



Teaching Digital
Entrepreneurship



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How to do business in digital era? Casebook

Second edition

HOW TO DO BUSINESS IN THE DIGITAL ERA?

CASEBOOK

SECOND EDITION

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The synthesis of cases covered

Case	Foundation year	Firm life cycle	Sector	Digital topic
Diya.business	2019	Start-up	Government services online	Platform to support Country digitalization process
Monobank	2017	Start-up	Financial sector	Mobile bank
Kipferl	2014	Growth	Grocery/retail	Grocery e-commerce
Cargometer	2014	Maturity	Logistics – Freight Measurement	Digital solution to Logistics efficiency process.
Saluber	2016	Start-up	Healthcare	Platform-based business
Mamacrowd	2016	Growth	Financial sector	Platform-based business
Getdressed	2019	Start-up	IT providers	Web Platform for AI model
Work from Bed	2017	Growth	Marketing	Digital organization of HR
Cogne acciai speciali	1911	Maturity	steel production	Digitization of the heavy industry
Beatik	2015-2021	Failure	Classical Music	Artificial intelligence for live music performance
Software del Sol	1999	Growth	IT providers	Digital Business model and Innovation HR organisation
Liderkit s.l.	1991	Growth	Transport Manufacturing	Simulation – Digital Twin – 3D printing - Robotics
La Bottega del Calzolaio	1916	Growth	Cobbler service	Business model Innovation and e-commerce
Picone srl	1920	Growth	Tire sales	Business model Innovation and e-commerce
Medaarch-CAD	2018	Start up	Consulting firm and digital service	Digital education and consulting.

Chapter 1 . Teaching Methodology

Introduction

Universities and business schools in the management field are more and more oriented to offer curricula and training activities purposeful to society. To accomplish these tasks management teachers are looking for teaching strategies to foster critical thinking in students by engaging them in active learning processes. Active learning methods include case studies, discussions or debates, experiments, field trips, role play, and Socratic questioning (Sandstrom, 2006). The purpose of this chapter is to give an in-depth review of case studies as teaching strategies that promote critical thinking.

The case study method is one of the most common interactive teaching methods in entrepreneurship education (Zotov et al., 2020). The method has been developed at Harvard Business School at the beginning of 20th century and actually it has become popular in different disciplines and in particular in business education (Harkrider et al., 2013). Case study method is a student-centered pedagogy whose main feature consists in the change of the classroom process into a search for a solution to a problem based on a case (Foran, 2001). A case is a story that describes real events giving students the possibility to analyze the problem and situation that the original participants in the case experienced (Golich, 2000).

Interaction and active participation of students are the key concepts of case-based methods of teaching together with a change in the role of teacher. In the case teaching the professor is not the expert with the “right” answers but is a facilitator of the class with a role of guide in stimulating and driving the discussion among the students. Another important aspect of the method is that there are no answers, no check figures and no one in the room is considered as the expert. Responsibility for learning is placed into the hands of the students, creating a learner-centered classroom where learning is basically an interactive and constructive process (Golich, 2000).

The main purpose of the case-methods is for the participants to learn through decision-making and to gain confidence in confronting and solving problems. Further, being based on interactive discussions it makes possible to develop skills in public speaking and group problem solving (Foran, 2001). Other benefits with case-based learning are that cases are engaging and satisfying for the participants that as a result shows a better ability of decision-making (Harkrider et al., 2013). Lei et al. (2016) showed that students were more active and initiative in case discussions and showed a better performance in problem analysis than students who were just provided information by a teacher.

Among different advantages, the case study is considered one of the most effective methods to teach and learn critical thinking skills (Popil, 2011). According to DeYoung and DeYoung (2003), cases do not provide solutions or answers rather they stimulate the need in students to think critically and professionally by implementing theoretical concepts to a practical issue.

Several issues emerge in the application of the methods by teacher and instructors. The value added of the method is in the active involvement of students in the analysis and discussion of the case, as necessary condition to develop critical skills. To stimulate and motivate students it is necessary the adoption of a correct strategy in presenting and managing case studies. In this context, a key aspect relates to the organization of group work with the aim to create the right conditions to stimulate discussion and active participation of students.

Starting from these premises the aim of chapter is to give an in-depth review of case studies as teaching strategies that promote critical thinking, providing insight about the correct implementation of the method and about its main advantages and challenges.

Insights about critical thinking

Increasingly interconnected economies, the development of technology, the globalization of competition, push companies to require workers who do not only have knowledge but who are self-directed learners and have problem-solving skills. For this reason, critical thinking is a crucial skill for students.

Critical thinking is purposeful thinking in which people habitually and systematically force criteria and intellectual standards upon their thought (Paul, 1995). In a synthetic way, critical thinkers are people “outcome driven, open to new ideas, flexible, willing to change, innovative, creative, analytical, communicators, assertive, persistent, caring, energetic, risk takers, knowledgeable, resourceful, observant, intuitive, and ‘out of the box’ thinkers” (Ignatavicius, 2001, p. 37). So, the adoption of active learning strategies involves the promotion of critical thinking by triggering cognitive processes (Youngblood and Beitz, 2001).

Billings and Halstead (2005) highlight that students’ participation in self-assessment and evaluation increases the probability they set more realistic personal learning goals. Conversely the probability that students unlearn information is higher in a passive learning experience produced by teachers presenting information without student input. Therefore, the faculty plays a critical role to develop critical thinking skills by facilitating an environment that will empower them (Billings and Halstead, 2005).

Thomas (2009) focuses on experiential learning to engage students, pushing them to participate actively in the learning process. In this sense, case studies offer the opportunity to implement experimental learning by providing student-centered education and motivating students through active involvement. Experiencing real business situations, case studies promote development of critical thinking pushing to strengthen problem solving skills and promote decision making process.

The problem-based learning (PBL) techniques assume that learning is an active, integrated, and constructive process influenced by social and contextual factors (Barrows, 1996; Gijsselaers, 1996). In the learning process, teachers play the role of “facilitators rather than disseminators,” shaping problems representing the initial stimulus and framework for learning.

To emphasize learning by doing, PBL requires students to be meta-cognitively aware (Gijsselaers, 1996). In other words, students must understand of what information they already know about the problem and what information they need to know to solve the problem. Working on these skills helps students to become more effective problem-solvers and self-directed learners. But this is often the final result: initially many students are not able to think on their own. For this reason, the teacher plays a critical role becoming a cognitive coach who models inquiry strategies, guides exploration, and helps students clarify and pursue their research questions (Arámbula-Greenfield, 1996).

An essential aspect of PBL is group work for at least three aspects. The first one refers to the creation of a learning community in which students feel comfortable developing new ideas and raising questions about the material (Allen, Duch, & Groh, 1996). Furthermore, group work enhances communication skills and students’ ability to manage group dynamics. Finally, group work motivates students because they become actively involved in the work and are held accountable for their actions by group members (Cohen, 1994).

Case study teaching method and group work arrangement

Nowadays, due to the increasing adoption of group-work in higher education (Martin & Campbell, 1999), the ability to communicate has become one fundamental skill required to students in educational settings: they are expected to be able to manage and effectively take part in group discussions.

Case study is a teaching method that basically challenges students to apply concepts and contents and also enable them to develop process skills, critical and analytical thinking, and deductive and subjective reasoning. They will be able to see how theoretical concepts are relevant to the given situation or problem. And importantly, it will eliminate the “expert” and the “right answer” mentality from the classroom.

During case-based teaching method and learning, discussion groups are a very common tool that makes the discussion to be a key feature in these settings. The group work can be an efficacious tool to stimulate students, encourage active learning, and mature key critical-thinking, communication, and decision-making skills.

Lei et al. (2016) define case-based learning as a student-centered teaching method where teachers manage the process rather than directly giving information and Srinivasan et al. (2007) describe this teaching methodology by remarking that it is a practice where workgroups focus on problem solving and where both students and instructors share the responsibility for coming to a solution.

Case-based method and discussion have in diverse studies shown to be useful and beneficial. For example, some findings in academic research have highlighted how students who run discussion groups feel they learned more (Flynn & Klein, 2001). Discussions provide participants the opportunity to achieve new skills and knowledge through direct exchange of ideas and opinions (Gross Davis, 1993). In this sense, case study methodology generally requires students to mature new skills and abilities that generally are “outside their comfort zone”. They are required to participate, take a stand supporting their positions with case-based evidence and also properly apply theory-driven assumptions even when other class-members do not agree. Moreover, students have to conduct analyses, apply analytical reasoning, and incorporate critical thinking skills. It is essential that the students learn to mine the “hidden jewels” embedded in the case. They should discover new knowledge or build and enlarge their existing knowledge. Through the sharing of insights obtained from thorough case preparation, learning becomes a discovery.

Some teachers think they are required to “teach” the case, provide all the “important” information to the students, leading them down the “right” path. In that type of class, students become passive learners or listeners and are not actively involved in the learning process. Case study teaching strategy, instead, does not require, unlike regular lectures, a formal and rigid script. The instructor has to be prepared to effectively manage class processes in order to reach teachable opportunities that can occur throughout the discussions. He/she also has to be prepared to lead students through learning and discovery processes (Harvard Business School, 2016). But without careful planning and facilitation, group work can frustrate students and instructors and feel like a waste of time. Indeed, there may be as many different methods of case teaching as there are case teachers. Some case classes are full of energy and excitement and students learn a great deal. Others can be dry and boring with no or little energy and excitement and students feeling they are not learning anything.

There are a lot of different factors that can improve the group work and the participation in discussions in classrooms. Accordingly, literature identifies some central aspects that are essential in the different phases in case teaching methods (Foran, 2001; Golich, 2000; Gross Davis, 1993).

Preparing for group work

There are a lot of different practices for providing and sustaining a case discussion in workgroups. The contextual factors that affect the extent of participation can be modulated in order to enlarge both the number of students participating and the total volume of discussions occurring.

In this step, the creation of a safe and stimulating environment for the discussion is the basic endeavor: the instructor has to reflect carefully about how students will be physically arranged in workgroups and how the layout of the classroom will impact volume. All students have to be comfortable in the group arrangement and also able to hear each other clearly. A significant environmental strategy is the seating arrangement. The participants should be able to see each other's faces (Howard, 2015). The classical classroom arrangement with seats in rows are not recommended for case teaching. A best practice is to place the seats in a circle or a U-shaped layout (Herreid, 2001). A very good example of the arrangement is seen in the videos from Harvard Business school where the seats is arranged in a U-shape in different rows with the instructor in the middle (2009, 2013). Moreover, the teacher should insist on professional, civil conduct between and among students to respect people's differences and create an inclusive environment.

As a second endeavor, it is important to decide on workgroup size. The size the instructors choose can vary according to the number of students, the physical size of the classroom, the variety of voices needed within a group, and the type of task assigned. Groups of four-five tend to balance the needs for diversity, productivity, active participation, and cohesion. The less skillful the group members, the smaller the groups should be (Gross Davis, 1993). A study conducted by Curran et al. (2008) reveal that case-based method in smaller groups improve students' satisfaction, learning and participation. Also, trainings in smaller groups supports the shy and timid members to join the debate. As previously noted, to make students feel safe and comfortable in the classroom is one of the most important things the instructor has to accomplish. A good suggestion is to distribute the students into small workgroups of three to four members and let them debate the issue before revealing the answers to the whole class (Gross Davis, 1993).

To facilitate students' engagement in a case study discussion, a small exercise that provides participants with opportunities to practice skills and knowledge in a safer way can be adopted. The exercise shall have low stakes and be ungraded. It can be to propose short quizzes, one-minute papers or to label the clearest or darkest points following the discussion (Ives, 2014). This is a good practice to perform early in the course activities. It will be an icebreaker tool that benefits the students and let them feel comfortable among the other participants (Gross Davis, 1993). Then the leader can push participants harder with more challenging questions with less direction (Golich, 2000).

Designing the group activity

It is fundamental to identify the instructional objectives and define what the instructor wants to attain through the workgroup activities, both from the academic (e.g., knowledge of a topic) and social (e.g., group respect, interaction, listening skills) side. The activities should closely relate to the course and program objectives and class content and have to be planned to help students acquire new way of learning, not merely to occupy their time. Roberson and Franchini (2014, p.208) underline that for reaching an effective group learning, participants need to clearly perceive that group work is "serving the stated learning goals and disciplinary thinking goals" of the course.

Another important endeavor is making the case-related task stimulating and challenging. As previously suggested, the instructor should consider offering a relatively easy task early in the term, in order to arise students' curiosity and interest in group work and encourage their progress: by combining their skills and resources and dealing with differences of opinion that could arise, workgroups of students can develop a cleverer product than they could do

individually. By assigning tasks that boost participation, interdependence, and a work fair division, all workgroup members should perceive a sense of personal responsibility for the success of their teammates and realize that their individual success depends on the overall group's success. Johnson et al. (2014) discusses this aspect as "positive interdependence" and contend that this kind of "cooperative learning" tends to result in learners promoting each other's success. Realizing that peers are relying on you is a powerful stimulus for group work.

Introducing the group activity

To achieve an effective case discussion, participants have to be prepared as soon as the debate begins (Smith, 2010).

In this step an important suggestion is to timely share with students the rationale for using group work and explicitly connect these activities to wider class themes and learning outcomes, whenever possible: students have to be aware of the multiple benefits of collaborative learning. It is also necessary to let students ask questions about the activity before they get to work.

Moreover, the instructor has to explain the task clearly. This means both informing participants exactly about what they have to do and describing what the final output of their group-work approximately will look like. Clarifying the big picture or the final goal is essential, especially when the workgroup takes place in multiple steps. The instructor can, for example, organize and present written or visual guidelines (e.g., charts, sequential diagrams) for students, including timeline estimations for the overall case activities.

In this phase, especially when group works last for extended time periods, the instructor sets the ground rules for group work and interaction, establishing how the participants should interact with one another, including ethic and behavioral principles such as respect, active listening, and methods for decision making. The students have to understand how to behave in a social context which requires a culturally -and socially- acceptable conducts when enrolling in a case discussion (Martin & Campbell, 2000).

In the case-based class all participants have to accept and maintain the ownership of the discussion. If it is not student-driven, they may avoid their responsibility to involve and contribute in it. In this step, the instructor has to encourage the students to take responsibility and avoid taking choices and decision instead of other participants. To do so he/she can clarify and underline the different conflicts emerged, which brings movement and excitement to the overall debate. The teacher should for most of the time listen, which in turn motivates the students to listen each other and take participation activity more seriously. This also provides respect to the students comment which is important for encouraging them to dare to try their ideas (Harvard Business School, 2016).

A second basic task is to introduce the case. The case presentation and instructions are fundamental to keep the participants engaged and increase learning. Often the rule is "less is more": the case should provide realistic problems and be structured with clear and simple instructions to simplify learning and make it easier for the students to feel safe and comfortable in participating (Harkrider et al., 2013). An appropriate case study to discuss should include a decision-making, analytical framework, and multiple options of possible directions (Smith, 2010). To encourage participation, instructors should clarify that no one will be criticized by raising naive questions and that the students have to feel free to experiment: otherwise, they may tend to stay quiet until they feel that the right answer has been finally identified (Stanford University, 1994).

The teacher has to prepare appropriately in order to run a successful discussion. He/she must have a clear purpose with the case, know how to ask the right questions and be prepared to the differences from a normal lecture (Herreid, 2001). The teacher should engage the students early in the process by use a moment of high drama when presenting the case and through that make the material come alive by making it relevant to their lives (Foran, 2001).

Managing the discussion and monitoring the group work

Discussions in the classroom has the potential to increase the learning and encourage students to participate more in the educational setting. They have shown to noticeably enhance the learning process among the students (McKee, 2015). Over 30 years of research reveals that students learn more through active engaging in discussions. There is a great value of active learning and engagement and to gain this value the students have to do more than just passively listen, they need to discuss and solve problems (Howard, 2015).

Discussion leadership is an essential element in case teaching. The case-based methods are most effective when the instructor or teacher is skilled in discussion leadership (Ickis, Woodside & Ogliastri, 2014). The teacher or the discussion leader has a great impact on the participants through the discussion leadership: to raise the energy and participation in the discussions the leader has to be positive, encouraging and can also use humor. The leader must be as engaged as possible, which will make the students and other participants engaged too. The instructor/leader should not over-focus on the case's fact and details because it is not effective (Smith, 2010) and during the whole discussion, he/she have to discourage dictatorial, threatening, or other bad behavior both among student and among themselves (McKee, 2015). Importantly, the leader should limit his or her own comments. This can decrease the student participation because the discussion can turn into a lecture instead (Gross Davis, 1993).

In the discussion the talk should pass free between the student and not return to the leader after every statement. Other ways to encourage discussion are to get them to look at the problem from another perspective. The leader should also listen and help the participants to connect their different ideas to each other and promote a good discussion (Herreid, 2003).

For a teacher leading a case discussion there are a lot to think about at the same time. To develop skills in discussion leadership the teacher has to have awareness in all steps. Weimer (2013) suggest that the leader needs awareness of what the discussion involves, awareness of its own skills, and awareness of what actually happened during discussion. This awareness will then become a part of larger understanding of how to lead and guide discussion.

Foran (2001) describes a typical successful flow of discussion in a case-based class. The discussion starts with some factual question that allow the students to enter the discussion comfortably. Then the discussion contains a lively role play where participants debate the issues. After that the discussion moves on to an analytic section. To accomplish this and to keep the discussion alive the discussion leader should ask questions in a way that all angles in the case are considered. Open-ended questions are the most useful because they show that the teacher does not have a predetermined conclusion to the case (Stanford University, 1994). Contrary, if the participants feel like the questions only have one right answer, they will be hesitant to answer for avoiding the embarrassment of being wrong (Herreid, 2001). Therefore, it is a good idea to start the lecture with open-ended questions with multiple answers because the first question is crucial to the continuing participation.

Ending the group work

At the end of a case-based class, students often want to assess how their workgroup in case-based class was beneficial to them and/or added to the topic's development. The instructor can conclude the case class with a plenary session in which participants perform a group reporting. Effective group reporting "can make the difference between students' feeling that they are just going through their paces and the sense that they are engaged in a powerful exchange of ideas" (Brookfield & Preskill, 1999, p. 107). The report can be in the form of oral speech (each group give they're most surprising or illuminating intuitions or their most challenging questions; the instructor can note all the ideas raised in order to validate their value) or written document (each group records their ideas and either present them to the instructor or have a group member do so; among some variations in written reports is to have students

write brief comments on post-it notes or index cards. The instructor collects them, takes a few minutes to process them or put them in sequence, then summarizes their contents).

In this final step, the instructor has to link the ideas raised to course content and objectives. It is important to recognize that groups might not come up with the ideas the instructor intended them to, so be willing to make the lecture plans flexible. Wherever possible, the instructor has to look for a connection between group conclusions and the course topic. However, he/she has to be aware that misconceptions or inaccurate responses need to be clarified and corrected either by you or by other students.

An important suggestion is to not provide too much closure. Although the plenary session should wrap up the group work, the instructor can feel free to leave some questions unanswered for further research or for the next class period. This openness reflects the epistemological nature of knowledge.

Finally, the instructor should ask students to reflect on the group work process. They may do so either orally or in writing. This reflection helps them discover what they learned and how they functioned in the group. It also gives the instructor a sense of their response to group work.

Strength and weakness of case studies technique

The case studies method, thanks to its innovative pedagogical potential is considered as the most powerful method in modern entrepreneurship education (Zotov et al., 2021). Through a combination of debates, discussions, education of students to discussion and respect for communication rules, the method supports and stimulate the development of entrepreneurial competences and it makes possible to acquire the skills of analysis and resolution of specific challenges. As stated by Bruner (1991) the case method has several advantages:

- Is effective: it adopts an active learning and facilitates self-discovery thanks to the role of teacher as facilitator.
- Builds the capacity for critical thinking: Instructors model question skills and thanks to discussions students exercise skills of debate and challenge.
- Exercises an administrative point of view: Students have the possibility to weigh the practical implications of their analyses and decisions
- Models a learning environment: through comparison and exchange of ideas student can learn how to achieve trust, respect, risk-taking, high quality of debate, and tough-mindedness.
- Models the process of inductive learning-from-experience: It prepares students for life-long learning.
- The teacher learns too: thanks to the interactive nature of this method, the teacher can find new and creative solutions to the case.
- Is fun: the case method motivates and stimulates students.

The active involvement of student in solving the case stimulate the development of technical skills such as the application of analytical tools and quantitative and/or qualitative analysis. Further the method favors the development of the so-called student soft skills such as communication skills, problem solving, coping with the ambiguity (Adelman, 2015; Orr & Weekley, 2019).

In the context of entrepreneurship education case studies are largely used as they contribute to the achievement of the key entrepreneurship education goals (Bonney, 2015; Volpe, 2015), that are the acquisition of fundamental knowledge and the application of fundamental knowledge in specific situations.

Another interesting aspect of cases method is the flexibility of the method as it can be used in different ways according to instructional goals and course objectives (Brookfield, 2005; Cerqua et al., 2014; Meluch & Gettings, 2019). More specifically, cases can be used for: Improvement of socialization skills through real experience; development of personal skills of analysis and behavior in difficult situations; defining goals and objectives, as well as the formulation of strategies for managerial actions; solving problems and making decisions in a

group, improvement of diagnostic and design skills for effective intervention in managerial decisions.

Among different advantages, the case study is considered one of the most effective methods to teach and learn critical thinking skills (Popil, 2011; White et al., 2009). According to DeYoung and DeYoung (2003), cases do not provide right and unique answers rather they stimulate the need in students to think critically by implementing theoretical concepts to a practical issue. Cases create the need to know, enhancing the listening and cooperative learning skills of the students and building partnerships among learners and teachers (Grupe & Jay, 2000.)

Pilz and Zenner (2018) investigate the extent to which using case study method can help to promote networked thinking in business education, a skill even more required in business management context. Networked thinking considers the interactions and their effects, and it is a key factor for decision-making process in current business reality characterized by a high level of uncertainty and complexity. According to Pilz and Zenner (2018) case studies promote the development of problem-solving skills, higher-order thinking skills and critical thinking skills, which represent the basis for networked thinking.

Despite the benefits of using case-methods, some advantages can be found. We can identify at least two main limits of case methods that represent at the same time challenges that need to be adequately and effectively faced.

First of all, a methodological problem when using case studies in entrepreneurship education is the adequate selection and/or presentation of cases (Penn et al., 2016). As highlighted, the case method could be used for different goals: for this reason, it is important to precisely define the goal of the case and to give instructions on the case in order to keep the students engaged and improve learning. Another important aspect is how the cases are presented to the students. Many cases used in case-based learning are lengthy and becomes ambiguous. They often fail to state guidelines in the content and therefore makes it difficult to identify and find solutions in the case. On the other hands, sometimes cases provide a variety of irrelevant information that becomes distracting for students. Because of this complexity, students become anxious which in turn decrease satisfaction and engagement (Harkrider et al., 2013).

Second, there is a problem regarding the participation and engagement of students in discussions that is the core value of the case method. Productive discussions are very difficult to reach (Gross-Davis, 1993) and this problem had frustrated teachers and facilitators for decades, sometimes discouraging the use of the method. The research on the topic, highlight different factors able to influence the level of interaction and discussion in case method. Doucet, Vrins & Harvey (2009) show that large groups case-based discussions lead to disappointing results and poor participation and interaction. This reduces motivation of student and the benefits of the method as active learning. According to Howard (2015) the participation in discussions is affected by individual and contextual factors. Individual factors refer to characteristics of students such as gender, age, and perception of the classroom; contextual factors refer to class size, pedagogical strategies by the instructor and course level. In another research, McKee (2015) identify potential sources to the problem. The author states that social media and overcrowded classrooms can be contributors to the problem. Also, boring instructors that lacks passion for the subject decrease the engagement. Students can feel intimidated and feel uncomfortable in public setting (Foran, 2001).

In this perspective, teachers and instructors need to pay attention to this aspect with the aim of creating a safe and stimulating environment for the discussion, using different approach and techniques as discussed in previous paragraph.

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Case 1: Digital transformation of a traditional sector through a University Spin-off: The case of the Beatik application

Abstract

This case shows how the knowledge generated in universities can drive the digital transformation of mature and conservative sectors. Specifically, it shows how a spin-off from a university research group can bring disruptive innovations to the market. These innovations are especially interesting when they affect traditional sectors that do not use Information Technology (IT) intensively. Although these sectors usually show a great resistance to change, digital transformation provides the irruption of new ideas and new ways of doing things, which help to improve efficiency and productivity in the mature sector. From a more concrete perspective, this case shows the creation of a Spin-off of the University of Jaén (Andalusia region, Spain) for the development and commercialization of an application for mobile devices (smartphones and tablets) whose most outstanding functionality, among others, is that it is able to recognize music and follow it in a musical score. This functionality, the result of years of research, is the central innovation of an App aimed at musicians and musical orchestras. Thus, in its most advanced version, the App is able to recognize the particular sound of each instrument, and follow a score as the instrument sounds, discriminating the sound of each instrument, in case there are many of them playing at the same time (music orchestras). A business model based on the identification of different customer segments (individual musicians and music orchestras) is developed to commercialize the innovation. The innovation introduced could bring about a major change in the music business in the future.

Key Words

Spin-off; University; Music; Music orchestras; innovation; Smartphone App.

Introduction

The University of Jaén, located in the south of Spain, in the region of Andalusia, is a young university, created in 1993. The Escuela Politécnica Superior de Linares (Engineering School in Linares) (EPS de Linares) is located there, specialized in teaching and research associated with engineering degrees, among which the degrees of Telematics Engineering and Telecommunication Technologies stand out. In the EPS of Linares, various research groups do research in the area of Signal Theory and Communications. One of these groups is the Signal Processing in Telecommunication Systems group, which for more than 15 years has been researching in the distributed processing of sound signals, especially music. In their research they have developed several techniques for transcription and separation of monaural polyphonic music, and for the automatic management of musical information (Carabias-Ortiz, et al., 2013; Muñoz-Expósito, et al., 2007). Associated with this research, several doctoral theses have been carried out.

The mission of the University is not only to generate knowledge and carry out a teaching-learning process, but it must also be committed and aligned with the business world in particular, and with the society in which it is immersed, in general. Likewise, the knowledge generated in the University environment must transcend that environment and seek ways to reach the company and society. One of the potential ways is the creation of spin-off companies (Stankiewicz, 1994) that will turn the knowledge generated in the university environment into marketable products or services, and that are capable of reaching the market with these products or services. A spin-off (Stankiewicz, 1994) can be defined as an entrepreneurial initiative promoted by members of the university community, characterized by basing their

activity on the exploitation of new processes, products or services based on the knowledge acquired and the results obtained in the university itself. Applied research is the basis of these companies, whose importance lies in the development of new technologies, the capacity to generate high added value in economic activity and the contribution to regional development.

On the other hand, although the digital transformation is affecting all sectors of the economy in general, there are sectors that are more prone to the use of IT, while other sectors, more traditional and mature, are more reluctant to use it. The music sector is one such traditional sector, where IT is not being used intensively. However, IT is already being used in the various areas of society in general, and the new generation of young people who were born in the age of technologies, called millennials (Myers and Sadaghiani, 2010), demand the use of IT in all areas of their lives.

In this context, the present case shows how an innovation that arose within the university is applied in the development of a commercial product aimed at the music sector. This innovation materialized in a spin-off of the University of Jaén, called RevInClassic, a knowledge-based company that has revolutionized musical scores and whose case is analyzed below. The innovation introduced could bring about a major change in the music business in the future.

This paper is organized as follows, preceded by this introduction. The following section provides background on the firm, industry, and competitors. This is followed by business issues and challenges. Finally, the main conclusions and questions for discussion are shown.

Background on the firm, Industry, and Competitors

RevInClassic is a spin-off company of the University of Jaén created in 2015¹. It arises as a result of the research activity developed by the research group in the field of Telecommunications Engineering for more than 15 years, associated with sound processing and the development of techniques for processing complex audio signals, especially musical information, had generated extensive knowledge in this area (Carabias-Ortiz, et al., 2013; Muñoz-Expósito, et al., 2007). The research group had participated for years in MIREX, an international competition focused on score tracking processing, in which they obtained very good results, and their algorithms were developed in the context of several doctoral theses and their results were published in internationally ranked scientific journals (Carabias-Ortiz, et al., 2013; Muñoz-Expósito, et al., 2007).

Mobile devices, such as smartphones and tablets, had rapidly become popular since their appearance on the market in the first decade of the 21st century, extending their use to almost all aspects of our lives. A generation born in the Internet era, accustomed to using technology from an early age, is coming of age, and demanding the use of technology in the different spheres in which they live. This is the generation known as millennials (Myers and Sadaghiani, 2010), young people born since the 1990s who make up a digital, hyperconnected generation with high social and ethical values. Along these transformations, the digital revolution has reached practically all sectors. Thus, for example, the number of digital books sold has grown exponentially in recent years and this has led society to see its use as normal. However, this had not yet happened in music, with publishers selling sheet music in the classical, non-digital format. Moreover, even if a score is converted to digital format, it is not easy for the computer to identify with which point of the score the sound is associated at any given moment.

In this context, the company RevInClassic arises, with the aim of applying the algorithms and techniques of identification and processing of musical information to specific products aimed at the music sector. In 2016 the company is located in the EPS of Linares, in a business incubator, and develops the prototype of its App for mobile devices: Beatik².

Beatik is a tablet application that aims to help professional musicians stop working with paper scores. Its name comes from the union of the English name of compass as a measure of time in music, beat, and the sound of a clock strike. Until Beatik came onto the market, musicians were limited by the limitation of having to turn the page of the score with their hand or, in the case of a digital device, press to scroll the page. With this application, the tablet itself is able to interpret the sound of the notes played by the musician, so that it follows the beat

and advances through the pages of the piece as the score progresses. The tracking is not only done for an individual instrument, but in its most advanced version its algorithms are able to discriminate the sound of different instruments playing at the same time, and advance through the score for each instrument, which is especially interesting for musical orchestras. Another utility of the most advanced version focuses on the way a rehearsal is developed by the conservatory teacher or orchestra conductor. Normally, teachers or conductors make specific corrections and comments about a piece, which slows down the rehearsal process. With Beatik, the conductor himself can conduct the musicians' scores from his tablet as well as integrate comments into the work digitally from a content management platform. Until the arrival of Beatik, this functionality had not been considered in the world of music technology.

At that point in time (2016) there were no competitors for Beatik. Other companies were providing sheet music page turning solutions, using pedals or push buttons. Beatik's solution went much further so that the musician could focus on the musical performance and forget about the fact of turning the sheet music page. The prototype of the Beatik App was available in Google's Play Store, in version for the Android operating system, free of charge, as a way to publicize the product.

In July 2019, the final version of the Beatik App was released and by then competitors had arrived. However, the competitors' algorithms were based on time, and not on identifying and tracking sound signals, so their contribution was much more limited. This version of Beatik had its own library of digital sheet music that was intended to collect the largest catalog on the market with four types of sheet music: (1) royalty-free classical sheet music (over 140,000 works), with various editions and arrangements of each; (2) over 1.500 Smart Scores (Smart Scores) prepared for automatic tracking, selected from the most used repertoire of a set of solo instruments; (3) digital scores from renowned publishers with updated and critical editions that can be purchased through the App and (4) users' own scores that they can import from their account in cloud services (Google Drive, Dropbox, or iCloud) with their own arrangements incorporated. In all cases it was also possible to use all the classic functionalities of a digital sheet music viewer, such as organizing the library in folders and subfolders, generating playlists for concerts, making manual annotations and with predefined musical symbols, among others.

This version of the application was aimed at solo musicians (Beatik Soloist). Initially it was offered in Apple's App Store and Google's Play Store for free. Thus, since its launch, and during the first six months of its existence, Beatik was distributed free of charge to all users. In this way, it became known to early adopters. However, Beatik's business model was later based on a subscription model. After the first six months, subscription to the service was marketed for 40 euros per year. In addition, as noted above, users got the added functionality of making in-app purchases of sheet music from publishers. Beatik's proposal was that musicians could find in its library all the musical repertoire they needed to develop their activity.

In March 2020, the orchestra version of Beatik was launched. Its innovation lay in the fact that it was the only application in the world with a multi-instrument algorithm for automatic score tracking. This application thus joined the music recognition revolution, which would be as important in the music market of the future as speech recognition had been in its field in recent years. This application was aimed at the music orchestra segment, with a business model based on the customization of the orchestra's repertoire for each year, with personalized prices for each case. Thus, with both products (Beatik Solistics and Beatik Orchestras) RevInClassic served different market segments, with a different revenue model in each case: (1) subscription model for soloists and (2) personalized attention model for orchestras.

However, the world of startups is very complex (Salamzadeh and Kawamorita-Kesim, 2015). Startups need large economic resources (gasoline) and when they stay if they cannot continue their way. Thus, and despite being a relevant innovation in the field of music, RevInClassic ceased to exist in 2021, pressured by the economic crisis derived from the Covid19 pandemic, since the economic and social consequences derived from the pandemic caused the cancellation of musical events around the world. In this sense, its trajectory was

ephemeral and joins the trajectory of most startups, a type of company with a mortality rate of over 95%.

Business issues/challenges

The knowledge generated in university R&D&i research groups can be brought to the market through the creation of spin-offs. Thus, basic research is transformed into applied research, developing prototypes or minimum viable products that can be tested in the market through this type of companies. The design of the business model is fundamental for the stability of this type of company. Innovation in mature sectors, which are not very prone to the use of IT, represents an opportunity for the most innovative companies. In this line, Beatik's application has brought new solutions to the world of music, by providing algorithms that recognize the musical sound (of a soloist or multi-instruments) and is able to track it on sheet music. This application has provided a disruptive innovation, which is sure to be followed by future players entering the scene.

But the world of startups is a complex world, in which many economic resources are required in order to succeed in the market. In that sense, we must be aware that, even with good ideas and good execution of both the product and the business model, the chances of success are very slim, as evidenced by the fact that 95% of startups fail. However, this is a relative failure, because even if these types of early-stage companies cease to exist, these companies will have made great contributions in their sectors of activity. There are many examples that illustrate this point. For example, the company Napster (Carlsson and Gustavsson, 2001) was a startup that used peer to peer (P2P) networks to exchange music in MP3 format between users who had the digital file and those who wanted to obtain it. It did this by using its servers on the Internet as intermediary elements to carry out the downloads. The company was created in 1999 and grew very quickly, reaching more than 85 million active users. It went public in 2000, and its founders quickly capitalized on their investment. However, pressure from the recording industry, which saw the company as a threat to its traditional business model based on the sale of physical discs, prompted legislation favorable to the industry and led to Napster being shut down in 2001 by a court decision. Today, other companies have followed in the wake of Napster, this time obtaining the collaboration of the recording industry, as is the well-known case of Spotify³, which provides music in digital format through economic agreements with record labels and uses a Freemium business model (free version with advertising and advanced version by subscription).

Conclusions

Innovations generated from university-based research can lead to new commercial products through the creation of knowledge-based companies or spin-offs. Mature sectors, where IT is not used intensively, represent a particularly interesting niche for applying radical innovations to improve the level of efficiency and productivity of companies in these sectors. One such sector is the music industry, where pioneering companies have introduced major changes (as in the case of Napster, mentioned above). One of these companies has been RevInClassic with its App for mobile devices Beatik. Although its trajectory has been short-lived, this company has left its mark on the music sector and its wake will be followed by new players entering the scene.

Footnotes

1: In the methodology used for the preparation of this case, secondary data sources have been used to build the trajectory followed by this Spin-off.

2: Additional information: <https://www.youtube.com/watch?v=joXIMZzMMcM>

3: <https://www.spotify.com/uk/>

Discussion Questions

- 1) Distinguish between the concepts of Spin-Off and Startup.
- 2) Find information on the characteristics that define the millennial generation.
- 3) Identify other mature sectors that have been transformed by IT-based innovations, different from the case presented.
- 4) Identify at least one Spin-Off that has been successful in the market.
- 5) Describe RevInClassics' business model for its APP Beatik. What other ways of monetizing Beatik could it have used?
- 6) Reflect on why 95% of Startups fail.
- 7) Look for information on the Napster case. How did its presence affect the change in business that has taken place in the music sector? Along the same lines, how could the change in business in the music sector be affected in the future by the presence of Beatik?
- 8) How do other start-ups move forward on the innovation introduced by RevInClassic and its Beatik App?

Further Reading

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Case2: The leadership of Information Technology suppliers and the role of advanced people management practices in digitization; The case of DELSOL Software

Abstract

This case shows how Information Technology (IT) suppliers can lead IT adoption through innovative business models. In addition, it describes how advanced people management practices are critical to the success of IT suppliers. These two issues are illustrated by the case study of Software DELSOL, an innovative company in southern Spain. This company has promoted the adoption of IT among Small and Medium Enterprises (SMEs) in Spain and Latin America, using a business model based on the Freemium model. Thus, it offers SMEs different business management software free of charge. It also provides technical support and product updates on a fee-for-service model. On the other hand, Software DELSOL markets management products on a cloud platform. With this business model, it is leading the adoption of information technologies among SMEs in Spain and Latin America. It currently has more than 50,000 clients and 180 employees, obtaining very good financial results. One of the factors that explains its success is its innovative nature, which is reflected, on the one hand, in its original business model and, on the other, in the implementation of advanced practices in people management, which allows it to have a group of committed and highly motivated collaborators. Among these practices we can highlight the days of coexistence between employees, collective sports activities, competitive compensation, family and work conciliation through flexible hours and the establishment of a 4-day work week, the existence of leisure and rest rooms for employees or the existence of a healthy dining room, among others. The company has been recognized in 2021 as the best company to work for in the 50 to 500 employee categories, according to the Best Workplaces Spain ranking¹.

Key words

IT Vendor Leadership; Advanced People Management Practices; Talent Management; Small and Medium Enterprise; Freemium Business Model.

Introduction

In the business models of the digital era, different actors come into play. One of the most important players in this scenario is the Information Technology provider. In this regard, the IT provider plays a crucial role, especially in the case of small and medium-sized enterprises (SMEs) that have fewer resources and can adopt IT thanks to the support they receive from the IT provider² (Maqueira, Bruque y Minguela-Rata, 2017).

From a business-centric perspective, the IT provider's business model can be a determining factor in driving technology adoption. This model is especially important when the client companies are SMEs. In this sense, while large companies have many resources that allow them to adopt IT without major problems, SMEs have limited resources and many IT providers, with their business models, are managing to democratize IT³, and in doing so they are putting IT resources available to SMEs at a reasonable cost.

On the other hand, from an individual-centered perspective, the management of people within companies specialized in IT is a key aspect that affects, first and directly, employees, their motivation, and their quality of life, which will transfer to the improvement of the results obtained by the company (Brun and Dugas, 2008).

This case shows precisely both issues. Thus, from a company-focused perspective, it is analyzed the business model of an IT provider that is leading the digitization. On the other hand, the people management model applied by this IT provider is analyzed, from a perspective focused on the individual.

The case is of interest so that students, who will be future company executives, are aware of the importance of innovation in the IT provider's business model as it acts as a driver of technology adoption. In addition, they must be aware of the importance of managing people in an innovative way in this context of the digital economy, using advanced practices that will translate into improved business results (business change).

This case analyzed Software DELSOL, a company from southern Spain that develops and markets business management software. In 1999, its managers decided to offer the software they developed free of charge, allowing customers to download and use the software without any restrictions. Their revenue model was initially based on the telephone support that customers could contract for their products, as well as updates to new versions of the software. At the time, this business model was an early application of the business model that has subsequently been popularized under the name of the Freemium model (Wilson, 2006). In this model, a product is offered free of charge and there are other complementary paid products that bring revenue to the company.

Through the Freemium business model, this IT provider has led the adoption of business management software packages in a large number of SMEs in Spain and other Latin American countries. In this sense, Software DELSOL is an example of a company that leads the digitization among SMEs.

Thus, its business model is one of the success factors of this company, but it is not the only one. From its beginnings, the company's managers understood the leading role that people acquire in technology companies, following in the footsteps of other large companies in the sector, such as, for example, Google (Sridhar, 2013). The leaders of Software DELSOL have promoted the application of innovative practices related to workforce development, which are identified as a second success factor of the company and make. Currently, the company is one of the best valued by employees to work for it. In addition, it presents one of the best business results in its sector.

Regarding the structure of the case studied, after this introduction, shows the background on the firm, industry, and competitors. This is followed by business issues and challenges. Finally, the main conclusions of the paper and the questions that are introduced to reflect on the case are shown.

Background on the firm, Industry, and Competitors

Software DELSOL is a leading company in the manufacture of management software oriented to freelancers, professionals, and SMEs. The project started in 1993 in Jerez de la Frontera, city placed in the south of Spain. In 1995 the company moved to the city of Jaén. Its founder is Fulgencio Meseguer Galán, a professional with more than 25 years of experience in the sector. In 1999, Software DELSOL presents its programs at the International Symposium of Multimedia and Office Automation (SIMO) in Madrid (Spain). At that time, the company offered accounting and invoicing programs named Aplicon and Aplialm. They were created by the company for the MS-DOS operating system. After that, two new products, Contasol and Factusol, were developed for the Windows-95 operating system. At this moment the company presented its new business model based on free software, which could be used without any restriction. Since then, the desktop software is free of charge. The company has a structure of specialists who answer companies' queries about its products by telephone, charging for this service, this being its revenue model.

Although the free service was both innovative attractive idea for the customers, the company was competing in a mature market, where several IT suppliers, many of them major players worldwide, offered highly competitive products, consolidated in the market. This led the company to differentiate itself from other programs through a high level of quality, innovation, an attractive and easy-to-use graphical interface, and surprising features that were highly appreciated by users. It also offers, as mentioned above, telephone support for its programs through billing per consultation or monthly technical support plans. With regard to the free software offered by the company, its solutions cover the most important areas of a

company: invoicing, accounting, and labor management (payroll), and a program for point-of-sale terminals is also available.

The company's initial product catalog was expanded in 2017 by introducing a range of cloud-based programs and services (Maqueira, Bruque and Minguela-Rata, 2017) aimed at providing solutions for companies that choose to have a virtual store, corporate website or have comprehensive business management using data in the cloud. These services are offered through subscription models, whereby the client company pays a certain monthly amount for the services it obtains. Through this approach, the company markets desktop software but with data stored in the cloud. More recently (2018) the company incorporates its NUBE10 product of cloud services under the Software as a Service (SaaS) model, through which the company establishes new sources of revenue through pay-per-use.

