in the touristic period.
Finding 5: The touristic season in Corfu does not last the whole year.

Another challenge for the Casa Parlante is the fact that the touristic season in Corfu is limited to 7-8 months per year. For the rest (winter) months, you need to identify interest groups from the local community who will be able to cover this decline in visitors. Unlike other cities of Europe and especially the capitals of countries where tourists visit during the whole year, Corfu has tourists only for half of the year, making it difficult for private initiatives to survive. Therefore, it is critical to exploit any business opportunity that occurs. To this end, the following table presents the issues that occurred from the findings during the monitoring period.

<table>
<thead>
<tr>
<th>CHALLENGE</th>
<th>ISSUE</th>
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</thead>
<tbody>
<tr>
<td>Finding 1: The company operates in a market that is rather new in Greece but has potential to evolve</td>
<td>The company needs to invest on this market and build on the fact that there is no direct competition.</td>
</tr>
<tr>
<td>Finding 2: The company is aware of the best live museums that operate around the world</td>
<td>The company needs to follow the example of the best live museums around the world, adopt their strategies and even build collaborations with them in order to gain more insight on how they operate.</td>
</tr>
<tr>
<td>Finding 3: The company has to compete with the alternative choices of tourists that visit Corfu.</td>
<td>The company needs to find ways to reach tourists, and present them with their innovative idea, while mentioning how easy and convenient is to visit it.</td>
</tr>
<tr>
<td>Finding 4: The local competition of the company has established ways of reaching out to tourists</td>
<td>The company needs to become known to the tourists before they visit Corfu or at least as soon as they enter the town.</td>
</tr>
<tr>
<td>Finding 5: The touristic season in Corfu does not last the whole year.</td>
<td>The company needs to expand its target group and find alternative audience, especially for the winter months.</td>
</tr>
</tbody>
</table>

Description of the suggested innovations

The research team in cooperation with the company members has proposed five interventions that will bring significant long term benefits to the company. Since the interventions were proposed in collaboration with the founders of the company, they are committed to implement them. The company is very new and since it has no direct competitors, the “problems” (as described in the findings) and their “solutions” (as described in the interventions) are planned to be implemented in the long term by the company.

Intervention #1: Invest on this market and expand beyond the local area of Corfu.

As a part of a long-term plan of the company, it is envisaged that corresponding premises can operate in other parts of Greece, representing the local culture and giving the opportunity to many more guests to come in direct contact with the past of the area region. The problem encountered in relation to the Greek cultural tourism is that while there is a rich history, no investments have been made in innovative ideas.
Intervention #2: Follow the example of successful museums and organizations abroad.

Live museums abroad are particularly successful and are a magnet for visitors from around the world. The company may further invest on robotic technology following the example of big museums in other countries. Several museums abroad use robotic technology to represent models mainly of humans or dinosaurs. One of the most famous museums doing that is the museum of Cabazon in California, United States. The museum has the largest “live” dinosaur models which have been designed by experts in robotics in collaboration with paleontologists. The dinosaur models are designed to move just as it is assumed they did when they were alive, according to scientists. A different use of robotic technology is found at the National Museum of Australia. The museum has no permanent collection but hosts various exhibitions about the past of Australia. Robotics technology in this museum is used in order to give remote access to the exhibitions’ visitors. They can then direct the robot to any point in the room and to focus the camera on the exhibits. In this way remote tele-presence of visitors is achieved. Additionally, through tele-browsing visitors can access digital information about the exhibits, and to ask questions to the guide in real-time. Outside Greece the number of organizations promote culture with innovative ideas are constantly increasing. There are plenty examples of living museums, outdoor museums and historical representations that evolved in the last decade. Historical representations are organized in open air, thus they are not permanent exhibitions, and they are usually organized by a related museum in order to highlight historical events of the past aiming to increase the popularity of the museum. The company should organize such thematic representations so more people will learn about the history of Corfu and will want to visit the living museum.

Intervention #3: Build on the fact that the company is private and in the city center to go beyond its competitors.

The framework under which the Casa Parlante operates, allows it to be more flexible in relation to its competitors who are mostly state bodies. This means that it can easily have a presence online and in various social media and reach to a larger crowd. Also, because it is a private initiative, being introduced to a network of associated firms is less bureaucratic, thus they can exploit any opportunities that arise. Casa Parlante has a competitive advantage compared to other sites that are outside of the old city because it is a lot easier for tourists to visit.

Intervention #4: Create collaborations with the right companies and organizations to promote the company.

It is crucial that Casa Parlante makes agreements with tour operators, local and other public bodies in order to organize excursions at a reduced price. Cooperation with other museums is seen as essential, so that visitors are informed about Casa Parlante or even to be able to visit multiple museums with a single ticket. In many countries it is a standard practice that visitors buy a ticket which allows access to a multitude of museums and attractions. So if a visitor does not know about some of these, he or she can learn it by that ticket. The aim is to increase the number of visitors by positive word of mouth. Of particular importance is the presence of the departments of the Ionian University, which with their specific knowledge both on historical data of Corfu and the know-how can work with the creators of Casa Parlante to improve their services. Through programs such as internships or even volunteer work, students may offer their expertise and advice to Casa Parlante. In such special areas it is common to organize exhibitions and performances, while they may even act as areas for the production of films or documentaries.
Intervention #5: Expand the audience and find alternative ways of creating income.

A group of visitors that the Casa Parlante should target are schools of Corfu. In addition to quite large population located in Corfu, there is particular interest from schools from the rest of Greece to visit the island. In cooperation with travel agencies that organize tours for schools, the Casa Parlante may offer special rates to include a visit. Also, the company may use the the area for various exhibitions (e.g., photography, painting) and all those elements that can tie in perfectly with the style and atmosphere of Casa Parlante, so that visitors can see historical data or events of the island within an area totally representing that time. There is also the possibility that Casa Parlante may be used for filming scenes in films or documentaries.

Recommendation for transferability of interventions and research propositions

The proposed interventions may be transferable to other companies in the tourism and other sectors. Intervention 1 is transferable to other companies that aim to operate on the tourist sector and need innovative ideas. Intervention 2 is transferable to new companies that choose to operate on a new market with an idea that has implemented successfully elsewhere. Intervention 3 is generally applicable to all companies that are situated in the town center. Interventions 4 and 5 may be applicable to companies from other sectors, besides tourism, that enter a market which already has well established companies. The company has started to implement the proposed interventions; nonetheless tangible results will take a while to appear. Finally, some propositions can be made based on the findings from the research process:

1. Companies that operate in the tourism sector are more likely to succeed when they try to cooperate or partner with other companies in order to complement each other.

2. New companies that aim to enter a market a seemingly saturated market should focus on implementing innovative ideas to gain a competitive advantage.

3. Small companies that build on innovative ideas should be given more focus as they are ready to evolve with the proper guidance.

4. Startup companies that innovate on a specific industry, should follow examples of other companies from the same industry but, for example, from other countries, since this would firstly lead to a better implementation of specific techniques and also may offer awareness since customers (i.e., visitors) might be familiar with the used techniques and focus on the essence of the product rather than the technique.

5. Small companies that produce successful results should firstly focus on extending their market share of their product before attempting to offer a new product which may not have the same success.
2.8.2. Case: isMOOD - Improving Brand and Reputation Management Through Online Information Technology Tools

Abstract
This document outlines an action research project that was conducted in isMOOD, a startup company operating in the field of online social media analytics. The study is part of the PACINNO project and aims at describing the key innovation competencies of the company as well as identifying areas of improvement for the operations and strategic positioning of isMOOD. To achieve these objectives, we followed a combination of direct observation and in-depth interviews with key personnel of isMOOD. The results of this process are encapsulated in this document.