The company's main distribution channel is the Internet, allowing the download of its free software through its own corporate website. The software can also be obtained from the main download sites, such as Softonic. Likewise, they have more than 2,100 distributors that support sales through non-digital media, which are used to cover those customers who prefer to be attended, in the first instance, in person or in a more personalized way.

From the beginning, those responsible for Software DELSOL were aware of the importance of people management, especially in the new digital economy, where environments are very dynamic, and activity is frantic. Other pioneering companies in the IT sector, such as Google (Sridhar, 2013), already showed this orientation towards people management through practices related to workforce development, such as highly skilled development, active skills development, problem-solving skills and self-directed work teams or cross-functional workforce (Cappelly and Neumark, 2001). In this sense, it is well known that at Google, workers do not have a flexible start/finish time (flextime), they have relaxation and rest rooms, leisure areas (video games, pool tables, slides) or healthy food at no cost to the worker (fruit, salad, etc.). Guided by these new trends in the sector, the managers of Software DELSOL sought from the beginning to apply this type of advanced human resources management practices, with the aim of motivating their workers. Thus, facilities were designed with spaces for the practice of team sports, such as 7-a-side soccer or basketball. There are also paddle tennis courts and a climbing wall. There is a swimming pool area, and on Friday afternoons there is no work, and employees meet there and establish collective meetings in a relaxed environment that fosters group bonds and friendship. Software DELSOL's facilities are designed in equal parts between production and leisure areas, coexisting spaces for customer service with sofa areas for more informal meetings and rest areas with foosball tables and a gym. The company offers a healthy canteen service, free of charge for employees. Also, to promote work-life balance policies, the company offers scholarships, health insurance and also allows teleworking. It also promotes continuous training and suggestion programs.

In January 2020, Software DELSOL was one of the pioneering companies worldwide in the implementation of the four-day working week to its 181 employees. Worldwide there was only the precedent of Microsoft in Japan, which after introducing the four-day workday claims to have increased its sales by 40%. In Software DELSOL most of the employees work from Monday to Thursday. The rest of employees work in blocks of four continuous days rotating from Monday to Friday (every four weeks they accumulate four extra days of rest), Thus, Software DELSOL guarantee providing software support to more than 50,000 SME's customers from Spain and in South America. To make this measure possible, the company increased its workforce by 25 workers. On the other hand, the working day has been reduced to 36 hours a week in winter and 28 hours a week in the summer months, when workers have an intensive working day.

Thanks to its advanced people management practices, Software DELSOL has been identified in 2021 as the best company of 50 to 500 employees of size to work for in Spain in the Ranking Best Workplaces Spain 2021. The company obtained this recognition after a diagnosis of the organizational environment, which included sending a questionnaire to employees and a specific evaluation of the people management culture. This proves that it is

an organization with a culture of high confidence, in which its employees are motivated to give the best of themselves.

Business issues/challenges

Software DELSOL was a pioneer in the Freemium business model. Thus, it has facilitated the adoption of IT in SMEs⁴ in Spain. Its managers were visionary in identifying this business model early on, that has helped the digitization of many SMEs. This business model is now used by a large number of technology providers.

This innovative character of Software DELSOL's managers has also been reflected in its people management practices. The practices used by Software DELSOL promote work-life balance, teamwork, trust, exchange of opinions and ideas, active skill development, cross-functional workforce, problem-solving skills, and excellence. The implementation of advanced people management practices is aimed at continuous improvement, facilitating family reconciliation, workforce development and improving the quality of employees' working conditions, enhancing their quality of life as well as their motivation and productivity. The company was a pioneer in implementing a four-day work week in Spain (and one of the first in the world), thereby furthering its objectives of facilitating family reconciliation and improving the quality of its employees' working conditions. In general, with these advanced people management practices, the level of stress and workload of employees decreases, so that their happiness increases while their involvement with the company (engagement) rises. The change brought about by the implementation of four-day work weeks also prevents absenteeism and increases employee loyalty to the company and attracts talent⁵.

Conclusions

The most innovative companies in both the business model and management practices improve their business results.

SMEs have limited resources, so the role of IT providers is essential for them to successfully adopt IT and cope with the digitization required by the environment. In this sense, the IT provider's business model can be a decisive factor in the digital transformation of SMEs. Freemium models, offering software products for free and complementary products for a fee, are an excellent alternative where both the IT provider and the customer (SME) win (win-win approach).

In addition, the work environments in the information technology sector are very dynamic and changing, and the pace of work is hectic. This makes the use of advanced people management practices in the IT sector help employees to be more motivated and involved with the company and to improve their quality of life in every way.

Footnotes

- 1) <https://greatplacetowork.es/ranking-best-workplaces-2021/>
- 2) The relevant role of IT suppliers compared to other actors, such as Public Administrations or R&D Institutions is analyzed in the following paper: Maqueira, J.M., Bruque, S. y Minguela-Rata, B. (2017): "Environment determinants in business adoption of Cloud Computing", *Industrial Management & Data Systems*, Vol. 117, No. 1, pp. 228-246.
- 3) Democratizing IT means making it available to all companies, regardless of their size.
- 4) In the methodology used for the preparation of this case, secondary data sources have been used. Additional information about the Software DELSOL company and its product, available on Youtube, has also been used.
- 5) A description of the talent management models that are especially applicable in technology companies to achieve good economic and operational results can be found in: Maqueira, J.M; Bruque, S.; Uhrin, A. (2019): "Talent management: two pathways to glory? Lessons from the sports arena", *Employee Relations*, Vol. 41, No. 1, pp. 34-51.

Discussion Questions

1. Explain the concept of innovation. How is the innovation of Software DELSOL shown in this case? Look for information about the types of innovation. What type of innovation is shown in the case?
2. Find information and explain what the Freemium business model consists of. Illustrate it with examples of other than the one in the analyzed case.
3. Identify the different components of the Software DELSOL business model over time. Explain where its revenues currently come from (how value capture is performed).
4. Explain why with the Freemium model Software DELSOL has generalized the use of IT in SMEs.
5. Identify all the advanced people management practices that Software DELSOL applies. What other different practices could it apply?
6. Explain how it is possible that working four days by week, the company's sales are increased, and employee productivity is also higher.
7. There are many IT providers that use a different business model. Look for information about Fujitsu, its business model, and its people management practice, and compare them with those of Software DELSOL.
8. Relate digital transformation to Continuous Improvement and illustrate this relationship with an example.

Further Reading

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Case 3: LIDERKIT S.L. – Digital transformation in bodyworks manufacturing.

Abstract

LIDERKIT S.L. is a multinational company specialized in the manufacture of custom bodywork kits to be assembled. It is characterized by manufacturing an innovative, versatile, durable, economical, reliable, and easy to assemble product. The quality standards offered to the client have made it a benchmark company in the sector. In its approach to continuous improvement, the company's R+D+i and manufacturing departments have valued applying a true digital transformation procedure to various processes that are developed daily, both in the field of manufacturing, and in the management of its processes and in contact with suppliers and customers. To undertake this ambitious project, the staff of these departments have begun a dynamic of training in disruptive technologies (additive manufacturing, robotics, automation, IoT, big data, cloud computing, virtual and augmented reality, etc.) to study how they could be implemented in their processes and assess the viability of said implementations. Therefore, in this case, the application of technology to the company's digital transformation process will be considered, assessing the adequacy of said technology to the business model.

Key Words

Digital Transformation, Manufacturing, Disruptive Technologies, Business Model Innovation, Digital Maturity.

Case learning outcomes

After discussing this case, students will be able to:

- understand the potential business impact of disruptive technologies such as cloud computing, big data, additive manufacturing, and collaborative robotics.
- assess the impact of digital transformation on the industry and the benefits derived from it.
- analyse the business strategies of the company in response to the potential opportunities and threats of emerging technologies.
- evaluate the incorporation of new business models analyzing their sustainability and the activity of the competition.

Introduction

LIDERKIT S.L. is a leading company in the national and international market in the manufacture of bodyworks for vehicles that are distributed in kits to assemble. The great advantage of your product is its versatility, as well as its speed of assembly and its high-quality standard, which makes it very economical, reliable, durable, and competitive in any market in the world. It has more than 230 employees and it has a presence in more than 30 countries on the five continents and has a turnover of 60% abroad. In addition, LIDERKIT S.L. stands out for its powerful investment and development in R+D+i, which enables it to achieve increasingly advanced products and custom designs, always following the customer's instructions.

The production system, which integrates all stages of product development, allows the execution of important orders in a limited period of time. In addition, the group has an unbeatable after-sales service. It is a method where five points stand out:

- Design: any design that the client needs can be turned into reality. They also respond immediately to technical questions.
- Quality: they have excellent professionals, facilities and technologies and use quality raw materials.

- Effectiveness: their productive capacity allows them to execute each project quickly and present it in short delivery times.
- Guarantee: its products comply with strict international quality, environment, safety, and recycling standards.
- R+D+i: the great effort in R+D+i enables them to continuously improve their objectives in quality and productivity.

The R+D+i department wants to adapt to trends in the sector in order to offer lighter and more aerodynamic, safer, and more efficient, more functional, and versatile, recyclable, and respectful of the environment bodyworks. This can only be possible with a production system that integrates all stages of product development and allows the execution of important orders in a limited time. In addition, the company is firmly committed to incorporating new products into its line of business, as well as incorporating new designs that improve the performance and reliability of existing products.

On the other hand, the commercial department has verified that the market for refrigerated vehicles has grown in recent years thanks to the acquisition of new customers and the increase in the distribution of the last mile of perishable product. Another evidence of the growth of the sector is manifested in the increase in online purchases and home delivery since the profile of the final consumer has changed with new technologies. In addition, it has been proven that in the national market there is great competition in the sector and that means that there are practically no profit margins.

As a result of these data, the management of the company has made the determination to increase production by 15% over the next three years, maintaining the quality, service, and delivery times that its customers demand. At the same time, within the continuous improvement process of the company, the need to optimize the inventory control system and warehouse management, the manufacturing process, the management of purchases and sales and contact with the customer is considered.

As Jung (2020, p. 722) comments in (Jung, 2020), “companies are beginning to make progress on their digitization journey, finding the right applications for digital transformation and getting an ever-increasing return on their investment. While the age-old challenges of the market environment –such as supply and demand, cost, and price– have not disappeared, competitive pressures are making the digital transformation opportunity more urgent than ever”. Along the same lines, Ribeiro da Silva et al. (2020, p. 174) indicate in (da Silva et al., 2020) that “industry and academic leaders agree that digital manufacturing technologies will transform all aspects of value chain manufacturing systems”.

In that context, LIDERKIT S.L has been a beneficiary of the European Regional Development Fund¹, whose objective is to improve the use and quality of information and communication technologies and access to them and thanks to which improvements have been implemented in its Enterprise Resource Planning (ERP) to improve competitiveness and company productivity. This fact has allowed the company to face the digital transformation process through the use of disruptive technologies.

LIDERKIT company history and features

LIDERKIT S.L. was founded in 1991 by a former cabinetmaker, Miguel Peragón, but its history dates back many years. Miguel Peragón belonged to a humble family, but soon his concerns led him to learn carpentry and, in 1962, when he was only 18 years old, he decided to establish himself on his own and began to run a furniture company. It was then that one of his clients asked him to make a bodywork for him. From there, he began to specialize and gave a new direction to his career, in such a way that, in 1968, he created Carrocerías Peragón. The business was doing very well, and Miguel set the goal of becoming a leader in the manufacture of kits bodywork nationwide.

In 1991, he merged the words leader and kit and LIDERKIT S.L. was born. From then on, the company already had more than 80 workers. At first it made aluminum bodyworks; later, and faced with the need to offer new products, the other two companies of the group were

created: in 1994, Prefabricados Peragón, to produce sandwich and plywood bodies, and in 2004 Termocube, to produce isothermal and refrigerated bodies.

During these years, LIDERKIT S.L. began to export to Europe. The first foreign market was Portugal, followed by Central Europe (first, Germany and then Belgium, France, and Italy). Thanks to the high volume of work, the need arose for new larger facilities. Thus, in 1999 it moved to its current location, in the Guadiel Industrial Park (Guarromán, Spain). More than 70,000 square meters located in an unbeatable location next to the Andalusian highway. This company has one of the largest plants in Europe in its sector. These are facilities that have successfully passed the quality audits of leading international brands in the automotive sector.

In 2005, LIDERKIT S.L. made the move to Africa, where it established another factory in Morocco and only a year later, in 2006, it landed in America. Later, it would complete its export in the five continents starting to operate in Asia in 2013 and in Oceania in 2014.

LIDERKIT Group has been awarded, on several occasions, for its capacity for research and innovation, and for launching renewal programs, both in the production and in the design and marketing of its products. In 2003, LIDERKIT S.L. was recognized with the Export Award by the Official Chamber of Commerce and Industry of Jaén. In 2013, it won the Innovative Company award from the 'Andalucía Económica' magazine (they are some recognitions that each year distinguish the business dynamism and the impulse of the Andalusian economy). In 2015, it was awarded the Family Business award by the San Telmo International Institute² and, in 2016, they received the award for 'Business Career' at the XI edition of the Executive Awards.

LIDERKIT S.L. stands out for its powerful investment and development in R+D+i, which enables it to achieve increasingly advanced products and custom designs, always following the customer's instructions. The company has developed and is immersed in various projects:

- **REEFERKIT Project, together with Morgan Corporation**, they have worked on this project whose objectives were to develop a new range of isothermal bodies for the transport of goods in self-assembly kits, lighter and capable of accepting more cargo in the same volume, while maintaining the cooling capacity of the cabin and producing a lower carbon footprint in its manufacture.
- **TRANSFRIGO Project (New Materials for Refrigerated Transport)**, together with the University of Jaén, where new materials have been developed for refrigerated freight transport containers with the aim of achieving a more efficient and ecological transport, reducing costs, and replacing the use of non-renewable resources and intensive in CO2 emissions.
- **ECOTRANS Project** where an innovative treatment focused on decontamination and disinfection of their bodies has been patented. It is a new material additive with particles of titanium dioxide and alumina that contributes to the prevention of the spread of COVID-19. This material has self-cleaning qualities, such as biocidal and deodorizing properties, which decontaminate the surface where it has been applied in the presence of ultraviolet light.
- **LiderCADCAM Project**, with the aim of guaranteeing a better use of information technologies, an incentive has been received from the Andalusian Innovation and Development Agency IDEA of the Junta de Andalucía, co-financed in 80% by the European Union through the European Regional Development Fund.
- **ADIABATIC-COLD Project**, with the aim of minimizing energy consumption and improving energy efficiency in the cooling of isothermal bodies, offering bodies that are increasingly ecological, recyclable and light in their commitment to the environment.
- **NOVELCOV-19 Project**, new filtering systems, surfaces, and equipment against the Covid-19 pandemic. Project co-financed by the European Regional Development Fund (ERDF) and by the CDTI with the aim of promoting technological development, innovation, and quality research.

This company, fundamentally, is dedicated to the manufacture of bodyworks in kits, with a wide and diverse variety of models (aluminum, polyester, sandwich, or plywood), distributing them to assemble from its plant. In addition, a specialized firm for isothermal and refrigerated

bodies has also been created, which is called "Liderkit Isothermal and Fridge Bodies". In recent years, they have incorporated into their product line three different types of platforms (galvanized, ultralight and hybrid) and two new brands of self-made body panels (LIDERfoam® and LIDERwood®). The great advantage of these products is their versatility, as well as their speed of assembly and their high-quality standard, which makes them very reliable, durable, and competitive in any market in the world.

LIDERKIT S.L. has established a philosophy of total customer service, manufacturing its customized products in a short period of time thanks to the variability of approvals and the vertical integration of its production. In this sense, the main characteristics that customers are demanding are:

- Versatility, that is, making a tailor-made suit.
- Lightness, or what is the same, offering the body with the lowest possible weight,
- And safety, in order to comply with strict international regulations on bodywork.

Such is the level of concern for the client, that the company has designed a marketing campaign in which it is stated verbatim "we evolve by and for our clients". At the same time, the company logo indicates the message "made only for you", assuming that any design they need can come true.

In relation to the competitive context of the company, LIDERKIT S.L. is a leader in its sector at a national and international level. In recent years, it has exported more than 60% of its production, a figure that supports the above.

Business challenges and technological advancements

The management of the company, together with the R+D+i and production departments, have decided to expand their line of business by developing the following products, from which they want to increase their competitive advantage over their competitors, while optimizing the safety systems and energy consumption of its products, meeting the sustainable development objectives:

- A magnetic cooling system: a prototype of an isothermal body with a magnetic sealing system, in which the tires may or may not be magnetic according to the needs of the system (with the doors closed, the tires will be magnetic, when they open, they will lose their magnetism).
- An autonomous system for the generation and storage of electrical energy. This system will take advantage of the kinetic energy produced by the oscillation of the box during transport, in addition to the creation of a system that takes advantage of braking and the placement of piezoelectric ceramics in the chassis structure to generate energy. The electricity produced will be stored in one or more batteries, which will feed both the electrical sealing circuit of the isothermal body and the adiabatic cooling system, thereby achieving energy independence from the transport vehicle.
- A multi-compartment cold storage box with side doors on both sides and different thicknesses in their configuration to adapt to the diversity of merchandise; protection and security of the merchandise with our system of desinertización by means of ultraviolet light of short wave; and sandwich panels with the outer and inner faces made with a composition that allows a photocatalytic effect to be carried out, causing NOx to be eliminated from the atmosphere and favouring the reduction of emissions in city centers.

In addition to planning the development of new products, the company's production manager, together with the engineering department, urgently need to undertake the following actions:

- The receipt of raw materials and products from its main suppliers is creating problems since the quantity of these products is increasing due to the growth in production. At the same time, there is a problem in the identification of parts or semi-finished products, whose quantity is also growing due to the increase in production.

- By not manufacturing a single standard product, the MRP listings are uncoordinated to the production department. This is generating that there are also problems in the implementation and development of its MRP system.

To continue leading the bodywork sector and to keep being a competitive company at this time, the management of LIDERKIT S.L. has decided to rethink, redesign, and develop its business model and adapt it to dynamic market conditions. In fact, to stay competitive in today's digital economy, business model innovation is seen as one of the key activities (Pucihar, A., Lenart, G., Borštnar, M.K., Vidmar, D., Marolt, M. (2019), p. 2).

The first step of the company, in its decision to modify and improve its business model, has been to participate in the call for the Active Industry 4.0 Program, which is convened on a competitive basis, for the granting of aid for receiving advice specialized by industrial companies. Fortunately, LIDERKIT S.L. has been admitted under the Active Industry 4.0 Program³ and a preliminary analysis of the starting situation of the company has been carried out. Subsequently, the management of the company has carried out an evaluation of its level of digital maturity, as well as an internal analysis of the organization and the business.

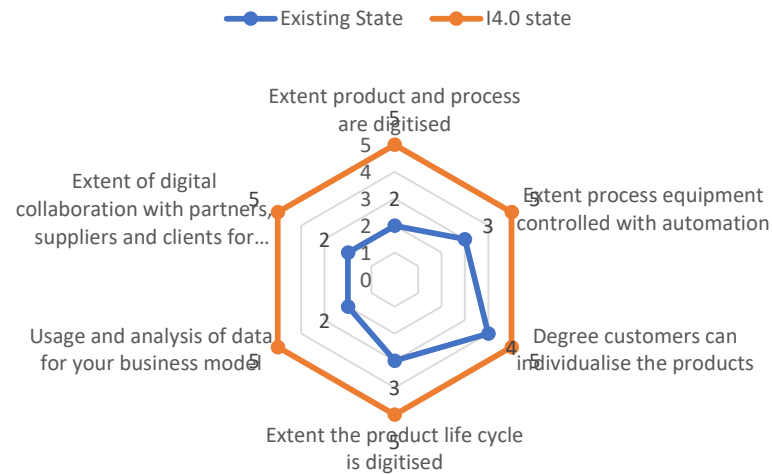
A first perception of the level of maturity has been obtained with an Industry 4.0 readiness/awareness tool developed in the GrowIn 4.0 project. This tool, as indicated in (Leong et al., 2021), "covers aspects of digitization, regulatory considerations and preparation of a company. It is grouped into five dimensions: business models and products, market and customer access, value chains and processes, legal consideration and cyber/IT security and Industry 4.0 strategy and experience". The results obtained are shown in the Figure 1:

The management of the company, once the results obtained with the GrowIn 4.0 tool have been analysed, considers that these are not conclusive, so it is necessary to make another balance of the state of digital maturity of its production system. To do this, it brings together the heads of the key areas of the company and they decide to undergo another verification system, in this case a digital maturity model in Industry 4.0 designed by the Spain Ministry of Industry and SMEs (HADA⁴) to support understanding and approach to this new paradigm of business transformation, bringing companies closer to the different dimensions and drivers on which to act. HADA approaches the company through the analysis of five key dimensions in the company's strategy and operations. The diagnosis conclusions carried out are shown in Table 1, where the dimensions and a certain number of drivers that allow to drive the digital transformation of companies towards maturity in Industry 4.0 are considered.

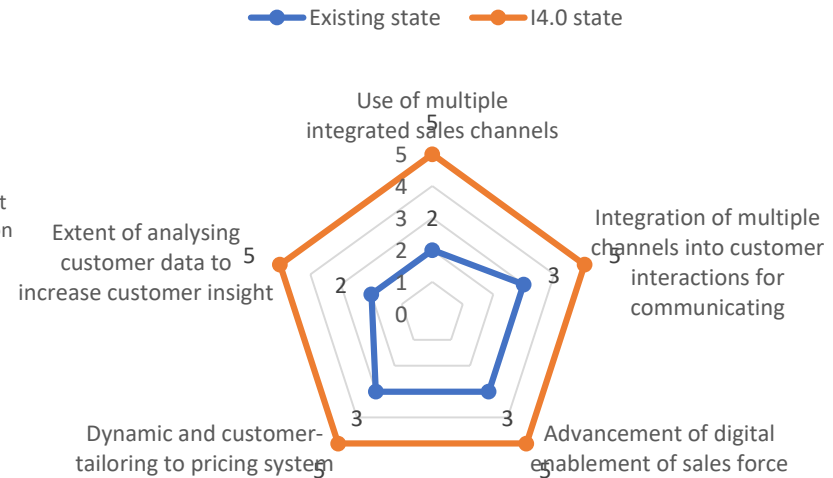
The next phase of this process has consisted of establishing the Digital Transformation Plan, which has been approached by the management and has been the result of an important process of strategic reflection in which all the managers of the key areas of the company have been involved. This plan includes the definition of actions, the quantification and prioritization of digitization opportunities and a proposal for enabling technologies that correspond to said plan. Some of the prioritized opportunities that the company has contemplated within its Digital Transformation Plan are the following:

- Improve the data capture of the production process and manage it through digital devices, eliminating paper documentation. Record the variables of the process, quality control, maintenance, etc.
- Increase training in the use of digital technologies to change the culture of the workforce towards Industry 4.0.
- Use digital tools on the web to access new markets and increase the level of customer attraction.

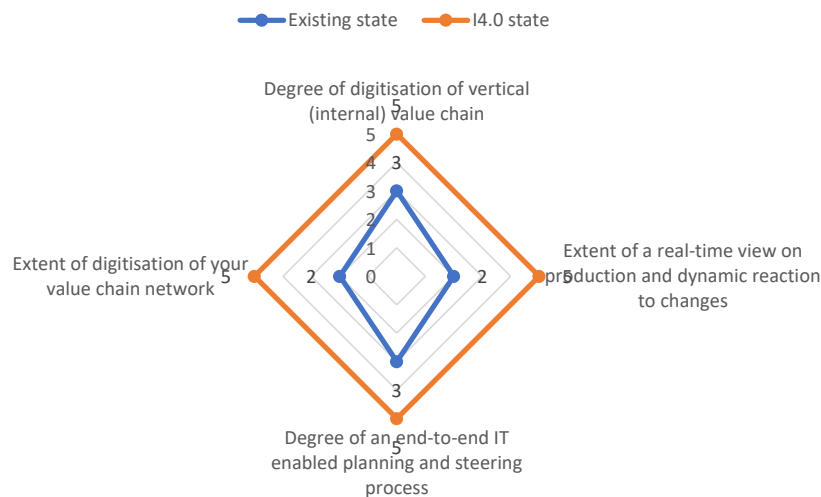
Business models & products



Market & Customer Access



Value Chains & Processes



Strategy and Experience on Industry 4.0

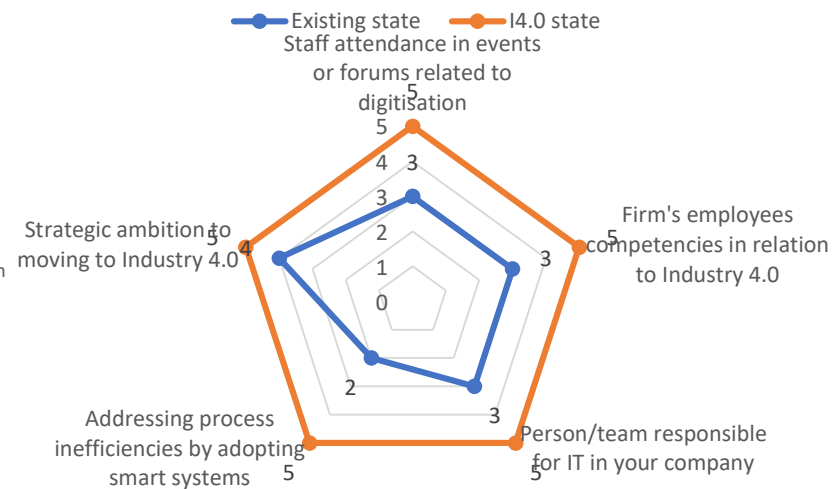


Figure 1. Level of maturity obtained with Grow In 4.0 project Industry 4.0 readiness/awareness tool

Table 1.- HADA diagnosis conclusions.

Dimension	Driver	Conclusions
Business and Market Strategy	Strategy and Market	They do not have a strategic plan for digital transformation. A large-scale risk and opportunity study has not been carried out, although they have been identified.
	Investments	The level of investment is discreet, allocating 20% of the annual budget to the Facilities and Production areas (in the rest of the areas it does not exceed 5%). It is proposed to increase investment in Production and Services by 10%.
	Innovation	Innovation and the generation of R+D+i projects is something systematic within the company, appearing new investments already linked to digitization.
	Sustainability	There are digital solutions in this line (photovoltaic plant, waste management and reuse, machine connections, and others).
Processes	Digitization	They have internal platforms and recently acquired technology with a high level of automation and self-management (laser cutting machine, cutting robot, etc.)
	Integration	It only has internal ERP platforms and CRM clients that do not interact. Although they are partially integrated, there is integration in the entire flow of billing and planning.
	Automation	It has management and some areas of automated production processes. It presents technologies for voice reporting with micro, QFID system for traceability, cobot, etc.
Organization and People	Relationship and collaboration model	Adequate model with suppliers and clients in that there are various communication platforms. There are areas of communication, participation of teams within the plant in areas where indicators and part of the data are shared.
	Skills and Qualifications	Part of the workforce is familiar with new digital technologies. There are communication tools of different types within the plant, with information and communication areas, although there is a lack of information content in real time.
	Digital training	The allocation for digital technologies and connectivity is low, less than 10% of the total training budget.
Infrastructures	Digital infrastructures	There are some digital solutions implemented in cutting cells, painting, among others. Communication channels are used (email, intranet, meeting areas, videoconferences, etc.). They do not have more sophisticated enablers (3D scanning and printing, VR, AR).
	Business and control solutions	It has platforms that manage all activities within the company with different solutions (MES, ERP, CRM, among other modules) and with active participation of the product on social networks and presentation of its product portfolio. The solutions for capturing data and exporting them in real time to the platform can be greatly improved.
	Collaborative platforms	It does not have a defined platform for each client, nor does it apply digital data analysis tools. It does not usually use cloud connections, except in some sporadic case, with clients or administration.
Products and Services	Components and digital functionalities	The product is not currently associated with digital functionalities. The workflow is prone to incorporating connectivity, 3D scanning and virtual configuration, among others.
	Interconnected products and services	Hyperconnectivity with markets is vital to adapt new processes, products, and services. However, the company does not apply this concept.
	Data collection, analysis, and use	The use of their products in the market does not emit data. Customers do, through claims that are used for quality purposes for analysis and improvement actions. The products do not allow analysis automatically. This communication of incidents by the client is not in real time.

Conclusions

Manufacturing companies face an important challenge when it comes to updating and optimizing their production systems, considering the evolution that digital transformation processes are generating in this sector and in all aspects of daily life. LIDERKIT S.L., being a leading company in the bodywork assembly sector, has decided to increase its production volume, as well as increase the number of products it wants to put on the market, respecting the quality standards that testify and place it, as has been indicated above, in the top positions in the body assembly sector.

As many companies in the manufacturing sector are experiencing, the digital transformation process (Albukhitan, 2020) is not something that can be done in a short time and it is necessary to obtain adequate training, both in enabling technologies and in new production systems, as well as advice from experts in this field. In this sense, LIDERKIT S.L. is subject to a digital transformation process of some of the dimensions shown in Table 1, once the consulting company hired to carry out the initial digital maturity study has issued the necessary initial report before undertaking any strategic action in the medium or short term.

Regarding the digital maturity report issued by the consulting company, LIDERKIT S.L. has to face the following challenges in order to meet the growth targets set and not lose the competitive advantage it has over its competitors. Among the main challenges, considering the five dimensions that are analysed in the HADA digital maturity model, we can highlight the following:

- **Business and Market Strategy:** in this dimension, it is necessary to carry out a strategic plan for digital transformation, including a study of risks and opportunities on a large scale, as well as to establish priorities regarding investment in the digital transformation process.
- **Processes:** in this dimension, they only have internal ERP platforms and CRM clients that do not interact, in addition to there is an urgent need to establish priority in the automation of some processes associated with new products.
- **Organization and People:** in this dimension, means must be established to streamline and optimize contact with suppliers and customers, as well as implement mechanisms to increase both the training of workers in disruptive technologies and the allocation for digital technologies and connectivity.
- **Infrastructures:** in this dimension, solutions must be improved to capture data and export it in real time, as well as to be able to analyse said digital data and share it with clients or the administration.
- **Products and Services:** in this dimension, it is necessary to establish a connection with the markets to adapt new processes, products and services and associate their products with digital functionalities.

Finally, a positive aspect in this process of digital transformation of the productive system of this company is the awareness that exists in all its levels, from the management, through the R&D, production, and engineering departments, as well as the workers of the workshop. A proactive attitude towards digital has been generated that is greatly favouring the fulfilment of the strategic objectives set by the company.

Footnotes

1. The European Regional Development Fund (ERDF) aims to strengthen economic, social, and territorial cohesion in the European Union by correcting imbalances between its regions. In 2021-2027 it will enable investments in a smarter, greener, more connected, and more social Europe that is closer to its citizens (https://ec.europa.eu/regional_policy/en/funding/erdf/).
2. The BBVA Chair in Family Business at the San Telmo International Institute is awarded according to different criteria, such as the family's business tradition, the creation of companies in especially difficult environments, the desire to internationalize, diversification and innovation, the measures adopted to promote competitiveness or the

adoption of measures that facilitate the continuity of the Family Business, among other aspects.

3. ACTIVA Industry 4.0 is a specialized and personalized advisory program, carried out by accredited consultants with experience in the implementation of Industry 4.0 projects and is carried out with the methodology developed by the General Secretariat for Industry and SMEs. This program allows companies to have a situation diagnosis and a transformation plan that identifies the digital enablers necessary in this transformation process and establishes the roadmap for their implementation. The counseling is complemented by demonstration workshops on enabling technologies (<https://www.industriaconectada40.gob.es/programas-apoyo/Paginas/activa.aspx>).
4. HADA - advanced digital self-diagnostic tool (<https://hada.industriaconectada40.gob.es/hada/register>).

Discussion Questions

1. Considering the structure that a Digital Transformation Plan must have, how should this company structure its transformation plan?
2. Considering the application of enabling technologies, how could the company solve the problem of receiving material and identifying parts during the manufacturing process?
3. What aspects should the company contemplate when sharing data with suppliers and customers? Would it be a good idea to share data with competitors?
4. The production manager in the company needs to identify the priorities of the manufacturing process and communicate them in real time to the employees. How could this situation be solved from a digital point of view?
5. What are the differences between the two methods of measuring the level of digital maturity used?

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Case 4: DIYA.BUSINESS

Abstract

The presented case demonstrates the activity of the online service DIYA.BUSINESS, which helps to digitize government services in the field of business support. Entrepreneurs receive free online consultations on DIYA.BUSINESS portal from leading international business experts through the global marketplace OnFrontiers. OnFrontiers platform is a profitable and effective consultant search service that allows entrepreneurs to access a global network of international experts from around the world, industries, activities, and business niches who can be involved as consultants in solving specific business problems, strategic or narrow niche tasks thanks to web consultations. OnFrontiers Platform of DIYA.BUSINESS portal can be useful for entrepreneurs in the framework of digital transformation due to scale, efficiency, tracking, specificity.

Thanks to consultations on DIYA.BUSINESS portal, entrepreneurs can:

- Form a strategy for entering the market anywhere in the world.
- Learn the requirements for the production or supply of products used by international buyers or well-known global brands.
- Understand the pricing or branding strategy applicable to different e-commerce tools and platforms.
- Understand trends in changes in consumer requirements and expectations for products or services.
- Get feedback from experienced investors, experts and/or business leaders on business models, products, solutions, or services.

Key Words

Government Services, Digital Entrepreneurship, Virtual Portal, OnFrontiers Platform.

Introduction

On September 27, 2019, the Ministry of Digital Transformation of Ukraine together with Fedoriv and Spiilka design büro presented the brand of digital state “DIYA (State and I)”. Today it is a full-fledged online service of public services in various spheres of business life (women's entrepreneurship, agribusiness, office for entrepreneurship and export development, online school of entrepreneurs, map of business support infrastructure, self-testing for entrepreneurs, offers of business partners, etc.). Thus, in particular, DIYA.BUSINESS portal provides online consultations, contains a platform to help small and medium-sized businesses, and centers for providing administrative services in every corner of Ukraine.

Ukrainian entrepreneurs receive free online consultations on DIYA.BUSINESS portal from leading international business experts through the global marketplace OnFrontiers, which employs a large number of experts to solve various business problems in e-commerce, export development, digital entrepreneurship transformation and more.

Digital transformation of entrepreneurship on global marketplace OnFrontiers

The Ministry of Digital Transformation of Ukraine together with the “Office for Entrepreneurship and Export” with the support of the USAID Program “Competitive Economy of Ukraine” provides SMEs with additional opportunities to strengthen their business and enter new markets by offering them access to specialized consulting sessions with international business experts at the OnFrontiers global marketplace.

OnFrontiers platform is a cost-effective and efficient consultant search service that allows entrepreneurs to access a global network of more than 300,000 international experts from around the world, industries, activities, and business niches that can be engaged as consultants to solve specific business problems, strategic or narrow niche tasks through web consulting.

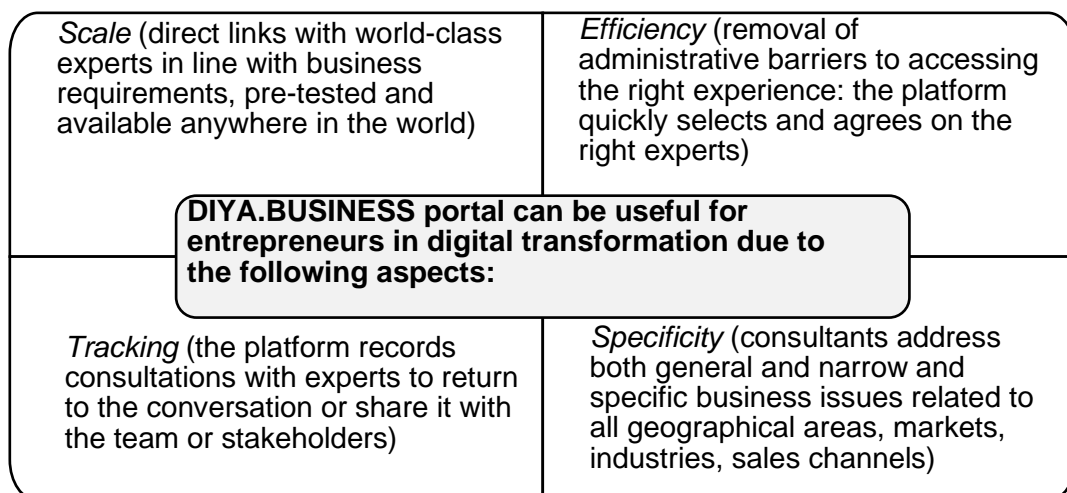
DIYA.BUSINESS portal provides Ukrainian entrepreneurs with access to such topics of free consultations as:

- Starting a business in the USA, the EU, and other countries.
- Market research and preparation of marketing strategy.
- Intellectual property rights; e-commerce.
- Digital business transformation.
- Innovations; artificial intelligence.
- Big data.
- Augmented and virtual reality.
- Crowdfunding.
- Sustainable production.

Thanks to the consultations on DIYA.BUSINESS portal, entrepreneurs will be able to get the following opportunities, for example:

- Qualitatively and objectively form a strategy for entering the market anywhere in the world, including methods of identifying new customers or suppliers in target markets.
- Quickly and fully learn the requirements for the production or supply of products used by international buyers or well-known global brands.
- Reasonably understand the pricing or branding strategy applicable to various e-commerce tools and platforms.
- On the basis of reliable information, to understand trends in changes in consumer requirements and expectations for products or services.
- Objectively and instantly receive feedback from experienced investors, experts and/or business leaders on the business model, products, solutions or services and many other opportunities depending on the request of the enterprise.

Clients of the platform OnFrontiers are leading companies from the Fortune 500 list, as well as recognized global brands: Bose, Deloitte, OPIC, Rockefeller Foundation, DHL, The World Bank, and others, so there is hope that Ukrainian entrepreneurs after receiving online consultations on the platform OnFrontiers will have a chance of commercial success.



On DIYA.BUSINESS portal the entrepreneur gets instant access to a wide network of international experts who have proven and practical experience, which can help to successfully develop a business or develop an effective highly competitive strategy for entering and developing in desired target markets. Experts provide advice in an online format and help solve business problems of entrepreneurs during the digital transformation of their business.

On DIYA.BUSINESS portal in Business section, you can easily find a highly qualified expert who best meets the needs of the entrepreneur and objectively provides advice on digitizing business. On the basis of applications in a live queue, companies that meet the qualification

criteria for consulting on OnFrontiers platform are selected. Each selected company receives a series of 2 professional consultations that can be used for 45 days.

Sequence and criteria for receiving services on the OnFrontiers platform

Manager from requests appointed by OnFrontiers will help the entrepreneur clarify the request and assist in the process of finding and establishing contacts with consultants. Consultations are by appointment, and the platform has a built-in automated scheduling feature that makes expert-client coordination seamless and efficient. All consultations are provided in English, so it is important that the representative of the entrepreneurs participating in the consultation is fluent in English. A typical consultation lasts about one hour. Consultations are recorded, and if necessary, clients can access consultation records for their own materials. 45 days after the consultation, the unused balance is returned to the organizers to give other participants of OnFrontiers program of DIYA.BUSINESS portal the opportunity to use these loans.

Among the criteria by which entrepreneurs are selected to participate in the consulting program of DIYA.BUSINESS portal can be identified:

- Integrity of the entrepreneur.
- The entrepreneur seeks expert advice to obtain a new or specific business opportunity for the business that will lead to any of these results (increasing current sales or creating new sales by attracting new customers; attracting additional investment or financing; creating new jobs; improving management practice at the enterprise, successful entry into a new export market, optimization of business processes at the enterprise).
- The request to the entrepreneur's consultant is specific and can be considered immediately
- OnFrontiers online consulting is the most effective way to solve your business problem.
- The entrepreneur and his employees know English at the level of fluency in writing and orally for easy communication with OnFrontiers experts.
- Entrepreneurs will provide information on business results 6 and 12 months after participating in the program.

Selection and consultation on the basis of OnFrontiers platform of DIYA.BUSINESS portal takes place in 9 stages:

1. Applications are submitted only by those entrepreneurs who meet the qualification criteria.
2. The entrepreneur submits the application according to the form, succinctly, but specifically filling in the required fields. When submitting the application, the entrepreneur agrees to the terms of the initiative and the processing of personal data.
3. After submitting the application, the program organizers (Specialists of the program USAID Competitive Economy of Ukraine) review the entrepreneur's application and decide whether or not to include the enterprise in the initiative. Only fully and detailed applications and those that meet the eligibility criteria can be agreed to participate.
4. In case of a positive decision, the entrepreneur receives a letter with further instructions.
5. The entrepreneur's application is submitted to managers of OnFrontiers marketplace, who contact him about the process of registering for OnFrontiers and obtaining consultations.
6. Manager of OnFrontiers marketplace helps the entrepreneur to refine the request to consultants, and then prepare a list of the best experts who meet business requests. On a regular basis, the entrepreneur receives notifications of those identified experts who are offered for review. The entrepreneur can provide feedback to further refine the search. As soon as the entrepreneur selects an expert, he can appoint a consultation with the chosen expert. OnFrontiers usually offers 3-4 experts who best fit the application. In addition, no fee is charged until the entrepreneur selects a consultant with whom he would like to speak.
7. The entrepreneur agrees on the time of consultations and receives them. The entrepreneur will be given 45 days to receive consultations. The unused balance is canceled at the end of this period, and he will no longer be able to sign up for a free consultation.

8. The entrepreneur receives online consultations, leaves feedback, and gets access to the voice recording of the conversation with the consultant. If desired, the entrepreneur may apply for access to a written transcript of the consultation record.
9. The organizers of the initiative contact the entrepreneur in approximately 6 and 12 months in order to get feedback and a better understanding of how the consultations have affected the development of the business and its digitization.

Success stories

Getting online advice on the OnFrontiers platform has a successful experience and real examples of success in the world. A company in the market of animal feed in Nigeria. The experts helped to obtain reliable and instant information on the local poultry market, the local aquaculture market, the local feed market, including demand drivers, structure, key players, industry dynamics.

The project, which was implemented on the OnFrontiers platform in the field of satellite solutions for communication in Angola is successful. The customer evaluated the possibilities of providing satellite solutions for the state, such as disaster management, e-health, and communication in rural areas. The experts helped to understand the problems of ICT communication in Angola, to brainstorm current and future government initiatives that can be provided through satellite communications, as well as industry factors that may affect the market entry of new entrants and businesses in particular.

A financial company that provides payday loans to legal entities and individuals in 11 markets in Africa and Latin America. The experts analyzed in which areas the team should conduct further research on regulatory policy and risks associated, for example, for individuals, with the provision of payday loans, as well as what requirements should be applied to borrowers (for legal entities).

Solar energy project in Costa Rica. The experts helped to understand the impact of current/expected regulation, policies, and economic factors on the scale of distributed solar energy in Costa Rica, and how the market may develop in the future, such as tariff structure, energy pricing, restrictions, and potential involvement of small and medium-sized businesses in the production of alternative energy sources. East Africa Geothermal Energy Project: the experts helped to get acquainted with the energy and renewable energy sectors in Ghana, Nigeria and Kenya and the possibility of entering the market of this energy for medium-sized digital businesses, the economic benefits for the economy as a whole.

Conclusions

All consultations within OnFrontiers platform of DIYA.BUSINESS portal are free for entrepreneurs whose applications are approved by the organizers. For those whose applications are not approved, or for newly arrived entrepreneurs, it is recommended to get acquainted with the possibilities of the OnFrontiers platform and determine how to use it to strengthen your business.

OnFrontiers platform of DIYA.BUSINESS portal allows the business to increase current sales or create new sales by attracting new customers; attract additional investment or financing; create new jobs; to improve management practice at the enterprise; successfully enter a new export market; optimize business processes in the enterprise. Online consulting based on the OnFrontiers platform of DIYA.BUSINESS portal is the most effective way to solve your business problem.

Discussion Questions

- 1) Is there any real reason to believe that since the creation and “launch” of DIYA.BUSINESS portal today we can summarize its success in the practice of digital entrepreneurship?
- 2) Are there other powerful online business support platforms today besides the OnFrontiers marketplace that has similarly successful hands-on projects?

- 3) What can an entrepreneur get as a result of online consulting from professional experts on DIYA.BUSINESS portal? What risks await the entrepreneur as a result of digitizing the business?
- 4) There are always certain conditions and requirements for the work of an entrepreneur on various portals and platforms. What are the criteria for an entrepreneur to participate in the counseling program on DIYA.BUSINESS portal?
- 5) How can you assess the sequence of selection and consultation based on the OnFrontiers platform of DIYA.BUSINESS portal? How easy/difficult, fast/long, transparent/veiled, expensive/cheap, open/closed, etc. the process is?
- 6) Do you know the success stories of the practical use of OnFrontiers services in digital business?
- 7) Is it necessary to create DIYA.BUSINESS Centers in cities within the framework of digital transformation of entrepreneurship? If so, how many such centers are needed and what functions should be assigned to them? Justify your opinion.

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Case 5: “Monobank” - Ukrainian virtual bank.

Abstract

This case shows digitalization in banking as an important sphere of digital literacy of Ukrainian entrepreneurs. Digitalization in banking is a set of modern economic, organizational, and managerial, institutional innovations in any area of the bank's operation. In the conditions of growing competition digitalization contributes to the expansion of the customer base, increasing the market share of banking services, reducing costs, increasing the financial stability and security of the bank. The dynamic development of entrepreneurship which is now one of the defining trends in developed countries is impossible without the active role of the banking system while the demand for banking services is constantly growing. Monobank is the first mobile bank in Ukraine. Monobank provides service without branches, almost all services are provided via a mobile application. For some operations (deposit / receipt of cash in foreign currency) servicing is carried out exclusively through the cash desks of Universal Bank. Digitalization of banks is associated with the transformation of research and development, other scientific and technological advances into new or improved banking products and services. In the future it is necessary to develop a policy of digital development of the national banking system in the context of digital development of the world community based on end-to-end banking processes, standards of banking and communication equipment, software, services, tariffs, access to banking data and services, security of banking information.

Key Words

digital technology, digital entrepreneurship, digitalization in banking, digital transformation of finance.

Introduction

The development of the information society, digital economy and digital entrepreneurship, global processes of digital transformation which are now actively taking place in many countries around the world raise the issue of digital literacy of Ukrainian citizens.

Digitalization is an important area of development of all spheres of Ukraine's economy including banking. Digitalization in banking is a set of modern economic, organizational, and managerial, institutional innovations in any area of the bank's operation (Kornivska, 2017). In the conditions of growing competition digitalization contributes to the expansion of the customer base, increasing the market share of banking services, reducing costs, increasing the financial stability and security of the bank. Digitalization of the bank is a system of measures aimed at deepening cooperation with fintech start-ups in order to achieve long-term development goals related to the introduction of innovative methods of work, new banking products and services to increase and expand the customer base and increase the bank's competitiveness (Kraus and Holoborodko, 2018).

The last few years have seen a significant recovery in digital banking in European countries. Among the largest virtual banks are the German Fidor and N26 (founded in 2009 and 2013, respectively), the British Revolut, Atom Bank and Monzo (founded in 2013, 2014 and 2015, respectively) and the French Orange Bank (founded in 2017). They identify themselves as retail banks that operate exclusively on a digital platform and are designed to compete with traditional institutions. Such banks offer a wide range of financial products, serving those customers who for various reasons do not have access to the services of traditional banking institutions, namely - small and medium enterprises and individuals who often lack collateral or credit history and so on.

The result of digitalization of banking is new products and services or products and services with new qualities: innovative programs and projects, new intelligent products, modern new technological equipment and processes, new approaches to the formation of the market of modern banking products and services.

The dynamic development of entrepreneurship which is now one of the defining trends in developed countries is impossible without the active role of the banking system while the demand for banking services is constantly growing.

It is the banking system providing entrepreneurs with banking services and accumulating temporarily free money of market participants and distributing them through short- and long-term credit that plays a special role in business.

So, the purpose of the case is to get the students acquainted with the changes in the financial sector generated by the digital revolution, the knowledge of key digital technologies and products in banking, the digital transformation of finance.

Background on the firm, Industry, and Competitors

The modern banking sector offers many innovative concepts that combine the interaction of virtual and physical worlds in order to build their own business model and more efficient customer service. The future of banking - for institutions located in cyberspace. Such institutions identify themselves as retail banks that operate exclusively on a digital platform and are designed to compete with traditional financial institutions. Over the last ten years, there has been a revival in the field of virtual banking in European countries. The key provisions for launching a digital bank include architecture and operating model, products and services, sales channels, system operation, cybersecurity, and finance.

Monobank is the first mobile bank in Ukraine. Monobank is a retail product from Universal Bank JSC which resulted from a collaboration with Fintech Band. A modern Universal Bank created in 1994 and providing a variety of services to natural persons and legal entities. It is a member of TAS Group since December 2016.

Monobank provides service without branches, almost all services are provided via a mobile application. For some operations (deposit / receipt of cash in foreign currency) servicing is carried out exclusively through the cash desks of Universal Bank.

In 2017 bank won the nomination "Best Ukrainian FinTech-startup" of the PaySpace Magazine Awards, and in 2018 won the main award in the category "Neobank of the Year" of the FinAwards 2018. As of August 23, 2021, it serves more than 4 million customers, with the daily number of active users reaching 1.3 million. The total amount of issued loans exceeded 4 billion hryvnias.

Today, a key expected outcome of digitalization is the emergence of new innovative products and services. The most common are the following types of innovative banking products (Tarasiuk, 2017):

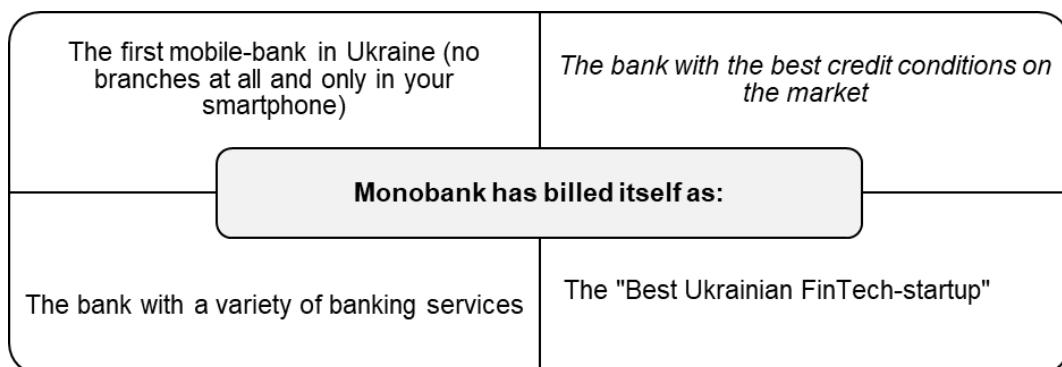
- Mobile banking - thanks to a mobile phone you can perform most transactions with your own accounts, it opens a wide range of services, in particular, account balance, payments, money transfers, loans from one individual to another, etc. According to experts, a mobile phone will replace a plastic card as a means of payment in a few years. It is with the help of NFC-chips that are built into the phone that the customer will be identified, so the need for a passport will disappear, because customer identification by the bank will be possible only with the phone.
- Internet banking is a key innovation of the coming decade, which is now offered to customers by most banks. Ukraine is in the top 10 countries in Europe in terms of the number of users, but due to low penetration into the regions it still has significant potential for growth of the Internet audience in the future. This opens up great opportunities for banks, so experts focus on the development of remote banking.
- "Zone 24" - with the help of this product the client can independently manage their accounts, get advice from a call center specialist, leave a request to receive the service, sign up for service in any branch of the bank. Virtually every "zone 24" is equipped with an ATM, CashIn replenishment module, and a telephone for access to the information service. This area of banking continues to improve.

- electronic balance - the introduction of this service in the bank's cash registers allows to reduce the cost of circulation of coins, as the balance is less than one hryvnia credited to the customer's mobile phone or in the form of an electronic voucher.
- POS-terminals in commercial networks - unlike Western countries, they did not lead to a global revolution in the Ukrainian non-cash space. However, today 15% of non-cash transactions with payment cards still make bankers believe in the strengthening of this trend in the next five years. In the future, POS-terminals will be installed by the merchants themselves, as not plastic cards will be accepted for payment, but information from NFC-chips built into the phone. Meanwhile, self-service terminals, which appeared a few years ago, are gaining popularity both in bank branches and abroad.

The idea of the start-up Monobank is to establish an IT company that would help other banks to create innovative products. Fintech Band relied on the provision of quality and affordable banking services through the use of the latest technologies and approaches. First of all, due to the lack of branches. The main product of Monobank is a credit card with very favourable terms and a mobile application. The Fintech Band employs over 100 professionals. The main share of costs - about \$ 2 million - are salary payments.

Monobank issues customer credit cards, provides depositing options and other services, and the best mobile app will make controlling finances as convenient as possible. Monobank work only on mobile devices. In the mobile app that created especially for Monobank there's a variety of banking services including free money transfers, a convenient way of paying utility bills, an ability to take part in the bank's special offers and receive a cash-back, controlling your financial operations and the fast and professional customer service will answer all of your questions in a messenger of your choice (Viber, Facebook Messenger, Telegram) or on the phone.

To work with Monobank you need to download the application at the link. Then the program asks you to take a picture of the first and second pages of the passport, the page with the residence permit and the statement with the identification number. The operation takes two minutes. After that it is necessary to choose a variant of reception of the plastic: delivery by the courier or to pick up independently from the list of points. Next, attach the card to your application by taking a photo as shown on the smartphone screen. Immediately after that all the functionality of the program becomes available.



The main features of Monobank for entrepreneurship are the following:

Features of Monobank for Entrepreneurship:
<ul style="list-style-type: none">• Separate account for bookkeeper which allows to manage business account• You can add up to two additional phone numbers to work in the web office• Completely remote service: no need visiting card issuing point or contacting with departments• All monobank accounts management in one application• We have one application for individuals and business, money transferring between individual and business accounts is simple• Payments from foreign currency accounts. It is not necessary, as in other banks, to wait until the interbank is opened to sell currency• Separate Web-account for your bookkeeper. It is possible to add up to two numbers to work in WEB-account with business account• Favorable exchange rate• Friendly financial monitoring and currency control

Steps to open business account are the following:

- Get registered quickly in Monobank application and get the card.
- Be registered as an individual entrepreneur.
- Open business account in Monobank application in one touch.

Today in Ukraine the most innovative banks are PrivatBank, Raiffeisen Bank Aval, Alfa-Bank, OTP Bank, and others. For more than a decade they have stood out among other banks by providing innovative products including such as SMS banking and Internet banking. The leading position is currently occupied by PJSC "PrivatBank" which for the first time in the history of the Ukrainian banking market became a finalist in one of the world's most prestigious banking ratings Retail Banker International Awards and one of the nominations was "Best Innovation in Payments". PrivatBank is the largest Ukrainian bank which is among the top 10 leading banks in Central and Eastern Europe. It is also one of the most innovative banks in the world. The latest innovations of the bank which have gained worldwide recognition include the following products: payment mini-terminal, access to Internet banking via QR-code, online collection, digital payment cards as well as dozens of different mobile applications.

Business issues/challenges

Digitalization of banks is associated with the transformation of research and development, other scientific and technological advances into new or improved banking products and services in an updated or improved banking process used in practice or a new approach to the sale of products and services, their adaptation to current customer requirements. Signs of the attractiveness of digital banking products are high reliability, profitability, and quality (Lechachenko, 2017).

More and more banking institutions in developed countries are focusing their efforts on mobile application development and remote customer service. The reduction in the number of bank branches has already become a very real trend not only among large but also regional banks in Western Europe and the world. With the spread of information technology, the order of interaction with the end user of banking services is changing. Today you do not need to contact the bank branch for basic operations. Instead, more and more banks offer customers a number of additional services the use of which strengthens customer loyalty and provides competitive advantages to banking institutions.

In the future it is necessary to develop a policy of digital development of the national banking system in the context of digital development of the world community based on end-to-end banking processes, standards of banking and communication equipment, software, services, tariffs, access to banking data and services, security of banking information.

The challenges and shortcomings of virtual banking are identified as follows: difficulties in registering a new client and navigating the site; trust in the virtual world of financial services; lack of proper level of financial literacy; the presence of risk factors associated with spyware and viruses; the problem of business evaluation, etc.

In terms of technology there are seven main components that are needed to solve this problem, a kind of seven notes of the digital bank of the future (Ovcharenko, 2020): 1) the Internet; 2) mobile devices; 3) the Internet of Things; 4) big data (analytics, volumes, speed, data diversity); 5) cloud computing; 6) machine learning, cognitive technologies, robotics; 7) distributed data storage registers (blockchain).

Conclusions

Digitalization of the bank is a system of measures aimed at deepening cooperation with fintech start-ups in order to achieve long-term development goals related to the introduction of innovative methods of work, new banking products and services to increase and expand the customer base and increase the bank's competitiveness. Digitalization of banking - activities aimed at the commercialization of accumulated modern knowledge, technologies, and equipment. The result of digitalization of banking is new products and services or products and services with new qualities.

Discussion Questions

1. What are the differences in the organization of traditional and virtual financial (banking) institutions?
2. What are the benefits of digital businesses serving in digital banks?
3. What are the challenges for digital businesses as a result of working with a virtual bank?
4. Is the virtual bank an important component of digital economy?

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Case 6: Work from Bed - not only a marketing agency

Abstract

Work from Bed (in Polish: Leżę i pracuję) is a marketing agency that operates in Poland. The organisation has been operating since 2017 using the legal form of a business foundation. It is an example of a social enterprise that combines social and economic goals in its activities. The essence of the foundation's activity is to improve the quality of life of people with physical disabilities through dignified work adapted to their capabilities. The foundation creates targeted jobs for people with disabilities by providing PR, marketing, and advertising services. The services are offered on market principles. Their recipients are the public, commercial and social sectors. The agency's offer includes creating image and communication strategies, creating websites, social media services, graphic design, training, and consulting for companies. The agency makes use of remote working, digital working tools and implements innovative technologies - adapted to the needs and capabilities of disabled employees.

Key Words

marketing, public relations, new technologies, remote working, people with disabilities, social enterprise.

Introduction

Despite the fact that Poland formally (membership in OECD, NATO, European Union) belongs to the group of developed countries, the country is facing several challenges. Digitalization certainly belongs to this category. In the Digital Economy and Society Index (DESI) of 2018 Poland ranks 24th out of the 28 EU Member States. Five chapters used in DESI: Connectivity, Human Capital, Use of Internet Services, Integration of Digital Technology, and Digital Public Services place Poland in the low-performing cluster of EU countries. Therefore, is the development of civil society. Although the Civil Society Participation Index (CSPI) for Poland is higher than the world median (in 2018 it was 7 and 5 respectively), but from 2014 one could observe a decline of CSPI in Poland (from 9 to 7).

This case study covers these two interesting and challenging areas. Thus, we have IT applications and Internet technologies on one side, and a group of young, dynamic, entrepreneurial, and visionary young people who assist disabled persons in the labour market on the other. The latter, i.e., the position of disabled people on labour markets all over Europe (speaking nothing about Asian and African countries) remains unsolved. The case study shows how digital and internet technologies may be used for public and economic gains, bringing satisfaction for the stakeholders: social entrepreneurs, disabled people, and customers/buyers.

Background on the firm, Industry, and Competitors

History and background of the firm

Work from Bed is the first marketing agency in Poland to employ paralysed people. It was established as a result of an accidental meeting of Maja Lipiak, an ingenious and prolific advertising agency manager, and Artur Szaflik, a 40-year-old disabled man. At the age of 17, as a result of jumping into water, he experienced quadriplegia. As a consequence, he could not take up a job and spent his whole life at home. The acquaintance resulted in the creation of a foundation in October 2017 in Katowice (Poland) called Work from Bed. At the core of the organisation was the belief that:

"In the 21st century, it is possible to work from home, and modern technologies are conducive to undertaking interesting work and doing meaningful things!"

In practice, the foundation was established to change not only Arthur's life, but also the lives of other people with motor disabilities in a similar situation to his. This change was mainly to improve the quality of life of this group of people through dignified work adapted to their abilities.

The name of the organisation, Foundation Work from Bed, illustrates the philosophy of the organisation, which set itself the objective of employing people condemned not only to unemployment, but also to confinement within four walls, dependent on the help and good will of others. This work was to contribute to a better life for disabled employees - a life enriched with new skills, new goals, new knowledge, new acquaintances, and new experiences. The aim of the project was to make a difference in the lives of people with physical disabilities in Poland, as well as in the lives of those around them - families, employers, and society.

Because of Maja Lipiak's professional experience, the organisation has developed a business in PR and marketing. In this area, jobs were created for people with disabilities. From the very beginning, the foundation used the remote working method in its activities, which resulted from the physical limitations of employees with disabilities employed by the organisation. In addition, it developed the competences of employees by working in a mentor-mentee system. Mentors were employees and partners of the agency who were experienced specialists in their fields. Thanks to their support, people in the team who had not worked before acquired marketing competence and developed professionally. In addition to the mentoring system, the organisation used the support of experts and trainers from outside, organised webinars and online conferences. The organisation adapted not only its methods but also its working tools to the needs of employees with disabilities (e.g., by purchasing text biting glasses, it was possible for a person with paralysis to do copywriting work).

The agency currently employs 12 staff: including 6 people with disabilities, 3 nondisabled staff and 3 with a B2B contract.

The range of services provided commercially by the foundation to clients in the public, business and social sector includes:

- creation of strategies (image and communication),
- creation of websites and accompanying services (communication, blog articles, webwriting, optimisation and positioning of websites),
- graphic design (advertising graphics, branding, web design, advertising graphics),
- copywriting,
- social media services,
- training and consulting for companies,
- reports, training an employee volunteering on Corporate Social Responsibility.

Useful perspectives for analysing organisations

The entrepreneurial perspective: Remote working and diversity management

Work from Bed has been using the remote working method in its activities since its inception. The importance of this form grew and was appreciated during the SARS-CoV-2 pandemic in Poland as well as worldwide (Stack et al., 2021). Remote working is characterised by advantages and disadvantages (Beño, 2021). The COVID-19 pandemic experience, technological advances and globalisation reveal its increasing importance in the future. Employers will need to adopt this method of working more widely to remain competitive in the competition for workers and to respond flexibly to emerging challenges.

An important aspect of the foundation's work is to combine the potential of employees with disabilities with that of other employees and external experts of the agency. On the one hand, the implementation of the master-student method resulted from the limitations of the staff with disabilities employed by the foundation. On the other hand, it represented a recognition of disability as a form of diversity, similar to demographic categories and other social identities (Gallois, 2003).

This approach revealed many opportunities for generating economic and social value at individual, organisational, and economic levels, including the realisation of innovative ventures

with high social impact. It is now emphasised that diversity management can bring many benefits to organisations not only in economic dimensions but also in social dimensions (Seliverstova, 2021).

Strategic perspective: dual objectives and activity in the social economy sector

The Foundation is an example of a social enterprise, i.e., an organisation that uses economic activity and market mechanisms that characterise it to solve social problems. This type of activity falls within the (sphere of) the social economy sector (Monzon & Chaves, 2008). This type of entrepreneurship combining dual objectives, innovative methods of activity is promoted and supported with public funds in the European Union (European Commission. Directorate General for Employment, Social Affairs, and Inclusion., 2020).

Public perspective: increasing social and political expectations to increase employment opportunities for people with disabilities

At the heart of the foundation's work is the improvement of the quality of life of people with physical disabilities through decent work adapted to their abilities. It is estimated that there are more than one billion people with disabilities in the world and 100 million in the European Union (An inclusive digital economy for people with disabilities, 2021). The barriers limiting the social functioning of this group resulting from the interaction between personal, health and environmental factors are diverse. They relate to basic spheres of life of people with disabilities, such as health care, rehabilitation, assistance and support, education, work, employment and functioning in society (World report on disability, 2011).

In diagnosing the situation of people with disabilities in the labour market, the UN has highlighted several issues, including (Disability and Development Report, 2019): the lack of appropriate workplace improvements, including assistive technologies for people with disabilities, and exclusion and additional stigma in the labour market towards people with multiple, severe, or psychosocial disabilities limit their employment opportunities.

In Poland, as well as in other countries around the world, there is a noticeable growing dissonance between the expectations and aspirations of people with disabilities, promoted by international organisations (e.g. UN Convention on the Rights of Persons with Disabilities), and ineffective public policies addressed to people with disabilities (discrimination of this group on the labour market, lack of job offers adapted to their needs and abilities; lack of effective solutions in terms of public policies supporting this group on the labour market) (Kubicki, 2017).

Industry and Competitors

Work from Bed foundation's activity focuses on three areas: internet marketing, advertising market and training. Thus, the foundation, as an economic entity, conducts economic activity in the field of marketing communication. This is a very complex market, entities operating in this area deal with a wide range of activities, including activities such as: identification systems (e.g., visual identification of brand org company); product design; distribution channels; sellers' dress, behaviour, and image; advertising; brand placement; public relations; gadgets and promotional gifts; and many others. The scope of activities carried out by the Work from Bed positions it's between an internet (interactive) agency and a branding agency. The range of business activities of Work from Bed:

- **Creating a brand-building strategy:** Image strategies - Communication strategies
- **Creating websites:** Blog articles - Web writing - SEO (website positioning)
- **Graphic design:** Branding - Web Design - Advertising graphics - DTP
- **Crisis communication:** Communication in social media - Pop-up on the website - Newsletter - Blog article - Individual consultation
- **Social media:** Facebook - Instagram - Twitter - LinkedIn - Communication schedules - Advertising campaigns - Communication plans
- **Training**

- **Copywriting:** Web writing - Filling the portal - Blog articles - Content of official letters - Newsletters - Response templates - Messages - Press releases
- **A social campaign:** Strategy - Communication - Implementation- WWW pages - Support for social media
- **CSR:** Reports - Employee volunteering - Training
- **Lectures.**

All these activities are part of broadly understood marketing communication and have one, main common goal, which is to influence market participants and build relationships with them. To achieve this goal, two-way communication is critically important - from the enterprise/institution to the market and from the market to the enterprise/institution. According to the data of PARP (Polish Agency for Enterprise Development) agency this is a very competitive market both internationally across the EU area and in Poland.

The marketing communication market in the EU

According to Eurostat data, the marketing communication sector in the European Union (EU-28) gave employment to over 2.6 million employees (data for 2017) in over 590 thousand business entities. The largest share in the structure of economic entities in the marketing communication sector in the EU had microenterprises. Among those, the most numerous groups were entities dealing with advertising, market research and public opinion research (324 thousand, 54.7% of the total number of entities). From the perspective of the Member States the largest markets - counted by the number of entities in the marketing communication sector - were located in France (11.5% of the total), Great Britain (10.4% of the total), Spain (9.9% of the total), The Netherlands (9.7% of the total), Germany (9.2% of the total) and Poland 7.5% of the total).

The marketing communication market in Poland

The Polish marketing communication sector is a vast and still growing market. In 2020 over 87,000 business entities were operating in this sector. Compared to 2018 their number increased by 4.5% and compared to 2017 by 5.6%. The vast majority of those business entities represented the area of advertising, market, and opinion research (58%). The sector is dominated by micro-enterprises - employing up to 9 employees, which constitute approximately 98% of the total number of companies.

Most popular tool of the marketing communication

Among the marketing tools, the three most popular and widely used by enterprises in Poland are website, leaflet, and press advertisement. The use of websites is declared by 93.5% of enterprises, leaflets are used by 66.5% of entities, and press advertising by 63%. Among the top ten marketing tools used by companies in Poland, half of them is considered as online solutions - website, email marketing, social media, SEO (Search Engine Optimization) and newsletter. Online marketing is a rapidly growing market.

Business issues/challenges

The business challenges and success factors of the social enterprise Work from Bed are presented in relation to four selected areas: technology, law, customers, internal organisation (Figure 1). The materials used for their description come both from the organisation's website and from press materials and interviews with employeesⁱⁱ (carried out for the purpose of this study).

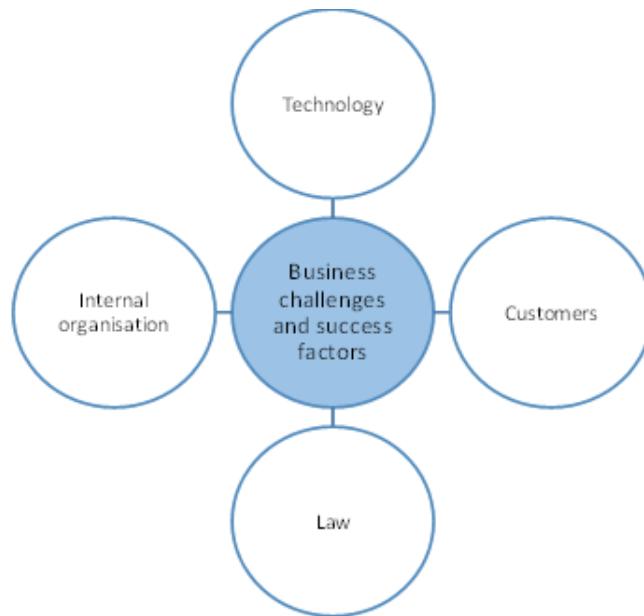


Figure 1: Areas of business analysis

Source: Own elaboration

Technology

The organisation operates mainly on a remote working model, which naturally involves the use of modern technologies. In its daily operations, the agency relies on communication technologies and specialised graphic and project management programmes. Optimisation of the team's work and efficient workflow are ensured by tools such as:

- Slack – a cloud-based web service that provides a set of tools and services to support collaborative working,
- Basecamp – task and project management platform,
- Clockify – application for recording working time. Enables teams to track the time spent on projects,
- Zendesk Sell – CRM software for customer relationship management,
- Trello – project management and work organisation tool,
- Google Drive – used to store and share files,
- Hangouts – a tool to communicate with customers who do not have Slack but have a Gmail account.

At the same time, the organisation takes care of work ergonomics - adapting workplaces and tools to the needs of employees. For example, the purchase of specialised glasses combined with a chew to steer the cursor and use the computer keyboard enabled one employee (a paralysed person) to administer website content and support the webmaster team.



Source: <https://www.maxigadget.com/2016/05/glassouse-lunettes-handicapes-souris-bluetooth.html>

Modern technologies and creative technical solutions are a prerequisite for the agency. Agency staff are aware that without their use, vocational activation of people with disabilities is not possible. There are many technological solutions on the market that can support such activation. One of the elements of the Zdalniacy (Capables) report developed by Work from Bed was their analysis. As one of the employees points out: *“Most technologies used by people with disabilities were developed 5, 10 or even 20 years ago and are not developed in Poland. Somewhere there was some seed, some beginning, but they are developed on foreign markets. There are many technologies that could be useful, such as mice, new glasses, technology that allows to control the eyeball instead of a mouse. These are tools that are needed to work for people with disabilities.”*

Law

Work from Bed is a non-governmental organisation. Its activities are regulated by the Law on Public Benefit Activity and Volunteerism of 2003 and the Law on Foundations of 1984. Foundations are created for the purpose of achieving socially or economically useful objectives consistent with the fundamental interests of the Republic of Poland in various areas (e.g., health care, development of the economy and science, education and upbringing, culture and art, welfare and social assistance, environmental protection, and care for historical monuments). The organisation initiates many innovative projects supporting and scaling the statutory goals of the foundation, such as: Zdalniacy (social start-up, promotes effective and comfortable recruitment for remote work for people with motor disabilities), Wheelkathon (innovation marathon for all those who want to change the situation of people with motor disabilities with their ideas).

Foundations in Poland are allowed to carry out economic activity in the scope of achieving their statutory goals, on the basis of the decision of their statutes. Funds obtained in this way should complement the resources allocated to the statutory goals of this legal entity, which have priority over profit-making activity. In this respect the foundation is treated as an entrepreneur. Non-governmental organizations running business activity are entrepreneurs in the eyes of law and are bound by the same rules as other entrepreneurs - they are subject to the same tax regulations, are payers of corporate income tax and tax on goods and services. The duality of the organisation's objectives is explained by its founder and CEO as follows:

“We differ first and foremost in the reason why we came into being. It is not to make money, but to change the labour market for people with physical disabilities. Of course, as for any business, sales and profits are important to us. However, they are a means to an end, not an end in themselves. Every new client, every new order, every new project pleases us because

it gives us a chance to create an organisation that enriches and wants to enrich the lives of people, both the agency's employees and its surroundings [1].”

“This formula allows us to follow a middle path - to use, in a good sense, the best features of the commercial sector and the potential and credibility offered by the activities of non-governmental organisations [2].”

In the context of legal issues, it is also worth analysing the situation of employers who want to employ people with disabilities. The basic legal act that regulates the rights and obligations of the employer and employee in this respect is the Act on Vocational and Social Rehabilitation and Employment of Persons with Disabilities and, as for other employees, the Labour Code. In Poland, it is possible to employ a person with disabilities on the condition that he or she has an occupational health practitioner's permit to work and that the work in the given position is in accordance with the indications included in the certificate issued by the certifying physician.

There are three levels of disability: severe, moderate, and light. According to the agency's employees, this legislation gives rise to a number of myths about the work of people with disabilities, including the inability to work, a lack of willingness to work and opinions that people with disabilities can only do simple, manual work. As one agency worker (a person with a disability) pointed out:

“The legislation says that a person with a severe disability is incapable of independent living and cannot undertake work. Our regulations do not consider modern technologies that allow us to do that. I cannot move, but I can work.”

Clients

The company operates in the competitive market of marketing agencies. They have both regular clients and fulfil single orders. The organisation's main clients include:

- Entities of the commercial sector (rather corporations with a developed corporate social responsibility department or large companies than small and medium-sized enterprises).
- Public sector entities (e.g., hospitals, ministries).
- Social organisations (with different profiles and statutory objectives).

Internal organisations

The organization's working model is based on the specifics of the marketing agency's operation, while at the same time it is adapted to the capabilities and needs of employees with disabilities. The internal organisation of the agency's work is based on 1) remote working as the basic form of team cooperation, 2) an original master - apprentice model for the professional integration of people with disabilities and 3) corporate work standards (Figure 2).

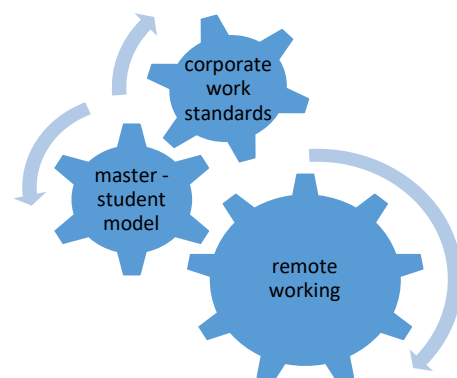


Figure 2. Key elements of work organisation in the Work from Bed

Source: Own elaboration

Remote working

Since its inception, the organisation has been implementing and developing a remote working model. The advantages of remote working highlighted by employees with disabilities refer to the possibility to work from home. Given the difficulty of moving or the lack of such a possibility at all, remote working is the only solution to become professionally active. In addition, remote working makes it possible to perform duties in a friendly environment that is spatially and functionally adapted to the needs of employees with disabilities. It also makes it easier to concentrate and complete work at a pace convenient for the employee, without the pressure of the environment.



Source: <https://lezeipracuje.pl/who/>

Among the advantages of remote working, people with disabilities emphasised that in many cases it is the only working model that allows them to undertake professional duties. In this context, the words of one worker who stated that he could not do any work if he had to commute somewhere are meaningful. They also note the time flexibility that results from such a model. In many cases, it makes it possible to reconcile work with rehabilitation or doctor's appointments. Time flexibility and freedom of action were also mentioned by employees without disabilities. Their professional duties are creative tasks; hence they see the perceived flexibility as an asset. Additionally, thanks to the implemented model, they can work with geographically dispersed people. At the same time, agency employees emphasise that the remote way of offering services can facilitate contact with the client, who has a chance to connect with them at any time from any place. Due to their experience of working remotely, the biggest challenge they identify with such a model is working with the client. More precisely, they notice the differences between real and virtual contact. Computer or telephone screens, where it is sometimes impossible to see the other person's emotions, are often a challenge when carrying out assignments.

Master- student model

In the agency, combining the potential of employees with disabilities with that of other employees and the agency's external experts is possible not only through the use of remote working, but also through a master-student model. Under it, workers with disabilities who are employed in the agency are treated as juniors acquiring or improving their skills under the supervision of a senior (master). People with disabilities employed in Work form Bed often had no previous work experience and/or education/qualifications to work in a marketing agency. The implemented model allowed people with disabilities to acquire the knowledge, competencies, and experience necessary to perform their jobs. One mentor described how this model worked as follows:

"My student graduated from high school; she didn't have the opportunity to go to university. She came to our agency and started doing different tasks, facing really difficult challenges, while having no experience of how to do it. Therefore, the person who could give her suggestions was me.

Once a month or once every fortnight we had an educational session, we could educate each other - I learned how she learns, she learned how I work. Now she is learning on her own."

In the adopted programme, the mentor does not do the work for his/her apprentice, rather he/she sets the tasks for him/her, checking and prompting how they can be dealt with. People with disabilities who have worked in the role of a student emphasise that the programme was a challenge for them and that they perceived their new responsibilities as a "throw in the deep". However, they see many benefits in it, stressing that such a model of action is a tool for change, which has paid off in that they have been able to reorganise themselves, learn something new and become specialists in it. Mentoring has been compared by the Work from Bed employees to level education. Over time, steps are taken, and the best of the student is brought out. However, this requires a great deal of time commitment and mutual trust. The adopted programme seems to be a good solution that can significantly contribute to the vocational activation of people with disabilities. However, agency workers realise that it is not often used in other companies because

"Everyone is in a hurry. No matter what field, in companies there is no time for education. In a company, it is best to hire someone with experience, who is prepared and knows what they are doing. By definition, employers who hire an employee think that she/he already knows something. But this is not always the case, and this is a problem."

During the interviews it was also stressed that in Poland employers are afraid to hire people with disabilities and the society in general is afraid of such people. The implementation of the master - student model is to contribute to the support of employees with disabilities, their professional qualifications and personal development. The philosophy of the organisation is based on the multidimensional and multifaceted nature of work. They explain which information you give the highest priority to, especially in new situations. It is built on the FRIS model (<https://fris.pl/>). The model uses 4 cognitive perspectives: FACTS - RELATIONSHIPS - IDEAS - STRUCTURES (FRIS). The perspective of facts makes it possible to assess them in terms of their usefulness for achieving a specific goal. Based on efficient recognition of cause-and-effect relationships. Relationship perspective is the intuitive recognition of what connects people, objects, and events. These connections are most often perceived in a very personal and subjective way. The perspective of ideas is to go beyond the current state of affairs, perceived as one of the possible alternatives. It results from freely questioning current relationships and discovering new ones. The structures perspective is to go deep into the core of the problem in order to get a complete and coherent picture of it. It requires operating at a high level of detail with a large number of criteria. It is not only related to the performance of tasks, but carries many other values for employees, such as self-esteem, achievements, skills, relationships, experiences, income, and others. As a result, it contributes to the individual success of people with disabilities as well as to the success of the organisation. It enables the social and economic goals of the company to be effectively achieved (Figure 3).

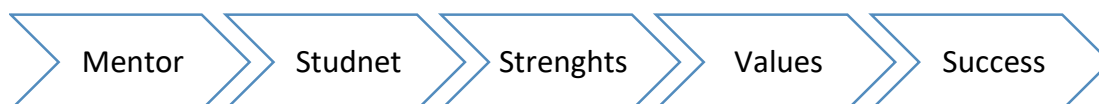


Figure 3. Work from Bed philosophy

Source: <https://lezeipracuje.pl/how/>

Corporate standards

Work from Bed applies corporate labour standards concerning, among other things: employment of employees, organisation of work and organisation management, communication, and promotion. They are supposed to contribute to efficient management of processes in the organisation, facilitate decision-making, ensure saving of resources. They also serve the development and integration of employees but are also supposed to increase the

organisation's credibility on the market, ensure a positive image among partners and contribute to customer loyalty and brand recognition. In their implementation and execution, it is important to use modern technologies that help employees manage their time, projects and stay in constant contact with each other and with clients. The organisation's employees meet "live" very rarely, however, they emphasise that working remotely does not mean you cannot create a harmonious team. At Work from Bed, several key principles have been implemented to build it. Among them:

- Daily morning briefings – during which everyone reports on their activities,
- Thursday calls – where current projects are discussed but there is also space for casual conversation, compared by employees to "small talk at the coffee machine" in companies,
- Special channels on Slack, such as "happy hours" or "LiP's kitchen" - where purely social topics are discussed.

The organisation employs professionals, employees with experience of working in advertising agencies, which allows it to build a style of communication and cooperation with clients consistent with the standards and expectations of the market. The agency has clearly articulated its vision, which reads: We are a marketing agency. We are a social enterprise. It's quite a good combination in order to talk about important things and to DO them. Get to know our vision! Better life thanks to new, valuable experiences. At the same time, they are emphasising the importance of the value of diversity of skills, experience, and ideas in the organisation (Figure 4).

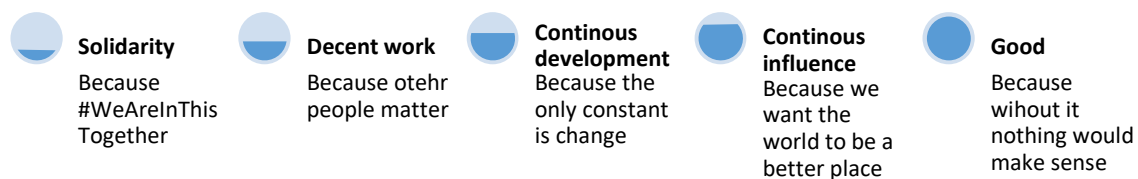


Figure 4: Values of the Work from Bed

Source: <https://lezeipracuje.pl/why/>

Corporate working standards are manifested in a clearly formulated and communicated vision of the organisation's activities. Since its inception, the organisation's originator has taken care of a coherent and attractive message and visualisation. The organisation uses and promotes employees with disabilities in its image strategy. In this way, she strives to promote in society, including among employers, the image of people with disabilities as valuable and creative employees.



Source: <https://www.facebook.com/lezeipracuje>

Conclusions

This case study shows how social sensitivity and willingness to help expressed by the founders of the Work from Bed foundation combined with modern digital technologies may lead to positive social and economic outcomes. There is enough ground to maintain that successful involvement of disabled persons in marketing communication depends first on all on the availability of appropriate IT applications and modified (special needs of disabled workers) hardware. One may say that modern technologies allow disabled individuals to enter the labour market and exist on it bringing good for all actors involved.

When working and cooperating with disabled employees, equally important are the soft managerial skills. Such skills in the presented case can be perceived as a must. Luckily enough, leaders of Work from Bed possess these special leadership skills needed for working with disabled people. The case shows also how important is the legal and institutional framework in which the foundation at hand operates. One may maintain that the quality of this framework is far from satisfactory at the moment. Disabled individuals do not obtain adequate, tailored support from it.

As the case illustrates, this refers especially to the educational institutions in Poland. Social reception of disabled people in Poland could be a separate topic for another case study. In the above presented case study this can be epitomised by clients' contacts with disabled Work from Bed employees. For many people, contacts with disabled individuals may be perceived as stressful if not uncomfortable. This has a special meaning for a marketing communication firm.

Discussion Questions

1. How would you design an internal communication system in a company based on remote working?
2. What is the importance of modern technologies in activating socially vulnerable people?
3. What technologies around you may be used for activation for people with physical disabilities, in your opinion?
4. Do you think the Work from Bed model can be replicated in other industries/sectors?

Notes for Questions

1. The point of departure to address this question could be a distinction between disabled and ordinary employees. Consequently, students should be aware of specific needs disabled individuals/employees have. This can be done as an outcome from "Setting the scene" mentioned above. In addition to these standard challenges originating from remote working should be addressed.
2. Students may first present examples of specific supportive technologies and then to generalize on the role of modern technologies in social inclusion of disabled people.
3. "Setting the scene" should provide information about top of the edge supportive technologies and applications. An instructor may name one medical problem, for example leg paralysis and then ask students to choose the best technology to cope with this problem.
4. Students should identify characteristic traits of Work from Bed starting from the sector the foundation operates, the size of the foundation, and the type of communication with the clients. An instructor may also consider using a mini-Oxford Debate.