Keywords: startup, social media analytics, innovation competencies, operations, positioning

Introduction
The field of online social media analytics has recently gained increased attention as a tool that may collect people sentiments and perceptions towards firms, brands, and/ or business activities (e.g. marketing campaigns). isMOOD is a Greek Information Technology startup that provides advanced services in the fields of data science, data mining, business analysis and social media analytics. This document outlines the business activities and achievements of the company and aims at proposing specific interventions that would help the company expand its innovation potential and increase its competitiveness both nationally and globally. It should be noted that since isMOOD is still in its early stages of operations during the time of the interviews, the majority of interventions are oriented towards strategic directions that the company should follow. Hence, it was not possible for the research team to provide actual results on the implementation of the proposed interventions. Since the research team retains close collaborations with the company, as a result of this case study, we expect that this case study gets revisited in the near future to incorporate these findings and assess the value of the proposed interventions for the company.

The study has been undertaken as part of the PACINNO project and aims at contributing a more in-depth understanding of the innovation processes within Greek IT startups. The outcomes of this process may be utilized for cross-comparison analysis with the other case studies that are undertaken within the PACINNO project.

The structure of the document is as follows. Initially, we provide a short description of the company, its products, and the sector it operates. We then describe the research methodology that guided the preparation of this document. As a next step, we outline the key findings of the action research in the form of: (a) general challenges that need to be addressed and (b) specific interventions that address these challenges and improve the competitiveness of the company.

Description of the company
isMOOD is a Social Media Services Company that was founded in November 2013 by three information technology specialists. The company is the natural outcome of its founders’ research efforts, as part of their research activities within a Greek university, in the field of data mining dated back to 2011. The company has been hosted within the premises of EGG. EGG (abbreviation of Enter-Grow-Go) is an entrepreneurship
acceleration programme that was initiated by Eurobank and has been reaching out to young teams with creative and innovative ideas. The incubation programme provides the accepted startups with fully equipped office premises and support services in the form of effective business training and access to a network of distinguished mentors in order to accelerate their business ideas.

isMOOD relies on external personnel to develop its (digital) products portfolio and does not follow a strict organizational structure. Specifically, the company has involved two programmers that helped the founding team to develop the online social media services. Moreover, the company collaborates with an accountant to receive support for administrative/financial issues. The founding team, all of which are holders of IT degrees, are responsible for setting the strategy of the company, promote its products, and assist in the development of the online services. In short, the products portfolio of isMOOD involves around the following online digital services:

- Market knowledge through online social media analytics. Through this activity, the company has developed tools that collect data from Facebook, Twitter, YouTube, Blogs, Forums and monitor what users are saying about specific brands, their reactions to promotional campaigns, what problems they face while using various products and services and what stimulates their interest or not. isMOOD can also evaluate how topics of interest are evolving on a real time basis. Such services provide isMOOD’s clients with the necessary knowledge of what are the true attitudes and behaviors of the users of social media, regarding their brands or companies and identify customer-related business concerns or needs and get a qualitative and quantitative feedback.

- Competitive intelligence through prediction of key business endeavors by using online social media analytics. The data analytics algorithms developed by isMOOD link the analysis of topics discussed in online social networks with future predictions. The developed algorithms not only perform key topic detection, but they also predict topic evolution through the collective data analysis of social media text. Predictive services include the detection of future trends and topics to be raised, thus providing a useful proactive and strategic tool for business managers. Such services may be used by companies order to perform better brand management, crisis management and scenario analysis in terms of branding and marketing.

- Sentiment analytics to capture consumer perceptions on brands and firms. isMOOD’s sentiment analytics are aimed to change users’ sentiment and opinions about products, companies or persons. isMOOD’s specialized stuff, interacts with the market, through Word of Mouth Marketing Techniques that enhance the virality and the responsiveness of the user, to the specific product, campaign or brand that isMOOD’s clients want. Sentiment analytics services can also perform network mapping, through which the most influential users – influencers- in the network are detected, in order to share positive content for isMOOD’s clients. Moreover, they may perform real shifts to customers’ sentiment and are used for effective launch of new brands or products, crisis management and at the beginning of new viral campaigns, when the positive responsiveness of users is extremely important. Finally, these services are used by brand managers, advertisers and people in the public sphere with high involvement in social media, who are interested in communicating their image and raise their audience’s positive engagement.
isMOOD primarily operates on the domestic (Greek) market, although its services address the needs of international audiences as well. In terms of revenues and business contracts, isMOOD clients/financial revenues fall into the following categories:

- Individual contracts with private sector companies that are interested to receive such services as reputation/brand management through social media analytics;

- Participation in research projects funded through either national or European funds emphasized in the broader field of social media analytics.

The core competitive advantage of the company refers to its advanced and sophisticated data analytics algorithms that are the result of theoretical and applied research conducted within a major Greek university. Hence, parts of these findings/results have already been published in major academic journals and conferences. The core team of the company, comprised by its founding members, continues to actively publish new findings in the field of social media analytics thus, keeping a close relation to the academic community.

To expand its innovation potential and prospective growth the company participates in major Greek innovation and competitiveness competitions. For example, isMOOD achieved the 4th place in the 2014 i-bank competition on technology and innovation, which was organized by the National Bank of Greece. The company received a price of 4,000 euros, which was used to further develop the innovative data analytics algorithms that comprise the backbone of isMOOD social media analytics services.

Moreover, the company develops tailored online services that aim at raising the awareness of prospective clients for isMOOD services. Noteworthy examples include: (a) the in-depth analysis of the June 2015 Greek Referendum through the lenses of opinions published in online social networks12 and (b) the online analytics service for the 2014 municipal elections in Athens and Thessaloniki13. Both services received significant attention and publicity from online and offline press and helped reinforce the position of the company in its market.

Although the social media analytics market in Greece has only recently started to emerge, competition in this market is already intense. Specifically, the products’ portfolio of companies operating in this market primarily refers to monitoring a firm’s presence in social media and estimates performance indicators based on the frequency of certain keywords (noteworthy examples include the solutions of Clip News, ExelixisNet and many other companies operating in the market). The sector exhibits also solutions/products from major international companies (e.g. online platforms, such as Sysomos.com and Alterian.com and offline software tools, such as SAS Social Media Analytics). isMOOD is among the very few companies that are specialized in the niche area of social media analytics nevertheless, the majority of Greek advertisement companies as well as several IT companies have started to expand their business operations to also include some aspects of online social media services. Hence, isMOOD needs to be agile in order to adapt to a continuously changing business environment.

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12Available online at: http://www.ismood.com/greek-referendum-twitter/
13Available online at: http://www.eklogikanalytics.gr/
Description of the action research project

We followed a combination of unstructured interviews with the founding members of isMOOD as well as direct observations on their innovation building activities during the development of the online platform that measured Greeks’ perceptions/ opinions on social media for the Greek referendum. Two researchers were assigned in this project. The process was formally conducted during January – June 2015, although informal communications and meetings have been conducted from October 2014. The company provided full collaboration with the researchers. It should be noted that the excellent collaboration with the company paved the ground for additional collaborations. For example, the CEO of the company participated as mentor in an innovation weekend for young entrepreneurs, which was organized by Ionian University in March 2015.

The two researchers observed both the activities pertaining the development of new products/ services by the company as well as the brainstorming sessions from the development team. Moreover, they gained in-depth insights pertaining the business strategy of the company, the challenges that it faces, as well as the limitations/ challenges imposed by the economic environment in Greece. Evidence for the operations and overall business strategy of the examined company was further collected through structured interviews. During April – June 2015 the research team, comprising of the two researchers and an experienced researcher on action research projects, initiated weekly meeting to discuss the findings and set up the proposed interventions agenda. The results of this dialectic process are included in this document. The proposed interventions have been presented in the company and were well received. The research team expects that the company will consider integrating them in its business strategy. A revised version of this document might include possible lessons-learned/ feedback on the actual implementation of the proposed interventions by isMOOD.

Reports of the data analysis

This section outlines the findings of the action research process. Each finding is supported by specific observations that were collected during the monitoring period.