Tasks for students

1. Proposed thesis for the debate.
2. Carry out a stakeholder/environmental analysis (PEST) of the Work from Bed agency.
3. Design a social campaign related to the professional activation of people with disabilities.

Notes for tasks for students

In addition to tasks mentioned in "Setting the scene" the students are expected to proceed with three tasks

Reflect on why 95% of Startups fail.

1. Based on the case study students propose a topic for an Oxford Debate. Proposals are voted to get the winner. If there are no proposals from the students, an instructor may propose the following: "Remote working is the leading model of working in the XXI century".
2. An instructor presents (or reminds, depending on the specialty and year of study) PEST analysis as a tool for strategic analysis. Students work in groups of 3-5 people. The groups write their notes in the tool of their choice (menti/jamboard/other) and present the result of their work by the end of the class
3. An instructor presents an outline for a social campaign (or asks the student to present it if it was an assignment communicated in advance).
 1. Idea
 2. Stakeholders
 3. Convincing partners to cooperate (getting partners)
 4. Vision - what is the main message
 5. Formulating campaign goals
 6. Facts - arguments for the idea chosen
 7. Plan of action
 8. Implementation and assessment.

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Case 7: Artificial Intelligence facilitates customer experience. Example of Getdressed

Abstract

Establishing new business relaying the application of new information technology is one of the typical ways of thinking about one's own entrepreneurial venture. However, transition from idea to action is not an easy way: it requires teamwork, supporting environment, and clear business vision. We illustrate these issues in the case of a fashion-tech startup being at the early stage: Getdressed. Getdressed demonstrates the usage of Artificial Intelligence (AI) algorithms as a key part of the product: interpreting customer style and helping to manage virtual wardrobe. It shows how the initial business concept matures, transforms, and what challenges need to be overcome in order to make an idea viable and economically efficient. This case presents the story of young people making their way through the pre-seed stage and business model reconfiguration, being at the end ready to scale. The case also includes the role of the business ecosystem, tools used in product development, marketing campaign and PR channels. Thanks to this case you will learn also about proposing new digital business solution based on AI.

Key Words

artificial intelligence, customer experience, e-commerce, cross-selling, lean business canvas.

Introduction

The new form of products is created together with a development of new technology. Such examples are AI solutions proposed as a new product created with the intention to improve the customer's life. Appearing such products in the market requires a well-designed business model enhancing an offer covering AI products. We see relations from implementing AI in different areas of business (Loureiro et al., 2021) however an explanation how the AI vendors are operating is missing as well as how to implement their technology (Burström et al., 2021).

This case presents the start-up Getdressed which develops a new solution for e-commerce: Virtual Style Assistant employing Artificial Intelligence algorithms for interpreting customer style and helping to manage virtual wardrobe and apparel. Getdressed is a startup founded in Poland by a group of young people with a relatively short history of operation, but with a rich background. Getdressed was created in 2019 as a limited liability company however its story dates back to 2017, when a couple of students decided to create a new app. It operates on the clothing market, relying on e-commerce business clients. Digitization for the company is its key element - its product supports the process of digitization of clothes sales by implementing AI solutions. This presented business idea was appreciated in the early stages of its development. Adopting teamwork, engaging their own money, they managed to propose a solution which was supported by public funds coming from Polish Agency for Enterprise Development. The start-up received ca. 1mIn PLN (ca. 220 000 EUR) for developing its project. The company is registered in Podkarpackie Science and Technology Park Aeropolis, located near Rzeszów, Poland. So far, the most important undertaking and business challenge for Getdressed has been the reorientation of the business model from B2C to B2B2C. Alternatively this model is called Business-to-x (B2X), business-to-everyone (B2E), and business-to-many

(B2M). This form is perceived as more engaging customers (Lomate and Ramachandran, 2019). Currently, the biggest challenge for the company is scaling the business.

In this case study the business perspective is applied. In the description of the company, particular attention is paid to the issue of establishing and developing a business offering AI, its development prospects, and potential directions for the evolution of the business model.

This case is interesting due to the following reasons:

- Getdressed represents a young company, a start-up building its core competences on using AI technology. Therefore, it enables us to demonstrate **how such a company is being created and what are key challenges and issues necessary for business success**. This stage of start-up life cycle can be described generally as early-stage, being at the beginning of the seed stage when we collected the data. Such companies being software startup, engaging lean startup methods, are described facing many challenges and dealing with extreme uncertainty (Bosch et al., 2013).
- This case shows us **what is AI as a product, how to create it, promote, and sell from the vendor point of view**. Accepting this innovation leads to change in technology recipient's business processes, especially if there is not enough technologically qualified staff. For Getdressed it is a challenge to deliver arguments for such change, but also to inform about the impact of using AI assistant. Awareness of consequences of using advanced technology innovation can be perceived as disruptive for existing business model. Implementing AI into business operation processes leads to creation of enterprise cognitive computing however it is not easy task (cf. Tarafdar et al., 2019).

This case is prepared based on interviews given by Getdressed founders available on-line as well as a direct interview with Agnieszka Pałka, the CEO, and Daniel Mika, CTO, conducted by authors of this case in July 2021. The IDI's aim was to enrich the case by adding information necessary for bringing for details to fully understand the above issues. Additional data were collected from analysing procurement offers about marketing campaigns and product development, and company and partners' websites.

Background on the firm, Industry, and Competitors

Origin of company: From idea to action

We could say that Getdressed was born out of a kind of frustration. A young school student, Agnieszka Pałka, wanted to look good when she was leaving the house, but she could not quickly choose clothes herself. She noticed that she spends a lot of time standing in front of the wardrobe and trying to choose the right outfit in line with fashion and style. One afternoon, very upset, she called her classmate, asking if he could create an algorithm, some application that would help her choose the right clothes. Daniel was passionate about artificial intelligence and created his own algorithms. He replied to Agnieszka that if he gave him 5 years, he might succeed. A few months later, they presented their business idea in front of a business angel from one of the large organisations supporting entrepreneurship in Poland. They heard that although the idea is great, they are too young to develop something like that. Apparently, they were not.

Agnieszka's personal observation was an impulse to deepen the market research on the behaviour of everyday clothes choices. They found studies that showed that in the UK the average woman spends one year of her life deciding which clothes to wear. Based on this observation, they wanted to create an application that would help an individual user in choosing an outfit and improve the process of buying clothes. So, they developed an algorithm that uses the possibilities of artificial intelligence. Its function is to present the personalised sets of clothes to the user. With the changing market situation, the idea of the application gave way to the creation of a plug-in for online clothing sales websites. During the interview, Agnieszka, when asked about changes in defining the client, said:

We did pivot many times, we walked different paths that didn't make sense because everything looked interesting. When you start your own business, you suddenly do research

and analyze all possible competition and directions, you try to do a bit of a kind of hybrid-product, a product that includes all possible trends and technologies that can be.

The decision to focus on the plugin for fashion sales first was made by life: the outbreak of the COVID pandemic limited activities outside the home, and thus the need to choose the right clothes. On the other hand, it forced all large clothing chains to move online sales, eliminating the function of a personal advisor in closed brick-and-mortar stores. So, they took advantage of the need to change the product and the target customer, treating it as an opportunity for development. Right now, the key part of a product of Getdressed is an AI algorithm which is based on customer experience and proposes a set of matched clothes creating a well composed look. Personalizing the user experience and creating an easy path to select clothes are, according to Getdressed, the top selling values. The proposed solution is more complex and presents a diversified approach to both customers and the offers addressed to them. Is composed of:

- Plugin for e-commerce shops which creates a set of clothes,
- Sales platform for Polish small fashion brands Showroom
- Mobile application for individual customer which works as a virtual wardrobe.

Spotify, Instagram, and Pinterest were the inspiration for the AI solution and products offered by Getdressed. The applications based on cross-selling in the fashion industry are not new. Examples of clothing shopping apps includes the following:

- THE YES <https://www.theyes.com/>. It delivers unique personal fashion for women, Similar application which is not available in Poland.
- Gucci Sneaker Garage which enables to design virtual sneakers.
- Zeekit -- a virtual fitting room acquired by Walmart (Repko, 2021)
- The Hunt,
- Tailor - Personal Stylist,
- Smart Closet - Fashion Style.

The key differences among Getdressed technology and the above listed refers to local brands which are less known, creation the whole ecosystem, and creating AI being able to create a stylization from different products represented by different pictures.

Getdressed's AI-based product description

Plugin for e-commerce shops

Agnieszka mentioned during the interview:

"At the time of March or April 2020, further development of the application did not make sense. Therefore, we started to research new business models (...) we were greatly inspired by Zalando, which employs over 200 IA engineers, as one of the few, because most clothing companies cannot afford it".

Getdressed found that most even large fashion companies cannot afford the investment in research into AI development in e-commerce solutions. On the other hand, AI, which designs personalized stylizations for customers during online shopping, increases sales. Therefore, AI in e-commerce is a tool for achieving a competitive advantage on the market. Instead of investing in developing their own solutions, fashion companies can buy existing ones, developed by Getdressed. The offer for them is a plug-in for the website. The solution is dedicated to large clothing companies that sell online or want to do so. Such enterprises have technological facilities - IT department, their own website, e-commerce strategies. Getdressed sells the ability to install a plugin containing their algorithm on an e-commerce company's website. If necessary, it offers technological support in the process of implementing new website functionality. From the moment the plug-in is installed, the company's website starts suggesting clothing sets to the company's customers. The end user is therefore the customer of the company purchasing the plug, who gains the possibility of faster selection of clothes, fashion inspiration, and support in the process of creating his style. Getdressed is an e-commerce fashion company. For this

company, investing in a plug means increasing sales turnover and creating an image of himself as close to his customers and considering their individual needs.

Sales platform

Daniel explains during interview:

"What we offer here is a network effect in which we combine many small brands on one platform so that the consumer can reach what is most important in them - that is to the products".

During market research and talks with fashion companies of all sizes in Poland, Getdressed discovered that the challenge of selling online for small brands is a limited marketing budget. Without promotion, scaling sales is impossible for them, without scaling there is no funding for promotion. This is how the idea was born to integrate small Polish fashion brands in one place. Their offer can be found on the sales platform set up and operated by Getdressed, which uses their AI sales solution. Creating a sales platform, which is owned by Getdressed, serves two purposes in practice: (I) it is a solution dedicated to small and medium-sized domestic clothing brands for which maintaining online sales of their products, including advertising them on a large scale, is very expensive, (II) a showcase of the algorithm's functioning in practice, legitimizing AI solutions for large customers. Currently (as 2021) a showroom is available online in Polish <https://showroom.getdressed.me/>. Customer selects parts of outfits like shoes, dress, handbag, selects a price range and the AI algorithm searches and matches products of registered companies, and proposes a couple of outfits. The key product idea is maintained: from local brands a complete outfit is built.

Mobile application

This is how Daniel describes Getdressed app:

"We want to be a direct assistant of a man, with his wardrobe, with products he has already bought which he can buy, with advice and inspirations".

The third product is the application - that is, the solution with which everything started. At the time of developing this case, the application is under development. The founder of the company names this solution "Spotify for fashion". The basic idea is that when a customer selects one item from a shop or a wardrobe, for example, trousers, then algorithms display other products which suit the chosen one, like jacket or blouse (see Figure 1). The fit is aligned with customer dressing style, colors, budget, and other criteria defined by him/her. The program is using a technique called cross-selling which means that after purchasing one product additional ones are suggested by a script. The reference to Spotify is visible in lastly created "Outfit List" -- a weekly newsletter containing outfits built from products of local fashion brands.

This is how Agnieszka describes Getdressed functionality:

"Let's say that this September we meet Agnieszka, who, like me once, spends hours during the week to buy cool clothes or accessories and then sensibly combine them for the occasion of her choice. In the evening Aga sits down at her laptop and shops at a well-known Polish online store. She browses through individual products and underneath them entire styles. She decides to buy a coat and a scarf. The e-commerce cooperates with Getdressed, so the product immediately goes into Agnieszka's virtual closet. When she wakes up on the first, rainy autumn day, she starts Getdressed app and immediately gets styling suggestions that match the weather and occasion. Of course, they include a new coat and scarf, but also everything that Aga has already thrown into her closet. She chooses from among several possible outfits and... that's it. She pulls the right pieces out of her physical closet and is ready for a day at work/school/university." (Tokarz, 2021)

For owners of small e-shop the product offers better sales control and analytics. When resources from e-shop are linked to the Getdressed app, then its products will be checked if they suit customer apparel and will be displayed. It enables assessing the acceptance of products by customers (Tokarsz, 2021). More about the benefits of chosen business model is in the next section of the case.

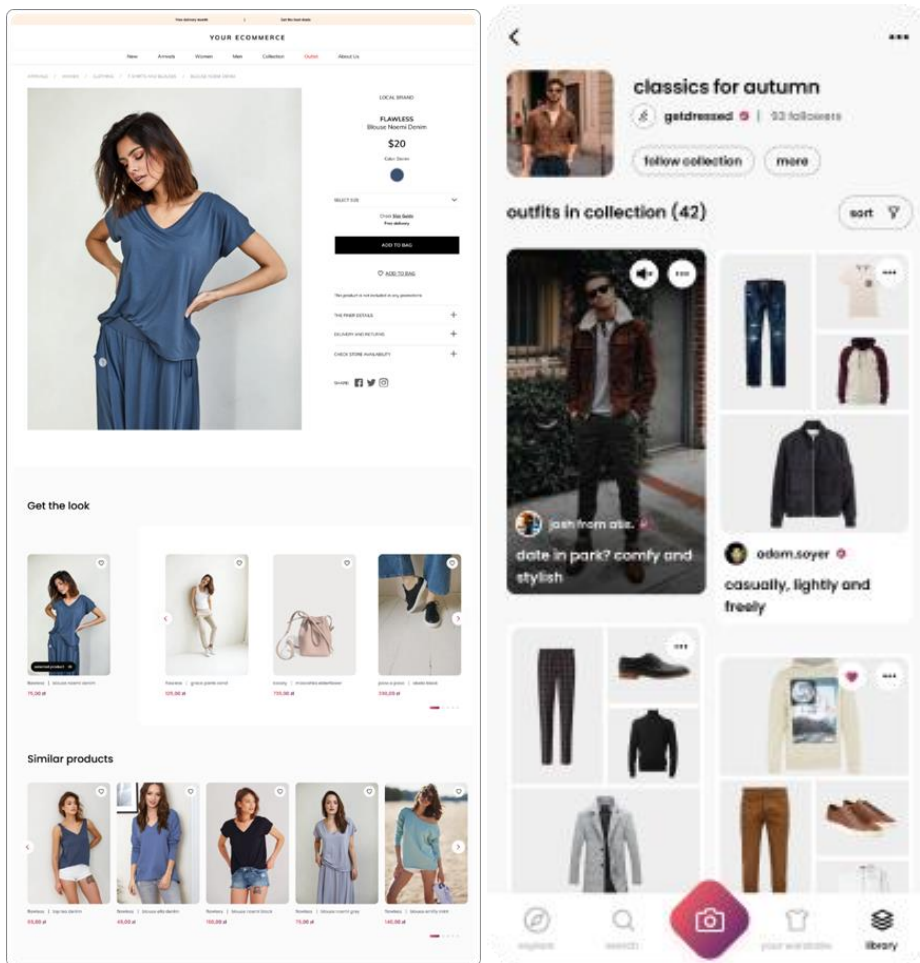


Figure 1. The products display by Getdressed fashion assistant

Source: <https://www.getdressed.me/products/>

Recommendations from users of other products are present in the e-commerce sector. The recognizable Synerise brand proposed to companies from the fashion industry to implement their recommendation engine on their websites. What distinguishes Getdressed from the competition is the focus on the fashion industry. Its creators consulted AI solution with designers and stylists, teaching its algorithm of expert knowledge. They were inspired by solutions known from Zalando and Shein. By paying attention to the aesthetic conditions of recommendations for customers and their compliance with the prevailing trends and tastes of customers, Getdressed has gained a unique advantage. The problem for them is not competition on the market, but convincing customers to the effectiveness of their solution. Using the LinkedIn platform they directly contact representatives of large companies in the fashion sector, asking for feedback about their solution. As their advantage they indicate the features typical of a startup - the possibility to learn, change the product, and quickly implement the recommended recommendations. Thus, they build a network of business relationships while presenting their idea to business decision-makers and improving the final product. They also offer to conduct a demonstration - a demo version, on the products of fashion companies. The demonstration shall convince companies that it is worth investing in the product. The barrier to contact was and still is the decision-making process taking place in the extensive structures of companies in the sector.

Product's creation

The creation of the AI solution and the presented products was possible mainly thanks to the expert knowledge of the founders of Getdressed. They themselves, as the basic resources

necessary to start a business, indicate the values that guide and guided them: curiosity and willingness to develop. Getdressed was created by people with the defined mindset. It was not a pressure for success, but the conviction that even if the business did not succeed, it was worth it. Agnieszka says:

"I think that we are a bit specific in this area (...) at the beginning there was no money or ambition, but curiosity whether we are able to create something that other people will use (...) there was no finance, there were people who wanted to bet on this chance because they were curious if it would work out".

We should keep in mind that the team of Getdressed are representatives of the Z generation for whom combining work with social life is very important. It is interesting to note that the business idea and business development were created by students at secondary schools. The process of acquiring key competences necessary to develop the business is still lasting. For example, CEO possessed stylist certificate from College of Visage and Styling, Szymon Kurowski, responsible for IT development is student of math at Jagiellonian University. In a company, key decisions are made by way of a joint discussion. There is a democratic style of management with a clear division of responsibilities at the same time. Although the face of the company is Agnieszka Pałka, CEO. Except GedDressed she is engaged in many other projects. She was classified among finalists of 3rd edition of contest "25 under 25" in 2021 organised by Forbes and McKinsey & Company in Poland. What is worth mentioning, digitization in the structure of the organization is treated as one of the tools, not the main component.

None of the described activities of Getdressed would have been possible without institutional and financial support. Formally the company was created by three graduates from Upper Secondary School of Communications in Cracow: Agnieszka Pałka (CEO), Daniel Mika (CTO) and Marcel Spisak (Co-Founder and COO) (Mam Startup, 2020). But the business idea was conceived by the team of being in that time students of 3rd year at the Technical School of Communication in Cracow when they founded an AI scientific club. First 9, next 7 persons were involved in the creation of AI solutions for 1,5 years. Initially the team worked in one room in the school dormitory, and later received an invitation to join for free to Coworking Project: People Space. The invitation comes from the co-owner of a coworking space: Beata Mosór-Szyska, who liked the business idea proposed by young students.

The first step was done during the contest for young entrepreneurs titled "My First Business" organized by the Chamber of Industry and Commerce in Krakow with the City of Cracow and ABSL. They won the first place, but also met with a comment that they are too young to run their own business. This comment did not diminish the eagerness of the getdressed group. The business idea being well accepted during the first pitch encouraged young entrepreneurs to continue the work of product improvement.

The pre-seed phase was bootstrapping, i.e., it was financed by the founders' own funds. The CEO explains that the Break Event Point is still not reached and is expected in 2021 (Bąk-Kamińska, 2021).

Next, the founders applied for the programme Start Platforms organised by accelerator "Start in Podkarpackie" receiving support from it. In December 2019 they received 70 000 PLN (ca. 15 500 EUR) programme (Dobroszek, 2021). Then it was possible to build Minimum Viable Product (MVP) which later was chosen to be financed by the programme aimed Polish Agency for Enterprise Development's programme (Dobroszek, 2021).

The critical point for your entrepreneurs was support from Polish Agency for Enterprise Development. The project titled "The System of Virtual Style Assistant" was financed within the Operational Programme Eastern Poland within action 1.1. Startup platform for new ideas supported by European Regional Development Fund. The whole cost of the project was assessed at 1 266 750,00 PLN with 989 111,00 PLN financed by the EU.

Parallel with the collecting new funds, the team started to grow as well. Mentioned earlier Agnieszka (CEO), Daniel (CTO) and Marcel (Co-Founder and COO), the others joined the team: business developer, full stack developer, backend programmer responsible for IT security.

The creation of Getdressed is strongly related to the existing business ecosystem and supporting institutions. Daniel Mika, CTO mentioned in an interview that they received feedback from other investments which influenced their business. The mentoring from investors and supervisors from programmes helping young companies resulted in changing the business model explained further in the case. The business ecosystem also creates the KRK InnoTech Starter (KITS). KITS is a pre-accelerator programme aimed at helping new innovative business ventures. The next key programme which helped was Start Platform where entrepreneurs receive expertise advice and incubation manager helps to transform the business idea into business model. Taking part in this programme was crucial as after positive recommendation the project could be submitted to the Operational Programme Eastern Poland.

Other key business partners are the Project: People Space which helped start-up founders to be familiar with running business and the ways how to build companies. It offers desks, conference rooms, chillout room, kitchen, and help in networking.

The next key partner is a Lean Agency -- Project: People. The on-going input of this company is divided into key three stages: developing UX strategy, product's design, and research with potential users. One of the projects created by this company is mentioned above the coworking venture Project:People.

Delivery of digital products also requires proper infrastructure. This is provided by AI Rev <https://airev.us/about-us> which offers cloud computing and advises solutions for scaling AI.

The new business partner is an advertising agency -- More Bananas. From April 2021 it is responsible for creation communication strategy, promotion, graphic design, web content, newsletter for Getdressed. It was selected in the formal procurement procedure.

The received support, in particular the grant, accelerated the development of the business and allowed the creators of Getdressed to set the most important points towards which their business activities are aimed. They would like to start hiring additional people to help them scale up their business. The determinant of success for a company is, above all, achieving an even breaking point. Then, entering new foreign markets. From a technical point of view, their ambition is to integrate data from different products together and they will be able to offer the user a complete fit. They want to create technology that will change the way wearers relate to clothes. The measure of success in this area is creating a habit among application users to use it every day.

Product development process

For carrying out market research, establishing product assumptions and designing (UX / UI) the product was selected a company Project: People which the owner of Getdressed met in common coworking space. However, programming and developing remained in the hands of the getdressed group. The software developers based on the business needs such as:

- defined of customers target group for digital product.
- creation of Unique Value Proposition.
- development of key functions for the first and subsequent product versions.
- graphic design taking into consideration UX best-practices.
- app test and web plugin with users (Drygała, 2021).

The work started in February 2021, and it is still ongoing. So far 14 sprints (in Agile Project Methodology it means an iteration delivering key function) were done. The applied approach Lean UX. Table 1 presents the key steps for product development.

Table 1. Key steps of product development

Iteration	Description
Sprint 1: Kick-off workshop and secondary data analysis	<ul style="list-style-type: none"> Meeting the team, learning the product vision, creating proto personas, examining Roger's curve. Desk research: reports and promotional materials of other companies, customers note
Sprint 2-4: UX Research	<ul style="list-style-type: none"> Survey collecting answers from 190 respondents about their shopping and fashion behaviour. 13 hours of IDI with potential product users. Competitor analysis: 5 apps were analysed Fashion and fashion app market and trends analysis Defining key functionalities using Kano model Paper prototyping using Miro as tool for product discovery
Sprint 5: UX Strategy	<ul style="list-style-type: none"> creating Unique Value Proposition based on Golden Circle defining target users by applying Jobs to Be Done approach SWOT analysis with recommendations prioritised according to MoScow method
Sprint 6-14: Design UI/UX and research with users	<ul style="list-style-type: none"> Ongoing, not finished

During product development the following techniques were used:

- kick-off workshop,
- Values Poker,
- Rogers's innovation diffusion curve,
- Explorative survey,
- Individual in-depth interview (IDI),
- Model Kano,
- Paper Prototyping workshop,
- Customer Journey Map,
- Unique Value Propositions (UVP) in Details.

Promoting AI product

The scope of promotional actions contains the following one:

- Preparation of ads in e-form,
- Using social media like Facebook, LinkedIn, Instagram, Pinterest, TikTok),
- Commercials in social media: Facebook Ads, Instagram Ads, TikTok Ads, LinkedIn Ads, Google Ads,
- Content marketing,
- Creating video explainer ads published on YouTube and TikTok,
- PR in traditional media such as articles in magazines, public media.

The target audience of the marketing campaign is clothing companies selling products online via e-shops. This audience is supposed to be reached via LinkedIn platform. The rest of activities are oriented towards individual customers who are clients of clothing companies.

Business issues/challenges

Getdressed had to face many issues in developing the final version of the product and bringing it to the market. Currently, in addition to product development, the company's development is one of the most important challenges. The challenges have been divided into 3

categories: Product, Customer, Enterprise. These categories are highly interdependent yet separate enough to be highlighted in any analysis. Getdressed representatives have addressed them all, below is a discussion of the key challenges facing the company.

Product

From a product perspective, the company has made a significant change to the product it offers. It was originally intended that the Getdressed product would be aimed at the consumer/end user. The product was to include a multi-track solution to support consumer choice. The product was to offer recommendations, a database of products, redirection to shops, creation of an image of the consumer dressed in a given outfit - using graphics and 3D design, as well as a significant social component, in the form of a database of recommendations, advice from professionals and friends, as well as hints created by AI on how others (including friends) dress using a given product or style assigned to it.

This is where the first real confrontation of dreams and visions created before the company was founded with business reality occurred. An additional aspect that accelerated this decision was the Covid-19 pandemic, which changed consumer habits.

As a result, the most important challenge so far has been to make changes to the product idea offered by the company. As a result of discussions with potential customers and the company serving this market, the idea of a complete change of the original business model emerged. The team decided to make a pivot, i.e., to change the business model from B2C (business to customer) to B2B2C (Business to business to consumer). Almost 1,5 years of work resulted in the app for individual users needed to be reshaped for a new customer: e-shop owners. It means that the original product passing the proof-of-concept stage required re-conceptualization. However, most importantly, a conceptual and real change was required in the way the company operates as well as its structure.

Another challenge is to test the beta version of the product, in which several hundred people are expected to participate. However, from Getdressed's perspective it is a natural stage of product implementation, so even the scale of the test is not a problem.

An important aspect is the further development of the product. Currently the main direction of product development is accessories, such as belts or jewelry. An interesting issue is the abandonment of men's fashion. The market for men's fashion is too shallow and the offer on the market is so undifferentiated that the idea was abandoned.

A key aspect is external substantive support, both in terms of product development and running the business. As Agnieszka mentioned:

"The substantive support offered free of charge in the form of mentoring allows us to understand many market mechanisms. Thanks to mentoring at an early stage, we take care of better adjusting the product to the market needs as well as planning the product development path."

In this case, Getdressed representatives emphasise the habitual support they get from companies or people operating in the industry. Mentoring strongly reduces the costs of acquiring knowledge, facilitates the design and implementation of the product. To sum up challenges within the product's domain the following points can be noted:

- Final product development. The project is in the beta test phase. About 800 persons will be involved which requires well planning and organisation of the whole process.
- Product modifications - moving from a complex environment to a recommendation algorithm - adjusting to the market needs.
- Product development - women's fashion, men's fashion / jewelry, accessories
- Substantive and mentoring support.
- Clash of the vision with the real world and market expectations regarding the product.

Customer

The Getdressed has faced several problems regarding offering a new solution for vendors operating in traditional business model. One point is convincing others to use the solutions

based on the AI algorithms and to demonstrate its usefulness. The COVID-19 pandemic changed consumer behaviour as well as clothing companies adjusted sales by going online.

This situation is always difficult for founders due to psychological reasons. As Agnieszka explains it:

"It's a good idea to stick a little sign somewhere in your head at the very beginning, when the idea is germinating I / CLIENT. The fact that we think we need something remains in the sphere of imagination. Going out to the customer, asking questions, conducting interviews, research, experiments. Only an approach open to data and facts can bring us closer to the courage to change." (Bąk-Kamińska M., 2021)

Distrust of AI is mainly found among small and medium-sized enterprises. Another customer is a large enterprise, active in e-commerce. In this case, challenges are e.g., decision-making in discussions, arrangements as well as having a sufficiently advanced team on the customer side. Otherwise, a lengthy decision-making and consultation process can hinder implementation.

Therefore, in this case, according to Getdressed representatives, the dream customer is someone who has the authority/decision-making power and who has a lot of freedom of action - for example, the ability to accept solutions without consulting the board or CEO. An important element is the knowledge base within the organisation and the team that guarantees the implementation and sustainability of the solution.

Customer differentiation is also a challenge in the "Product" category. The size of the offer forces the company to work with several products created differently and working differently. Practice has shown that uniformity is more effective. Companies vary in size as well as the business model they use, this mainly applies to large companies - in the fashion industry there are 3 basic models: 1. combining retail sales with online shop sales (e.g., ZARA); 2. online-only sales (e.g., Zalando); 3. There are also attempts to create a so-called omnichannel network, which offers customers every possible access to its offer.

As a result of this strong differentiation, it is necessary to carry out different marketing activities depending on the type of customer. Agnieszka describes the goal of promotional campaign and also defines one of challenge:

"Our goal is to communicate innovation using AI that increases sales, shortens the purchase path and positively impacts Customer Experience. Marketing activities are to lead to acquiring commercial customers, i.e., clothing companies selling clothing in online stores. The group of recipients will be presented with a solution whose algorithm, on the basis of the assortment browsed by the customer, will match and propose stylistically coherent remaining elements of the outfit, forming a ready-made whole. The challenge may be to reach and convince large e-commerce players to cooperate." (Zawiślak, 2021).

At present, customer acquisition is becoming less of a challenge, as customers come forward themselves. Maintaining the quality, efficiency and timeliness of the service is therefore more of a challenge than acquiring customers.

Another challenge is to enter foreign markets. Creating solutions or acquiring customers, support, mentoring, colleagues, or contractors is easy in the home market. A significant difficulty, and not only in terms of language, is entering a foreign market. The company abroad does not have so many connections - hence the test of the tool will first be carried out in Poland. On the basis of this test, it is necessary to build a vision of entering foreign markets, which is very important, as the cost of entering a foreign market is high. Therefore, from a product perspective, it is necessary to conduct advanced tests in Poland before the service is ready to operate on foreign markets. Getdressed is currently planning and conducting tests in the Czech Republic, Slovakia, Hungary.

Getdressed cooperates with a large Polish company selling only online. As part of this cooperation, GetDressed's product is being tested on foreign markets and will be present there as part of s business.

Summary of key point regarding customers:

- Distrust towards AI and convincing others to use solutions based on AI algorithms (the way the offer is presented).
- Locating the product in the international dimension finding a customer outside Poland
- Tailoring the offer to customer expectations.
- Cooperation with the customer (scope of his knowledge and decision-making)
- Searching for the client/customer selection.

Enterprise: business model, company structure, strategy

The most important experience and challenge the founders of Getdressed experienced was the change of the business model from B2C to B2B2C. The ways of working prepared so far, the strategy and the whole idea of the company were drastically reoriented. The reason was to meet (clash) with the expectations of the market and customers.

The effects of this change are: (1) The abandonment of the work on the product done over a period of 18 months; (2) A change in the way of doing business and a change in the structure of the company. There were also significant personnel changes within the team.

"This experience enabled us to think more intensively about the future structure of the company, the manner/model of operation and triggered the need for deeper knowledge and experience in the areas of company structuring, organisation and process management. Business management turned out to be as or even more important than the product itself."

The first major challenge that appeared on the path of the young entrepreneurs strongly influenced the way they perceived reality and how reality influenced the ideas and assumptions made. The challenges that the entrepreneurs faced allowed them to properly assign priorities to various aspects of their business. It also helps to understand that a great idea or a perfect product is not a guarantee of success. It is necessary to maintain a balance between dreams and reality. When creating a business, it is necessary to confront vision with business or sales reality. And in the next step, it is necessary to develop the enterprise towards a balanced structure in which each element is important.

"Awareness of the shortage of knowledge and skills, external support from experienced people and mentoring allowed us to understand how important it is to create a well-structured company. We realised, for example, that acquiring funding too quickly for product development, sales or operations could result in an unprepared entity entering the market, which could end in a "Beautiful Disaster"."

The most important element, which Getdressed's representatives pay attention to, is "scaling the business", i.e., creating an appropriate and balanced structure of the company, so that the whole process, from design and product creation to sales and service, is coherent and has no weak points. The structure should fit the business model and at the same time should be flexible so that personalised solutions can be designed.

"In every subsequent move, we try to take advice from outsiders, because we don't know everything ourselves. In order to determine the path of the company's development, we based the company's development plan on Graves' value model. As a result, when building the internal structure of the company, we are guided by the needs of the market and the stability and internal sustainability of the company. We also try to ensure that the development of the company is not chaotic. We want to maintain a balance between product development, company development and the acquisition of new markets and customers. At the moment we are in the creative family phase, and we need to structure our activities in order to introduce and consolidate stable mechanisms and automatisms in the activities of people and departments."

An equally important challenge in this context is to create a stable and committed team, which in this young company will become the core responsible for the business. On the basis of this core, the company can be further expanded. Stabilization of the team and stabilization of the company structure is the next step in the company's development. Here it is necessary to create clear and comprehensible operating procedures. Because lack of procedures or too rigid procedures may limit the possibility of expanding the enterprise.

Based on Graves' system of values the creators of Getdressed are aware that the early stage of development is only a transitional phase, and it is necessary to implement solutions to professionalize the company's activities. Choosing the right way of management and especially leadership is a natural step into adulthood of the company. Representatives of Getdressed plan to reach the blue level in management (strong democratization in management processes). At the same time, they understand the need for consolidated leadership in the current path of the company's development. However, they assume to achieve a balance from an executive/management and creative/innovative perspective, which will be the result of the blue management model.

"If we got another million, we would probably invest it in sales support, especially using artificial intelligence, expanding the team with competencies related to infrastructure development, design, IoT and fashion. Definitely also in building the culture of the organization and the team that has been with us since the beginning. The next step would be our first IoT product for the fashion industry. We have many products that we are including in our long-term strategy." (Bak-Kamińska, 2021).

As can be seen in the following statement, entrepreneurs care about overall development. This is an example of a transition from a carefree design phase to a responsible view of the enterprise as a coherent organism.

Challenges relating to enterprise refers to:

- The biggest challenge is business scaling. Transitioning to the next phase of start-up life which is a seed round.
- Team selection.
- Establishing procedures.
- Building the internal structure of the company - using Graves value system.
- Business balance - alignment.
- Changing the business model from B2C (business to customer) to B2B2C (business to consumer).
- Fear of getting funding too early.

Conclusions

This case shows how a startup is changing according to modification of business idea. The founders noticed that COVID-19 pandemic made a change in market behavior and forced the business model change and called for a proper adaptation. The future of Getdressed is unknown: now the business scaling which bothers the young entrepreneurs' minds poses new questions of setting up the business model which is viable and sustaining in terms of economic efficiency. It requires obtaining new competences.

In order to understand how Getdressed is operating it is necessary to reconstruct its main parts. This can be done according to different business canvas which enable more or less represent the business reality. But as we learn from the text, the biggest challenge is to prepare for business scaling. There exists a lot of different approaches, models and tools which can be used in this process. Almost a decade ago the key challenges for startup scaling were: "the need to formalize organizational structure; executive transitions; the need for management systems/processes; evolution of the board of directors role; and preservation of an entrepreneurial culture" (Eisenmann & Wagonfeld, 2012). Getdressed's business offer requires keeping and updating the technology lying behind the original product. It also requires a proper approach in order to be timely. Its API (Application Programming Interface) needs to be updated according to customer requirements.

Currently the basic product consists of an AI algorithm which is responsible for matching products based on style, color, and price. If new criteria are expected by the app's users, then the algorithm should include them. The issue of developing product due to future customers' needs would be the next thing to work on.

Getdressed solution refers to a small piece of business: it enhances up-selling. Based on this example we can think about other possibilities to engage AI for business management.

However, some risks associated with using machine learning can be pointed out. Brynjolfsson and McAfee (2017) explain that the final output delivered by machine cannot be justified by computer. It also means that basing on historical data, burdened with prejudices, AI will deliver an output also biased. Next, AI is working on data and based on them it will propose a solution. However, when certain types of data will be missing then the result still will be delivered but we cannot verify it. We will not be able to trace back the rationale of AI which leads to a certain result even when it would be wrong. Nevertheless, the mentioned authors note that AI algorithms are improving, and a number of errors is diminishing. For example, human mistakes in vision recognition at 5% rate. This first application of the algorithm to vision recognition resulted in an error of about 30% in 2010. After 6 year the error rate was about 3%. Final conclusion from Brynjolfsson and McAfee is: "AI won't replace managers, but managers who use AI will replace those who don't."

Discussion Questions

1. How a getdressed business model can be described?
2. What was the role of the business ecosystem in developing the start-up?
3. What business partners were engaged and how did they influence a product?
4. What are the risks and what are the benefits of the B2C versus B2B model?
5. Why in the case of getdressed such a change was profitable?
6. What are the risks and what are the benefits of the B2C versus B2B model?
7. Why in the case of getdressed such a change was profitable?

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Case 8: Digital Business Ecosystems in the Healthcare context. The case of Saluber

Abstract

The purpose of this case is to explore the design of a new digital business model in healthcare industry. To tackle this research aim, we analyse the Saluber case, a digital start-up offering ridesharing services for non-emergency medical transportation. This case analysis show evidence on how a digital start-up, working in the field of sharing economy, can generate various value drivers, single-level benefits, and community-level outcomes. In addition, we illustrate how sharing economy can support the business processes of the healthcare industry using a digital platform which involve different actors (es. patients and private clinics).

Key Words

Healthcare; sharing economy; digital entrepreneurship; patient centricity; digital platform

Introduction

In an era that has brought many changes, the entire economic system has had to respond and immediately catch up with the new paradigms.

The latter have already had the opportunity to express their strength in solving problems that have occurred especially in recent months, due to the pandemic outbreak caused by Coronavirus (Covid-19).

This has led companies that are part of the health sector, but in general of the global economic system, to respond adequately. In Italy, systems such as telemedicine have made it possible to remotely monitor infected patients, and again thanks to Big Data, it has been possible to define and group various essential information within a few weeks. The help put in place by programmed A.I. (Artificial Intelligence) to date supports the human mind in researching the treatment of this disease.

In short, ultimately, the support of new enabling technologies to support the global system is indispensable. Assumed that it takes even more shape if it is performed in the healthcare logistics sector. Geolocation, Customer Relationship Management and chatbots have allowed the creation of the new Bourelly HS platform, Saluber, which aims to improve the efficiency of the entire chain to ensure the patient an experience as pleasant as possible.

Pioneers of the current world economy such as Uber, have diversified their activities by also landing in the health logistics sector (Uber Health), which has become a first mover in the sector and Lyft, a follower, but which in the domestic country, the United States, manages to do even minimally competition to the world power of Uber. Saluber is an Italian digital start-up offering ridesharing services for non-emergency medical transportation. The company, indeed, is the central mediator of a sharing economy platform and creates, delivers, and captures value for its various types of stakeholders.

The new Saluber platform founded by Bourelly group, proposes a revolution in health logistics management, according to Guido Bourelly, CEO of the homonymous company and Founder of the digital platform, today presents several gaps, especially in terms of transparency and effectiveness of the interventions. The idea is to create a platform that makes it possible to connect different actors, creating a real new network completely different from the pre-existing one, in which a network is created between patients; diagnostic centers, local health authorities, laboratories, clinics, rehabilitation centers and general practitioners; company with vehicle fleet; healthcare personnel.

Background on the firm, Industry, and Competitors

In line with the advent of new technologies in favor of industry, in 2016 Guido Bourelly, third-generation entrepreneur and CEO of the company of the same name, thanks to the participation of a

call for INVITALIA - CULTURA CREA, creates a new startup called "Bourelly 4.0" and gives birth to SALUBER.

The goal is to make the entire healthcare logistics sector more efficient, which especially in the Campania region shows serious technological gaps. The new startup, in the interest of developing innovative and technological services aimed at private and public customers, therefore creates "Saluber", a web-based platform that deals with the booking of rescue services and non-emergency transport to the person, following the principle of time and cost optimization. With Saluber, explains Guido Bourelly, "we are trying to introduce an innovative technology in the field of health because we are aware that the real challenge is to plan services through digital platforms to save time and make interventions more transparent and effective".

Digital transformation is on the agenda in all sectors and is also progressively changing people's lives, improving their quality from different perspectives. These improvements have also measured enormous successes in the health sector.

With the development of technologies and therefore the implementation of the telecommunications sector, the healthcare sector is also involved and becomes digital. The growth and enhancement of healthcare are kicked off, starting with the evolution of E-health that took place with the first approaches and hand in hand with dematerialization. Over the years, this branch of healthcare has been defined in various ways but the most appropriate in this context seems to be the definition of the European Union which since the beginning of 2004 has recognized this great potential for reducing the costs of the sector and beyond: increasing its efficiency as well as effectiveness, trying to balance the available resources and to improve the collective well-being. This is especially when there are growing trends such as the increase in population, average life expectancy, and the increase in the international circulation of citizens.

It is important to underline that in other countries such as the United States and Japan, since the 1950s, attempts have been made to study and use telecommunications in the health sector, especially to monitor the vital functions, particularly cardiovascular, of astronauts in the health sector. space.

The term e-health was therefore widespread in the USA as early as the 1990s, highlighting the great delay that Italy and Europe, in general, showed regarding this introduced discipline, only several years later as a "set of digital tools and services at the service of health and medical care that use information and telecommunication technologies (ICT) to improve activities such as prevention, diagnosis, and treatment of diseases, as well as monitoring and management of health and lifestyles "(European Commission, 2004).

This allowed for new and important reflections from an ethical, practical, and professional point of view, underlining that e-health serves as a support to classical medicine and not as a substitute, it represents a way of providing services and remote transmission of doctor-patient information, also allowing constant monitoring of the healthcare user, in hospital but above all outside the hospital.

The aim is to implement some aspects of the sector, ultimately creating a quality health system, as already illustrated in the introduction, with another goal: to increase the level of satisfaction perceived by the client/patient, which according to the developments of technologies and new practices, becomes for the first time in hundreds of years, the hub of healthcare. New technologies make it possible to eliminate time and considerably reduce the costs of communications between people. There is talk of an epochal transformation of the market characterized by the tendency to disintermediation. That is, individuals who intend to exchange information and skills, goods, or services peer to peer can now do so without intermediaries. Bargaining thus makes it possible to procure goods or services at much lower prices than those generally practiced in the traditional market. It is now not a niche

phenomenon, but a revolution in the field of transport, tourism, publishing, training, and information.

Before analyzing the sharing economy model proposed by Saluber, it is necessary for the completeness of this case to define the new paradigm of sharing the economy.

The sharing economy, or economy of sharing, is a concept that has been affirming itself in recent decades, declined in various ways and applied to different economic and social sectors. A series of contiguous, analogous, or parallel definitions have developed: from peer-to-peer economy to collaborative economy, from gig economy to on-demand economy to collaborative consumption. The sharing economy has ended up in the spotlight thanks to innovative companies such as Uber, which has transformed its business model into a theoretical model from which all other companies to date are inspired.

With Saluber, explains Guido Bourelly, "we are trying to introduce an innovative technology in the field of health because we are aware that the real challenge is planning services through digital platforms to save time and make interventions more transparent and effective".

Therefore, in line with the advent of industry 4.0 technologies in favor of the healthcare industry, in 2016 Guido Bourelly, third generation entrepreneur and CEO of the homonymous company, thanks to the participation of a call for INVITALIA - CULTURA CREA, creates a new startup named "Bourelly 4.0" and creates SALUBER.

The goal is to make the entire healthcare logistics sector more efficient, which especially in the Campania region shows serious technological gaps.

The new startup, in the interest of developing innovative and technological services aimed at private and public customers, therefore creates "Saluber", a web-based platform that deals with the booking of emergency services and non-emergency transport to the person, following the principle of optimization of times and costs.

To date, the new digital app can already boast two new intermediaries, namely the Basile Center, specialized in diagnostic services based in the Vomero district and Altamura Group, a reference point in the management of claims in Campania. At the two Centers, users can already book an ambulance transport, a shuttle for disabled people or a home specialist through the digital platform, without signing up for any subscription and benefiting from an excellent quality / price ratio resulting from the vehicle criterion. / Professional closest to the call point.

"The fact that such high-performance structures have chosen to become part of the Saluber network is a source of pride for us - said Guido Bourelly - without neglecting the competitive aspect of the initiative, because the partnership with the App allows the Centers to increase its range of services and therefore to increase the catchment area".

Saluber, therefore, stands as a real carrier, crediting the plurality of players, as unique in its field, generating a competitive advantage for those who are affiliated.

Following this model, the platform is intended as the creator of the managerial change of a logistics network such as the healthcare one, which in the digital age puts the patient at the center, trying to ensure that the patient has a pleasant and peaceful experience, as far as possible.

Again, in this regard, Guido Bourelly states: "Healthcare is an art", as if to underline how the experience that the patient lives is fundamental and indispensable for his own health.

After having analyzed Saluber's new platform, born in a well-defined context, that of Campania, it is right for completeness of analysis to carry out a multilevel framework taking into consideration 2 global phenomena: Uberhealth (world leader and first mover in the healthcare sector) and Lyft (follower global).

Uber is looking to diversify its businesses by introducing itself to the healthcare sector, among others. On March 1, 2018, the new Uber Health idea was born thanks to an article written by Chris Weber, CEO of Uber.

Uber Health is a transportation service for doctors and patients. For the latter, it means mobility and a simple and safe way to obtain a medical facility. For doctors it means coordination of appointments and the possibility of planning the check-up visit in advance. In

2017, the year before Uber Health was born, the American Hospital Association reported that 3.6 million people miss medical appointments because they don't have a ride. Uber Health, however, unlike other Uber services, can also be used without an app, by calling a simple number that sends you a message with driver data. The idea was born from two factors:

- not all users who can use the service know how to use the app, like the elderly.
- the logistical problems that cause wheelchairs and transportable beds for critically ill patients, leads to another of Uber's weaknesses: the requirements of the car.

The most important problem for Uber workers is, in fact, working with their car, which must have specific requirements based on the sector in which they want to work, and, in this case, it must be large enough to be comfortable for patients and their caregivers. The security service is active 24/7 on the app and dashboard to help customers and drivers and their schedules are super flexible, in fact their unique selling proposition is "More you drive, more you earn", because the driver decides when and how long to work, and these are the most important strengths for Uber workers.

In Italy Uber currently only works in 5 cities (Rome, Milan, Florence, Turin, and Bologna) and the Uber Health service is not yet active, but government cuts to health and public transport can make Italy, especially in the south, a good market territory for those patients, doctors and nurses of hospitals and clinics who are unable or unable to use their vehicle. The market is becoming more and more automated, and these are positive factors for Uber. Italia, the platform launched by Bourelly HS, would face a not insignificant competitor).

However, the service does not intend to replace emergency services, such as ambulances: Jay Holley, head of Uber Health partnerships, has in fact specified that "it will be up to doctors and health assistants to assess the physical state of each person and understand if an Uber car is the best form of transportation for them".

Lyft is a privately held US transportation company headquartered in San Francisco, California that was founded in 2012. Like Uber, the core business consists in the transportation of people who need a ride, carried out by private drivers and car owners. Lyft also uses a ride booking app, making it one of Uber's top global competitors.

In fact, following the expansion of the largest sharing economy company, over the years Lyft has also started a strategy of diversifying its activities to enter the health care sector. The strong point for Lyft is the agreement with the main organizations of the global healthcare ecosystem. They rely on Lyft to deliver reliable rides to their patients. Lyft has partnerships with 9 of the 10 U.S. health systems and 9 of the 10 largest non-emergency medical transport (NEMT) brokers. In addition, Lyft has also created a "Lyft Concierge", giving access to the 2M + driver network. And, as partners learned, creating a driving program with Lyft can help reduce costs, increase efficiency, and improve the patient experience.

In fact, from the Lyft Concierge dashboard, you can immediately send patients a pass and schedule one for later. You will also be able to see the details of the ride such as the price and the route of the driver.

Discussion: Business Issues/Challenges

The Saluber idea was born because:

- the market in which it is located is particularly fragmented, precisely the three sectors of reference (health, social and automotive), are built by small local realities that can boast, for example, a fleet of vehicles of not giant dimensions.
- the will is to make up for the absence of an incubator that reconciles the meeting between market supply and demand.
- even being in a digital age, there is the total absence of a single platform for the management and optimization of the logistics of the three sectors.
- there are still high costs of managing the services and a lack of awareness and information in the reference sector.
- the timing of the provision of services is particularly expensive.

"Today the main companies by turnover in the world are intangible. Yet, especially in the Center South, the operational management of public services that aim to save lives still takes place via telephone. With Saluber - explains Guido Bourelly - we are trying to introduce innovative technology in the field of health because we are aware that the real challenge is planning services through digital platforms to save time and make interventions more transparent and effective".

The intent is to have both private and public transport services (ambulances) affiliated with this platform. In this way it is possible to carry out a mapping of the entire territory of belonging through geolocation services (new complementary enabling technology to support the new Industry 4.0).

Guido Bourelly, founder of Saluber, also addresses the business issue related to the effects that may arise following the implementation of geolocation services regarding the privacy legislation: "It is our ambulance that is geolocated, so the patient from the moment he books the corsa accepts, in a broad sense, to be in turn geolocated. Furthermore, by offering a public utility service, we are protected from all problems relating to wearable technologies".

Another fundamental focus of this new idea lies in the efficiency of the accessible health tourism model. Saluber's intent is to give the possibility even to individuals who have pathologies (e.g., disabled people) to reach the most famous tourist destinations throughout Italy in total safety and comfort, 7 days a week. For example, to the patient who has to go to Rome to receive an operation or a medical visit (Saluber's main function is emphasized here, that is, non-emergency transport), a cultural experience is also proposed. In fact, the platform puts the patient in contact with the facilities and accompanies the patient for the entire experience through the transport services possessed.

No less important issue concerns the charge for transport, which for now, being private, is subject to a fee. The main reason lies in the fact that the regional health service (SSN), does not guarantee post-accident transport (e.g., check-up visit). To date we are looking for the relevant way to charge this expense to the vehicle insurance (in case of road accidents) or of the plaintiff involved in the accident, but in general the company is looking for agreements with the public administration (e.g., ASL) to make this service free of charge to the patient, and therefore more usable for the latter.

The patient is then placed at the center of the network, and this is the choice that Saluber made from the first moment by providing services that make the connection with the other actors as accessible as possible, as far as possible. The Saluber's app therefore seeks to facilitate immediate or future booking of a ride.

The most important button is at the top right "+ Request". Please see the website and additional materials provided in the teaching note. By clicking on the latter, the patient can search for the nearest available vehicle thanks to geolocation systems both for the immediate and if he wants to book it for the future. The "History" button draws up a list of all the operations completed in the last 30 days, while the "Calendar" button allows the patient to view a list of operations booked for the future.

In the lower part of the screen, you can see all the interventions of the current day. On the left, for each trip, the patient's name and surname appear and immediately below, the status of the intervention (e.g., vehicle traveling; waiting for the patient; trip booked; etc.). On the right, however, you can see the details of the vehicle (e.g., AMB 11 - Bourelly Group) and the total cost of the intervention with the chosen payment method. In addition, the time remaining to complete the intervention also appears.

The center indicates which phase of the race you are in (departure; recovery; delivery; return.). In addition, the badge of each intervention changes color depending on the status (e.g., orange badge if the patient is arriving or departing from a facility).

Ultimately, the application, which to date cannot be downloaded for patients, but which will be the next step to make healthcare logistics increasingly digitized - as the founder of the platform Guido Bourelly says - represents one of the services offered to patients to make them more efficient. also, his experience. It is certainly not the only service available, in fact the

platform is equipped with a chatbot service (another enabling technology of Industry 4.0) that guides the patient in their booking.

Think also of the possibility that a player is given to be part of an accredited and constantly evolving circuit. From here it is understood that the services offered are certainly based on the patient, but the platform also manages to offer certain services that turn into opportunities that the players in the sector are increasingly taking into consideration.

Specifically, the platform allows you to book and manage the following types of services:

1. Health-related services
 - Transport of the sick
 - Organ transport
 - Medical-health devices
 - Biological and hospital material transport
2. Social services
 - Elderly transport
 - Transport for the disabled
 - Medicine transport
 - Social and school transport
3. Automotive services
 - Rescue and roadside assistance
 - Depannage
 - Forced removal of vehicles and judicial custody
 - Post-accident services

It is therefore understood that the set of services offered by Saluber is particularly different, this is because, as we have already had the opportunity to repeat a few lines ago, the experience is made more usable from the patient's point of view, and because the objective on the part of Bourelly HS, is to create a new health logistics network, which avoids running into problems that have been commonplace over the years. An example can be provided by excessive road traffic in particularly dense areas such as that of Naples, a character that undermines the efficiency of the transport service by ambulances.

Ultimately, it should be emphasized that Saluber currently works only for non-emergency transport, but that in the management plans there is the idea of entering into agreements with the public administration to make it possible in the future to apply this platform also for emergency transport. As it has been possible to analyze previously, Saluber is the daughter of a substantially long process operated by Bourelly HS, but more generally by Bourelly Group.

Diversifying the activities was for this company, a choice caused by the desire to improve efficiency in a sector that presented many difficulties. Information asymmetries and disorganization have often caused disasters of no small importance. Says the CEO of Bourelly HS, *"we realized that things were not going well when there were delays and complications due to a malfunction of the system that ordered the ride to an ambulance very far from the place of withdrawal. And this only happened because that ambulance referred to the municipality where the accident had occurred, without considering that another ambulance was available, much closer in area, albeit in a different municipality"*.

Hence Saluber's idea, hence the idea of improving the relationship with the patient through customer relationship management (CRM) models that are made effective thanks to the introduction of a new enabling technology such as geolocation. The relationship with the patient changes completely, the network of connections places the latter at the center, abandoning the doctor-centered assumption and embracing the patient-centered one. As already repeated, to date the platform still works only for private entities, but already in this way, therefore embryonic, the expected results have been seen.

Geolocation acts in a functional way to CRM, since thanks to this technology, the patient is able to check the status of the run and calm down, a non-trivial factor when he has to face a medical examination or even an operation shortly thereafter. It is therefore only imaginable how much this new platform can improve the patient's experience even in an emergency

setting. In this case, however, time is needed, and the management of Bourelly HS is aware of this. Especially in culturally difficult countries, averse to new forms of interrelation between actors, it will not be easy to introduce this new idea (e.g., think of an 80-year-old lady who is at home in an emergency). Therefore, an awareness raising process will be needed that leads the patient to use this platform, with a view to increasing the likelihood of ensuring safe transport and respecting fundamental timelines.

This is where Saluber's future scenarios are born, which aims to make agreements with the public administration to make what has just been said possible.

The results speak for themselves, the geolocation service in the first part of Saluber's life has brought significant results, guaranteeing an improvement in the customer relationship management, an indispensable factor from the point of view of the management bodies, since it can lead to ensuring the success of the business.

Conclusions

Healthcare today is the most dispersed in terms of time and money. Starting from the observation of some relevant bibliographies in the world of health, it is possible to note that by using new technologies added to the sharing of economic principles, a reduction of about 30% of global costs is rapidly achieved. This new "velocity management" trend is based on today's competitive environment and technology (Luisetto, 2016). For these reasons, in order to start a process of co-creation of value in the era of digital health, the use of technological tools (eg. IoT, artificial intelligence, etc.) is necessary to improve the exchange of knowledge that must be put in place.

Due to the exogenous shock caused by the COVID-19 pandemic, the sharing economy has been found to be extremely variable. Some sectors have enjoyed a notable increase in revenue, while others have experienced a slump in their sales. The exponential growth that was expected in the past has not been able to fully materialize. At the same time, until a dozen years ago all these economic platforms did not exist, but they are destined to progress, grow, and retrain following the evolution of the world situation which now appears decidedly uncertain. The pandemic has shown how the consumer's perception of the sharing economy is different from the traditional economy, and for this reason, some sectors have been more affected than others. The confusing legislation I am from governed certainly plays a role in this regard.

There is also a need for an openness to the "new" as well as the willingness to make progress, it is necessary to understand the pros and cons that derive from their use, first of all with information from the national and regional institutional bodies closely direct relationship with the developers of these technologies to both operators and users of the system in question.

The patient must also be identified as an active part of this dynamic system and not as a passive part, it has the role of providing feedbacks that have the power to stimulate the implementation of the quality of public health and ultimately of human life. However, the patient must also be subjected to continuous information stimuli that trigger a certain sense of curiosity and placed at the center of the system, but to do this, a close, stable, and informal relationship is still necessary, as mentioned, as based on trust, between these and other players in the health ecosystem. A famous doctor, Hippocrates, said: "It is necessary that not only the doctor is ready to do by himself the things that must be done, but also the patient, the bystanders, the external things" and this seems then as today, the point of start to improve the level of information of the patient, the improvement of communication between him and the other actors of the health system, to finally arrive at a fair, efficient and effective environment which consequently will provide the opportunity for many other economic sectors to develop in a virtuous circle that starts precisely from health.

Looking at Saluber under the profile of the sharing economy, we can see the ability to create new relationships and networks in the health sector. In fact, Saluber presents itself as an incubator for health services and a container for both carriers (ambulances and special means for transporting the sick) and intermediary centers (pharmacies, private clinics, general

practitioners, and other actors operating in the health sector) that of professionals (doctors and nurses).

Another aspect that contributed to the proclamation of the Smau innovation award concerns the ability to expand the service portfolio of healthcare organizations. Precisely this type of company will no longer be seen only as providers of care but also as managers of non-emergency transport services, of social interventions through the transport of people with disabilities, home care services through assistance directly at home by health professionals. During a conference, the founder of Saluber reveals the phrase that led the platform to be successful: "The idea of creating this platform will save lives tomorrow morning".

As previously stated, digital healthcare, in addition to referring to new technologies that reform the general structural set-up of the sector, also creates new models and paradigms that shift attention to the patient. In this way the patient centered, and patient empowerment models are born.

Discussion Questions

1. What is the most important thing a digital entrepreneur does?
2. How does Saluber business model is organized?
3. Who are the main actors involved in the Saluber digital network?
4. What are the expected benefits/risks of using Saluber digital platform?
5. Could you list some digital business similar to Saluber?

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Case 9: Opportunities for digital business in crowd-based context. The case of Mamacrowd

Abstract

Following the pandemic emergency that blocked the imagination and the creation of ideas of university students, the Mamacrowd case helps to understand different challenges around new ideas of young students, to give them the opportunity to be heard and the security that we concretely invest in their future. Reaching new market segments not a simple thing. This case tells how we can increase the number of users registered on a crowdfunding platform as Mamacrowd by proposing new ideas to investors who believe in innovation.

A challenge is related to dedicate an area exclusively to young university students. We imagine a software able to support more than 3 million new users and each user will be available in the system for at least 5 years after which it will be automatically deleted from the system if it is inactive. The Mamacrowd case should be considered because it offers evidence on professionals from the world of entrepreneurship, innovation, and financial investments.

Key Words

Crowdfunding; online investments; fundraising; new ideas; digital business.

Introduction

That Italy was a country for old and selfish people who continue to neglect young people and with a lower employment rate than Europe is nothing new. Following the pandemic emergency that forced to reduce the lives of young people behind a screen and within the four walls of a room, with a teaching and didactic learning system that blocks the process of creation, development, communication and growth of ideas, students have felt forgotten by a state that thinks everything outside of giving young people hope to believe in what they do, to believe that behind a simple PC screen there is someone really interested in their future. Mamacrowd is a leading Italian equity crowdfunding platform for capital raised and is managed by SiamoSoci, Italian leader in matching investors and the innovative startups, innovative SMEs, or simple SMEs or Clubs, i.e. joint-stock companies that invest mainly in SMEs.

A challenge is referred to believe in those who have cognitive skills, in those who with their imagination and ability cannot give up, in those who continue to believe in the power of knowledge and do not allow themselves to be blocked by a system that puts a strain on the potential of the youngest. We want to give hope and believe in the ideas of young students, give them the opportunity to be heard and the security that we invest concretely in their future. So how can we get to one of the groups that most needs to believe that their ideas have real value for our society?

Among the risks related to investments in equity crowdfunding, the psychological factor must be considered, or sometimes investments are based more on emotional choices than on economic evaluations, and therefore a good collection does not necessarily indicate that it is a good product and vice versa. For this reason, Mamacrowd team has decided to first select the challenges to be developed according to the requests from the market in order to try to avoid the risk of developing a product / service that is not actually useful for the market. Should such a situation occur, the team would be ready to review and analyze the project again.

Another risk associated with the method of financing can affect the reputation and image of the Mamacrowd project. The evolution of fundraising is visible to all, and therefore in the event of a failure this will be visible and public to all. The fact that a business project fails to obtain funding from the crowd can mean that the value of the product you want to launch on

the market is not valued by potential customers as a good product, or that the business plan developed is not in line with the development of one's own business idea. Here, too, the team's task will be to minimize these aspects that can lead to the failure of a project, providing a detailed guide of the lines to be followed for each challenge and sector.

Another risk could be related to regulation. Being an area linked to a new target of customers, not yet well developed, conflicts of interest could arise, here Consob will guarantee immediate intervention for the resolution of disputes related to various interests with a team of experts and lawyers specialized in start-up studio.

Background on the firm, Industry, and Competitors

MAMACROWD is conceived and managed by SIAMOSOCI, the Italian leader in matching between investors and innovative startups, innovative SMEs, or simple SMEs or Clubs, i.e., joint-stock companies that invest mainly in SMEs. SiamoSoci was founded by professionals from the world of entrepreneurship, innovation and investment and has been a leading player in the world of investments in the real economy in Italy since 2011. Born with the intention of accelerating the meeting phase between individuals and innovative companies, when there were still no online tools that would allow start-uppers to speed up the search process, which also took many months, of people interested in investing in their projects and that sometimes the waste of energy used in the search for investors, made them lose focus on their project even before they were born. The idea was to look at and invest in the startup and SME landscape; for this reason, the 9 partners of the Siamosoci platform have decided to launch a service that would allow a wider audience of investors to get to know and then decide to finance ideas.

In recent years, increasing interest has been poured into the phenomenon of innovative start-ups, newly established small and medium-sized enterprises whose purpose is the development, production, and marketing of innovative products or services with high technological value. These businesses are though limited by pathological market situations, among which, above all, the difficulty in finding the financial resources necessary for their own development and growth on the market. The main difficulties encountered concern, in fact, the lack of necessary capital, the difficulty in obtaining credit from banks, and above all the complexity of the bureaucratic procedures. Therefore, many businesses who are in the start-up phase, intend to invest using their own resources. In recent years, the internet has shown that it can be a formidable financial resource for entrepreneurial initiatives, concretely proposing itself as an innovative solution for business financing.

The Obama administration was able to seize the opportunity and with the JOBS Act introduced the first organic regulation of the collection of risk capital via the web. Italy was no less, with the Growth Decree 2.0 and the great work done to support start-ups and technological innovation. Crowdfunding is not just an innovative financial tool; it is also a marketing tool that allows you to study the market before the launch of a new product, to evaluate its satisfaction and therefore also the possibility of success. In fact, with crowdfunding, it is possible to promote a product in the funding phase, even before it is on the market, then accelerating its adoption and reducing market risk. Furthermore, it allows the creation and development of a community that discusses the product, therefore it is a participatory phenomenon that enhances the desire of people to feel part of a project, to provide their own contribution not just financial to an idea you believe in. Overall, this is a process innovation capable of significantly changing the financial logic of small and medium-sized enterprises and in particular of innovative start-ups.

A fundamental element for the success of the campaign is the emotional involvement of the crowd funders. They participate in order to feel part of a community, regardless of their personal interest in the proposed project, in this case, the involvement goes beyond the economic logic and is essentially emotional.

Crowdfunding is a bottom-up financing model that finds application in various sectors: from humanitarian aid, to support for artistic heritage, to innovative entrepreneurship and

scientific research. Characterizing is the centrality of the computer medium with respect to fundraising operations. The new generation of internet services that emphasize online collaboration and sharing between users has fostered the strong growth of the crowdfunding phenomenon.

Thanks to the adoption of specific regulations in the USA and Italy, 2013 is the year of the debut of equity-based crowdfunding, that is, the raising of risk capital via the web. The two countries are the first to adopt an organic regulation for this new financial instrument, thus becoming candidates as models and reference markets.

The form of investment that Mamacrowd company deals with is based on equity crowdfunding, therefore those who invest, receive in exchange the participation in the company shares. The campaigns provide for a minimum goal to be achieved, establish the minimum amount to invest and the duration in days of the campaign. At the expiry of the scheduled day, if the campaign failed to raise the minimum amount established, investors will be credited with the funds invested.

The Italian platform, authorized by Consob, has over 100 campaigns launched, more than 70,000 investors, and about 40 million euros invested, with a success rate of 90%.

Before publishing a campaign, Mamacrowd selects only the best startups and SMEs, sifting through the various projects and carefully choosing among the best business plans, considering for example the potential for growth and development, the reference market, the validity of the business model.

The background, the professional skills of the team. The business plan can also be presented with images, videos, or "pitches", with the aim of describing the company, the business, the teams that make up the economic objectives and growth plans that they intend to pursue with the required capital. On the platform you can easily register as an investor or offerer for free. It is possible to study the various campaigns, having available a whole series of documents that explain the project objective, financial projections, market forecasts depending on the sector and competitors. Furthermore, the platform has a detailed and precise guide on the steps to follow to start investing, on the measures prepared to prevent and manage conflicts of interest between the manager of the www.mamacrowd.com Portal, the Offerors and Investors, the information on the processing of users' personal data, current legislation on innovative startups and crowdfunding.

A project is successful when it manages to achieve its objectives and meet or even exceed the expectations of stakeholders. That is the people who are actively involved in the work of the project and who have something to gain. First of all, the co-founder, president, and CEO of Siamosoci-Mamacrowd Dario Giudici. On the plus side, thanks to his support it will be easier to complete the project and increase the company's visibility thanks to the experience gained in the field of crowdfunding. His presence is fundamental not only for approval but also for the financial help that the project needs for the start of the new service.

The first competitor is CrowdFundMe, the first campaign by the number of investors that over the years has collected one success after another. 2020 ended with a flourish with a record campaign that raised over 2 million and 700 thousand euros with the DeepSpeed project, the first electric outboard naval jet patented by Sealence Spa. It is the first time that an innovative startup has achieved such a result. Among the companies launched by CrowdFundMe we find CleanB & B, a leading startup for the management of short-term rentals and vacation homes, and Glass2Power, which has developed the technology for the photovoltaic windows of the future.

200 Crowd in Italy is the reference platform for the fintech ecosystem. Former Tip Ventures, which with almost 20 million euros of capital raised since its start-up is among the top 7 platforms for raising capital (Source: 4th Crowdfunding 2020 report by PoliMi).

Another competitor is Backtowork24 with € 13.55 million raised in the last year, the portal founded by Carlo and Alberto Bassi in 2012 with the aim of conveying investments and managerial skills to small businesses is on the podium of equity crowdfunding platforms that they have raised more capital in the past year.

A result-driven both by the real estate crowd investing projects present on the platform and by the colossal campaign of e-Novia Spa through the vehicle company Fin-Novia Srl. It is one of the largest collected through equity crowdfunding in Europe (7.6 million euros).

Finally, Walliance is the first Italian equity crowdfunding platform for Real Estate that allows users to choose directly online the real estate project they like and in which to invest even just 500 euros. All from the comfort of your home via your computer or smartphone, with zero registration and commission costs. Born in thirty (it was founded by Giacomo and Gianluca Bertoldi's Bertoldi Holding) and authorized by Consob in March 2017, so far Walliance has already raised almost 30 million euros in investments and financed 23 projects, positioning itself among the top Italian players for financing through equity crowdfunding. Among the 2020 campaigns we mention that of the real estate project Venezia M87, which reached the collection target of 600 thousand euros, and Brooklyn 669 St. Marks Avenue, which in a few hours raised 1.6 million euros, and Bologna C16, launched at the end of December and which has already exceeded the minimum funding target with an overfunding of 185%.

In January 2020 it set up Walliance France sas and obtained the authorization from the French competent authority to operate also in France.

Discussion: Business Issues/Challenges

Covid-19 and the resulting financial uncertainty have led users to devote enormous amounts of time to financial apps throughout 2020. With many exploring new financial interests, marketers may want to consider tactics that offer resources to new users, encouraging retention and increasing app trust.

Following the success and trust found in the MAMACROWD platform by users, a first business issue could be related to the segment of the population closest to digital. Just consider that the daily average of connected users corresponds to about 6 hours and 43 minutes, to put it another way these 6 hours correspond to more than 40% of our waking life. Through social networks, an improvement in the structure of the platform and the introduction of a new area that can be able to attract and increase a greater number of users.

The challenge could be related to dedicate an area of the platform to university students, by proposing new challenges quarterly based on the university sector they belong to. This will be proposed thanks to the support of an algorithm that will be able to identify, based on the area of specialization, which are the major problems that the company is facing. The identified challenges will come through a process of selection and analysis by the Mamacrowd team, chosen, analyzed, structured in a detailed manner, and then published on the platform. Students to whom the entire area is dedicated will have to register and enter the credentials of the current university and the area in which they are specializing. Once registered, you will automatically have access to the page of interest visible only to students, where they will have the possibility to choose the one to be developed among the different challenges updated quarterly. The student or team of students involved in the development of a challenge will have three months from the date of publication of the challenge to develop their business plan. After three months the challenge will be closed and the project will have to be sent to the Mamacrowd team who will evaluate the potential for growth and development, the reference market, and the validity of the business model. The project chosen from among the various candidates and reputed most valid, will be published on the platform accessible to investors, with the same methods and privacy and security policies dedicated to the other investments, visible on the platform.

The student or the team of students involved in the chosen project will also have the opportunity to explain their idea also through social media such as direct Instagram. It is through social media that we will try to develop the interest of the youngest, trying to bring them closer to the world of equity crowdfunding. The Instagram page has to be updated in conjunction with the platform, where the social media manager and his team will devote himself exclusively to the development of content, to the weekly programming of live broadcasts and will be available to all those who want to get close and get information.

Through a SWOT analysis, we are able to identify the strengths, weaknesses, opportunities, and threats encountered, to have a clear vision of different challenges.

Among the strengths we find above all the ease of access allows even the less experienced to understand the rules of the game, just a simple internet connection to be able to register on the platform and have access to projects. Ensuring a simple and quick access to this form of financing could only turn the fate of many young Italians, thanks also to the elimination of bureaucratic obstacles. Investing more in social networks will allow not only to attract new users, but to stand out from other platforms on the market, presenting a form of investment unknown to many through the means of communication we use every day. The opportunity offered is that even if you are not a start-up or SME, Mamacrowd is interested in your ideas, offering you the opportunity to raise funds for their projects, developed according to a consolidated model that allows them to offer a product / service in a more marketable way. You will get the opportunity to achieve large-scale visibility, becoming a promoter of the project and for the development of an audience of supporters and it is the best way to make entrepreneurs understand if their product/service will have an interested clientele, such as a real and own market test.

Furthermore, before being launched on the platform, the projects are checked by the staff who communicate to the proposers if the project is not appropriate or is not able to achieve success. On the other hand, for projects that are successful, after reaching the expected sum they will be followed by a team for the first stages of development.

Unlike English and American crowdfunding, Italian crowdfunding is predominantly cultural and social. This depends on the specificity of our socio-economic fabric, but it is also a symptom of a weakness in the entrepreneurial innovation system, also due to an information asymmetry that creates this gap in the social fabric.

Among the possible threats we undoubtedly have competitors, in fact we count approximately 100 platforms most popular in Italy. Among the most famous internationally we have Kickstarter which applies a mixed model: donation based, and reward based. On the other hand, it does not allow equitybased offers and binds the recipients of donations to the publication of the project. The second best known is Indiegogo, the peculiarity of this last crowdfunding site is the possibility of choosing (by the creator of the campaign) between two options:

- Accept each donation (which will be maintained even if the fundraising does not reach the stated goal),
- Wait and take the money only when the goal is reached.

Having to compete with platforms known worldwide is certainly not the easiest of challenges.

To solve business issue Mamacrowd team can adopt smart IT solutions as artificial intelligence aimed at optimization, process improvement and innovation and transformation. The software is able to integrate perfectly with the company information systems in use and modeled on the specific needs of the company, to allow the optimization and improvement of business processes, without having to replace the entire system. In addition, the investment in intangible assets 4.0 related to investments in tangible assets was included within the project with the aim of obtaining a tax credit so as to be able to recover 50% of the investment for the software. With a total investment estimated at 1 million euros.

The Mamacrowd platform will also get 5% on the collection of each project in case of goals. Furthermore, with the support of the team, a report will be provided on a monthly basis regarding the progress of the economic results achieved by the company in order to be able to monitor the trend of the investment for the entire first year, the data relating to the improvement of social platforms based on customer views and platform search number.

The University, on the other hand, will act as a guarantor for young students who are at the beginning of their academic career and who have probably never come across equity crowdfunding investments and who may therefore be skeptical at first. The university will be given the opportunity to gain greater visibility from their departments by including them in our

advertising plans through social media and our website. They will have the opportunity together with our team to organize information seminars on equity crowdfunding.

Each university will also have the opportunity to be noticed by investors who want to invest in them department because they are deemed worthy thanks to the visibility obtained with the projects developed by university students. The student developers of the projects will be accompanied throughout their journey by a team that will help them in resolving doubts, in fact they will be provided with a weekly online desk where they can ask questions. Furthermore, the winning idea will be able to continue to receive funds even after receiving the minimum investment ceiling to be reached, for the first 4 years their project will in fact be placed among the successful investments and on which they want to continue to contribute for the development. Investors can contribute of money, even of large amounts, for the development of a project or initiative that they consider interesting to support, sometimes even regardless of an economic return.

The investor will enter the share capital of a business project, thus also sharing the "business risk" with the shareholders. Through the injection of capital, a real shareholding title is acquired in the company and the related administrative and property rights deriving from it. Once the investment has been made, if the project manages to reach the entire required capital by the deadline, you become a full shareholder of the company without further activities to be carried out.

The investor who will believe in this project aimed at young university students will be an investor who believes in innovation in any form and above all in the professional and occupational growth of the youngest. The raising of capital through the institution of equity crowdfunding takes place through portals specifically authorized by Consob which, after having assessed the integrity and professionalism requirements of the Managers and the organizational and technological structure, disposes of it, in case of acceptance of the request of the Manager, with its own resolution, to register in the Register of portal managers for the collection of risk capital.

Conclusions

The conclusion is to include within MAMACROWD, one of the most important Italian platforms for investments in equity crowdfunding that allows you to invest in the best Italian startups and SMEs, an area dedicated exclusively to university students, offering different challenges depending on the fields of study in which they are involved, thus inserting them in the brainstorming process for the creation of innovative ideas in which to invest. With the support of the team the benefits are related to:

- The opportunity to be supported and to believe in innovative projects financed by interested investors
- To give space and voice to the protagonists of tomorrow, giving the possibility from the first university years to face future challenges.

Investments in new ideas take place in accordance with the provisions of the Consob Regulation which establish the set of obligations and procedures to be followed by the interested parties (Investor / Offeror / Portal Manager) and which are necessary for the correct completion of the investment, in compliance with the system of protections established by law in favor of the investor and the community of savers.

The key value of this case is to invest in young people, to involve them and make them protagonists of the world in which they live, in a process of communication and collection of innovative ideas through the use and implementation of one of the most powerful tools of the last years social media and MAMACROWD website. Investing in web marketing activities allows you to enjoy great visibility at low costs. In fact, they have an enormous advantage: they allow you to gain visibility on a large scale, reaching people who never before could have been reached if not by investing a large budget in promotional campaigns. In particular, with the use of instagram, programming and creation of daily content to post and direct instagram, video

content and Reels, the number of followers will grow exponentially (+ follower + like + view = + visibility).

One of the most interesting features of digital instruments is that, thanks to them, it is possible to make very precise measurements. In fact, each advertising campaign, modification of the web structure, can be constantly monitored and modified during construction, so that, in case, it is possible to "adjust the shot" and better target a campaign that is perhaps giving disappointing results. Always having the statistics available (clicks received, impressions, cost per single click, bounce rate, number of users arrived on the site, etc.) allows you to keep track of their progress and know when to intervene, when to block everything or if investment is going well.

Mamacrowd's offer could be open to all universities that want to become part of the world of equity crowdfunding, will be included within our platform, and through our sponsorships they will have the opportunity to increase their visibility as well.

In light of the foregoing, almost all banking portals are born and operate with purely social purposes. We are in the "core no-business" of banks: it is an epochal strategic change or just tactical expedients for the pursuit of the specific purposes of a strongly oriented sector, such as precisely crowdfunding?

A new field of intervention in the crowdfunding of banking institutions and, especially of foundations of banking origin, sees them involved as promoters of capital raising campaigns, underestimating this instrument born as a competitor and considered a means of attracting new types of customers such as start-ups and SMEs, with the ultimate aim, once well underway, of "supporting" future and substantial funding.

With regard to all these initiatives, the banks do not use their own specific platforms, but portals made available by third parties, something that determines the exclusive financing activity of the project. In this way, the banks avoid taking on the burden of managing the portal / platform but, at the same time, they give up a whole series of advantages and utilities connected to crowdfunding, such as connecting with potential new customers and all that derives from it.

These campaigns materialize exclusively in donation crowdfunding, for the mere financing of the initiative, so it would seem that the banking company renounces its activities in the reference sector, such as for profit. Alongside the two methods of recourse to crowdfunding that have already been discussed, there is a whole series of hybrid interventions that involve banks with crowdfunding and that refer to other types of collaboration.

The review of these hybrid forms gives us a complex and highly differentiated scenario. The new types of collaboration, combined with specific portals and financing campaigns adopted by banks, provide us with a complete picture on which to reflect in order to try to outline the future role of the banking sector in an area, such as crowdfunding, in rapid and constant evolution.

In recent years there has been a rapid growth of social networks, such as Facebook or Instagram, which have established themselves as strong forms of communication used by several million people around the world. The interesting aspect that seems to emerge is how difficult it is for the use of these virtual social networks to have an effective, and quantifiable, impact on the real world; this is closely linked to the concept of "slacktivism", a term used to indicate individual actions, how to "like", share a post, sign a petition, against a topic, a common problem or a social cause, which however have very little or no impact on reality. Use crowdfunding optimally it means being able to create a new form of power for these online communities, allowing anyone to make an impact in the real world, contributing directly to the development of a project, a cause, and the latest innovations.

It allows communities to support new entrepreneurial activities, be responsible for creating new jobs, providing the necessary funding for their development. For this reason, it is not enough to consider crowdfunding as a simple fundraiser, but as a complex social and economic phenomenon, aimed at innovating the relationship between ideation, production, and consumption.

Entering the world of crowdfunding for the university means giving greater prestige to your department, as it offers students the opportunity to be able to touch the world of work from the earliest years, allowing them to develop entrepreneurial mentality. It is also an opportunity that will allow young students to believe and be passionate about what they study, thus also impacting on the number of students who drop out of university each year, we can visibly witness a sharp decline, as it will give them confidence not to feel abandoned in the world of work and that there are people who still believe in them.

Discussion Questions

1. What is the most important thing a creator of new ideas in crowdfunding does?
2. How does Mamacrowd business model is organized?
3. Who are the main actors involved in the Mamacrowd digital network?
4. How can you describe the state of affairs with the state regulation of the crowdfunding platform Mamacrowd in Italy?
5. Could you list some digital business similar to Mamacrowd?

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Case 10: Cargometer: The usage of digital technologies for freight measurement to improve efficiency in logistics

Abstract

This case study presents an Austrian technology start-up so-called Cargometer, which is specialized in using technologies for freight measurement to improve efficiency in logistics. The goal of the business model is to design logistics processes without distracting interventions. Currently, the start-up is still in its maturity phase of its life cycle. In the first place, as a first mover Cargometer is using this advantage but now it is struggling with falling revenues and a decline in new customers. In particular, Cargometer has problems to scale up their business and get in touch with new customers due to the high investment costs for companies. Moreover, Cargometer is facing problems when it comes to the acquisition of big companies as the start-up fails to get in touch and convenient them to implement the Cargometer technology. Further, due their relatively small product-portfolio it is also difficult to gain additional revenues from selling other products to existing customers. Finally, it is difficult to achieve customers internationally since the technology has to be installed from Cargometer employees.

Key Words

digital technology; efficiency; freight measurement; logistics; process innovation.

Introduction

In January 2020 Bernhard Obermaster one of the CEOs of the freight measurement startup Cargometer took a big sip of the green tea in his hand as he walked out of the meeting with his business partner Ralf Maier. He was really angry about what he has heard in the meeting. The company is stagnating to say the very least, sales are falling, and no new customers are being acquired within the last couple of months. This is the first (big) fallback after the startup was founded in 2014 launching their innovative freight measurement technology in 2018. 4 years of hard work, high investments in R&D and sleepless nights paid off in the first place. In contrast to digital freight forwarders, such as Sennder or Cargonexx, which digitalize the transport brokerage with the help of a digital platform and pop up like champignons everywhere, investors and experts from the logistics industry saw Cargometer's automated freight measurement 4.0 as an important contribution to the digitalization of physical activities in the freight forwarding hall. The technology seems to be a big breakthrough.

"So why are revenues falling and no new customers are acquired?" Bernhard remembered himself asking his business partner Ralf in the meeting before. The answer was not the one Bernhard wanted to hear. *"The advantages of our technology are clear, we increase all sustainability dimensions (ecological, economic and social); the positive economic and ecological effects are obvious due to the savings in resources and speak for themselves"*. *"To know the advantages of the technology as the owner is not enough for a company or new technology to be successful"*, Bernhard shouted back. It is obvious that a solely technology is not enough to get customers and revenues. The business model of the firm, the way a company creates and captures value is the main part to generate new customers and cash flow.

Bernhard had the filling in his gut that something is wrong before- and it seems to him in all those meetings Ralf and he had that his partner did not care. Overthinking the conversation, he had with his business partner Bernhard realized that it is time to change something. He noticed that they have to rethink their business model in order to keep the startup going.

Background on the firm, Industry, and Competitors

The company Cargometer is an Austrian Startup in Vienna, which was founded in 2014, as a sole proprietorship by two founders from Austria. Back then, the startup started to develop a technology for digital freight measurement in freight forwarding companies. Their innovative product, which was launched in 2018, was the first one of its kind worldwide. Cargometer developed and introduced a first mover-program which is able to take measurements and other data from a moving object, without the need to stop for this process. This product is very new on the market and though it has already received several awards. Already 2016 Cargometer was nominated for the logistics election as startup company of the year. Only one year later the Austrian Federal Ministry of Transport, Innovation and Technology awards the company with the State Prize for Mobility. In 2019, the swiss company Kuehne + Nagel organized their yearly held Innovation Competition. Cargometer convinced the jury with process capability and their possibilities in logistics 4.0. Later in the same year, other prizes were awarded: the IFOY Award for the Intralogistics Software of the Year 2019 and the Mercure Innovation Prize of "Green Economics". Furthermore, Transmetrics announced Cargometer to be "Logistics Startup of the month" in December 2019.

However, the biggest challenge for Cargometer was putting the idea into practice. The ideas and concepts were there, but of course they had to work on site in the hall. They had to move out of the "ivory tower of development" and into the hall. There, they tried out how the prototype proved itself and repeatedly discovered that some of the assumptions made in the planning were not precise enough or were wrong. This in turn resulted in the adaptation of the product. Nevertheless, the most formative experiences were also the ones that drove Cargometer forward the most in its development.

In the beginning, Cargometer was supported by AWS (Austria Wirtschaftsservice Company) and seed funding. These helped build the product. After that, private equity was also raised to further develop the product. According to the founders, the funding opportunities for founders are good at the beginning, but it is important to emphasize that seed funding is repayable loans if the company is successful. This becomes a problem after a few years, as software development in Austria is an expense on the balance sheet that cannot be capitalized. Thus, startups tend to have negative equity on the balance sheet after a certain period of time. Therefore, startups no longer qualify for subsidies after the initial phase, as they are a restructuring case in the balance sheet.

The freight forwarding industry can be characterized as a fragmented market, meaning that many firms offer transport or logistics services, with some of them serving specific niche markets. Since the volume of shipments has increased rapidly within the past years the optimization of the process is brought into the center of attention and this offers space for new ventures. In addition to the increasing volume of shipments, sustainability aspects play a decisive role in the transport industry. Poorly utilized trucks and empty runs lead to CO2 emissions that can certainly be avoided with the right systems and processes.