Finding 1: The company operates in a niche market sector that has limited but gradually evolving demand

The core competence of isMOOD lies in the field of online social media analytics. All products and services are oriented towards this field. To this end, the company has not engaged any additional side projects in the broader field of information technology/ computer science although the founding members and the external personnel have extensive experience on innovative IT projects, primarily through their participation in research projects. When asked why the company does not engage on other business activities (i.e., horizontal integration to include web development or enterprise information systems development) the founding team responded that they wanted to ‘set their mark’ in the Greek market of social media analytics as the reference company in the field. Social media analytics is an emerging sector in the IT market. A continuously evolving number of companies have acknowledged the competitive advantage that may be achieved from market intelligence through online social media. Nevertheless, the economic recession in Greece prevents the small and medium companies to heavily invest part of the marketing budget to social media analytics activities thus, the demand for such services has not achieved its full potential. Another factor that enhances the intensity of competition resides to the fact that barriers to entry for newcomers are relatively low. Indeed, web development companies and advertisement companies start to include social media analytics services to their products portfolio thus, enhancing the intensity of competition to the market.
**Finding 2: The impact of the economic recession in Greece is evident in the Greek IT sector**

The turnover of the Greek Information and Communication Technologies (ICT) sector exhibited a reduction of 3% between 2013 and 2014. Forecasts estimate a further reduction of 1.8% between 2014-2015. As a result, Greek companies are reluctant to perform new investments related to ICT and limit their investment decisions to ICT services that they perceive as critical for the smooth operation of their business transactions. At the same time, funding opportunities for Greek startups are limited; startups have restricted access to venture capital money because banks and/or private investors are hesitant to invest to new business models/entities. Consequently, funds for Greek startups are restricted to very competitive public funding programmes (e.g. the youth entrepreneurship programme) and innovation/entrepreneurship competitions.

**Finding 3: The company needs to expand its brainstorming process beyond information technology and computer science innovations**

The researchers observed that the innovation building process of the company is oriented primarily towards improving computer science/information technology challenges (e.g. develop faster and more accurate algorithms) rather than developing novel solutions that address current market needs. This may be attributed to the experience and education of all actors involved in the brainstorming/new product development/innovation building processes. Indeed, the founding members and the external employees of the company have IT backgrounds, which logically directs the brainstorming process towards more technically oriented problems. However, such approach hinders the risk of missing timely market opportunities or delaying the market launch of an innovative product because, according to the developing team, the product lacks the required technical fidelity. Likewise, emphasizing on the technical fidelity of the service may also generate additional problems in the form of:

- Not adding enough value proposition to the end-service;
- Launch the service in the wrong market timing.

**Finding 4: The lack of formal organizational structure sometimes results to ambiguities in the roles of each actor involved in the company’s operations**

isMODE as a small company does not have a formal organization chart. Hence, all actors involved in the company’s business processes, ranging from the founding members to the external contractors, may adopt different roles during the new products development phase. For example, the researchers observed that developers may also play the role of IT analysts and market researchers. This ambiguity of role for certain members may have a two-fold impact on the firm performance. On the one hand, such members of the company may exhibit increased satisfaction and fulfillment since they contribute to the development of a new service in a multifaceted way. On the other hand, adopting multiple roles (and, as a result, multiple responsibilities) during the company’s operations may result to poorly executed tasks due to lack of time, knowledge, and/or experience.
Finding 5: The company has not defined clear processes to identify and attract new talent to help tackle its continuously evolving business needs

Social media analytics is a sector that requires from prospective recruits to have multiple skills ranging from management science to computer programming, and statistics. The researchers observed that isMOOD does not have a clearly defined strategy pertaining the expected skills portfolio of new talents and the entailed recruitment/ training process. Employees, besides the founding members, comprise of computer science graduates that are associated as external contractors with the company. Moreover, the recruitment process is performed primarily through personal contacts and liaisons (i.e., through collaborations with universities). The researchers believe that the company needs to devise mechanisms to pinpoint and attract new talent that shares the same passion as the founders of isMOOD. Arguably, the limited (financial) capitals to attract such people may raise problems in the recruitment process however, defining clear processes pertaining the recruitment of human capital is key for faster progress.

Finding 6: It is hard to follow the developments in the field primarily because the company is a startup and lacks (still) human resources

The development process in the company follows the ‘tyranny of the urgent’ principle; priorities are applied to projects that have close and strict deadlines. Moreover, since all of the company’s human resources are involved in the development process, there has been no need to set-up an R&D department that investigates the developments in the field of social media analytics (e.g. new applications and services, new business models, etc). Likewise, such a process might generate valuable primary and secondary data to support business decisions and market projections that would potentially help the company to target new markets. The aforementioned challenges create set of issues for the company that are summarized to the following table.

Table 1: Challenges and issues

<table>
<thead>
<tr>
<th>CHALLENGE</th>
<th>ISSUE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Finding 1:</strong> The company operates in a niche market sector that has limited but gradually evolving demand.</td>
<td>The company needs to expand its business operations to include broader fields in the context of ICT; such an expansion of its operation lenses may only be followed until the company has generated the required (financial) liquidity and/ or established its positioning in the Greek market.</td>
</tr>
<tr>
<td><strong>Finding 2:</strong> The impact of the economic recession in Greece is evident in the Greek IT sector.</td>
<td>The company needs to address an international audience and develop collaborations with other Greek companies or companies that operate abroad. Initial steps to consider include participation in clusters, proposals funded by European funds, etc.</td>
</tr>
</tbody>
</table>
Finding 3: The company needs to expand its brainstorming process beyond information technology and computer science innovations.

The company focuses on the technological fidelity of the developed services, which sometimes may result to missed opportunities. Its participation to EGG incubation premises (where members of other startups reside) presents wonderful opportunities for brainstorming and collaborations. Moreover, the company might consider shaping its recruitment strategy to focus on recruits with management science skills. Likewise, the company may use established supportive techniques for the brainstorming process (e.g. storyboards) that helps visualize the end product/service.

Finding 4: The lack of formal organizational structure sometimes results to ambiguities in the roles of each actor involved in the company’s operations.

Adopting multiple roles (and, as a result, multiple responsibilities) during the company’s operations may result to poorly executed tasks due to lack of time, knowledge, and/or experience. The company needs to assign clear roles and responsibilities not only per project (which is the approach that is currently followed), but also at the core of its business functioning.

Finding 5: The company has not defined clear processes to identify and attract new talent to help tackle its continuously evolving business needs.

Priorities are given to recruiting information technology savvy people (to work primarily as developers). The company needs to set up a recruitment strategy that adheres to the company’s business plan, associated strategy, and short/medium/long term business goals.

Finding 6: It is hard to follow the developments in the field primarily because the company is a startup and lacks (still) human resources.

Several missed business opportunities may emerge; the company may develop new services or customize existing ones based on new technological solutions/business models in the field of social media analytics.

Description of the suggested innovations

This section outlines the proposed interventions that have been formulated as a joint collaboration between the research team and the company’s founding members.

Intervention #1: Expand the services portfolio of the company beyond the restrictions of social media analytics

The company may consider providing services to related fields with social media analytics, such as big data analytics and business intelligence. In effect, the human capital operating within the company fully supports this intervention since the technical skills of the development team reside primarily to the area of data analytics (e.g. development of new algorithms capable of detecting emerging topics, grading the sentiment polarity in text fragments, etc).

Intervention #2: Establish a globally-oriented strategy and reinforce collaborations with national and international firms

The company should actively seek participations in clusters and research proposals addressing an international audience. It should be emphasized that the services portfolio of the company is not restricted to geographical boundaries since all services are provided through the Internet. Extant literature suggests that alliances and collaborations with industry leaders may help startups to accelerate learning and specializations (in
their domain of expertise) and, in turn, provide better value to their intended customers (Perez et al. 2013). Likewise, such collaborations may have apposite association with the company’s innovation capabilities as pinpointed in related studies (Neyens et al. 2010).

**Intervention #3: Reinforce collaborations with the incubator premises and set-up new brainstorming facilitation schemes**

The company needs to expand the focus of the brainstorming process beyond technical innovations. To do so, the company may take advantage of the mentors within the incubator, as well as the other startups to create possible cross-collaborations. Moreover, the company may adopt new brainstorming facilitation practices (e.g. storyboarding) to help highlighting the business value of the innovations and better position the innovation in the market. Interestingly, the selection of appropriate brainstorming method for fostering innovation has been a predominant topic of interest in innovation studies (Bosch et al. 2013; Kuo et al. 2011). The company will also benefit from recruiting more people with high management science skills. Also, the company may participate to open innovation platforms that will further enhance its innovation potential, as evinced from extant literature (Almirall and Casadesus-Masanell 2010; Antikainen et al. 2010; Chiaroni et al. 2011).

**Intervention #4: Assign clear roles and responsibilities for all involved people**

The role of each employer/involved actor in the business operations of the company needs to be clearly defined. The company needs to set up a formal organizational structure that defines these roles and assigns responsibilities not only per project, but also per business function. At its current state, the company follows the ‘lean startup model’ (Blank 2013) in which experimentation favors elaborate planning. Although the model has received increased attention over the past years (Furr and Dyer 2014; Trimi and Berbegal-Mirabent 2012) the company needs to settle on a clear organizational structure that supports its business strategy and business operations.

**Intervention #5: Set up a recruitment strategy that adheres to the business plan**

The company needs to set-up a roadmap for the recruitment process that includes skill priorities and recruitment milestones. Because of the economic recession and the shortage in financial capitals, it is considered difficult for the company to recruit all required roles as full-time employees therefore, the company needs to devise the required incentives to motivate external collaborators to feel ‘part of the team’ and share the ambitions of the founding members.

**Intervention #6: Set up a technology and market developments observatory process that will act as an atypical Ro-D department**

The small size of the company prevents the development of a formal R&D organizational structure. Nevertheless, the company needs to assign a person with the responsibility to continuously monitor the latest developments in its fields of operation (both in terms of technology developments and market trends). The research team considers that one of the company’s founders should be responsible for this role.
Conclusions
Overall, the company is considered a promising start-up, which addresses a growing business need. The company has extensive technological know-how and is actively seeking to establish itself in the Greek competing ICT sector. The proposed interventions aim at reinforcing the company's innovation capabilities and positioning in the market. The majority of these interventions are middle/low-term; thus, a longitudinal research analysis is required to assess (a) the degree to which the company followed them and (b) the impact of these innovations to firm performance. The company is at its last incubation stages and initiates its initial stages of growth in terms of attracting clients, expanding its employees, and establishing collaborations with industry leaders.

Recommendation for transferability of interventions and research propositions
Overall, the company is considered a promising start-up, which addresses a growing business need. The company has extensive technological know-how and is actively seeking to establish itself in the Greek competing ICT sector. The proposed interventions aim at reinforcing the company's innovation capabilities and positioning in the market. The majority of these interventions are middle/low-term; thus, a longitudinal research analysis is required to assess (a) the degree to which the company followed them and (b) the impact of these innovations to firm performance. The company is at its last incubation stages and initiates its initial stages of growth in terms of attracting clients, expanding its employees, and establishing collaborations with industry leaders. Arguably, the proposed interventions may be transferred to other companies that share the same characteristics and features as isMOOD (i.e., technology start-up that operates in a niche, but gradually evolving, sector).

Specifically, the first intervention suggests that start-ups need to expand their field of operations beyond their core expertise to include similar/related activities. Especially in the early stages of a start-up's lifecycle, a myopic emphasis on a particular expertise may unintentionally lead the company to miss important business opportunities that would strengthen its competitive position and secure financial liquidity. Likewise, the second intervention suggests that technology start-ups should establish a globally-oriented strategy along with reinforcing collaborations with industry leaders. As discussed in the interventions section, such collaborations would serve two objectives. On the one hand, start-ups may receive knowledge and expertise from the industry leaders whilst, on the other hand, they may increase their innovation capabilities which, in turn, would be showcased in the quality and diversity of their products' portfolio.

The third intervention suggests that start-ups need to be agile within the premises of an incubator (should a startup follows such a mentoring programme) and set-up new brainstorming innovation building schemes. In effect, taking full advantage of the 'incubator experience' is a core asset of technology start-ups. Apart of the mentoring programme, which may reshape the business plan of the company, start-ups may refine their innovation capabilities based on the expertise and capabilities of other companies within the incubator premises. Moreover, start-ups may also use open innovation platforms to further enhance their innovation capabilities.

The final observations relate with the structure of the start-up. It is important to set clear roles responsibilities for the start-up personnel as well as control schemes that monitor the start-up performance and outcomes. In this way, companies may revise the business strategy and action plan proactively and according to the
dynamic situations of the competition and/or market. Moreover, companies need to devise a recruitment plan that adheres to the overall business strategy. This approach would enable startups to plan in advance the recruitment process requirements (quality and quantity of required/key personnel) and respond accordingly.
Following the section where all cases are presented separately, we now make a cross-case and cross-country analyses and comparison. Sixteen presented case studies offer a rich insight into the processes and micro-foundations of innovation wherefrom we derive theoretical generalizations, as well as practical implications relevant for each country and for the Adriatic Region as a whole. In the next sections, we present cross-case analysis for: 1) action research process, 2) characteristics (similarities/differences) of case companies, 3) identified problems, 4) suggested interventions, 5) propositions for guiding future research and 6) research challenges.

**Action research process**

This section briefly describes the actual research process and its key characteristics of the action research process at the overall – Adriatic Region – level (see statistics in Table 1). As it was envisaged by the methodology of the action research, engagement with a particular firm lasted between 5 months and one year. Average engagement was for 7.5 months. In total, 35 researchers were actively involved in conducting the action research in 8 countries. Involvement ranged from one person per case to four persons per case. However, on average, two persons were dealing with one case, or one firm. This further confirms suggested methodology for action research, especially taking into account that SMEs are restricted in terms of time and personnel, and usually perceive researchers as “time wasting” contingencies during their workdays.

At the level of the Adriatic Region, researchers held a total of 93 formal site visits (on average, six per case and three per engaged researcher). In total, 119 formal interviews were held with firm representatives (7.5 formal interviews on average). Furthermore, as evident from detailed case descriptions in previous sections, researchers also report numerous informal interviews, talks, phone-calls, conferences and other ways of communication with the firm/firms representatives.

A range of different methods was used for conducting the action research in each country. Following methods represent a summary of what was implemented: (1) documentation review, (2) web sources review, (3) direct observation, (4) (semi-structured) interviews, (5) prototyping, (6) workshops, (7) qualitative survey with employees, (8) consulting, (9) proposal writing, (10) brainstorming sessions, (11) consultations (in person, via e-mail and via telephone).

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>KEY STATISTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of countries</td>
<td>8</td>
</tr>
<tr>
<td>Number of cases (firms)</td>
<td>16 (2 per country)</td>
</tr>
<tr>
<td>Duration of action research per company</td>
<td>5 -12 months</td>
</tr>
<tr>
<td>Number of researchers engaged</td>
<td>35</td>
</tr>
<tr>
<td>Number of formal site visits</td>
<td>93</td>
</tr>
<tr>
<td>Number of formal interviews held</td>
<td>119</td>
</tr>
<tr>
<td>Share of non-disclosure agreements signed</td>
<td>37.5%</td>
</tr>
</tbody>
</table>

Finally, it is important to note that a non-disclosure agreement (NDA) was signed with 6 out of 16 firms. NDAs ensured that all data collected from the firms and all observations are strictly confidential and for research purposes only. Identity of these 6 firms cannot be revealed, and rule of secrecy and confidentiality applies amongst sides signing the agreement.
**Similar or diverse: Cross-case description of companies**

Companies in the study are diverse, in terms of context and solutions offered, but yet very similar in terms of sector/industry belonging and main business activities. Namely, 14 companies belong to the services sector, while only two are from the manufacturing sector. This alone is an important indicator, as all researchers had the task to identify innovative SMEs with potential for internationalization (e.g., born-globals). In addition, based on the participation in our study, we could speculate that innovative SMEs in the Region more likely operate in the services sector.