Cargometer, a start-up that is already in the maturity phase in their life cycle uses digital technologies to add value for established companies. The goal of the business model is to design logistics processes without distracting interventions. Therefore, Cargometer currently offers 3D freight measurement. This means that the cargo is measured "on-the-fly" on the moving forklift truck, directly at the entrance gate to the warehouse. The dimensions, volume and weight of the load are recorded directly and fully automatically. Thus, the workflow is maintained without the forklift having to stop at the loading gate or the entrance portal. The 3D cargo measurement measures the data using sensor system installed directly at the loading gate. Cargometer's technology can be divided into the following three components:

- "Dimension-in-Motion" is the measurement of the dimensions of the package as the truck moves during loading. This is made possible by time-of-flight sensors. Data concerning depth, width and height are collected by these sensors and processed into images by a mathematical method. In a further step, these images can be processed into 3D models that allow the calculation of the actual size.

- “Weight-in-Motion” is measuring the weight while the pallet is on the stacker. Cargometer uses technology from a 3rd party company that specializes in weight sensors. These weight sensors are located in the forks of the truck.
- “Scan-in-Motion” describes the process that allows the QR codes to be read while the truck is in motion. For this part of the process, Cargometer developed a Datamatrix code that can be read manually while the truck is in motion.

These technologies offer distinct advantages for freight forwarding companies. Firstly, there is a short-term benefit, as their technology makes it possible to correctly tariff packages without interrupting the process, and incorrectly tariffed packages can be identified. Secondly, the documentation of the transfer of risk is possible when using the Cargometer technology. Especially for insurance purposes this documentation is relevant. Since the startup wants to create value on several levels, positive effects not only arise for Cargometer customers but also for the environment. The goal is to increase all sustainability dimensions (ecological, economic, and social). The positive economic and ecological effects are obvious due to the savings in resources. Thanks to automated shipment recognition and freight measurement, employees no longer have to perform manual measurements during loading and unloading, which means that accidents can be avoided.

As already mentioned above, the technology from Cargometer is the first one of its kind worldwide. However, other companies on the market offer similar systems. The difference is that with the technology of competitors the process of scanning the goods has to be interrupted because the employee has to bring the goods to a portal. In detail, this means that each process of goods storage or unloading must be interrupted because the scanning of the shipment, unlike the technology of Cargometer, cannot be fully automatic in transit. However, in the portals of the competing solutions, the same camera technology is used as in Carogmeter.

Business issues/challenges

The innovative product of Cargometer is taking previous logistics to logistics 4.0. The company has elaborated a possibility to scan, weight and measure packaged goods in motion. As already described above the product that they offer consists of three components: Dimension-in-Motion (DIM), Weigh-in-Motion (WIM) and Scan-in-Motion (SIM). DIM records the dimensions (length, width, and height) of the packaged good and the volume, up to a speed of 10km/h. WIM weighs the packaged good during the run with weighing forks on the forklift. SIM replaces the manual scanning of 2D-barcodes. All of this happens with scanners and cameras which are installed directly at the loading ramp, at the gate. Only one high-capacity server is needed to collect all the data from up to five loading gates. Besides the installation at the doors, only small changes for the transport agency and the workflow in the freight forwarding hall has to be made. They have to adapt their previously established processes very little and keep working like they did before. This sounds quite too easy, and it really is. The installed scanners and cameras will do almost all the work. This means that the forklift driver as usual is loading or unloading the truck, taking a package, and driving through the gate and while driving all the needed information is received by the scanner and cameras.

After a moderate constantly-growth over the last years, Bernhard now wondered why the company’s revenues are declining, which is neither good for the investors, nor for Cargometer to reach a positive cash-flow. When observing the freight forwarding industry –again- Bernhard found that there is a huge number of potential customers out there. “Why Cargometer is struggling to get this firms to use their technology?”, Bernhard wonders. Although the market of logistics service providers in Austria is extremely big and the volume of shipments has increased rapidly over the past years, Cargometer is not able to extend their customer base rapidly enough to further increase – or to maintain -their revenue.

Observing the business model of Cargometer, Bernhard pays especially attention to the value capture. This part of the business model defines the sources of revenue or profit formula which describes how a company transforms the delivered value into revenue and profit. In other words, it describes the revenues stream, for example, whether it is based on commission, usage

fees, third party and/or a revenue model. In addition, value capture is used to demonstrate the pricing mechanism, which could be characterized by e.g., fixed prices, market pricing, differentiated pricing or quantity-based pricing.

The revenue model, the startup Cargometer is pretty easy to understand and seemed to be good over the last years. New customers have to pay a fixed price for the scanner equipment – the hardware - and the installation of the required software. After Cargometer has installed the hardware and accompanied the work processes with the technology, customers can use it freely, without any further help. Software updates, which are not required that often, can be performed free of charge by the companies themselves. Only once a year Cargometer makes a check on the equipment and gets a certain fee for that. In addition, in emergencies when for example a unit broke or is damaged, a repair service can be purchased from Cargometer. Since the susceptibility of the equipment to failure is relatively low, these cases occur extremely rarely. Bernhard suddenly realizes that after the revenue stream from the hardware and the software sales, Cargometer earns little to no money from the customers afterwards.

Going further into detail Bernhard observed the pricing mechanism of Cargometer. As already mentioned, customers pay a fixed price for the hardware and software depending on the number of gates where the system is needed. For an average customer, the investment is usually between 250.000 and 330.000 Euros. “250.000 to 330.000 Euros is not that much for a freight forwarding company”, said Bernhard to himself. Observing the logistics industry and in the particular the freight forwarding industry Bernhard, however, can see that it has always been very thin on margins.

Further, he noticed that the majority of freight forwarding companies in Austria are small- and medium sized enterprises. Bernhard then realized that in the last month he conducted sales conversations only with SMEs as access to these companies is relatively easy due to flat hierarchies. On the other hand, he remembered numerous efforts and hard negotiations with big freight forwarding companies. Looking at the customer-base of Cargometer they have some big companies and numerous of small and medium-sized ones.

SMEs are often said to have less resources in particular concerning financial and human resources and are therefore not able to digitalizes that easy in comparison to big companies. However, Bernhard found that it is much easier for Cargometer to get in touch with the SMEs and to convince them that their technology is useful, even if it usually takes a relatively long time because the financing must always be clarified first. Acquire big companies and convince them to buy a technology from a small startup as Cargometer is on the other side not that easy. It is quite the opposite than easy; it is really hard to get in touch with big companies and to convince them to change their established processes – even if it is only a minor change that adds a lot of value. However, these companies could effort the technology easily and financing problems are not that big of a deal. “Would it be better to focus on big companies or on SMEs as new customers?” Bernhard asked himself. “Maybe we need more sales staff to get in touch with big companies” or “Would a differentiated pricing strategy be a solution to overcome the financing problems for SMEs as customers?”, Bernhard’s thoughts spin.

Besides the revenue model and the question on which customers should be focused Bernhard is worried about the competition that is catching up more and more. He and his business partner often discuss about the product portfolio and the sales areas of Cargometer. Nowadays, there are very innovative companies in the logistics industry that implement new processes. In this field, large companies have positioned themselves very well and are technological pioneers. Small and medium-sized companies have followed them somehow. However, digitalization has necessitated a huge number of investments in R&D that large companies could more easily afford. Thereby a concentration of companies and innovations in the logistics industry can be observed, which make it hard for startups like Cargometer to compete in the market. So, Bernhard is wondering how Cargometer can stay competitive and how the startup can extend or change their product portfolio to great more value for their

customers. As already discussed above it was really hard to get the technology into the market at the first place, so it is not that simple to extend the product portfolio.

Bernhard's business partner often dreams about rolling out the Cargometer technology worldwide to increase the customer base and thus also the revenues and to stay competitive. However, again, it is not that easy, and a lot of sales staff is necessary to get in touch with the respective freight forwarding companies. "What would Cargometer need to operate internationally?", Bernhard asks himself. "Not everyone can install the hardware, adjust the cameras and install the software that easy", he further thought. Entering a new market is quite a challenge for startups especially far away from the home country.

Overall, Bernhard realized that he needs to restructure the value capture of the company and that he needed to do more research to identify clear opportunities to acquire new customers in order to generate revenue and growth. So, what can Bernhard and Ralf do?

Conclusions

In conclusion, this case study presented the the Austrian technology innovation start-up Cargometer, who uses digital technologies for freight measurement to improve efficiency in logistics. Cargometer, is already in the maturity phase in their life cycle and the goal of the business model is to design logistics processes without distracting interventions. As a first mover Cargometer uses this advantage in the first place but is currently struggling with falling revenues and a decline in new customers. In particular, Cargometer has problems to scale up their business due to the high investment costs for companies. Further, Cargometer is facing problems when it comes to the acquisition of big companies as the start-up fails to get in touch and convenient them to implement the Cargometer technology. Moreover, due to their relatively small product-portfolio it is also difficult to gain additional revenues from selling other products to existing customers. And last, it is difficult to achieve customers internationally since the technology has to be installed from Cargometer employees.

Discussion Questions

1. Which business model / revenue model is used by Cargometer?
2. How can Cargometer change their revenues model in order to create more revenue streams?
3. What is limitation of the current technology and how can Cargometer further develop their offering?
4. What problems occur when Cargometer tries to scale their technology in other countries?
5. How can Cargometer further improve their business model (digitally)?

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Case 11: Kipferl - Disrupting the way to shop groceries? How to stay competitive and drive innovation in a pure online supermarket

Abstract

This case deals with the emergence of pure online supermarkets in Europe and its strategic and digital challenges. In 2020, Kipferl, a start-up online supermarket opens its branch in Vienna, Austria and record enormous growth rates – as part of the Covid-19 pandemic, consumers increasingly want to buy their groceries online: and Kipferl is there to deliver. In fact, Kipferl seems to be on a good way to disrupt the traditional brick-and-mortar supermarket business. However, in 2021, one year after its foundation, Kipferl's revenues stagnate. Julia Schuhmacher, the COO, observes a rise of competitors and is confronted with internal entrepreneurial challenges – but is also determined to bring Kipferl back to a growth path. So, what needs be changed? Help Julia to find out what is wrong and how the start-up can become more profitable.

Key Words

Disruption; supermarket; digitalization; online shopping; innovation.

Introduction

In July 2021, Julia Schuhmacher, COO of the start-up online grocery shop Kipferl, took a small sip of the strong coffee in her hand as she walked down an aisle of the huge warehouse just outside of Vienna, Austria, that she helped to build. She was still a bit shocked and confused about the meeting with the board members that just ended: the CEO presented the 2nd quarter results for 2021. For the first time in the history of the company, revenues took a slight hit, and the company was not growing in this quarter. She was shocked, because Kiperl in Vienna so far had been a success story since its foundation in 2020 – and investors also saw the potential of the concept and invested another 100 million Euros a couple of weeks ago, making Kipferl a ,unicorn 'among the start-ups, which means their company value was over 1 billion Euros. But now the revenues were declining – the CEO, Thorsten Klug, blamed the summer period and the end of the Covid-19 pandemic and argued that during the pandemic customers relied more on online grocery deliveries, while now consumers enjoy going back to the supermarket in person. But this situation would represent only a temporary situation until the people went back to the ,new normal '– to enjoy the privilege of online grocery shopping. But Julia wasn't so sure – as COO, she also realized that orders were slowing down, and the complaints of customers were – albeit very little - growing. Before the meeting, she saw these problems rather as ,teething problems 'stemming from the enormous growth in the last two years, but now she thought that there might be more behind it. She had a feeling in her gut that something was wrong – and it seems to her that the CEO was not really interested in finding out why the revenues were declining. Blaming the pandemic would be too easy – and it also contradicts the innovative nature of this company, she thought: „Of course we have great products that we can touch, but eventually we are a digital platform that offers a super special service to our customers - and the growth possibilities through digitalization are endless and we are just beginning!“ The CEO denial that something bigger was going on made her nervous and she wondered about what the investors would say when they see the new numbers. She has already met some of these investors, and although most of them are nice people, it is clear that want to see a return on their investment – and Julia was not so sure that these investors let

themselves be fobbed off with CEO's excuse. So, she asked herself: What can I - as COO - find out, recommend, and do to increase the revenue and bring Kipferl back to growth?

Company Background

Originally, the company was founded in 2014 in Hungary – then called Uborka (cucumber in English) - by Adam Horvath, an IT start-up founder with experience in Silicon Valley and connections to investors that were able to finance a good idea. This good idea was a pure online grocery shop, which means to create a digital platform that offers the same products as a supermarket and delivers these goods within a certain timeframe. It all started in Budapest, where the first online shop (called Uborka) was immediately a success due to strong social media presence and a robust and solid offering of products and deliveries. The expansion to Vienna happened in March 2020, after the Hungarian office has already experienced solid double-digit growth rates and had enough experience and capital for the expansion in other countries.

The overall concept for Vienna was convincing: starting with product range of 7.000 articles (which is more than a stationary supermarket) with the same prices as a supermarket, a convenient website, and a guaranteed delivery within 3 hours in a 1-hour time window, which the customers could choose. The product range did not include only packed goods and food, but collaborations with hipster bakeries, regional organic producers and fresh perishables that go beyond the normal 'supermarket offering led to interest from the consumer side. In the beginning, Kipferl also benefitted a lot from word-to-mouth recommendations, but then the Covid-19 pandemic hit, and customers were increasingly interested in buying their groceries through online channels to avoid large crowds of people. As a consequence, the Uborka group made 300 million Euros revenue overall, with Vienna, which is still regarded as a growth market, with approx. 30 million Euros revenue. The company experienced strong growth in the last two years and was on the way to achieve a positive cash flow and a small profit in the next two years. The steady growth can be credited to the founder Adam, who executed the vision of a pure online supermarket without big surprises and thus pleased investors. For the expansion to Vienna, Adam relied on his friend Thorsten Klug, who he met during his studies. Thomas was more of a self-styled visionary and a techie, a man with big visions but not really interested in the details of the operations and the external environment.

Julia Schuhmacher had been with Kipferl in Vienna from the very beginning in 2020, so a bit more than just one year, following a 4-year stint as an operations Manager for a small fashion start-up in Cologne, Germany. Prior to this, she has been a senior consultant with KPMG for 3 years. Her main achievement at Kipferl was the designing and building of the entire operations. Although the company could draw from the experiences and expertise from Uborka warehouses in Hungary, the setup per country and location was always different, making it so far, her greatest challenge in her operations life. From the beginning, Julia was keen to improve processes constantly and by evaluating datasets from both operations and drivers, Julia was able to lower inventory costs by 20% and increase the delivery quality significantly.

But although these projects had been successful and Julia was well recognized among the workers, she rarely had time to think strategically about the future of the operations and digital trends – the daily work was so consuming that she was often too tired in the evening to think about new trends. It also seems that this was not expected from her – the CEO Thomas pushed some IT initiatives, but these focused more on internal processes rather being a reaction of external developments. Often, the board meetings involved lengthy discussions about tech-related problems and opportunities, neglecting the business side. Usually, Julia preferred to stay out of these conversations and the arguments, letting the board making their decisions. She never felt ignored and the board was usually supportive of her ideas and when she sought approval for operating budgets and investments.

The warehouse including the administrative staff was located just outside of Vienna, close to the highway and thus offering an ideal gateway into the city of Vienna. The Vienna location comprised around 6.000 square meters, 120 delivery vans, 180 employees and around 400

suppliers. The IT department responsible for the website www.kiperl.at is located in Vienna – and the company had also other internal IT systems for ERP, finance, and route planning, which is enough to consolidate numbers to control internal processes.

The Challenge

After enormous growth in the last two years, now the revenue was declining – more like stagnating, but that is probably neither good enough for the investors, nor for Kiperl to reach a positive cash-flow. And, Julia wondered, the pandemic played a role for sure and significantly boosted our growth rates, but I am sure that the beginning of the end of the pandemic does not mean the beginning of the end of Kiperl – there is so much more growth potential out there. The market so far is controlled by three big players in Austria: Rewe, Spar and Hofer (Aldi), combining almost 90% of Austria's market share comprising more than 20 billion Euros revenue in 2020 – which makes the 30 million revenues from Kiperl look rather small. “But we have grown exponentially– and have achieved so much in a year here at Kiperl”, Julia thought. The range of products climbed from 7.000 to 10.000, and our delivery orders also increased from 300 a day at the start of the operations to 2.000 a day by the end of June, but now they seem to stagnate. The average order comprises around 80 Euro, which provides a good enough margin to make a profit per order. “But we need more orders”, Julia thought. Julia was aware that the competition has not been sitting back – new players were entering the playground as old competitors were stepping up their game.

One major competitive advantage of Kiperl is the fast delivery time – and Kiperl does not charge delivery feeds. Customers would receive their goods guaranteed within three hours but could also choose any other one-hour-delivery-window after that. That was a huge advantage compared to the incumbent supermarkets of Rewe and Spar (Hofer was not offering any online shopping), which were only slowly starting with online deliveries in 2020 and were totally surprised by the demand stemming from the pandemic. The time window in the beginning of the pandemic comprised up to 5 days and customers had to pay a delivery fee for the delivery and the time window. “That gave us a boost and a natural competitive advantage”, Julia said to herself. Although the incumbent supermarkets have learned to deliver a little bit faster now, their delivery time usually comprises 1 or 2 days and they were still charging a delivery fee – which makes Kiperl more attractive compared to the ‘old’ supermarkets’. However, Julia just read last week that another start-up from Berlin, called ‘Gorillas’ also wants to expand to Vienna – and they offer a delivery time within 10 minutes. Their concept may be totally different as the company has a lot of small, decentralized station all over the city, but it makes our 3-hour window look slow. Mjam, a restaurant delivery provider (such as ‘Just Eat’) was also entering the online delivery scene, offering a 15-minute window. But although Mjam and Gorillas were offering supermarket prices (with a slight premium), Julia wondered if these start-ups really represent a competition for Kiperl. Their business concept would naturally comprise only small delivery volumes, which contradicts the Kiperl customer, who rather buys its weekly groceries.

But their main competitor was a company called ‘Alfred’, which started the first online supermarket about a year before Kiperl entered the market. Alfred was funded and backed-up by one big soft drink producer and also gained attraction before, but even more during the pandemic. Similar to Kiperl, Alfred also offered a fast delivery window and offered a good variety of goods. However, there were two main differences between Kiperl and Alfred: First, Alfred offered a delivery within one hour – and compared to Kiperl, they also were delivering until 10pm and on Sundays, while Kiperl offered their services on 6 days per week, Monday to Saturday from 7am to 9pm. And Alfred was also not charging a service delivery fee and had the same price level as Kiperl and the incumbent supermarkets. However, Alfred had a smaller product range, offering ‘only’ about 5,000 products. “The smaller product range reduces the complexity and Alfred can thus deliver faster”, Julia thought. But Alfred was quite similar from a customer point of view. But, Julia wondered, “given the market and growth potential for

online supermarkets, the number of competitors was still modest” – are entrance barriers relatively low?

But apart from Alfred, Julia was similarly worried about the incumbent supermarkets. Rewe, Spar and Hofer were all huge players in the industry with almost endless capital and money. One of the supermarket chains of Rewe, the supermarket Billa, just published that their online market grew from 30 million to 50 million Euros in 2020. Although this growth rate was way lower than the growth rate of Kipferl, Julia wondered how the incumbent supermarkets would react if they saw Kipferl as a strong competitor – so far, it seems to Julia that the incumbents were aware of their presence, but because of their low market share they didn't see Kipferl as a threat... yet! Of course, the plan of Kipferl and all the other pure online markets was to 'disrupt' the incumbent supermarket business. In order to better understand what disruption meant, Julia took a class that explained the disruption theory. She learned that usually a disruption is working because the incumbent and established companies usually underestimate the new entrant and don't see them as a threat – in particular when it comes to new technologies. And from a technological site, Kipferl had a clearly an advantage – it was basically an IT company with an associated warehouse! Thus, so far, the big supermarkets did not put much effort in the online business as the slow(er) delivery times clearly indicate. However, if Kipferl was growing and stealing a big chunk of market share from the incumbents, maybe the reaction of the incumbents would be different. Of course, currently the 'old' supermarkets had no reason to complain as their main income stemmed from the brick-and-mortar stores – Austria was the number one when it came to the high density of supermarkets - but these incumbents had the means to fight Kipferl.

Another issue was that the scaling of the company – although halted at the moment – represented a huge challenge for Kipferl: First, it was very difficult to find new people and the Julia realized that the hiring took too long. Second, it seemed that the enormous growth of company and the associated growth of personnel led to lack of training. During the pandemic, customer complaints grew as new drivers sometimes didn't know the specifics of pick- and deliveries, thus delaying the delivery, or handlers in the warehouse when packing used the wrong products. Overall, Julia realized that half of the problems are operational problems, but "...we also under pressure from many other directions. If we don't find ways to offer new innovative products, we may find ourselves out of business!", Julia thought. With a CEO who was not realizing how urgent the business needs to step up, she need to do some more research - and identify clear opportunities and innovations to reignite the growth and the way to profitability before presenting it to the board. So, what can Julia do?

Discussion Questions

1. How is Kipferl strategically positioned in the market? How would you assess the current competitive position within the (online) grocery market?
2. According to the disruption innovation theory of Christensen: does Kipferl has the potential to disrupt the existing supermarket industry?
3. What typical entrepreneurial / start-up challenges does Kipferl face and what can it do to overcome them?
4. How should Julia approach the CEO in order to make her case that Kipferl may run into much bigger problems in the near future?

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Case 12: The digitalization for an Italian “Special Steel”

Abstract

Cogne Acciai Speciali falls within examples of a successful digitalizing process in the firm's life to struggle with the highly competitive market conditions. Actually, this strategy has allowed the firm to rethink its processes, getting them more flexible and suitable to market changes, and at the same time to produce certified steel of high quality. That is why the name of the firm has the adjective “Speciali”. Aware of the company is still bringing about its digitalization process, arising its investments in research activities and increasing the digital know-how of all employees.

Cogne Acciai Speciali case study can be rightly intended as a “corporate entrepreneurship case study” because of its organizational renewal process (Phan, P.H. et al., 2009) through the forecast of innovation and the appliance of specified firm's activities, which will be deeply analyzed in the chapter.

This long and challenging change process has been it possible thanks to the strategic entrepreneurship of the firms (Dess, G.G. et al., 2003), which made possible to forecast and exploit the market's opportunities and create a competitive and durable value for the enterprise.

Key Words

Cogne Acciai Speciali; digitalization tools; innovation; certifications; high quality.

Presentation of Cogne Acciai Speciali

Background of Cogne Acciai Speciali

Cogne Acciai Speciali is specialized in the steel production, and it has its Legal base in Aosta (Valle d'Aosta, Italy). It has five production and distribution centers in Italy (Aosta City), Sweden (Stabio City), China (ChaShan City), Mexico (Huamantla City) and Brazil (Saint Paul City). Moreover, it has twelve sales centers dislocated around the world, specifically in Italy, China, Germany, United Kingdom, Turkey, United States, Singapore, Spain, Sweden, Thailand, France and Korea¹.

Cogne Acciai Speciali is now a leader in the production of stainless steels and nickel alloys, and it is now pursuing a sustainable strategy. Actually, the enterprises are bringing about its sustainable planning which is focus on the environment's, societies, and people's issues. By virtue of its sustainable action, the company has decreased the percentage of employees' infortunes from 39% (2019) to 23 % (2020) and reduced the gas emission to only 13.665 tons of CO₂².

Cogne Acciai Speciali Group has closed the year 2020 with a number of sales of 455 millions of euros, with a delivery of stainless steels of 143 tons.

Today the firms argue to continue its investments on the innovation and sustainability actions³.

Industry

Cogne Acciai Speciali is an Italian company specialized in the steel production and it belongs to the steel manufacturing business.

The Italian steel sector is one of the main productive levers of the national industrial system, with seventy thousand direct employees and a value of almost sixty billion euros⁴. Moreover, it is recognized as the first European market for recycling volume.

World steel production has grown by 13% in the first seven months of 2021, reaching almost 1.2 billion tonnes, a level that exceeds the levels of 2019 by 7.5%⁵.

The market is dominated by Asia with a market share of 73%, where China has a market share of 56% with a production of 650 million tons.

Competitors

The main competitors of Cogne Acciai in the steel manufacturing market are North American Hognas, Aceros IMS, Chatham Steel Corporation and Erasteel.

North American Hognas is a subsidiary of Hognas AB, and it is located in Pennsylvania. It produces metal powder solutions for sintered food fortification, sintered components, friction material, soft magnetic composites, surface coatings, welding, printing, automotive resistance welding, alloying, oxygen absorbers, and various other chemical and metallurgical applications⁶.

Aceros IMS is a Spanish firm specialized in the steel production and it belongs to the international IMS Group. ACEROS IMS is today the leader company in the Iberian Peninsula in the distribution of Special Steels, with an annual turnover of about 100,000 tons, and a portfolio of over 7,000 customers⁷.

Chatham Steel Corporation was born in 1915 in Georgia and has become a steel service leader with more than 2,500 active clients⁸. Nowadays, Steel Corporation, still headquartered in Savannah, has additional divisions in Columbia, South Carolina; Orlando, Florida; Birmingham, Alabama & Durham, North Carolina. Its core products are: Structural & Bar Shapes, Plates (Carbon, Alloy, Stainless, Aluminum),

Bars (Hot Rolled, Cold Finished, Stainless, Aluminum), Sheets (Black, Galvanized, Stainless, Aluminum), Pipe & Tubing (Carbon, Alloy, Stainless, Aluminum), Expanded Metal & Bar Grating (Carbon and Stainless), Fiberglass Grating.

Erasteel is based in Sweden and has a unique knowledge in powder metallurgy in its new PEARL center (Powder Expertise and Research Laboratory). It is focused on a wide range of steel grades and product forms, and it is active in 48 countries with a network of 13 sales offices located around the globe.

Introduction

The purpose of the following case study is to describe the innovation process implemented by Cogne Acciai Speciali, highlighting its strategy, the impact on the company, and the advantages obtained.

The case study is composed by three main parts: the first part relates to the history of the firm walking through the origin process until the present; the second part focuses on the innovation process considering the different strategies adopted by the firm. The last part of the case study describes the results of this innovative process.

The steel production in the Alps has remote origins, as evidenced by the numerous ancient one's forges still present in the area. At the end of the nineteenth century, the richness of raw materials and energy in the Alpine and pre-alpine areas was crucial for developing the steel and metalworking industry. However, the Italian industry missed the technologies for transporting raw materials and hydroelectric energy for blast furnaces and induction.



Figure 1. Cogne Acciai Site in Valle d'Aosta

Source: <https://cogneacciaispeciali.intervieweb.it/it/career>

History of Cogne Acciai Speciali

In this context, the strategic and entrepreneurial action of the Belgian entrepreneur Charles van der Straten Pontoz was fundamental for the beginning of the Italian steel production. Actually, he gave birth to "Cogne" company in the city of Aosta at the beginning of the XX century to work on this magnetite extracted from the mines of Cogne. In particular, the iron ore (magnetite) was initially mined in the outcrops of Liconi. Due to the enormous volume of mineral distributed in two main lentiform bodies connected, the firm realized the decline of Costa del Pino from which a carriage on tracks takes the tout-venant to the launching bridge of the cableway for the plant treatment of Cogne. From here the mineral enriched by magnetic separators came almost completely transported via the Cogne-Acque Fredde narrow-gauge railway in the tunnel, up to Eaux-Froides (in the current area of Pila), from where the cable car reached to the Aosta plant. Going deeply through the process: firstly, the firm extracted both the coal and the anthracite for casting from La Thuile; then the anthracite was conducted to the Colle San Carlo area and sent, via the La Thuile-Arpy railway and cableway, up to Morgex, where it underwent the first treatment and loaded by train on the Pré-Saint-Didier railway - Aosta. At the same time, the lime, necessary for the production of cast iron, was extracted in the Pompiod quarries, near Jovençon, on the border with the municipality of Aymavilles. During the First World War Pio Perrone completed the work giving birth to a state-of-the-art electrical steel mill which could exploit the energy produced in the power plant hydroelectric plants of Aymavilles, Chavonne, and Champagne.

At the beginning of the '60 years of the last century, the company set up its hydroelectric power plants and disposed of the mines of La Thuile. The empowerment of the transporting way enabled to stock up the raw materials from abroad struggling again the shortage of the Italian field. In the mid-seventies, the Aosta plant, owned by the IRI-Finsider Group with State ownership, as Italsider became Ilva again because of a revamping⁹ action, which consisted of a transformation necessary to improve all the plants with new and more modern technologies, to

be able to compete in the world market. At the end of the revamping action, Cogne had modern AOD¹⁰ converters for the rapid production of stainless steel, an electric melting furnace and a second furnace able to produce completely from the scrap, an off-kiln plant called ladle furnace (LD or ladle furnace), a degassing plant RH and a recasting plant under slag for high final quality. Despite the company's good reputation, Cogne was not spared from the troubled history of the Italian steel industry in the seventies and eighties, risking the closure of the plant in the early nineties. This probable closure was due to the decision of the Ilva Group, which in those years owned the Valle D'Aosta plants and decided to concentrate on the production of flat steel. On 1 January 1994, the company was acquired from the Swiss Group Marzorati. These entrepreneurs have merged with the company's planning, restructuring and relaunch, thus re-entering the leading producers in the long stainless-steel products sector in Europe and worldwide. From this moment, the firm set up several plants for producing different and special kind of steel. In recent years, the firm has accomplished a strategic plan which had the following purposes: the reduction of the cost of the product, the maintenance of high-quality level, the improvement of commercial effectiveness the development process of know-how, the increase of the level of customer service, the safeguard and implementation of the high product specialization, the change of the corporate culture by supporting a more competitive and more widespread market approach. However, Cogne Acciai Speciali had to face up the difficult situation of the Steel Business due to the aggressive competition of the Middle East Production. The critical situation was due to the saturation of the market, caused by shortage demands of customers against a high offer of steel products. In this situation, Cogne Acciai Speciali understood that the only way to survive was to produce a high quality and certified products to satisfy the demanding request of Oil & gas, Automotive, Aerospace, Defence, Medical, Energy, Food customers and niche market for specialties products.

Nowadays, the steel company represents the most important industrial reality of region for the number of its employees (with over 1000 employees only at the Aosta plant, 1440 worldwide) and turnover (over gross value: 576millions euros and net value: 13,6milions in 2019, prospected gross value: 577milions and net value: 30milions in 2021). It is also a multinational firm with manufacturing locations in Aosta, China, Switzerland and Mexico and commercial offices in France, Germany, UK, Switzerland, Turkey, Korea, Singapore, Thailand, USA, and Brazil. The principal sector of its products is Oil & gas, Automotive, Aerospace, Defence, Medical, Energy, Food, and niche market for specialties products. In order to be still competitive in the steel market, the firm is applying an innovation process that will be described in the following paragraphs.

Innovation Process of Cogne Acciai

We can distinguish two moments of the revolutionary process of Cogne Acciai Speciali. The first one has started in '70 years with the introduction of automation in the enterprise, while the second one with the appearance of digitalization in the enterprise's reality (Industry 2.0) during the '90 years. The second process started by asking its employees to report their data and activities digitally on a specific computer. From this moment, the employees began to compile the timesheet of their works and take note of the task done day by day in their personal PC. Then Industry 4.0 started and, it committed Cogne Acciai Speciali reality. The management set up a specific strategic plan for connecting and synchronizing the machines with new digital tools. This last strategy was relevant for the firm's life because it allowed it to be opened to the market and its customers. Therefore, the enterprise started to understand the customers' needs and requests and changed its production strategy shifting the production based on the stock availability to a customer-pulled manufacturing. This last change is strictly related to the name "Cogne Acciai Speciali" because it enhanced the quality of production and allowed the firm to customize its offer based on the customers' requests. This last change got the enterprise on track with the new market trends. In 2018, the management introduced the Lean project in the plant, an important continuous improvement program that is still in progress with the goal of simplifying and "leaning" the whole process of the plant.

Drivers of the innovation process

It is necessary to be precise that the innovation process is still ongoing to be on track with the market trends and both external and internal drivers have influenced it.

Considering all external drivers of this long process, the client has a crucial role because of its requests about innovative products and new parameters of his processes. This type of request is common, especially for aerospace businesses, which have particular treatment of gas and toxic materials. Considering these specific requests, Cogne Acciai has digitalized its products and gained standard quality for accomplishing certifications required from the Aerospace market. In this way, Cogne Acciai Speciali has enforced the relationship with its clients because it offers a certified and customized product. Another key driver for the digitalization process has been the industry 4.0 incentives¹¹, which means the possibility to use some specific state funding for purchasing new digital machines with tax breaks. This chance has incentivized firms to replace the old machines with state funds.

The last external driver has been the relationship with suppliers: when the firm buys new machines, it also receives the license for using the software of the supplier's machine. In this way, when the firm purchases a new digital product, it also enriches its digital know-how.

Regarding the internal drivers of the innovation process, both the Internal Technology Office and Production Office have boosted the digital revolution for achieving better production and looking for new opportunities for Artificial Intelligence applications. In particular, the innovation process has improved the maintenance process of the machines thanks to the instant availability of data related to the working-hours, the percentage of use and vibration intensity. In this way, the production office is always updated about the inner situation and the state of the machine.

Strategies of the innovation process

Cogne Acciai Speciali began its innovation process by digitalizing its old machines, instead of disposing them considering their long useful life. In this way, Information Technological Office has to adapt the old machines with the new software implemented by the firms. Even though this strategy was very expensive in terms of time and costs, it was advantageous in terms of productive, commercial, and organizational aspects. For the side of the production, the firm could finally manage the state of progress of work, knowing the time delivery and tracking the product during the shipping. Thanks to this interconnection of data, the customer relationship was improved by the fact customers are always informed about the estimated delivery time and availability of quantity. From the organizational side, it has happened a job enrichment because employees have new tasks related to the digital appliances. In this way, employees are more satisfied by their work because they can easily manage their activities using digital appliances and they can learn how to use new appliances following teaching courses made by the office training of the firm.

Second strategy of the innovation process

After the implementation of its first strategy, Cogne Acciai Speciali has decided to buy new digital machines. The last digital acquisition relates to a mill for the vacuum reflow of material for aerospace purposes; specifically, the company has acquired the machine and, during the negotiation with the providers, has asked to add a specific digital tool that could easily interconnect with their current systems. Thanks to this new digital machine, the company has the possibility to offer a specific product for the aerospace business. The machine in question is the new VAR plant which is used to improve the stainless-steel alloys

For a successful strategy, the company must forecast the machine and systems to be purchase during negotiation with the supplier as both parties are in a win to win¹² position. At the end of the purchase process, instead, the provider can ask additional high fees for implementing the desired system.



Figure 2. New VAR plant

Source: Cogne Acciai Speciali (n.d.) <https://www.cogne.com/nuovo-impianto-var/>

Business issues/challenges

Difficulties of the strategies

Although the innovation strategies are very advantageous, they also present some difficulties.

Regarding the first strategy, the IT Office has to decide what machines to involve in the digitalization process, and then understand how to connect the old machine. This last point is commonly due by creating a specific interface between them. That is not an easy process because the IT Office has to ensure the correct upload of the data without losing any details.

The second strategy actively involve the commercial office, which has to detect the right digital machine to buy based on the market forecasts. After that, the procurement office in collaboration with the IT Office has to negotiate with the suppliers for acquiring the desire product and for adding a specific digital tool to it. So that the cost of the new machine includes the cost of the machine and the digital tool.

The two strategies described above are different but both of them are very time consuming because of the commitment of many factors as the choice of the right supplier, the individuation of the new digital machine, and the planning of the digitalization of the old machines. In fact, both of these two strategies require at least six or twelve months during which the IT office install the new machines or, in case of the first strategy, synchronizes the old machine with the new system. Comparing the operative process of each strategy, the second strategy could be cheaper only with a pointed negotiation with the providers for obtaining a new machine synchronized yet with the company's tools. In this why the firm could avoid spending its resources to create a specific interface for connecting the old data with the new digital tools.

Advantages of the innovation process

The innovation process has been advantageous for organizational, commercial, and process aspects.

Regarding the organizational process, the company has divided the role of lead management into two new figures: the flow manager and the technician of development. The former relates to the entire process as its activities, resources, and routine aspects. The latter, instead, is in charge of managing the innovation process, by doing specific studies and looking for new products. Moreover, the digital process has enriched the employees' tasks by adding

digital job to their habitual goals. Therefore, the employees feel gratified because they have new responsibilities and learn how to use the new digital appliances.

With the respect to the employees' education, the company has also started to arrange specific course for teaching them how to use the new appliances and systems. So that, also the training office has been involved in this long process. Another implicit factor in the digital process was the division of the factory into mini factories (Steel shop, forging shop, rolling shop) with its own logistics center for stock entry and exit management.

From the point of the commercial view, the digitalization process has empowered the relationship with the clients, because it facilitates to understand the market request and to receive direct feedback from the clients. Moreover, these systems facilitate the management of eventual product damages, the client's claims, and the eventual product exchange. That is why Cogne Acciai Speciali are known in the market for his or her specific features, which are "unique" for each client.

Turning to the process aspects, the innovation process has made processes more fluid in terms of time and activities. In this way, the firm can apply a higher markup intended in terms of process margins. The most advantaged processes were the quality process for accomplishing specify certification for the aerospace business and the production process. Regarding this last process, the production office can rely on the automatic data regarding the KPI of the process, specific dashboards, and other useful indicators. Then the other process of the firm, as the commercial and controlling area, receive the information through the digital systems ready for being used for analyzed for managing the trend of the sales, the costs, and the budget of the firm.

Economic Advantages¹³

It is possible to understand the value added by the digitalization process analyzing the economic results during the years.

In particular, it is important to understand the trend of the revenues during the period 2004-2020.

Profit & Loss	31/12/2004	31/12/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020
Revenues	449.961.888	458.802.671	564.367.978	590.983.033	573.714.826	455.462.425
Changes in inventories of work in progress, semi-finished and finished products	13.813.867	16.130.904	10.645.621	26.754.357	(20.968.988)	(9.967.092)
Increases for assets of internal works	-	-	-	-	-	1.088.487
Other revenues and incomes	6.213.744	7.164.435	5.917.631	3.347.304	3.534.126	4.842.046
Total value of the production	469.989.499	482.098.010	580.931.230	621.084.694	556.279.964	451.425.866

The first aspect to consider is the total value of production, which represents the quantity of the value produced by the production activity of the firm. It is evident that the firm has lived a continuous growth of its revenues from the 2004 until the 2019. After that, the firm has lived a decrease of this value due to the spread of COVID-19. It is not to underestimate the increase of assets for internal work of one million of euros referable to the huge investments made by the society during the last year for the new mill shown in the paragraph of the second strategy. Another important key factor to consider is the ROS indicator (Return on Slaes) during the period 2004-2020.

Indicator	31/12/2002	31/12/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020
<i>Return on Sales (ROS)</i>	6,58%	2,2%	4%	7,75%	3,63%	-1,99%

The ROS indicator has changed a lot during the period 2002-2020 especially for the crisis of the 2008, in addition, the spread of the COVID 2019. However, it is possible to assert that

the digital transformation has positively affected the ROS trend, especially during the period of 2017-2018.

The last factor to consider is the cost for software of the society during the period 2004-2020, which refers to the firm's investment in digitalization.

Balansheet	31/12/2004	31/12/2016	31/12/2017	31/12/2018	31/12/2019	31/12/2020
Cost Software	1.702.000	3.920.000	4.151.000	21.897.000	-	-

The cost of software is increasing since 2004 concurrently to the application of the digitalization process.

Disadvantages of the innovation process

Despite the many positive aspects, the innovation process still had repercussions on corporate life. If on the one hand, it has made processes more efficient, on the other hand, it has increased their complexity

To attempt to homologize the organization to this hard change, the company has had to invest heavily in employee training courses, documents, and guidelines. Moreover, a major part of the workers has been displaced from the operative works to the management of machines, devices, IT teams. In this way, the organization has had to control this inner changing of the organization in the best way.

However, electronic devices within the company, considering it "invasive" towards their privacy, are affecting employees. This last aspect relates to the fact that the GPS of the company phone is always on and therefore the company always has access to the location of the employees; another example is the company's ability to monitor applications on various devices.

Conclusions

The innovation process within Cogne Acciai has proved completely successful. Thanks to it, the company has managed to break down foreign competition and achieve a significant position on the steel niche market. The company, in fact, is known for its high quality and, above all, certified steel. Cogne Acciai Steel, in fact, is compliant with high industrial standard of quality (EN 9100 e IATF 16949:2016) and the international rule of 9001¹⁴. The achievement of these quality levels was favored by the economies of experience within the processes that led to obtaining a very high markup on products.

Currently, the company is still investing in the digitalization of processes; suffice it to say that in 2020, 50 percent of investments in plant and machinery were allocated to strategic and innovation projects¹⁵.

The focus in recent years has been the production of super alloys for specific applications in highly critical conditions e.g., extreme operating temperatures and corrosive environments¹⁶. In the Steelworks area, the activities carried out have made it possible to cast in continuous of a super alloy with high corrosion resistance and high hot mechanical properties, currently used in the Oil & Gas and Automotive sectors. This alloy results only ingot castable and perspectives of a continuous casting make the significantly leaner production process. Lastly, we remember the activity carried out in the Continuous Casting department of the Steel Plant area, relating to the use of sensors (Artificial Intelligence) in the mold for the real-time measurement of the temperatures at the solidification meniscus of the billets. This data, suitably named "Cogne algorithms" was used to feedback the correct adduction of steel/mold lubrication powder. Thanks to Cogne algorithms, the company has strongly changed and revolutionized its process making linear and synchronized.

Other important innovation strategies implemented by Cogne Acciai were the introduction of the ISPP, which is the technological and metallurgic innovation, which develops the knowledge of the materials used in the production process, and the Forge3d Process that involves the shaping of metal using localized compressive forces.

Moreover, the company introduced the metal machining and machine learning of laboratories. The former allowed perfecting the materials for their production processes and getting them closer to customers' requests, the latter permitted to reveal the product's defect through the analysis of the surface.

The last two digital introductions have been the Tracking and IBA of the plants for having continuous right data and perfect analysis of the works and the development of the software UNIBS. UNIBS has allowed designing the field deformation analysis of the TBB, to obtain the deformation curves of the materials.