Furthermore, 10 companies belong to the information and communications technologies (ICT) industry, dealing with the different aspects of it such as: social media analytics, combination of ICT and human resources management services, online/mobile payments, engineering projects support, e-government, home automation, measurement devices, lab automation, Internet of things, and business intelligence. Other services that are encompassed by the research are: advertising, tourism, distribution and retail, and culture. Finally, two manufacturing firms relate to advanced engineering (i.e., customized electronic and mechanical devices, aerospace).

When it comes to the level of internationalization, majority of firms have already been active on markets other than their home country, or they plan to start internationalizing in the near future. All firms are founded in the year span of under 20 years, “oldest” being established in 1997, and “youngest” in 2014. Most of the firms offer their products/services on business-to-business (B2B) market. Average number of employees in the firms is 21, with 8 firms that have 10 employees or less. Seven firms are directly or indirectly affiliated with universities.

**Key competencies of firms**

Based on presented cases, we were able identify key competencies of participating companies (cases). They are presented in Table 2.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CASE</th>
<th>KEY COMPETENCIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>ABC Payment</td>
<td><strong>Online and mobile payments; Providing a flexible platform services;</strong></td>
</tr>
<tr>
<td></td>
<td>DM Consulting</td>
<td><strong>Advanced IT solutions</strong> <em>(e.g. web, mobile &amp; social media applications, websites, E-Commerce Solutions, digital marketing strategy); headhunting, executive search, training, assessment centers;</em></td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Alpha</td>
<td><strong>Distribution and retail of the internationally top selling construction materials and other tools;</strong></td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td><strong>Advanced all-in one marketing solutions;</strong></td>
</tr>
<tr>
<td>Croatia</td>
<td>Pharma</td>
<td><strong>Design of innovative ICT solutions; Quality control in pharmaceutical industry; Quality assurance and certification; Software development; Networking;</strong></td>
</tr>
<tr>
<td></td>
<td>VoiceHome</td>
<td><strong>Home automation system with voice control; Flexible organizational structure;</strong></td>
</tr>
<tr>
<td>Country</td>
<td>Company/Institution</td>
<td>Key Competences</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Greece</td>
<td>Casa Parlante</td>
<td>Living history museum: Use of robotics and interactive multimedia technologies; isMOOD: Advanced algorithms that detect prevalent topics and sentiments on online social networks;</td>
</tr>
<tr>
<td>Italy</td>
<td>Dx</td>
<td>Internet of things; software development, internal object functioning know-how; human-machine interaction experience; modeFinance: Credit risk analysis; Computer science (coding); Software development, Technological capabilities;</td>
</tr>
<tr>
<td>Montenegro</td>
<td>HEX</td>
<td>Know-how and experience from the field of electronics and mechanical engineering; Software electronics and design; Excellent cooperation with academic institutions;</td>
</tr>
<tr>
<td></td>
<td>TourVia.Me</td>
<td>Unique data system; Advanced searching capabilities; Interactive map and rich media content;</td>
</tr>
<tr>
<td>Serbia</td>
<td>IMP Automation &amp; Control Systems</td>
<td>Process control; Display systems for control centers; Telecommunication devices for the electric power system; Ro-D programs; IMP Computer Systems: Licenses and certificates from big players in software industry; Skills for development of technical and business information systems (e.g. document management systems; warehouse management systems; special purpose systems);</td>
</tr>
<tr>
<td>Slovenia</td>
<td>BioXsoft</td>
<td>Laboratory automation; Molecular biology; Software development; Avionic: Airplane design; Small UAS assembly and navigation; Aeronautical engineering; Compositional materials, electronics, telecommunication and energy systems; Process control, Remote sensing;</td>
</tr>
</tbody>
</table>

When making the overview of key competences, we noticed that some competencies are more frequently observed across cases, namely: **being unique, offering solutions, focusing on quality, building up on networking and cooperation.** Apart from main repetitions that are related to the nature of the ICT business, where the majority of firms originate from, such as advanced **ICT skills and ICT knowledge.**

When it comes to the contents related to competencies, they are focused on: electronics, telecommunication, materials, engineering, and automation, mobile, social, and online. We see that notions of interactivity as well as flexibility play an important role when it comes to describing the competencies of participating firms.
Cross-case presentation of problems and interventions

Main themes/issues identified

There are three frequent themes/issues identified across cases in this action research process (see Figure 1). Three cases (Avionic, Slovenia; DM Consulting and ABC Payment, Albania) had the unique theme/issue identified: facilitating enhanced collaboration in a growing output context. This issue takes into account firms whose products/services are in growth phase hence, they need to catch-up with the growing demand. This phase could also be described as a transition phase from an innovative start-up to a stable and competitive SME. Enhanced collaboration is identified as one of the main pre-requisites for such transition.

Re-definition of business model and/or strategy is another frequently identified issue (i.e., 6 cases reported this issue: VoiceHome and Pharma Ltd, Croatia; Dx and modeFinance, Italy; HEX, Montenegro; Casa Parlante, Greece). This issue involved facilitating the process of redefining the company strategy and business model, and/or choosing a new company growth strategy, and/or new product launch, and/or identified appropriate marketing strategy, and/or helping the company to evolve in a new market in the area; all of which also were intensely linked with companies’ creativity & innovation processes.

Finally, the remaining 7 cases (BioXsoft, Slovenia; isMOOD, Greece; IMP Automation & Control Systems and IMP Computer Systems, Serbia; Alpha Ltd and Beta Ltd, Bosnia and Herzegovina; TourVia.Me, Montenegro) identified a key issue of internal changes that encompassed interdisciplinary and inter-functional collaboration, idea generation and evaluation facilitation, raising employees’ awareness and satisfaction/ambitions, enhancing internal efficiency for growth, and coordination of activities.

It is important to note that these issues are not exclusive one to another, they are rather overlapping and intertwining in each case, with one issue more dominant than the other two. We can also propose that these issues are in common and generalizeable to innovative SMEs in the Adriatic Region. They also show a general lack of internal capabilities, as well as market capabilities, and necessity for their further improvement.
Process feature and endogenous changes

As the action research assumes continuous collaboration with the firm, there were certain features of the process researchers were confronted with as well as the endogenous changes that occurred for the firm in its dynamic environment. The following main changes were observed: (1) changes in the physical layout of the site or complete change of the location, (2) recruitment of the external COO during the time of the action research, (3) change from low to high season for the firm, (4) staffing (significant increase in the number of employees), (5) improvement/changes in strategy, directions, procedures, and communication; (6) changes in the ownership structure; (7) changes in the number of markets; (8) new product introduction.

Such changes demonstrate the well known fact of the turbulent environment: even a short-term period of up to one year may drastically change the way firms operate, and deal internally and with the market. This is even more the case for companies that were targeted for participants in our study. Endogenous or internally driven change involves changes in staffing and recruitment, physical layout, improvements in strategy, directions, procedures and communication, while exogenous or externally driven changes involve changes in the number of markets, seasonality, new product introduction and changes in the ownership structure.

Interventions

Each case generated a set of findings from the action research, detected main issues firms are dealing with and proposed a set of interventions. At the Adriatic Level, 86 key findings, 66 issues and 71 interventions were identified and carried out (see Table 3).

Table 3: Quantifying findings, issues and interventions - cross-case presentation

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CASE</th>
<th>FINDINGS</th>
<th>ISSUES</th>
<th>INTERVENTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albania</td>
<td>ABC Payment</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>DM Consulting</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Alpha</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Beta</td>
<td>6</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Croatia</td>
<td>Pharma</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>VoiceHome</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Greece</td>
<td>Casa Parlante</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>isMOOD</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Italy</td>
<td>Dx</td>
<td>6</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>modeFinance</td>
<td>6</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Montenegro</td>
<td>HEX</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>TourVia.Me</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Serbia</td>
<td>IMP Automation &amp; Control Systems</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>IMP Computer Systems</td>
<td>5</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Slovenia</td>
<td>BioXsoft</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Avionic</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
Following quantitative presentation of identified findings, issues and interventions during the action research process, we present the summarized insights from each case in a Table 4. It can be seen that diverse issues were tackled through this process and a range of interventions (in line with the issues) proposed. Following table is also presenting the effects of the interventions, as evaluated after the intervention in the firm has been made.

Table 4: Cross-case presentation of interventions and the effects

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CASE</th>
<th>TYPES OF INTERVENTIONS</th>
<th>DESCRIPTION OF THE INTERVENTIONS</th>
<th>DESCRIPTION OF THE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovenia</td>
<td>Avionic</td>
<td>Suggestions for better visualization of the assembly process status; systemic codified and tacit knowledge transfer to newcomers, integration of newcomers; group interaction modes, exploration mode, changing mindset (broadening horizons).</td>
<td>Straightforward visualization of the assembly line; more effective on-boarding (especially first days); Better information flow through collective interaction modes (new meeting types, streamlining of existing modes). In addition, unintended beneficial spillover of FAL visualization boards; a set of suggestions for improving on-boarding process featuring transfer of tacit knowledge.</td>
<td>1) there are spillover effects of interventions (but they can be moderated); 2) action research always facilitates change, even without explicitly enacted interventions; 3) being stretched on time and HR is an intrinsic characteristic of small growing firms; 4) assignment of an external COO/CEO brings a relief to the founders and others; 5) visualizations of production process are useful for long lead time processes featuring more than a certain threshold of products per month; 6) cascading type learning is appropriate for small growing firms when tacit knowledge is at stake.</td>
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<tr>
<td>Slovenia</td>
<td>BioXsoft</td>
<td>Process change suggestions; developing &amp; diffusing principles; physical layout changes; home-reading &amp; reflection; tryout period.</td>
<td>Installation of whiteboards had many positive unintended benefits; Friday events not only facilitated cross-learning but also built trust and highlighted transparency of the company towards the employees; the results of the brainstorming intervention were different for different teams.</td>
<td>1) change in the ideation/conceptualization work process is more difficult to implement in teams composed of individuals with technical and science background; 2) visible writing / reading space always has opportunity to be used for (unintended) functional use in a space, where members of the organization spend a lot of time; 3) to follow the ground rules of the brainstorming process it is more important to experience them than to read or hear about them.</td>
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<tr>
<td>Country</td>
<td>Company Name</td>
<td>Suggestions/Interventions</td>
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<tr>
<td>Greece</td>
<td>Casa Parlante</td>
<td>Suggestions of how to evolve in the future. Suggestions on following the example museums abroad, making collaborations with local organizations, focus on their advantages, suggestions for alternative income. The company will evolve, operate better and will offer a lot more to the tourists that visit it. Also the company will have increased number visitors, higher brand awareness, and generate more income. The company will be promoted with collaborations with other museums and organizations. The main goal of the company, as with any private company, is to generate profit. A successful living museum in Corfu, can lead to the creation of similar ones in other touristic places of Greece. There are ways to generate income all the year and not only on the high season, by aiming at an alternative audience and by using the museum for various activities (e.g., exhibitions).</td>
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<tr>
<td>Greece</td>
<td>isMOOD</td>
<td>Interventions are oriented primarily towards the overall strategy of the company (e.g. recruitment of human resources, required collaborations, new services development, etc) The company is expected to enhance its innovation capabilities and reinforce its positioning in the Greek ICT sector. Moreover, the proposed interventions are expected to shape a clear strategy for the company regarding important business areas, such as recruitment and new product/services development. The company needs to be agile in order to adapt to a continuously changing business environment. The proposed interventions may also address any ICT startup that shares the same business characteristics as isMOOD and, in turn, achieve the same expected results.</td>
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<tr>
<td>Albania</td>
<td>DM Consulting</td>
<td>Identifications of intervention’s needs to focus more on organizational innovation, rather than in product and marketing innovation which is mainly the focus; performance monitoring according to innovation ideas presented and new ideas brought to group; suggestions for better group interaction modes. Direct and on the job observation of the ideas and projects development and implementations, more standardized flow of information circulation; 1) action research always facilitates change, even without explicitly enacted interventions; 2) being stretched on time and HR is an intrinsic characteristic of small growing firms;</td>
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<tr>
<td>Albania</td>
<td>ABC Payment</td>
<td>Identifications of intervention’s needs to focus more on organizational innovation, rather than in product and marketing innovation which is mainly the focus; performance monitoring according to innovation ideas presented and new ideas brought to group; suggestions for better group interaction modes. Direct and on the job observation of the ideas and projects development and implementations, more standardized flow of information circulation; 1) Feed in the company with structured full information on the e-payment services and clients.; 2) Increase staff capacities on generating innovative solutions; 3)To generate new ideas, include employees in decision making, and enhance the team spirit; 4)Studies on ergonomics support the fact that work environment layout, colors and equipment, influence employee productivity.</td>
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<tr>
<td>Serbia</td>
<td>IMP Automation &amp; Control Systems</td>
<td>process change suggestions; developing &amp; diffusing principles; upgrading professional skills; improving every-day operations; raise the quality of products and services; suggestion for improvement of working conditions; ways of acquiring new staff</td>
<td>upgrade of professional skills by acquiring new employees; more efficient inventory of professional SW used in the company; 1) action research always facilitates change, even without explicitly enacted interventions;</td>
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<tr>
<td>Country</td>
<td>Company</td>
<td>Interventions</td>
<td>Long-term Recommendations</td>
<td>Notes</td>
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<tr>
<td>Serbia</td>
<td>IMP Computer Systems</td>
<td>Improvement of product portfolio, enhancement of innovations, and acquisition of new funding, employee development initiatives.</td>