The whole innovation process described above could be synthesized with the following phrase of Cogne Acciai Balance: *"Our commitment is to offer the market long stainless-steel products through solutions that guarantee safety and efficiency, developing a product portfolio able to meet the needs of the sectors in which we operate. We constantly develop and innovate processes and products at our site in Aosta, also thanks to the knowledge of our customers' needs and the competence of the sales department."*¹⁷

It is significant to note that the foresight and proactivity of the management have given rise to an innovative entrepreneurship model, based on digitalization process, the revitalization of company operations and, at the same time, the entry into specialized and high-quality markets. All this has ensured the creation and subsequent development of an environment conducive to innovation, generated mainly by the employees of the IT Office who initially had to understand how to digitize business activities and, subsequently, developed by the rest of the employees who had to adapt to the new technologies and learn how to use them. Considering all this, the capacity to exploit resources to generate innovation and retain this ability shows how Cogne Acciai Speciali can be rightly intended as a "corporate entrepreneurship case study, useful to understand how to develop a firm's mindset to foster innovation exploitable for digitalization.

Footnotes

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9. Revamping is an English term used in railway terminology to indicate general refurbishment of rolling stock such as locomotives and passenger coaches, with the involvement of all the equipment in the medium and with structural interventions on the body acts to also change the appearance of the exterior.
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Discussion Questions

1. Which are the main drivers of the innovation process implemented by Cogne Acciai Speciali?
2. Why does the firm’s name the adjective “Speciali”?
3. Which are the main advantages of the digital process?
4. How did the firm’s life change after the digital process?

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Case 13: How to digitalize manufacturing SMEs: The case of Medaarch/CAD

Abstract

The Medaarch-CAD case is the story of an Italian consulting firm, which core business is to help SMEs, artisan firms, startappers and makers to exploit the potential of new digital technologies in transforming their business and acquiring valuable knowledge in the field. The CAD (Centro per l'Artigianato Digitale) was not born as a scalable business model, however, given the success achieved by the CAD, today many firms, public administrations, and associations would have a CAD in their territory. The challenge now is to replicate the model: to make the model replicable in other contexts without losing the unique value proposition that characterize the model of CAD.

Key Words

Business Model Scalability; Digital Transformation; Small and Medium Enterprise; Digital Entrepreneurship; Digital Craft.

Introduction

The Medaarch-CAD case concerns an Italian consulting firm, which core business is to help SMEs, startappers and makers to exploit the potential of new digital technologies in transforming their business and acquiring valuable knowledge in the field. The story begins with the description of the associative aggregation, of a group of freelancers who, passionate about digital technologies, want to carry out evangelization activities in their home territory, with aim to create an economic and social impact. The time perspective that is taken into consideration is the period 2007-2020. The description initially focuses on the figure of Amleto Picerno Ceraso, a brilliant architect who, after years spent abroad, decides to return to his hometown because he wants to contribute to the social and economic development of his territory. The description continues with the analysis of the activities and crucial steps that led to the foundation of Meedarch. The case then focuses on the elements that led to the opening the "Centro per l'Artigianato Digitale" (CAD) the first digital innovation center for handicraft in Italy. The challenge for students concerns the identification of limits and possible solutions to make the CAD model replicable as many local administrations are looking to CAD as a benchmark in local development.

The birth of a dream

The history of Medaarch begins in 2007, when a group of freelancers in the field of engineering and architecture began to carry out dissemination and "evangelization" activities on the opportunities of new digital technologies, for SMEs and young students.

The group of freelancers was led by Amleto Picerno Ceraso, an architect from Salerno who, after graduating in Architecture at the "Sapienza" University of Rome, specialized in digital architecture, before at the National Institute of Architecture and then at the Institute of Advanced Architecture of Catalonia of the Fundació Politècnica de Catalunya (IAAC). After working as a freelancer, around Italy and Europe, he decides to return to his hometown, Cava de'Tirreni, in the province of Salerno, in southern Italy.

The city was inhabited by just over 50,000 inhabitants and is bordered to the south by the Amalfi Coast and the north by the rich industrial area of Agro Nocerino Sarnese. The geographical position, and its historical heritage, makes Cava a unique city where craftsmanship and industry have found, over the years, a prosperous balance.

Driven by the vision and the passion of Amleto, two of his friends decided to support the project: Giampiero Ceraso and Francesca Luciano, the first an engineer, the second a marketing and communication expert. International experience has not removed Amleto from his land, on the contrary, it has increased in him the desire to invest his best years to favour the social and economic development of his city.

Amleto love for his land went beyond the confines of Cava de' Tirreni. He was and is fascinated by the philosophy and history of the Mediterranean, which he calls "*the first form of the internet*". In 2007 the three friends organized, at the townhall of Cava de 'Tirreni, the first dissemination event on digital technologies, involving speakers and guests from all over Europe. On that occasion, Amleto took the first step towards the realization of his dream "*work for the development of its community*".

This was it just the first of many events that the group of friends, united in association, has realized in the following years between the municipalities of Cava de'Tirreni, Salerno, and Naples. Together with to evangelization activity regarding digital opportunities for SMEs in the area, the members of the association carried out their professional activities.

In 2012 the association opened the Mediterranean Fab Lab in Cava de'Tirreni, the first Fab Lab in Southern Italy. The Mediterranean FabLab, together with the Fab Lab of Turin, became the reference offices in Italy for the Fab Lab movement. The Fab Lab movement (fabrication laboratory) was born in 2001 at the Massachusetts Institute of Technology (MIT) in Boston in the USA, and had its official European headquarters in Barcelona, at the IAAC. During his years of study in Spain, Amleto often attended the Fab Lab in Barcelona, and being able to open the Fab lab in Southern Italy was the second fundamental step in making his dream come true. The Fab Lab movement is based on the philosophy of Open Innovation¹. Philosophy also adopted by the team driven by Amleto, which structured the development of the Fab Lab, leveraging an active collaboration between public administration, universities/research centers, and companies.

The Fab Lab was (and is) a laboratory equipped with digital manufacturing technologies for the prototyping of objects, tools, and electronics. Inside the Fab lab, Amleto and the other founders began to use additive manufacturing technologies for digital manufacturing in the field of architecture and design. Experimenting daily with the different technologies, the engineers and architects realized that these could also be interesting for other professionals, small artisan companies, organizations, and foundations of a private nature that used the themes of digital innovation as levers for active policies of the revitalization of the territories.

It was 2015 when the three friends realized that it was the right time to combine their professional and social goals and founded their company: Medaarch. The name identifies the company's values, rooted in the overlap between the "Mediterranean philosophy" and the vision of the founders. Medaarch is the crisis of the Mediterranean Academy of Architecture, and therefore contemplates two fundamental elements:

- A human-centered Mediterranean character, that mediates the human instances with other instances, and uses technology to accomplish both.
- The aim of creating connections between different disciplinary fields, people, and resources, inspired by the Mediterranean model.

Amleto, Giampiero, and Francesca have managed to transfer their vision and their life goal to a firm, that fully reflects their values and their attachment to the social and economic development of their area. The entrepreneurial vision of Amleto and his team is different from the classic approach, exclusively oriented to profit. Co-founders' goal is to move their activity from an association of professionals to a firm, managing to achieve profit goals together with the realization of the well-being of the people who relate to the firm (collaborators, customers, and stakeholders). Another key aspect in the vision of Amleto, as an architect, designer and entrepreneur are sustainability. Sustainability, as intended by Amleto, goes beyond just preserving the natural environment, but refers to an ethical approach in doing business, respecting the environment, communities, cultures, and therefore, all the people with whom one relates.

What Amleto did not know is that he was taking on a new entrepreneurial strategic posture, which in literature is known as Humane Entrepreneurship (Parente et al., 2018; Parente et al., 2020).

The Medaarch: activities and business model

The firm has developed a business model based on three income lines: architectural design, training, and consulting. The architectural design activity was the continuation of the activities that the co-founders carried out as freelancers. Their vision is inspired by Lewis Mumford's philosophy, according to which it is necessary to reform places and cities, to change society and therefore men. The spirit of scientific communicators of the co-founders found expression in the creation of the training department, which offered training courses on digital technologies to both schools and companies right from the start.

The years spent in dissemination activities on new technologies among SMEs and artisan companies in the area, has allowed the co-founders to understand in-depth nature and innovative needs of those realities, a know-how that has been fully poured into consulting. Medaarch is based on the vision of an ecological innovation model in a broad sense, concerning the environment, people, and society. As Amleto likes to repeat "*Innovation and ecology go together, they cannot be separated, because if an innovation is not ecological then it is not an innovation.*"

The common thread, which binds the three pillars of the firm's business model, is the continuous research activity, also carried out in collaboration with universities and research centers aimed at concrete application in the different activities like consulting, design and development, and training. Through the time dedicated to training and consulting activities, Medaarch has established itself as an enabler of digital transformation processes for small businesses in the area.

From 2007 to 2015, Amleto and his partners met thousands of small entrepreneurs and artisans, understood their needs and the criticalities of their business models, thus acquiring specific know-how on this target. The co-founders realized that small businesses did not have time to invest in research and often could not manage the development of innovative solutions/products. The entrepreneurs were engaged in daily activities and were not able to develop R&D plans, especially those which requires a new set of knowledge like that of mastering digital technologies. However, they understood that many small entrepreneurs were more willing to invest in innovation, in two specific cases, in the presence of a generational change or in the event of a strong corporate crisis. Talking with the entrepreneurs they realized that, in most cases, they already knew what they wanted to do, but did not know how to do it. Amleto and partners, therefore, decided not to be a classic consulting company, but to be "*activators of innovation paths*".

They chose to structure a consultancy approach focused on SMEs because they understood that in these companies it was not possible to implement disruptive innovation processes planned from outside, but it was necessary to adopt a different approach. The approach to innovation that SMEs needed was structured in small doses of research and development, scheduled in small steps, and built over time. Amleto, Francesca, and Giampiero have developed an ad-hoc innovation consulting model, used for both process and product innovation, called "*innovation of acupuncture*". The acupuncture approach was based on the realization of an Innovation workshop path within the client company, lasting 5 days.

The first phase took the form of brainstorming and idea generation activities, with the active involvement of all employees. The second phase took place in the Medaarch laboratories, by digital technologies, mainly software and machines for digital manufacturing, the company's employees, led by Medaarch trainers, developed the prototypes of the imagined solutions.

In the years of consulting, Amleto realized that the approach was successful for two main reasons. First was that SMEs being willing to spend just a little time on R&D. The second reason concerned the making of the prototype. Through the development of the physical output of

the product, the staff of the companies involved understood the materiality of the solutions, and they realized that digital innovation was something factual and not abstract.

The business of Medaarch, based on the three different departments, has had a progressive growth and, between the end of 2016 and the middle of 2017, Amleto and his partners, in collaboration with the consulting firm "Knowledge for Business"² founded "BIOlogic FabLab" and the start-up " TecUp".

BIOlogic is the first Bio Fab Lab in southern Italy, a research and development center that uses biological fabrication technologies to develop new solutions for the manufacturing and cosmetics industries.

TecUp is a start-up that deals with technology transfer and Open Innovation and involves a board of referees, over thirty scientists, experts in science and technology, coming from the universities and the main Italian research centers.

The Open Innovation philosophy was central in the vision of Amleto, which had understood the value and centrality, of this approach in the development of innovative strategies for the SMEs.

The dream that brought Amleto to Cava in 2007 seemed to have come true. However, as an architect and follower of Lewis Mumford's philosophy, Amleto knew that to really impact society it was necessary to "reform places and cities".

The Medaarch has developed on various lines of activity:

- Design for architecture and engineering thanks to the use of new technologies of computational design and digital fabrication.
- Mediterranean FabLab, first laboratory of digital fabrication of southern Italy, recognized by the MIT-Mediterranean Academy of Architecture: research, development, and training center on architectural design in digital era.
- Mediterranean Sustainable Lab, a space dedicated to the creation of a laboratory of agriculture, Food, and energy for a resilient community.
- FabLab Salerno, Digital Manufacturing Laboratory, recognized by the Fab Foundation and aimed at the development of Solutions and projects in architecture and urban redevelopment.
- CAD (Centro per l'Artigianato Digitale), the only place in Italy dedicated to the revival of artisan activities that exploits the potential of new technologies of digital fabrication.

The CAD (Centro per l'Artigianato Digitale) and its business model

In the center of Cava de'Tirreni, in front of the town hall, there was a structure that had been abandoned for many years, that structure years ago hosted the fish market. After being abandoned it was used as a social center, but the project unfortunately failed. Exposed to neglect, the structure had become degraded and unusable. In 2015 the municipal administration decided to renovate the structure, with European funds. The goal was to regenerate that abandoned space and allocating the area to the relaunch of manufacturing and craft activities in the area. The city administration seemed to have intercepted the same vision of Amleto, and Medaarch with her design department decided to participate in the tender for the renovation of the building. The team was very enthusiastic because they had the opportunity to redesign one of the symbolic places of the city.

The enthusiasm was poured into the development of the project, which was chosen as the winner of the tender.

In 2018, the building was delivered, and the municipal administration issued a tender for the assignment of its management. Amleto saw in that call the answer to his dream. The opportunity to manage a structure of 800 square meters in the center of Cava de'Tirreni, in which to help artisans to relaunch their activities, was an incredible opportunity.

Amleto decided to develop and submit a project entitled "Center for Digital Crafts" (CAD) which was based on the integration between digital technologies and craft skills and had the aim of creating a new form of craftsmanship.

The CAD imagined by Amleto consisted of over 200 square meters reserved for laboratories, 150 square meters for training rooms, a co-working space, and a gallery open to the public on which 12 shops intended to host artisans and startupper shown their digitally designed and/or manufactured products.

Amleto imagined equipping the laboratories with all the necessary technologies for the realization of digital manufacturing, tracing the great manufacturing assets. Digital manufacturing is in fact complex and is divided according to how it treats the material, there is the additive, subtractive, deforming, hybrid one and now the biological one has been added. Amleto wanted the Laboratory to offer artisans and startupper the technologies necessary to cover all the different types of manufacturing. For the realization of additive manufacturing, different types of 3D printers were required, which differ in calibration, size, purpose, and processed materials (gold, terra-cotta, carbon fibers, polymers, etc.). There also had to be technologies aimed at the development of robotic solutions (which concern both additive and deforming manufacturing), but also large-format pantographs with three interpolated axes, for the development of solutions related to subtractive manufacturing. Over the years Medaarch had known the entrepreneurial reality of the area, understanding the economic and social dynamics.

The business model developed was based on a differentiation of customer segments and revenue model. He envisioned CAD as a place for everyone to have the chance to experiment, so he wanted to create a formula to allow access flexibly. In the model developed, CAD services could be accessed through three different paths, as a nomad, as a resident, or through an incubation path. The business model that Amleto had developed took into consideration both the characteristics of the territory and the social trends that had been spreading for years in the USA and large European cities.

Amleto decided to allocate a space of the structure to digital nomads. These are freelancers that decide to work without a fixed office. They rely on coworking spaces to access an office and a good Internet connection, paying for access even only daily. The CAD model, however, was different from the classic coworking. Amleto called CAD a "co-making" because his goal was to make laboratories equipped with expensive machinery accessible to anyone, even if only for a day.

In the CAD model, the residents were instead SMEs or artisans who needed permanent access to the laboratories to experiment and carry out R&D activities. For them, Amleto imagined access to a permanent location in the Center and the laboratories by paying a fixed monthly fee.

For young artisans and startupper, Amleto imagined an incubation: L'Atelier dell'Artigianato. An incubation path that could offer training on new technologies, business development, and marketing, as well as access to a personal shop inside the shopping gallery.

Amleto and his team knew the CAD spaces well because they are having designed the restructuring plan. As they developed the CAD project, they could already imagine it concretely. With high hopes, Medaarch submitted his project to the municipal administration. The model designed by Amleto became reality on December 3, 2018, the Medaarch has inaugurated CAD, as the first center in Italy dedicated to the digital transformation of artisans.

The CAD is managed by Amleto and the Medaarch team who carry out the events, training activities and manage the incubation program. The model went into operation just as it had been developed, and from the first day it hosts nomads, residents, and young incubated artisans.

One of the first nomads who had access to CAD is Gianluca, a freelance in digital marketing. After leaving the marketing department of a US multinational, he decided to set up his own business and become a digital transformation consultant for SMEs.

Gianluca was a partner of a freelance network, and, for work, he travelled all over Italy. He chose the CAD as the seat of the Salerno area because he shared the same values of Medaarch and, he could see the potential opportunity for contamination offered by this structure. Today Gianluca still frequents CAD as a nomad he likes to define the place as "*fertile ground*" where

every day he can learn something, which he brings with him when he meets entrepreneurs for consultancy.

The contamination was a Mediterranean element that Amleto has replicated also in this project. The CAD was imagined from the first time as a place of connection within a national network that involves universities, companies, professionals, and startupper and the events organized involved hundreds of guests.

The knowledge and social contamination that Amleto imagined, however, had to be a constant, not linked only to events. From the first day in the CAD laboratories, there has been strong contamination between artisans, freelancers, and makers who research in the laboratory daily.

One of the first firms that entered the Center as a "resident" was Sautech, a firm specializing in industrial automation and robotics. The firm was already old ten years and international customers when it decided to settle in 2019.

As told by Jolanda Coppola, project manager and head of the R&D activity of Sautech at CAD, the desire to become part of the CAD ecosystem was born from the desire to experiment with new productions, integrating technologies with the artisan excellence of Salerno territory. The first project developed in the laboratories of the Center concerned, in fact, the application of 3D printing to ceramic processing. Sautech was a recognized firm in the industrial sector automation and chose to use the CAD laboratories as spaces to do R&D on new products. The flagship of the CAD project was the incubation path for young entrepreneurs and artisans who want to innovate their businesses.

Among the artisans incubated in the first edition of the "Atelier dell'Artigianato" was Marianna Capuano, a young artisan with a strong entrepreneurial vocation.

Marianna grew up in the family business (Vetzeria Capuano) and still a child, she fell in love with the art of glassmaking. At the age of eighteen, she decided to go to study documentary photography at the Academy of Fine Arts in Paris. During this period Marianna worked in some of the most important art galleries in the French capital and around the world. When she returned to Italy, she decided to launch a new line of furniture products in Tiffany technical processing, a technique that she has always fascinated her, and which today is disappearing. Marianna has chosen to participate in the incubation process, to try to transform her project into an artisan start-up. His firm's name reflects the love for the territory to which it belongs and for the country (France) that formed it: "Macavè".

Through the incubation path and the access to laboratories and training, Marianna was able to launch her business and to innovate their production of artifacts, having the ability to create unique shapes, impossible to achieve without the support of digital technologies. In addition to training and access to technology, one of the elements that for Marianna was decisive for the realization of her idea was the possibility of becoming part of a very active network. CAD visitors were (and are) people who love to experiment and have a strong entrepreneurial vocation. The incubation process during 12-month and costs about € 7,000. However, it gives access to a set of services for a total value of € 25,000. Moreover, through the agreements with companies, foundations, and institutions, the CAD has managed to guarantee full coverage grants.

All the "tenants" agreed in affirming that the greatest growth element of their path to CAD was the growth opportunity deriving from contamination, an essential element of the Mediterranean model that Amleto has successfully replicated.

The CAD users define it as a place in which synergies and human relationships are created and in which to work is stimulating and fun. The care for the people who attend the center as employees or customers is a key driver of the strategies and actions of CAD, recalling the basic assumptions of Humane Entrepreneurship Theory. Such entrepreneurial strategic posture characterizes the management of the CAD, where all activities are focused on achieving a positive impact on the people involved in the firm and on the community at whole. For example, the principles of this entrepreneurial posture emerge in the provision of consultancy and

training services, where in addition to education on the opportunities of new technologies, there is a process of education on the ethical and sustainable use of such technologies.

The success of CAD and of the model the founders have developed, is well expressed by some indicators related to the activities realized in the last years³:

- 215 events made up of free activities, meetings, workshops, and workshops for children
- 60 schools involved
- 40 national and international partners
- 1250 hours of training provided
- 2000 students involved in laboratory, creative, and research activities

Today the Center for Digital Crafts is one of the main players in the creation of social value in the Salerno area and Amleto 's dream seems to have come true.

Business issues/challenges

What do you want to be? The CAD as a replicable model!

The CAD was not born as a model designed to be scalable, but as an ad hoc solution for the territory of Cava de'Tirreni, based on a strong collaboration between Public Administration, universities, companies, and trade associations, and driven by a strong sense of territorial belonging.

Public Administrations, trade associations, foundations, and companies have achieved the (economic and social) value that the CAD has created in the city of Cava and the surrounding area. In the last year, public administrations and private individuals have asked Amleto to open new CAD in the territories in which they operate (in different regions of Italy) because they see in the CAD model a possibility of relaunching the territories and of the "Made in Italy". The CAD model, therefore, is not born as a scalable model, but it is the market that asks for its scalability.

Given the market demand, Amleto and his team, are thinking about the CAD model, to understand the reasons for success and identify which of these can be replicated directly and which ones must be customized on the specific needs of the territory. The scalability of CAD is not a necessary strategy to be implemented by Medaarch, because CAD is now sustainable as a single reality and is appreciated in the Salerno innovation ecosystem. However, Amleto and his team recognize the opportunity to open new CADs, to be included in as many innovation ecosystems. The important thing is to develop new CADs that are sustainable and in line with the CAD vision. Amleto and the Medaarch Team are aware that it is not easy to scale the CAD business model and in recent months they are working hard to identify a good strategy. What strategy should they adopt to scale the Center for Digital Crafts model?

In the path of scalability on the national territory, the CAD has as main Competitors two important and internationally known realities: Talent Garden and H-Fram.

Talent Garden (TAG) was born in 2011 in Brescia (Italy) as a Co-Working space and is now a community present with 23 campuses in 8 countries. It is currently the largest networking and training platform for digital innovation in Europe. Its business model is based on the development and management of co-working spaces, the provision of online and offline training in the "Campuses-Tag" and consultancy for the digital transformation of Corporates. Some of CAD's client corporates are Unicredit, Luxottica, FCA, BMW. TAG has innovated the co-working model, leveraging on a vision that conceives the sharing of workspaces not as an objective, but as a means of comparing and communicating different professionals, ensuring that the sharing of spaces is transformed into sharing ideas and collaboration. For this reason, TAG calls its coworking "Campus". The Talent Garden offer is enhanced by a large international community, and the members of the community TAG can access all the campuses, regardless of the campus where they rent a space. Currently, TAG does not manage incubation or acceleration programs, however, it defines itself as a "natural" accelerator, as it is based on an international network of entrepreneurs, startups, companies, and corporates.

H-farm was founded in 2005 as an "incubator" of innovations to help young people to start new businesses. Today it is the largest Italian startup incubator and has become a platform that

associates training and consulting projects with the start-up of new businesses and start-ups that serve to manage the digital transformation and the change that is taking place.

In 2017 H-Farm inaugurated its campus in Ca 'Tron (Treviso, Italy). H-Farm Campus can be considered one of the largest innovation centers in Europe. Sustainable and self-sufficient from an energy point of view, architecturally widespread, and with only 10% built on a total of 51 hectares: the remaining space is used as an equipped park and wooded area (with over 3,500 trees), open to the public. H-Farm has developed in three fundamental areas:

Investments, through which the best initiatives on the large "clusters" of innovations in Italy, fashion, food, manufacturing, etc. are financed. to select the best ideas and projects proposed by competent young people for companies.

Consulting and support for businesses, through two hundred people who work to insert digital within the most important companies, facilitating their activities and processes.

Education from childhood to university and post-graduate courses. The International School (up to secondary school) adopts the "Baccalaureate" method, teaching in addition to traditional subjects such as mathematics, history, and science also the fundamentals of programming, computer graphics, 3D animation, and storytelling, also through the use of virtual reality. Degree programs are provided in collaboration with the University of Venice and therefore have legal value.

To understand the importance of the H-Farm ecosystem, just think that H-Farm was the incubator of Depot, peer-to-peer social shopping, one of the few Italian unicorns.

Conclusions

The mission and vision of the CAD are clear in the minds of its founders, who have understood that to scale the business is necessary to maintain a firm identity and the value proposition that differentiates the business model from that of the main competitors. Now it is necessary to understand what strategies to implement to open other CAD and bring the "CAD digital transformation" model, even in other territories. If you were Amleto, how would you proceed?

Footnotes

1. Y. Shinohara, (2016), "Open Innovation and Fab Labs. Manufacturing Redefined", in "Open Innovation and Development", JICA Research Institute, pp. 20-22.
2. Knowledge for Business is a consulting company specialized in the fields of dissemination and transfer of innovations, offering an integrated service, from design, to partner and fund research, up to the management and implementation of the business.
3. Data from the website: <https://www.medaarch.com/centro-artigianato-digitale>

Discussion Questions

1. Why Medaarch/CAD has been so successful?
2. What is the role of leader (Amleto) in the success of CAD?
3. What is the business model adopted for CAD and what are its main characteristics?
4. How the model could be applied in other contexts?
5. What kind of activities can be promoted and realized to replicate the model?
6. What kind of financial resources could be mobilized to scale the model?

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Case 14: From artisans to digital entrepreneurs: innovating an ancient profession through digital transformation. The case of "La Bottega del Calzolaio"

Abstract

La Bottega del Calzolaio is much more than a shoemaker, it is the story of the Del Vecchio family. A story that begins in 1916 and reaches the present day, passing through five generations. The company is based in Campania (Italy), in the heart of the Piana del Sele, between Battipaglia and Eboli, where the laboratory of over 2000 square meters is located. However, thanks to digital technologies, today "La Bottega del Calzolaio" offers its services throughout Italy and sells its products even beyond national borders, letting this activity to change from "local craftsman" to "national craftsman". Over the course of its history, the company has constantly innovated, and in 2018 it received a truly prestigious award: the Financial Times and Google included the company in the prestigious "Europe's road to growth" list, the list of the 100 leading companies in Europe in digital transformation.

It all started in 2013 when the latest generation Del Vecchio family opened an eBay store which led to a 400% increase in turnover in three years. The online transition was a strategic choice "to keep up with the times" and digitization has not only strengthened the brand's artisan reputation, but also helped to market "Made in Italy" products abroad. In fact, in 2016 the dedicated website "La Bottega del Calzolaio" was born, on which it is possible to offer consumers twice as many products as those available on the shelves of physical stores.

Key Words

Digital Transformation; Business Model Innovation; craftsmanship innovation; Family Business; Digital Entrepreneurship.

Introduction

La Bottega del Calzolaio is a small Italian firm, operating in the shoes' repairing sector. Founded in 1916, it has been carried on by four generations of entrepreneurs of the Del Vecchio family. In Italy, more than elsewhere, the craft of the cobbler seemed a strict artisan profession with no possibility for innovation.

Nevertheless, the last entrepreneur of the family, Orazio Del Vecchio, completely changed this ingrained pattern. Collaborating with the creative consultant Giuseppe Noschese, he has gained some insights, and has revolutionized the traditional work of his father Gerardo by encouraging the innovation of the artisan activity through the digitalization of some components of the traditional business model. In fact, Gerardo tried to innovate the family shop, between service innovations and differentiation. Unfortunately, the man succeeded in his goal only partially. Then, his sons, Orazio and Luca, realized Gerardo's dream, transforming, through digital technologies, the artisanal workshop into a company with a customer base spreading all over the nation. The success of the company was also recognized by Google and the Financial Times, which in 2018 included "La Bottega del Calzolaio" in the list of "100 Digital Champions of Europe".

Now, the frontiers opened by the new digital strategic vision, which aims to better exploit the value of the new business model, requires to go further ahead to manage both the craft side and the business side of initiatives effectively.

Background on the firm, Industry, and Competitors

The history of the Bottega del Calzolaio is more than a century old and involves four generations of entrepreneurs of the Del Vecchio family.

La Bottega del Calzolaio opened its doors in 1916 in Castel Nuovo di Conza, a small town with less than 2000 inhabitants, in the province of Salerno (Southern Italy), where the first "cobbler shop" lived its first 50 years of activity. Here, Luca Del Vecchio first and then his son Francesco do their job, for 50 years with the same workbench and the same tools of the craft.

Earlier, in the small artisan workshop, Luca Del Vecchio both made and repaired shoes with rudimentary tools.

However, over the years, lifestyles began to change, and people started to prefer buying shoes in stores rather than settle for the limited choice of the craftsman: thus, in the 1950s, Francesco, succeeding his father Luca, decided to reduce the offer, focusing exclusively on the shoes-repairing service.

Francesco's son, Gerardo, grew up in the family workshop and, between the workbench and the scent of leather, learned the craft. Indeed, he falls in love with this job.

In the late 1970s, Gerardo was a teenager aware that the family shop could not have guaranteed him a salary. At the same time, the small country did not offer a job opportunity and so he decided to emigrate to Switzerland, as many Southern Italians did at those times.

When in Basel, the young Gerardo worked at the Mister Minit company, a cobbler franchise with shops in the main shopping centers of Switzerland. The franchising business model in the same years was used in Italy only by some large-scale distribution companies. These years abroad are crucial for Gerardo's professional growth and for the Bottega del Calzolaio's history. In fact, at Mister Minit, Gerardo, repairing the shoes, used for the first-time machineries (and not only simple tools), and learned new techniques, such as washing leather.

Gerardo was fascinated by the company's business model. He had never imagined that an artisan workshop could become a real company with multiple locations. Above all, through his activity as a cobbler-trainer, Gerardo visited many Mister Minit stores in Switzerland and Germany, understanding and facing in practice the conceptualization of "business scalability". During these business trips between Switzerland and Germany, Gerardo began to dream of innovating his traditional family shop. The way to go back home was simple: the father's craft shop must increase its revenues and to do it was necessary to bring the shoemaker service to as many customers as possible. He now knew that it was possible moving the service and not moving the shop!

Thus, after the birth of his son Luca in 1984, Gerardo returned with his family to Castel Nuovo di Conza, with the aim of innovating the small shop.

Gerardo's first investment was in machines for repairs, which allowed him to reduce processing times. He worked alone in the shop, and, by machines, he was able to manage a greater workload.

Thanks to the automation of some processes, La Bottega del Calzolaio has increased its production capacity, reaching in 1988 a maximum turnover (in lire) equivalent to € 20,000 (see Table1).

In those years in Italy, leather jackets were fashionable, and Gerardo wanted to invest in this service, using the know-how acquired in Switzerland in the washing of leathers (bags and shoes). However, Gerardo knew that Castel Nuovo di Conza was a too small village to grow his shop. In addition, the washing of leather jackets required the use of bulky machines, so a bigger location was needed. Thus, in the early 1990s, Gerardo decided to move the business to the nearby Lioni, a little bigger town with a population of about 7,000 people, that was also the reference town for many small neighboring villages. The new shop located near the city center was large enough and then Gerardo decided to invest not only in the machinery for washing leather jackets but also in the production and sale of leather products (mainly belts). In fact, the introduction of washing leather jackets represented a big point of differentiation in respect to the other competitors (artisanal workshop of leather products repairs), attracting more customers, who also bought leather accessories. In the seven years spent in Lioni, La Bottega del Calzolaio managed to reach the maximum turnover (in lire) of the equivalent of € 60,000, 90% of it deriving from services and 10% from the sale of products (see Table 1). Gerardo's

dream was starting to take shape and Lioni's shop "La Bottega del Calzolaio" looked a lot like a Mister Minit shop.

Table 1. Company turnover trend (1985 and 1994)

Year	City	Total turnover	Product %	Service %	Note
1985	Castel nuovo	20.000,00 €	5%	95%	Value converted into euro
1994	Lioni	60.000,00 €	10%	90%	Value converted into euro

The desire to grow his business does not subside and, after about ten years, also the Lioni town became too small, both as location and as market.

In 1999, Gerardo moved with the whole family to Battipaglia, in the province of Salerno. The city had over 60,000 people and was also the "commercial center" for the entire Piana del Sele, a territory that housed over 100,000 people. Here Gerardo rented a place a few meters from the shopping avenue, dividing the front office from the back office, a layout totally new for a craftsman's workshop. The entrance looked more like a boutique than an artisan shop: a bright environment, where not only leather accessories (purchased from contract manufacturing) but also shoes care products were on sale. The workbench, the machinery, and the shoes to be repaired were not visible to the customers, giving a sense of cleanliness and order to the place. In the meanwhile, fashion and consumer habits had changed: leather jackets were no longer on the wave, while high-fashion casual shoes, such as the iconic Hogan Interactive model, had become fashionable. This type of shoe required specific treatment because it is made with multiple types of material (leather, suede, etc.) and the sole glued with specific techniques (vulcanization of the soles). Gerardo took another opportunity: in Salerno's area there was not specialized cobbler shop for the care and washing of this type of shoes.

Gerardo decided to specialize the activity in the treatment of this type of footwear, selling the machinery for washing clothes and investing in machinery for washing shoes and bags. Through the differentiation of service and the innovation of retail (the shop-boutique), Gerardo has conquered a large share of the city market by becoming the trusted cobbler of many shoes' shops. The first year in Battipaglia (2000) ended with a maximum turnover (in lira) equivalent to € 98,510.00, 90% deriving from services and 10% from the sale of products.

Gerardo's dream, born in Switzerland almost twenty years before, was taking shape more and more. With all the passion and the heart, he generally put in his job, Gerardo was trying to bring the cobbler closer to all customers. At that time, in the early 2000s, Gerardo managed "La Bottega del Calzolaio" by himself, counting on the help of his teenage children Orazio, who went to school in the morning and to the workshop in the afternoon.

As said, La Bottega del Calzolaio was a popular shop in the city of Battipaglia, as demonstrated by the progressive growth in turnover, which in 2004 amounted to € 115,763.00, 80% deriving from services and 20% from the sale of products. It was time for a new shop opening! Applying the lesson learned in Switzerland, Gerardo was aware that when you scale a business (especially a service) it is important to offer a service with the same quality of the motherhouse. And to this, the training of shop craftsman is a must! For many months, Gerardo looked for qualified personnel to manage the new store. The research did not lead to good results: finding qualified personnel was not (and is still not) easy, because there were not professional institutes for training new cobblers or shoemakers in the area. Thus, the only way to learn this art was to learn it directly in the workshop. So, at the end, not finding the right skilled person, Gerardo decided to hire an apprentice to be trained directly in the shop.

In 2005 "La Bottega del Calzolaio" opened in Salerno. The Campania province had a population of over 150,000. It was also (and is still) the seat of the court, the place where numerous companies and banks had their headquarters or offices. Every day, thousands of people reached Salerno for work. Salerno was a more expensive city than Battipaglia, and the

rents, especially near the city center, were very high. Furthermore, Gerardo needed a lot of space to open a boutique-workshop like that of Battipaglia.

Gerardo decided for a location that was far from the central city shopping avenues, but still in an area with a high number of people. To reach more customers Gerardo developed collaborations with many shoe shops in the city. Through the affiliation "La Bottega del Calzolaio" collected the shoes to be repaired directly from the shoes shops and delivered them after having carried out the work. This solution reduced the disadvantage of having the store in a non-central location.

The desire to expand his business led Gerardo to open new shops also in Avellino (2006) and Potenza (2007).

The dream of "reaching as many customers as possible" seemed to come true but some clouds began to stand out on the horizon. First, human resources were the bottleneck of this business model. It was very difficult to find qualified personnel. Moreover, training a new figure took months. Furthermore, many apprentices often started the training-work path without completing it.

Second, opening and managing new stores was highly costly. Each point of sale must be equipped with all the necessary machinery to offer customers the same quality standard of service. The high investment required long payback times because the profit margin for the shoe-making business was very low.

Third, for the opening of the new stores, Gerardo could not even rely on his sons Luca and Orazio: they were fully committed to the Battipaglia shop, where demand was growing day by day requiring a full-time involvement of the entire Del Vecchio family. In fact, the turnover of the Battipaglia shop in 2010 amounted to € 140,541.00, 73% deriving from services and 27% from the sale of products.

The desire to scale the market with physical stores clashed with high investment costs and a long learning curve, necessary to make a new store operational. The overall risk was to open new stores with high investments and running them with insufficiently qualified personnel.

The three stores (Salerno, Avellino, and Potenza) were started and managed by adequately trained personnel; however, it was not possible to open other stores to scale up the firm's business.

At the beginning of XXI century four points were very clear: (1) "La Bottega del Calzolaio" looked more like a Mr. Minit shop than a small traditional cobbler shops; (2) Gerardo could count on his sons' (Luca and Orazio) contribution; (3) the whole family was grown up "between pins and shoe upper"; (4) in the Battipaglia workshop there was a good atmosphere because Luca and Orazio were not only brothers but also great friends.

Starting from these 4 points, Orazio and Luca begun to write a new chapter in the "Bottega del Calzolaio" history. The two young men were curious Millennials and experimenters like any good craftsman must be. In 2001, still teenagers, they realized that the internet could be an opportunity for "La Bottega del Calzolaio" and opened an illustrative website on Tiscali. Ten years later, in 2011, Orazio spoke with Luca about the opportunity of online sales. Orazio was a customer of the main e-commerces, where he bought all kinds of products, from clothing to music CDs. He was convinced that, just like him, so many other people also started to prefer to shop online. He also believed that even the products and above all the services of their workshop could be sold online.

Being confident in the opportunity offered by the Internet for the online selling, Orazio and Luca tried to relaunch the father's idea to scale the business: this time scalability will be assured not physically by the opening of new workshops but virtually and digitally by online selling! Together they decided to convince Gerardo, although it would not be easy.

Although innovator, Gerardo, being at that time about 50 years old, was not very confident with the digital and the internet. It was so hard for him to figure out how it would have been possible to sell their product or services online. In the first step of their digital roadmap, the two brothers decided to renounce to the selling of the repairing service, focusing only on the selling of the product (the belts). Indeed, Orazio relied on the fact that trying to sell some product

online did not involve excessive costs and, above all, did not risk to compromising the identity of "La Bottega del Calzolaio" brand. Gerardo, on his own, was very doubtful, but at the same time he had a lot of faith in his children, and after further discussions with them, he was convinced to try. He was aware that his sons understood the trends of the moment better than he did.

So, the "online" adventure of "La Bottega del Calzolaio" begun in January 2011 with the sale of belts produced by subcontractors and branded "La Bottega del Calzolaio". The first step to selling online was to access eBay e-commerce website as a seller because it was easy to use and had very low cost. Once online, Gerardo was curious to monitor the progress of sales on the eBay platform and every morning he asked his sons for updates. However, in the first months, the online market did not respond well and there were no sales.

The two brothers were determined and did not abandon each other: they hardly felt the trust of their father and knew that online has different times than the offline market.

After about five months, the first sales arrived, increasingly gradually, but steadily over the following months. The 2011 year closed with a turnover of € 150,630.00, of which about the 2% was attributable to online sales, as seen in Table 2 below.

Table 2. Percentage trend of turnover by "offline" and "online" activities (2011–2017)

Years	% Offline turnover	% Online turnover
2011	98%	2%
2012	82%	8%
2013	80%	20%
2014	75%	25%
2015	65%	35%
2016	55%	45%
2017	50%	50%

At the end of 2012, online sales were considered a successful experiment, as they represented 8% (over € 10,000) of the total turnover. The potential of the online business was even more important given the contraction in turnover which in 2012 decreased by 15% compared to the previous year, as seen in Table 3

Orazio and Luca were aware that they could no longer manage the workload in the workshop and the management of online sales. The Del Vecchio family was aware that to manage and scale the online business it was necessary to innovate their business model.

Business Issues/challenges

Orazio began to deal with some web agencies located between Battipaglia and Salerno. He has studied the world of e-commerce by himself, reading books and blogs. He developed a basic knowledge that allowed him to examine consultants' offers. From the interviews with the consultants, he was very disappointed. Often it seemed to him that many consultants didn't have many skills, and when they had the hard skills to digital (Search engine optimization., Search engine marketing, Digital advertising, etc.) he realized that they lacked the entrepreneurial spirit, which he was looking for in a partner. Orazio had a precise vision, and he knew that it could be achieved, in spite he did not know how: he aimed to create a proprietary e-commerce site.

Most of those encountered considered the company too small and felt that a proprietary e-commerce site was useless or ineffective for the firm's business. Their strategy was focused to only invest in existing marketplaces. Although Orazio knew that his firm was small, he firmly wanted to create an online identity to let his business grow, and in his vision, it only was possible through the affirmation of the "La Bottega del Calzolaio" unique brand: for his purposes, the presence on the marketplaces was not enough. Furthermore, when he realized that

marketplaces were private platforms, service providers for his company with significant bargaining power, he recognized that a proprietary e-commerce was not only a strategy to grow, but also the better way to safeguard the profit margin of online sales. After months of consulting with several web agencies, in the middle of 2013 he finally met Giuseppe Noschese. Giuseppe was an atypical consultant: in addition to having a degree in computer science he was very active in the start-up ecosystem in the province of Salerno. The man already had over eight years of experience in the web and e-commerce consultancy sector, and knew the critical issues of SMEs well, because they represented his major customers. Talking with Giuseppe, Orazio soon realized he was the right person: "*it seemed that he was reading my mind*" he likes to remember.

Giuseppe shared Orazio's vision; the first necessary step was to change the management model of the online sales. At that time, to manage e-commerce sales, Luca and Orazio used paper notes and post-it, with obvious risks and limitations such as the loss of information and poor organization. The first solution that Giuseppe introduced to innovate the sales management process was the adoption of the Google Suite, a free software developed specifically for small businesses. Giuseppe took care of training Orazio and Luca in the use of these solutions. The training phase was not easy, and it took a long time before making the final transition from analogical to digital procedures. At the same time, Giuseppe started developing the firm website, adding to the e-commerce section a space dedicated to the blog activity. On the blog, he posted descriptive articles of the products on sale, concerning the care of leather and foot products. The blog was a useful instrument to develop a relationship of trust with customers that went beyond the sale.

Giuseppe also opened the firm's social channels and structured a digital marketing strategy, starting to set up the online presence of the "La Bottega del Calzolaio" brand on the main platforms. The consultant helped Luca and Orazio in organizing the work for managing the online sales. Orazio became the head of sales, logistics, and customer service. Luca was responsible for the online content development, through photos and textual descriptions of the products.