<td>Development of comprehensive long-term plan that guides all operational activities and provides the management and employees with a strong sense of direction, innovativeness in promotional activities that will result in market differentiation and help overcome seasonality of sales and introduction of key performance indicators that will enable easier monitoring of achieving targets such as stock and product/assortment management as well as efficiency per every employee (primarily to track results of sales employees).</td>
<td>1) action research always facilitates change, even without explicitly enacted interventions;</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Alpha Ltd</td>
<td>Recommendations for the more systematic approach to strategic documents development and long-term planning, development of comprehensive marketing strategy, introduction of new assortment groups in order to overcome sales seasonality, enhancement of promotional activities, interventions in human resources management and performance measurements.</td>
<td>First four interventions are in the process of implementation, while the last one will be planned for the next year (2016). The company is expected to enhance its knowledge sharing and intra and inter-functional collaboration.</td>
<td>1) regardless of the company’s size, comprehensive and long-term strategic documents (strategic plan, marketing strategy etc.) should be developed; 2) continuous innovation in promotional activities should be viewed as one of the major tools in overcoming the sales fluctuations; 3) KPI individual, team and firm level should be developed in a systematic and standardized manner since the results obtained through this process should be considered as strategic rather than operational tool;</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Beta Ltd</td>
<td>Introducing regular weekly meetings; Building the showroom for new ideas generation; Brainstorming for open idea generation; Introducing the human resources manager position</td>
<td>1) spillover effects of interventions; 2) It is observed that interviews by self started some positive changes within the firm; 3) formalization of procedures is useful for long term management actions; 4) Showroom has opportunity to be used for additional idea generation; 5) to have obtain a full benefits out of the brainstorming process it is important to moderate it and have brainstorming procedures prepared.</td>
<td>1) regardless of the company’s size, comprehensive and long-term strategic documents (strategic plan, marketing strategy etc.) should be developed; 2) continuous innovation in promotional activities should be viewed as one of the major tools in overcoming the sales fluctuations; 3) KPI individual, team and firm level should be developed in a systematic and standardized manner since the results obtained through this process should be considered as strategic rather than operational tool;</td>
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<tr>
<td>Country</td>
<td>Company</td>
<td>Description</td>
<td>Activities</td>
<td>Benefits</td>
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</table>
| Croatia | VoiceHome | Defining new strategy for the future of the company with clearly set timeline and responsibilities; defining a marketing plan for the distribution of the main product; defining a product development plan with clear responsibilities and deadlines for the developers (freelancers) | Intervention 1: New strategic focus of the company has been identified as well as a change in the ownership structure  
Intervention 2: The company has developed a clear marketing strategy for the main product with 2 main marketing channels  
Intervention 3: The company has managed to identify people and dedicate responsibilities with clear deadlines for the development of the portfolio | 1) action research always facilitates change, even without explicitly enacted interventions;  
2) being stretched on time and HR is an intrinsic characteristic of small growing firms;  
3) action research is helping to establish a strategic management approach both to the general direction of the company as well as to the strategic management of the innovation process  
4) action research provides a realistic perspective to assessment of the status of innovation as well as market development strategies |
| Croatia | PHARMA LTD. | Choosing the right growth strategy for the future of the company with clearly set timeline and responsibilities; defining a marketing plan for the distribution of the main product; defining a product development plan and the new funding sources for development of the product and new laboratory | Intervention 1: New product developed and new markets entered  
Intervention 2: New potential key strategic partners in other countries have been identified  
Intervention 3: 4 new people have been admitted and the workload as well as duties are allocated more efficiently  
Intervention 4: developed new product on customer feedback  
Intervention 5: marketing approach shown as effective further used in targeting customers  
Intervention 6: the company has developed a project proposal and applied for grant money offered by the state  
Intervention 7: Not known | 1) action research always facilitates change, even without explicitly enacted interventions;  
2) being stretched on time and HR is an intrinsic characteristic of small growing firms;  
3) action research is helping to establish a strategic management approach both to the general direction of the company as well as to the strategic management of the innovation process  
4) action research provides a realistic perspective to assessment of the status of innovation as well as market development strategies |
| Italy | Dx | Creating a shared vision about the launch of new product; broadening the knowledge about crowd funding among all employees; suggestions for the development of the crowd funding campaign | External advisor involved in the development of the campaign development; BP for the crowd funding campaign as a tool to share the same vision/aim for the product launch | 1) action research as a ‘space of interactions’;  
2) action researcher as a knowledge source and/or knowledge transfer facilitator;  
3) this space of interaction enables team members to share their main issues/concerns;  
4) the internal decision making process is affected (both positively and negatively) by this knowledge sharing;  
5) internal knowledge transfer mechanisms as activator of the external knowledge transfer mechanisms (the crowd funding campaign) |
<table>
<thead>
<tr>
<th>Country</th>
<th>Area</th>
<th>Action</th>
<th>Details</th>
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<tbody>
<tr>
<td>Italy</td>
<td>modeFinance</td>
<td>Creating a shared knowledge about the tool (Business Model Cool); transfer/share this knowledge about BMC to all employees</td>
<td>Awareness about the importance of an external partner able to sustain their growth (internationally); Market-oriented mindset focused on the sales/marketing side and not only on internal process and product effectiveness</td>
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<td>1) action research as a knowledge discover approach; 2) action research as an organizational lean process that allow participants to discover, discuss, hypothesize, test, and evaluate their ideas</td>
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<td>Montenegro</td>
<td>HEX</td>
<td>New and formal access to the organizational scheme; creative way of collecting and processing new ideas; Work on the new marketing strategy;</td>
<td>Informal organizational structure had a good influence on internal communication that helped in formalizing new organization; New approach of generation of new ideas has a big influence on motivation of the people; new ways of the communication, especially internet based channels are something that the present and potential customers are very interesting about. Therefore, HEX started redesigning its web presentation</td>
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<td>1) Change in the informal organization (composed of strong, small and homogeneous teams) are more difficult to implement in teams composed of individuals with technical and science background; 2) Innovation is not only in the eyes of the developer, but customer as well 3) A quality brainstorming is easier to plan than to conduct</td>
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<tr>
<td>Montenegro</td>
<td>TourVia.Me</td>
<td>New moving office space that is more optimal for working process; Improving visitors to customers’ conversion; clear developed social media strategy.</td>
<td>The company hired a UX expert and consultant, that has been working with the team for the past month and trying to improve their conversion rate. The company’s newly created Instagram account already has 4,000 followers, and it is expected to have 10,000 followers by the end of the year. The team has agreed to put new offices as one of the priorities in their proposition</td>
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<td>1) Presence of the CEO is productive for the research process 2) New person in the team, need a time to be accepted 3) respect in small companies is very productive</td>
</tr>
</tbody>
</table>
Research propositions and recommendations for transferability of the results

Finally, this research also derived a set of generalizeable propositions for future. Although there are certain context specific issues, it is possible to propose a set of transferable proposals that are applicable to other innovative SMEs, particularly ones in services sector and ICT industry.

Table 5: Presentation of selected propositions

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>CASE</th>
<th>PROPOSITIONS</th>
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</thead>
<tbody>
<tr>
<td>Bosnia and Herzegovina</td>
<td>Beta Ltd</td>
<td>Being informed about firm strategic orientation is a determinant of firm success and employees’ satisfaction; Knowledge, information sharing and trust among all employees and the management has positive influence on firm success; All employees have to be educated about the importance of their active involvement in the brainstorming sessions if it is expected from those sessions to generate innovative business solutions;</td>
</tr>
<tr>
<td>Croatia</td>
<td>Pharma Ltd</td>
<td>Strategic awareness is a determinant of successful new product development process in SMEs; Collaboration with key external partners who have an impact on the competitive position of the company in the region is an essential requirement for successful internationalization; Creating trust and understanding with all employees (by the management) about the importance of their active involvement in the brainstorming sessions on company’s innovation and business strategy acts as a significant innovation enabler; Working space organization that enables easy communication between employees and departments positively affects idea generation and operationalization in companies; Communication and close collaboration with customers (users) is an important source of information for the strategy of development of future innovative products; Former qualifications, skills and expertise of new employees are less important requirements for the successful development and marketing of innovations compared to persistence and motivation to learn.</td>
</tr>
<tr>
<td>Greece</td>
<td>VoiceHome</td>
<td>A clear strategy on various innovation funding sources to be deployed is critical for the development of new products; Business performance of academic research-based SMEs is challenged in the case of the lack of managerial personnel fully devoted to the company operations</td>
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<tr>
<td></td>
<td>Casa Parlante</td>
<td>Companies that operate in the tourism sector are more likely to succeed when they try to cooperate or partner with other companies in order to complement each other; New companies that aim to enter a seemingly saturated market should focus on implementing innovative ideas to gain a competitive advantage; Startup companies that innovate on a specific industry, should follow examples of other companies from the same industry but, for example, from other countries, since this would firstly lead to a better implementation of specific techniques and also may offer awareness since customers (i.e., visitors) might be familiar with the used techniques and focus on the essence of the product rather than the technique; Small companies that produce successful results should firstly focus on extending their market share of their product before attempting to offer a new product which may not have the same success.</td>
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<td>isMOOD</td>
<td>Technology start-ups should establish a globally-oriented strategy along with reinforcing collaborations with industry leaders; Start-ups need to be agile within the premises of an incubator (should a startup follows such a mentoring programme) and set-up new brainstorming innovation building schemes; It is important to set clear roles responsibilities for the start-up personnel as well as control schemes that monitor the start-up performance and outcomes.</td>
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<tr>
<td>Country</td>
<td>Firm/Project</td>
<td>Proposition</td>
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<tr>
<td>Italy</td>
<td>modeFinance</td>
<td>Start ups having a global mindset joint with a high propensity to take risks (International Entrepreneurial Orientation) and an ability to extend their network contacts beyond their local environment, have more probability to grow in the long term; Start ups that focus at the same time on different dimensions of business model evolution (novelty, efficiency, complementarities, lock-in) have more probabilities to grow than start ups focusing just on one dimension.</td>
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<tr>
<td>Montenegro</td>
<td>TourVia.Me</td>
<td>The costs and time involved in changing communication model creates a sort of path dependence, where the team members are aware of the systems’ shortcomings, but are not prepared to change it since they overestimate the cost of change.</td>
</tr>
<tr>
<td>Serbia</td>
<td>IMP Automation &amp; Control Systems</td>
<td>Action research always facilitates change, even without explicitly enacted interventions.</td>
</tr>
<tr>
<td></td>
<td>IMP Computer Systems</td>
<td>In action research it is better to concentrate on small actions but effective and introduce monitoring tools i.e. reporting to the sponsor (top manager); Action research can bring to light important information about the capacity of the organization to develop and improve in many aspects; An IT firm that relies on innovation should not only search for improvements of its current products/services, but also for development of new products/services.</td>
</tr>
<tr>
<td>Slovenia</td>
<td>BioXsoft</td>
<td>Change in the ideation/conceptualization work process is more difficult to implement in teams composed of individuals with technical and science background; Widely visible writing / reading space always has opportunity to be used for (unintended) functional use in a space, where members of the organization spend a lot of time; To follow the ground rules of the brainstorming process it is more important to be present at a showcase workshop flow than to be told or given explicit rules how to behave.</td>
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<tr>
<td></td>
<td>Avionic</td>
<td>Implemented interventions can have positive and negative spill-over effects. Positive spillover effects are more likely if more participants with heterogeneous KSA and perspectives are included in the team and are given enough autonomy to use suggested solutions in practice; Start-ups and growing firms are always stretched on time (α-human resources). This is not an issue of poor planning or lack of skill, but an underlying characteristic of small, growing companies; If a company produces more than 5 ‘products’ monthly (e.g., UAS; consulting projects; buildings) and if lead times are longer than a month, then visualization of the production status helps facilitate the production process; When tacit knowledge is at stake in high growth small companies, dyadic learning initiatives can be based on the “cascading logic”, which means that everybody can act as a mentor for somebody who can learn from her/him.</td>
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</table>

Note: Rather than looking for shared patterns in cases, we were looking for non-redundancy. This table presents all interesting and non-redundant propositions. The intention was to get richness of potential propositions for future research and this is the reason we excluded irrelevant and redundant ones.

As it is presented in the second section, final part of each case dealt with the theoretical propositions and concepts relevant for further managerial research. We counted all concepts across cases and presented them in the Table 6 below. The concept of communication and group interaction, together with other related decision-making and interaction concepts dominate micro-foundation landscape of Adriatic Region’s innovative SMEs. The notion of shared mental models is pertaining to team work and explaining the functioning of business teams. Namely, when the team members should have the shared understanding of the task and of the work, the team performance will be improved. Although individual and team level concepts dominate, organization level concepts such as brand awareness, business model design or customer value should not be neglected.
**Main research challenges**

Based on the insights from all 8 countries (all 16 cases) we are able to derive main challenges researchers were confronted with during the action research process. As action research is still a relatively young and rarely used method in the Region, these observations represent an important methodological insight and are relevant for further research initiatives featuring action research. After reviewing all challenges, we were able to group them in six main challenges presented in the Table 7 below.

**Table 7: Summary of case insights on main action research challenges**

<table>
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<tr>
<th>CHALLENGE</th>
<th>CROSS-CASE DESCRIPTIONS</th>
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| Rapid changes & overload of key people | Rapid changes  
Rescheduling  
Difficulties in scheduling research activities |
| Trust | Establishing trust  
Establishing the open communication with employees |
| NDA | Balancing strict NDA and project requirements |
| Understanding | Understanding of the core activity of the firm  
Understanding firm’s needs  
Understanding the work-flow  
Understanding procedures |
| Identification | Filter diverse and multiple priorities of the firm  
Identifying the key weaknesses in a successful and growing company  
Identifying potential risks and bottlenecks in pursuing various growth strategies |
| Approach | Making the interview questions more comprehensible to employees  
Lack of regular meetings for observation  
Close-knit nature of small companies |
One of the most important and most dominant challenges researchers were faced with was *rapid change* within the firm that caused difficulties for researchers even to schedule a meeting and/or observation. Also, this challenge caused frequent rescheduling and prolonging of the duration of the engagement with the firm. Another crucial challenge that was to be overcome was establishing trust with the employees of the firm. Achieving trust is actually acting as an enabler of all other activities within the firm. Furthermore, researchers faced difficulties with balancing the strict requirements of the NDA agreements with the project requirements and action research design. Researchers also reported challenges they faced with understanding core activity of the firm, firm’s needs, the work-flow, and procedures. It was crucial for researchers to gain profound understanding of all these elements and to start “living” the firm that is the subject of action research process in order to propose interventions that will further be successfully implemented. A closely related challenge was the one of identification that was puzzling for researchers possibly to the same level it was puzzling for employees as well. Researchers needed to identify the right priorities, key weaknesses, potential risks etc. Finally, researchers were faced with problems in designing their approach towards the firm. The approach needed to be developed in the way it was comprehensible for all employees, and in a way to elicit open responses and honest feedback.
The process of in-depth case studies in each Adriatic Region country as well as the cross-case and cross country analysis resulted in insightful study that tackles the scope and domain of micro-foundations of innovation. Together with generating comparable and practically strong case studies, PACINNO researchers transferred their knowledge to the selected innovative SMEs and observed changes in the selected firms over a year’s period. It is noted that the best solutions are often the simple ones. In example, even by installing the white-board or by establishing the brainstorming place in the firm, dramatic change in behavior and actions of employees could be observed and then this simple change becomes a really good and helpful solution for the firm. It could be further noted that innovative SMEs are characterized by strong and influential founders who are often the key decision makers too. Their vision is usually the reason that firm exists, however, sometimes their presence is more of an obstacle than it is an advantage. During the action research process this has been identified and researchers advised such persons to gradually retreat and to institute a chief operation officer (COO) while the action research was in the process. COO has to be an excellent fit with the company. Due to the fact that start-up companies usually cannot afford to provide the usual (corporate) conditions (e.g., compensation) for such professionals there also needs to be a special occasion (a set of circumstances) to establish an effective relationship between the firm and the external COO/CEO). One of the further research avenues could be examining whether founders of these firms have some specific cultural characteristics, e.g. strong leaders / strong people that impact the evolution of the firm.

It could be further noted that most of the innovative SMEs lack basic business, marketing and HRM-related knowledge and capabilities, which endangers their innovative and field-specific core ideas. This is why some of the issues in cases evolved around these fields. Firms should gain better understanding of their own competitive advantages, get insights in the market segments they target as well as account for competitors’ actions and clients’ values and expectations. Regular market research was also lacking and should be used more.

When analyzing the very process of the action research, it always represents a valuable experience for the researcher too. This is particularly the case for this activity, as researchers needed to detect a problem (problems) together with firms’ representatives and then to act upon it and offer the solutions and interventions. Key element for the success is the understanding of the employees and social dynamics among them.

Finally, it should be noted that practical findings show that there are difficulties when moving between academia and practice (research/university spin-offs) in the Adriatic Region. In most of the countries this field is highly un-regulated and there is no legal structure that is to be followed that creates lots of difficulties. This is why technology transfer offices such as ones developed and installed by the PACINNO project are highly beneficial and of high value for research institutions as well as to the market.