Giuseppe, on the other hand, was in charge of data analysis, the development of digital marketing strategies, and the e-commerce monitoring and updating. Giuseppe structured digital marketing strategies and directed advertisements to those target users. Sales on the corporate website started coming in right away. Luca was amazed because online he was also able to sell particular belts. This happened because, through a targeted advertising strategy, Giuseppe intercepted the demand of amateurs and people who lived in big cities, accustomed to other kinds of fashion.

On the spur of this enthusiasm, Luca also began to produce the first belts. They were unique pieces, different from the belts they bought from suppliers. By the end of the year, sales had grown again and, the Del Vecchio family had to rent a storage room not far from the shop. The percentage of turnover deriving from the sale of products in 2013, had grown by 5% reaching a total of 37% (see Table 3). The year 2013 ended with a turnover of € 125,653.00, a slight decrease compared to the previous year, however, there was an increase in the share of online, which had reached 20% of the turnover (see Table 3). In 2014 the firm's business continued to grow and the Del Vecchio family (Gerardo and his sons) decided to hire a warehouse manager. He was the first internal hiring of the firm that dealt with the management of online activities. His tasks involved managing orders, stocks, and e-commerce logistics, key activities that Orazio previously carried out. By entrusting these activities to a specific figure, it was possible to improve warehouse rotation, reduce errors, and speed up shipping times. Orazio and Luca could now concentrate more on customer service activities, content creation, and at the same time, on cobbler activities. In the same year, due to the unsatisfactory turnover, the Del Vecchio family closed the store in Potenza. They decided that it would be better to allocate financial resources for the growth of the other physical stores (Battipaglia, Salerno, and Avellino) and for the advertising campaigns related to online sales. Gerardo and his sons decided not to fire the two employees who managed the Potenza store: they were already trained

resources, and it was not convenient to lose them. So, the two cobblers were hired at the Battipaglia store, where the work was constantly increasing also due to the offer of new services, including leather regeneration. The regeneration of leather products was an expensive service (the regeneration of a luxury bag could cost over a hundred euros). Being an extremely complicated activity, only Gerardo and his sons took care of it. The products that had to be regenerated, delivered to the Avellino and Salerno stores were taken to the Battipaglia store, which was now becoming too small to manage all the business activities: it became impossible to carry out repairs and online sales management there. With the increase in the sale of shoes care products, the warehouse had also become small, and an additional small warehouse had to be rented.

At the same time, the sales of belts were constantly growing and the Del Vecchio brothers had calculated that it was more convenient to fully internalize the production. However, the space in the Battipaglia store was too small to insert additional machinery. In 2014, with a turnover of around € 135,000.00 (see Table 3), “La Bottega del Calzolaio” turned from a simple shop to a small business and it needed more space. In 2015 the Del Vecchio family rented an industrial building of about 2000 square meters in the industrial area of Eboli, a city bordering with Battipaglia. Eboli became the firm headquarter, and in the building were moved the warehouses, the e-commerce station, and the laboratory for the special service like leather regeneration. The production of leather belts, intended for the online and in store sales, was also started at the Eboli side.

Under Giuseppe's guidance, the Del Vecchio family purchased a management software to fully digitize the business of the firm. Through the software, it was possible to track the progress of the products being repaired and of the online sales, the delivery status of goods, and stock availability, all in real-time. The training activity took a long time but was managed gradually, one sector/store at a time, to avoid critical issues that could encompass the different activities at the same time. The 2015 was a year of important change for the firm, which closed with a turnover of € 151,038.00, of which 65% deriving from physical store sales and 35% from online sales (see Table 2). The firm had changed its organizational structure; through the digitalization of many processes, it was able to work more effectively and efficiently. Eboli operations center was now the heart of the firm.

With the start of the belts production activity, Luca had less time available. The time available became even shorter when the firm was contacted by some wholesalers of leather products who, through the website, had discovered the line of belts produced by the Bottega del Calzolaio and had decided to sell them wholesale. For the first time in its history, “La Bottega del Calzolaio” entered the B2B market. Luca had to engage exclusively in the development of the belt production business, so it was necessary to hire resources to substitute him in the content creation activities. The search for professionals with vertical skills in the content creator field was not easy. It was difficult to find competent figures who could already be fully integrated into the business. Fortunately, after many interviews, the Del Vecchio brothers, with Giuseppe's support, found the professionals they needed. In 2016, a Copywriter-SEO expert and a photographer/video maker were finally hired. The first had the task of creating content for the blog and defining the editorial plan on social media, the second of creating multimedia content (photographic and video) to improve the presentation of the products and facilitate the purchase choice of users. Among the contents published on the company's social channels there were also photos and videos, from which it was possible to immediately grasp the result obtained following the various repair activities offered by the company. The activity of the content creator and the care of the company blog were strategic for corporate communication, even before the new hires. The main objectives of this approach to communication were to increase consumer confidence in the brand, and therefore, to increase sales.

The communication strategy has given excellent results, attracting after just one year (in 2017), over 10,000 users on the company Facebook page alone. Users were very active, through messages and comments, asking for advice for the care of the foot, shoes, and bags. Orazio continued to deal with customer service, with the tasks of responding to customer

inquiries, assisting them in pre- and post-sales, retrieving feedback, managing orders, and supporting the warehouse manager in returns. He learned by practicing that in online sales customer satisfaction is fundamental, much more than in offline sales. The online sales system was (and is based) on reviews, so customer care was paramount. Giuseppe as the digital manager¹ of the firm had gradually structured a data-based strategy, which integrated the data of the physical stores, with the data coming from the monitoring of social channels, the site, and online trends.

The data-driven strategy guided all the firm's activities, from the advertising to the choice of products and contents development. For example, the questions asked by customers in-store, on social networks, and via e-mail, were analysed in an integrated way to develop answers through articles and videos, such as tutorials on the use of shoe care products. The results of the strategic decision generated both an increase in traffic on the site and in sales, as demonstrated by the turnover which in 2016 reached the figure of € 288,082.00, of which 45% deriving from the sale of products and 55% resulting from the services. The share of turnover from online products sale was 45%, as seen in Table 3 below.

Table 3. Company turnover trend (2000 – 2017)

Years	City	Total turnover	Product %	Service %
2000	Battipaglia pre-online	98.510,00 €	10%	90%
2001	Battipaglia pre-online	102.495,00 €	12%	88%
2002	Battipaglia pre-online	105.837,00 €	15%	85%
2003	Battipaglia pre-online	113.842,00 €	15%	85%
2004	Battipaglia pre-online	115.763,00 €	17%	83%
2005	Battipaglia pre-online	121.530,00 €	20%	80%
2006	Battipaglia pre-online	125.842,00 €	20%	80%
2007	Battipaglia pre-online	120.530,00 €	23%	77%
2008	Battipaglia pre-online	118.736,00 €	25%	75%
2009	Battipaglia pre-online	123.532,00 €	25%	75%
2010	Battipaglia pre-online	140.541,00 €	28%	72%
2011	Battipaglia post-online	150.630,00 €	30%	70%
2012	Battipaglia post online	128.432,00 €	32%	68%
2013	Battipaglia post online	125.653,00 €	37%	63%
2014	Battipaglia post online	134.680,00 €	40%	60%
2015	Battipaglia post online	151.038,00 €	44%	56%
2016	Battipaglia post online	288.082,00 €	45%	55%
2017	Battipaglia post online	261.487,00 €	50%	50%

In 2016 La Bottega del Calzolaio was selling throughout Italy and through the monitoring of online applications, it emerged that many customers, especially from big cities, wanted to know if there was a store located in their own surroundings.

The great demand was the result of three main factors:

- The scarcity of cobbler stores, especially in large cities.
- The offering of innovative services, such as leather regeneration, with high-quality standards;²
- The excellent online reputation and customer trust in the “La Bottega del Calzolaio” brand.

In those years, Luca desired to have a life experience in a big city. This desire, supported by Giuseppe and Gerardo, together with the growing customers' requests, brought Luca and Orazio to decide investing in a city in which open a new store.

Giuseppe carried out a cross data analysis to locate the main e-commerce customers and the main shoemakers' points of sale by geographic area on Google. Milan and Rome turned out to be the cities with the largest number of e-commerce customers and where people asked the

most for cobbler services. Moreover, Giuseppe analysed the presence of cobblers in each district, crossing the data with the delivery addresses of e-commerce customers. As a result, the ideal location had been identified in the Flaming district, in the northern area of Rome. The data analysis turned out to be correct and when Luca opened the new store in the Italian capital on March 15, 2017, he already had a good customer base.

Conclusion

Nowadays, the store in Rome is doing well. However, Gerardo and his sons knew that the original business model, based on the opening of multiple stores, is not sustainable for the business growth, because it is difficult to find professional resources to entrust with the management of a store, which required significant investments.

Nevertheless, the growing demand for their services, lead them to look for a new way to scale their business. Figure 1 shows how the story of "La Bottega del Calzolaio" is based on constant innovation, however, the dream of "reaching as many customers as possible" is not yet fully realized.

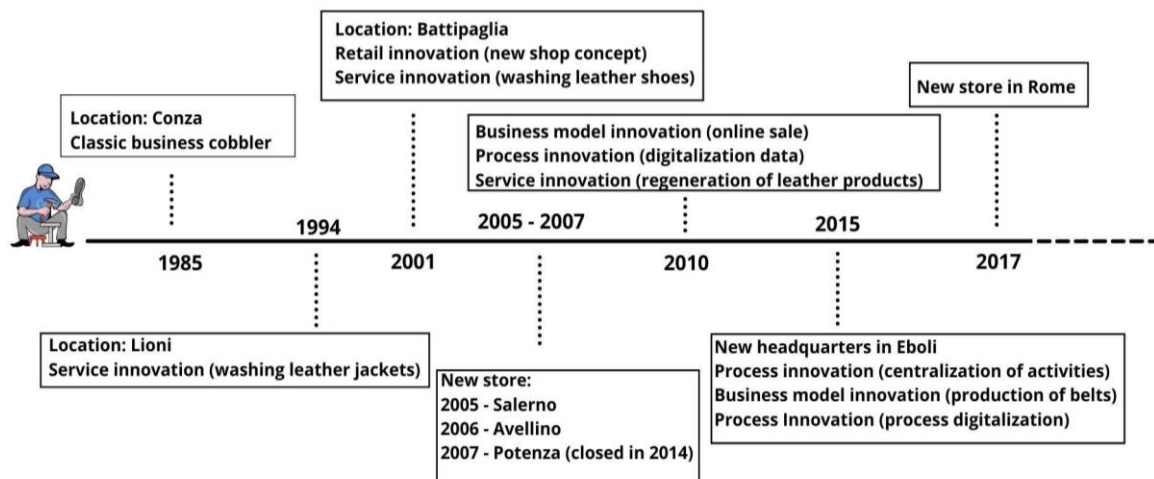


Figure 1. La Bottega del Calzolaio innovation timeline (1985–2017)

Source: Own elaboration.

Footnotes

1. Giuseppe Noschese worked as a freelance Digital Manager and not as an internal consultant.
2. Among the various services offered by La Bottega, the regeneration of leather products was the main diversification service, as well as the most complex and expensive. This service costs more than one hundred euros and was carried out on luxury bags or shoes, the value of which was in the order of thousands of euros.

Discussion Questions

1. What are Family business success factors?
2. What are the challenges facing small family businesses in the digital age?
3. How does the corporate governance structure change in the transition to digital? How do the roles of family members change, what are the knowledge needs and the necessary skills to internalize?
4. What's next? How can you imagine digital technologies could help to scale the business of the company also from the service side?

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Case 15: Innovation of a century-firm in the tire sales sector: The case of Picone

Abstract

The case study is Picone SRL, an Italian centuries-old firm, operating in the tire sales sector. The case study traces the stages of the company development over a hundred years, focusing on the last twenty years. Starting from the first decade of the 2000s, the tire distribution market in Italy had become very complex, characterized by low-profit margins, commercial agreements for exclusive distribution, and competition between large distributors and SMEs. Up to that moment Picone acted following the classic market rules: purchasing tires from manufacturers firms and carrying out wholesale sales to workshops and retailers. However, Sebastiano Picone and his business partner Vincenza Del Verme needed to innovate the firm's business model, to make it survive. For this reason, Sebastiano and Vincenza completely changed their business strategy and fielded new key competences. The case describes how Sebastiano and Vincenza managed to innovate the company's business model through the implementation of digital technologies.

Key Words

Digital Mindset; Business Model Innovation; Digital Transformation; Small and Medium Enterprise; Digital Entrepreneurship

Introduction

The case Picone traces the stages of the company development over a hundred years, focusing on the latest twenty years in which the company innovated the business model in a digital way. According to Teece (2010 p.20), business models reflect "management's hypothesis about what customers want, how they want it and what they will pay, and how an enterprise can organize to best meet customer needs, and get paid well for doing so". Therefore, the business model indicates how the company chooses to operate and invest its resources to differentiate itself from competitors, offer value to its customers, and guarantee the sustainability of the business (Trimi and Mirabent, 2012). Innovation of the business model in literature means the innovation of the overall architecture of value creation and of the mechanisms necessary to generate value for target customers, to place this value on the market and retain a part to ensure economic and financial sustainability (Teece, 2010; Timmers, 1998; Weill & Vitale, 2013). Firms need to innovate the business model to respond to external threats and opportunities (Saebi et al., 2016). In this sense, technological innovation is a key factor for business model innovation (Baden-Fuller and Haefliger, 2013), since as highlighted by Chesbrough (2010) firm can extract value from new technologies only through the development of suitable business models. In the digital world, entrepreneurs need to be aware of the opportunities offered by digital transformation to develop sustainable innovations (Kraus, 2018). This happens in Picone company where owners, Sebastiano Picone, and Vincenza Del Verme, created a digital innovation process of the business model. The digital innovation process refers to the innovation of the business model linked to the transition to electronic commerce. While Picone's competitors weren't interested or worried about the impact of digital transformation on their business, Sebastiano and Vincenza turned a potential threat, the advent of e-commerce in their industry, into an opportunity. Unknowingly Sebastiano and Vincenza have moved as digital entrepreneurs, since, according to Davidson and Vaast (2010), digital entrepreneurship is the search for opportunities based on the use of digital media and other information and communication technologies. Digital entrepreneurship is therefore

understood as a sub-category of entrepreneurship in which all or part of what would be physical in a traditional organization has been digitized” (Hull et al., 2007, p. 293). The digitization of the business model, therefore, is not reduced to single new developments in entrepreneurship but consists in the development of business models, faced with a huge shift towards entire digital environments (Kraus et al., 2018). As suggested by Botti et. al (2022), the transition from a classic business model to a digital business model requires a necessary change of entrepreneurial mindset. Sebastiano and Vincenza have developed an Entrepreneurial Digital Mindset, following the definition given by Soltanifar and Smailhodžić (2021, p. 7), according to which the digital entrepreneurial mentality can be defined as “the inclination and ability to discover, evaluate and exploit opportunities by adopting digital technologies faster than a normal entrepreneur”. The entrepreneurial digital mindset is one of the key skills to carry out the digitalization processes of the business model, but it is not the only one. Over the past three decades the resource-based view framework (Barney, 1991) has been established as a dominant theory in explaining how firms, embedded in ever more dynamic markets, make the strategic choices that can lead to sustainable competitive advantage, specially referring to how managers select and arrange organizational resources (Botti et al., 2022). As highlighted by Maresova et al. (2018) workers' skills are one of the relevant issues for the development of Industry 4.0. Following the resource-based view, also in the Picone case the managerial ability to reorganize the organizational resources and human resources, internalizing some key activities and externalizing others, was instrumental in the transformation of the business model. This case offers the reader the opportunity to understand how, through business model innovation and business digitization, it is possible to overcome the criticalities of the reference sector and the weaknesses of the firm.

The history of Picone

The history of Picone Srl began in 1920, when Sebastiano Picone set up an emporium that sold hardware, bicycles, and spare parts for bicycles in the small town of Torchiara, in Salerno (southern Italy), which at the time had less than 1500 inhabitants. The shop was the commercial reference point of the small town because there was a bit of everything, especially for the sale of bicycles and spare parts. At the time, bicycles were the most popular means of transport.

After the Second World War the firm made its first radical change of business model. In those years, FIAT cars, Vespa, Lambretta and Piaggio APE began to populate the national territory, leading to the Italian economic miracle. Therefore, following the commercialization of cars, a new business area was emerging: the tires sector. Sebastiano decided to also sell tires, which at first accounted for a small percentage of total sales.

With the passage to the second generation, represented by Lucio (Sebastiano's son), the firm leaves the B2C market of hardware items, focusing exclusively on the sale of tires in the B2B market, mainly workshops. The firm's customers had now become the workshops that dealt with the sale and assembly of tires. The firm gradually grows under the leadership of Lucio, but its market remained very small. Only with the third generation (represented by Sebastiano junior), Picone established itself in the national market of tires.

The foresight of Sebastiano Picone (grandson of the founder) led him to grasp in advance the potential impact of internet in its sector. The case describes how Picone srl has dealt with this phenomenon strategically, reinventing its business model and becoming a pioneer in Italy in tire digital entrepreneurship.

Early 2000s: Sebastiano (junior) took over the management of the family firm

When Sebastiano, just thirty years old, took control of the firm, he had a clear goal: he wanted to continue growing the family business, transforming the company from a small local firm to a regional distributor. Studying the characteristics of the market, Sebastiano fine-tuned his strategy closing exclusive distribution agreements with the suppliers, for small areas in the neighbouring territory, to achieve a gradual expansion of the business, which would have resulted in greater coverage of the territory. These commercial agreements were based (and

are based today) on fixed minimum purchase quotas, which the distributor had to guarantee to the supplier so that the latter did not need to have additional smaller customers in the reference area.

At the same time, Sebastiano increasingly perceives marketing as an essential activity and develops the conviction of hiring a marketing director as a partner. In 2003 Vincenza Del Verme joined the company as a partner and marketing director. Vincenza had a long experience in marketing, because she worked as store manager of an important franchising company of sporting goods. In those years, the firm developed a provincial distribution, managed mainly by Sebastiano and two employees. Vincenza supported Sebastiano in strategic management, highlighting the complementarity of their skills and entrepreneurial experiences.

Sebastiano wanted to scale up his business further by expanding the territorial coverage, however, this was very complicated to achieve because he was the only person who managed the commercial part and the relations with customers.

Hiring other commercial staff meant incurring a fixed cost, recoverable only by reaching a minimum threshold of new customers. This could be a risky choice. Therefore, there seemed to be a bottleneck that made it impossible for the firm to grow any further.

Facing the problem with Vincenza, Sebastiano discovered that there was an alternative to be able to grow the firm business. In the distribution of sporting goods, the sector where Vincenza gained his experience, the strategy of outsourcing commercial activities was common. This approach allowed companies to increase their presence on the market while limiting the stiffening resulting from the hiring of new staff, and therefore from the support of additional fixed costs.

Sebastiano and Vincenza understood that if they had combined the approach based on the outsourcing of commercial activities, through the agreement with multi-firm sales agents with the exclusive acquisition strategy for small areas, they could have expanded the business. In this way, the firm limited the risk of default reducing the fixed costs.

By adopting this approach, Picone srl first managed to consolidate its position as a major player in the regional market and in the 2005 began to expand its sales network in neighbouring regions.

Within a few years, the coverage of the national market intensified and Picone srl came to have 16 agents active throughout the national territory. As Sebastiano always says, the history of Picone up to that point has been a "continuous metamorphosis".

In 2009, with a turnover of just under € 2,000,000.00, Picone was a small tire distribution firm, which had managed to develop its business throughout the country, connecting the manufacturers with workshops and small retailers.

Sebastiano and Vincenza strongly believed in their territory and although these did not have an industrial vocation and were based on a network of logistical, road, and rail connections, not avant-garde, they had never thought of moving the headquarters of the firm which still today is in Cilento. However, by managing logistics in outsourcing, they realized that it would be convenient to develop a logistics hub in a strategic area of the country.

Investing to grow: Analysis of a mature market (2005-2010)

In 2010, Picone opened its second office, a logistic hub, in the province of Monza and Brianza, on the border with Milan in the north of Italy. Sebastiano had hired three people, one logistics manager, and two workers to manage the new office. In 2010, Picone had two logistic offices in the regions that had the highest number of tire shops in Italy, Lombardy, and Campania.

To optimize the management of the firm organized on the two warehouses, Sebastiano and Vincenza decided to implement management software, which would make it possible to know immediately the availability of the individual items as well as their location within the warehouses.

Sebastiano's mantra was "if you want to grow, you have to invest" and he was investing a lot to grow his firm, mainly for two reasons:

1) The Italian distribution market was based on area exclusivity strategies, so to obtain exclusivity. To obtain exclusivity of distribution with suppliers it was necessary to guarantee a minimum quantity of purchases. Among competing distributors, the winner was the one who guaranteed the highest minimum quantity; therefore, it was necessary to increase its market share more and more to obtain better contractual conditions.

2) Towards the end of the first decade of the 21st century, the Italian new car market was mature and without major developments. As highlighted by ANFIA trade association, the aftermarket benefited in those years from the slowdown in the new car market, since, if a consumer postpones the purchase of a vehicle, he spends more for maintenance and replacement of parts of the old one, including changing tires. Therefore, it was necessary to increase the market share and try to make more favourable agreements with suppliers.

The firm's investments were also justified by the small positive trend of the Italian tires market in the years from 2008 to 2010. One of the factors enabling the increase in demand stemmed from the fact that the tire sector is a subset of the automotive segment, which is particularly affected by the trend in the production and sale of automobiles.

Starting from 2008 (the year of the great global financial crisis), the demand for cars in Italy had a negative trend for 5 consecutive years, with a decline of up to about -20%¹.

The increase in demand for tires also had a positive impact on the Italian sector of tire-repair shops. In 2009 this sector started a growth trend particularly in the northern regions. Among the reasons behind the growth of the network of tire shops in Italy was the need to cope with a fleet that was (and is) at the top in Europe and the world for car density. In the positive national growth trend, Campania was the second region to grow the most².

The demand for tires was growing despite the increase in prices, which mainly depended on two global reasons: 1) the increase in world demand for tires by 32% (at end of 2010), due to a growing demand for tires from new industrial countries; 2) the lack of raw materials (natural and synthetic rubber).

Picone ended 2011 with a turnover exceeding € 2,000,000.00. The figure may seem high when considered objectively but analysed concerning the average turnover of companies operating in the Italian automotive aftermarket, equal to 5 million euros, sees Picone positioning itself as a small firm. It should also be considered that, concerning the specific sector of tire distribution, there were competitors who invoiced even more than 50 million euros³.

The market situation, in which Picone was called to operate in the years between 2009 and 2010, presented a high degree of competition between distributors who, in a saturated market⁴, had to rely on the skill of the agents to compete.

The management of outsourced sales, through sales agents, was certainly a leaner strategy for business growth, as it did not affect the firm's turnover with fixed costs, however, it affected profit margins, which in the tire sector were already very low due to the high competition and the increase in the cost of raw materials that was generating an increase in the cost of tires worldwide.

The reduction of the margin was a problem that had been reported in Italy for some time, highlighting how in a substantially flat market it was necessary to recover margins⁵.

A further limitation, linked to the outsourcing of commercial activities, concerned the management of customers. In commercial relations with customers, it was the external representatives who took care of relations with companies and had direct contact, this led to an increase in their bargaining power towards the firm, which could not afford to lose a representative who managed an entire customer package.

As mentioned, it is possible to grasp the critical issues in which Picone srl was called upon to operate, which nevertheless had to invest and continue to grow its business, because it was the only strategy not go out of business.

Another critical issue loomed over the business model of classic distribution: online sales. Towards the end of the first decade of the 2000s, Sebastiano began to realize that the US tire market was changing, shortening the distribution chain.

It was the early 2000s when the well-known tire firm "Courier" began using online to sell directly to end consumers in the US. The Michelin wheel opened its website and began to sell directly to consumers but did not replace the classic distribution channels. After a few years, all the big distributors started opening proprietary sites and selling directly to the US B2C market.

Through participation in international trade fairs and interactions with the sector network, Sebastiano realized that the same was also happening in Europe, where a real revolution in the wholesale tire market was underway. What impressed Sebastiano and some of his colleagues was that they found tires on online sites, at a lower price than they could offer their customers. In Europe, many wholesalers then started buying tires online and then reselling them in turn.

Although online tire sales did not yet exist in Italy, Sebastiano had well understood what was happening in other countries. He understood that through internet it was possible to shorten distribution chains and that it was the intermediaries of the chain who would be cut off from the market.

Since the early 2000s, internet had a mass diffusion in the US and was revolutionizing the way of life of Americans, also about purchasing habits, and the same was also happening in the countries of Northern Europe. However, in Italy, in the same years, the phenomenon of online shopping was not yet widespread.

To understand the distance, just think that in 2009 65% of the population of Northern European countries bought products or services online, while in Italy e-buyers represented only 12% of the population⁶.

According to the study⁷ by the eCommerce B2c Netcomm Observatory - Politecnico di Milano School of Management - the fundamental reason for the Italian gap was due to the long-standing delay in the development of broadband. In fact, Italy had a distant diffusion rate over 20 percentage points from the European average.

Although the Italian online market in those years showed evident delays, compared to the trends of the USA and Northern Europe, Sebastiano understood that soon the revolution that had overwhelmed his sector elsewhere would also arrive in Italy.

Sebastiano curiously observed what was happening in other countries. Analysing his national competitors, he found them unprepared on the subject and when they were aware of the phenomenon, they were worried, seeing in the spread of e-commerce a threat to their business, a threat to be opposed with all strength.

Sebastiano had grown up in the Tires sector and understood the traditional logic of the market was now unsustainable. The competitiveness was too high, and the profit margin was likely to be reduced more and more, in a competition between distributors, where the great part of the bargaining power was distributed between suppliers and sales agents.

Business model innovation through digital technologies

In Sebastiano's mind the correct approach to manage the spread of digital innovation was not to oppose innovation but rather to act proactively, innovating and trying to transform what others experienced as a threat into an opportunity to grow.

Until that time, Picone srl had operated according to the classic market model, purchasing tires from manufacturers, and carrying out wholesale sales to workshops and retailers.

Sebastiano and Vincenza understood that direct selling online by manufacturing companies would cut both wholesale distributors (such as Picone srl) and retailers out of the market.

The challenge seemed to be clear, but it was difficult to understand how to proceed, as there were numerous obstacles to be faced, some were already clear, while others were not predictable.

Sebastiano and, before him, his father Lucio had operated exclusively in the B2B market, so he did not know the logic of the B2C market. Moreover, Picone did not even have a brand identity recognized by the final consumer, therefore it could not leverage, directly, not even on the trust it had acquired in the market over the years distribution.

Risk is present in every business activity, however, in the complex tire market, which we have described above, it was complicated and very risky for the firm to divert economic resources, to be allocated to experimenting with such a radical production process innovation and complex.

A further critical element concerned the relationships with the firm's current customers, concerning which Picone would become a direct competitor, in the experimentation of a direct sales model to the final consumer.

Alike any innovation process, the innovation of the sales process did not consist of a single act. It was a process with uncertain outcomes, which could be based on multiple interactions between production activity, experimentation, research, technology, demand analysis, regulations, and market trends.

Sebastiano and Vincenza realized that the growth strategy adopted up to that point, based on the acquisition of new small areas to be entrusted to sales agents was not sustainable in the long run. Sebastiano and Vincenza realized that they needed to reach the end customer before the tire manufacturers' supply chain strategies cut them out of the value chain for good. Sebastiano and Vincenza understood that the online sales strategy was right for a few reasons. The barriers to entry for online sales were low. Investments in infrastructure or machinery were not needed. It was possible to "experiment" without high investments because it was possible to sell on generic marketplaces (eBay, Amazon, etc.). Selling through marketplaces also made up for the absence of a brand identity, as these marketplaces already had an online reputation. The marketplace was potentially unlimited; there was no need to enter into exclusive agreements or rely on commercial agents to manage the various areas. It was possible to manage logistics in outsourcing without increasing fixed costs. From the point of view of market analysis, in Italy, there were no competitors in the online sale of tires. Most B2B competitors saw e-commerce as a threat and stayed away from it. At the same time, there would be no immediate conflicts with workshops and dealers, the company's current customers, as no physical locations would be opened.

For these reasons, Sebastiano and Vincenza decided in 2011 to go the online sales route. Not having digital skills, they studied a lot of the market and the dynamics of e-commerce. To understand how online sales worked, Sebastiano and Vincenza started to study the business model of e-commerce and especially Amazon's business model. Sebastiano likes to say that Amazon was the best school to understand how the online sales industry works. According to him, the online market has its own rules, and no one knows them completely. It's necessary to analyze how firms behave in other sectors and experiment, always listening to the voice of the customer.

Understanding the complexity of online sales, and not having employees with digital skills within the company, they decided to rely on a digital agency that worked in the tourism sector. Sebastiano had discovered that the hospitality industry was among those in Italy with the most advanced level of digital development. In addition, no agencies were dealing with the digitization of the tire industry because no companies in Italy had yet taken this route.

However, the choice did not yield positive results; the marketing and strategic choices suggested by the agency did not yield the desired results. After a few months, Vincenza and Sebastiano started to contact several local agencies, with whom they also started collaborations, but once again they did not achieve the desired results.

Even today, when Sebastiano thinks back to the strategies suggested by the first agencies, he realizes how absurd they were and how much they cost the company in terms of investments.

After changing several web agencies, Sebastiano and Vincenza decided to rely on an important national web agency, which in those years was operating in different sectors (Food, Fashion, etc.) developing web strategies for important companies.

Sebastiano and Vincenza worked closely with the consultants, creating a match between their skills in the tire sector and those of the consultants in the digital innovation sector. Thanks to their joint work, it was possible to implement winning sales and marketing strategies.

In the first two years, online sales were made exclusively through the most popular marketplaces (Amazon, eBay, etc.). The ability to proceed through the marketplace allowed the company to experience very low costs, leverage the online trust level of the marketplace, and develop a recognized brand identity in the B2C sector.

After the first year of investments in consultancy that did not bear fruit, the collaboration realized in 2012, supported by large investments has led to good growth in turnover. The 2012 ended with a turnover of € 2.821.000, with an increase of more than 15% compared to the previous year.

After learning the process of e-commerce, in 2013 Picone srl opened its proprietary e-commerce site, on which to make sales directly, trying to make the proprietary business more independent from marketplace platforms. The strategy implemented, however, did not put the site in competition with the sales on marketplaces but aimed to make the two sales channels coexist homogeneously. 2013 closed with a turnover of € 3,034,000.00 and an increase of € 213,000.00 compared to the previous year.

The following year saw a slight contraction in turnover, which was however foreseen in the company's planning. As reported in Figure 1, the growth in turnover was constant in the following years, in line with the company's forecasts. In 2010, Picone Srl was characterized by a business model based on classic distribution and its sales volume was approximately two million euros. In 2019, turnover almost reached the ceiling of five million euros, settling at € 4,981,138.

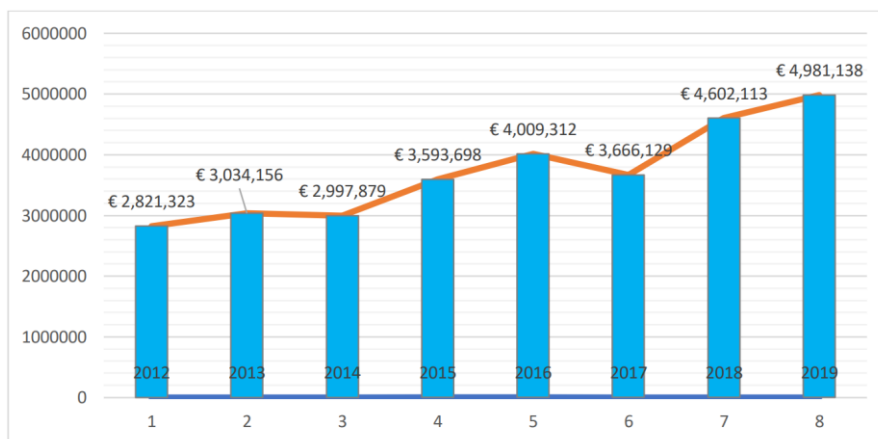


Figure 1. Firm turnover trend in the period 2011-2019

Source: Firm data

The growth of the firm's turnover can certainly be traced not only to strategic and marketing choices but also to the ability to identify the right human resources to be internalized.

To work better on digital markets Sebastiano and Vincenza have chosen to internalize some activities, while they have decided to leave others in outsourcing. In 2012 there was the first hiring in the company of an employee engaged in online activities. The new employee was in charge of customer service, through email, social, and WhatsApp support. Sebastiano understood that in online business, especially in the B2C market, it was necessary to be able to transmit trust to the customer, and the best way to do this was to guarantee concrete and constant assistance, which went beyond the sale of the tire.

Sebastiano understood that the rules of commerce were changing in the online market, especially in customer care. In digital commerce, through the system of reviews, the customer has acquired a fundamental role in the definition of brand identity and every customer service relationship can generate exponential consequences. The decision to internalize customer service was dictated by the desire to be able to transmit established values to the customer's manager, something that would have been difficult to achieve by outsourcing the service.

The decision to focus on internalizing customer service paid off and Picone began to accumulate numerous 5-star reviews on all major marketplaces and price comparison sites.

Later in 2012, Sebastiano and Vincenza decided to internalize the content creator business as well. The new human resource was responsible for creating content for marketplaces and company social profiles, to improve the company's online presence. This figure was also initially responsible for managing the company's databases, monitoring the availability of goods, and updating offers, based on price changes, on the various marketplaces.

With the opening of the website, the figure of the Web Manager was also internalized, to improve the company's online communication, ensuring greater responsiveness and independence of internal staff.

The digital team of the company was (and is) led by Vincenza, as marketing manager, and by a team of external consultants, with whom Sebastiano and Vincenza defined the commercial and communication strategies.

Sebastiano and Vincenza preferred to rely on external consultants to develop the strategies, believing that people who work with multiple companies and in different sectors could bring greater innovative ideas.

In figure 2 it is possible to see how the company organization is composed today. As shown, today there are no sales agents in the company. In the previous business model (non-digital and exclusively B2B) the high cost of sales agents and the need to have a large number of agents to meet the space/time constraints was the bottleneck for the business. That was already struggling to keep up with the competition in a saturated market with low-profit margins. Through the business model digitalization, and the transition to the B2C market, the rules for acquiring and managing customers have changed. Sebastiano and Vincenza decided to internalize three figures dedicated to customer care. An employee is dedicated, exclusively, to the B2C segment, and two employees are dedicated exclusively, to the B2B segment .

The headquarter of the company has remained in Cilento, where the general offices are located and where all the online activity is managed. The headquarters of the logistic pole located in the north of Italy has been moved from Brianza (Lombardy) to Parma (Emilia-Romagna). The choice was dictated by the lower costs of renting and maintaining the structure.

The Hub is now the logistics center from which deliveries to the regions of northern Italy and other countries bordering. Through online sales in the B2C market, Picone has managed to sell beyond national borders.

Conclusions

Case shows how digital technologies can be used to innovate the business of a small company and transform threats into opportunities. In case just a few key elements of business success are hinted at, it's up to you now to understand why the company was successful!

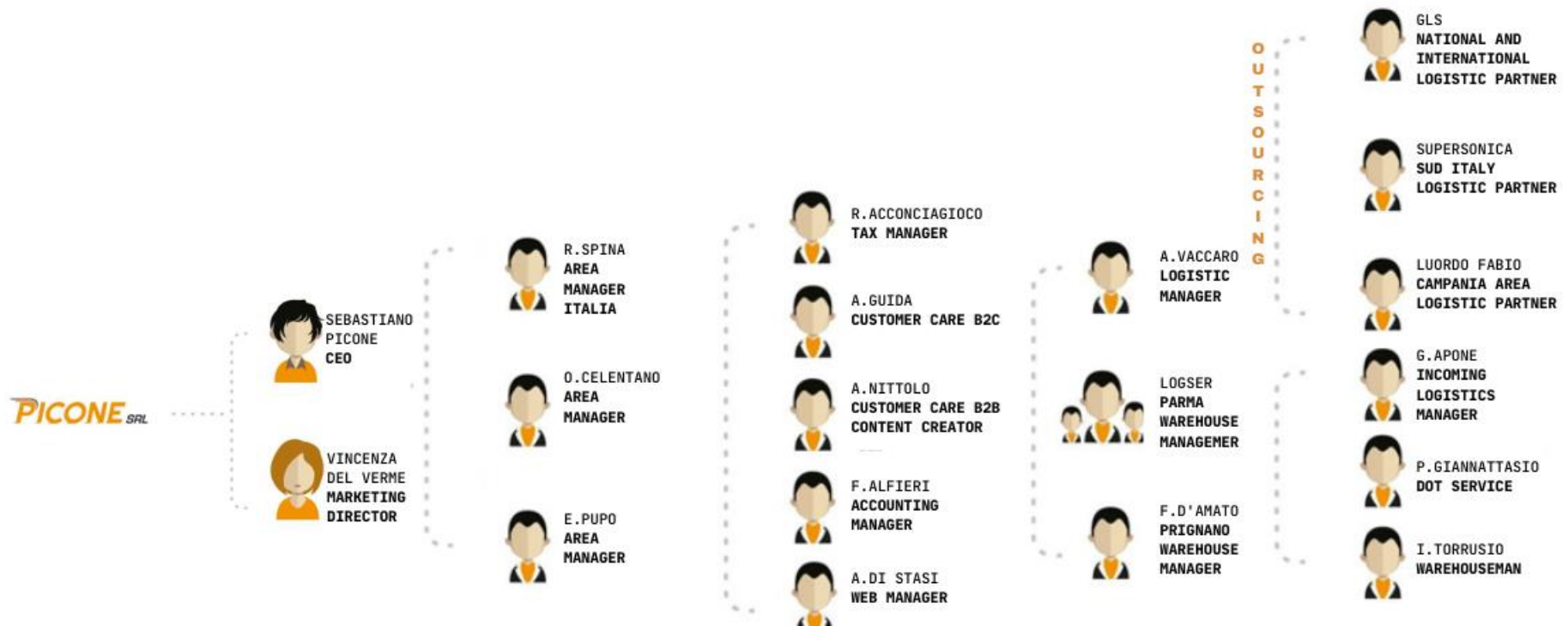


Figure 2. Picone's organizational chart

Source: www.piconepneumatici.com

Footnotes

1. "Interview with Guido Schiavo (president of Federpneus): tire distribution in Italy" published on 7/02/2011 on www.pneusnews.it.
2. F. Chiesa & G. Russo, (2009). "La filiera cresce e si confronta con le aspirazioni dei competitor internazionali. Osservatorio della componentistica autoveicolare italiana 2009", Turin Chamber of Commerce.
3. N. Angi, (2019). "L'industria degli pneumatici è un settore in espansione", Pneurama.com, 07/05/2019.
4. Interview with the CEO of Picone srl.
5. "Intervista a Federpneus: la distribuzione dei pneumatici in Italia" published on 7/02/2011 on www.pneusnews.it
6. R. Servadei, (2014). "E la redditività?", Pneurama n.1, gennaio-febbraio 2014.
7. *Ibidem*
8. *Ibidem*

Discussion Questions

1. Business model and strategy are often used equivalently, however, they are different. The Business Model describes the configuration of the business system of the firm as a whole, while the strategy describes how the business model is combined with a particular market context of the firm (Grant, 2015 p. 214). In your opinion, in this case, is there an innovation strategy innovation or a business model innovation? The firm has a centuries-old history. Every strategy also needs an alternative plan B, which one would be yours?
2. What are the key competences of this transformation process?
3. What do you think are the essential elements to be successful in online business?
4. After gaining an established position in online sales, how would you innovate the firm business again?

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Chapter 2. Transferability of experience

2.1 Introduction

As for most of the didactic cases, each of the cases presented in this collection shows multiple interpretations. The choice of the aspects to be privileged in teaching is an operation that pertains to the teacher who intends to use that case by inserting it in his course. The teacher can use the case as an element of verification or falsification concerning a general paradigm previously illustrated. Furthermore, the teacher can use the case as a term of comparison for other analogous cases. He can do it following his teaching style and privileging the inductive method rather than the deductive one.

Starting from these premises on the “multidimensionality” and the “equidistance” of the cases presented in this book, we decided to catalogue case studies (par. 10.3) based on:

- year foundation.
- life cycle and reference market.
- industry sector.
- digital topic.

and to articulate the comments of the cases (par. 10.4) based on the level of digitization.

Before proceeding to analyze the cases, let's first clarify what we mean by the digitalization of entrepreneurship.

Digital entrepreneurship is a subcategory of entrepreneurship in which some or all of what is physical in a traditional entrepreneurship is digitized. Digital entrepreneurship refers to the adoption of a business model in an environment of frequent or even omnipresent connectivity. In their systematic review of the literature, Ferreira, and colleagues (2016) opt for a broad conceptualization of digital entrepreneurship, suggesting that it is a combination of entrepreneurship and technology-based innovation. Similarly, Beckman and colleagues (2012) wrote that digital entrepreneurship is a type of entrepreneurship that aims to exploit opportunities related to advances in science and engineering. Both conceptualizations are broad and are quite coherent with the approach of Bailetti (2012, p. 9), which defines digital entrepreneurship as “an investment in a project that assembles and deploys specialized individuals and heterogeneous assets that are intricately related to advances in scientific and technological knowledge for the purpose of creating and capturing value for a firm”. From a research perspective, digital entrepreneurship is much closer to the information systems' concepts of artefacts, platforms, and information infrastructure. Examples of different types of digital entrepreneurship are Airbnb, Just Eat, Dropbox. Airbnb was born as an idea to make some money by renting a space in an apartment. At first, it fails to attract business angels. Only after starting part of an acceleration program in 2009, Airbnb has become a popular site for sharing and finding accommodation. Just Eat, one of the largest international restaurant networks offering online ordering in a growing number of countries around the world, was born in 2001 to make ordering takeout an option for all types of restaurants. Dropbox had long been working on syncing users' files to the cloud. However, it has only managed to grow since 2009, when the competitive threat from iCloud emerged. These three examples provide similar evolution paths and growth trajectories. However, they are three businesses with a diversity of technology origins and outcomes that make it unfeasible to extract homogeneous insights from them if treated as a sole category.

For this reason, this book investigated different cases of digital entrepreneurship with different stories. These are 15 cases that photograph the realities of various European companies.

The main objective of case analysis is to provide insights to be used in teaching. The use of case studies supports students in learning the ability to make decisions and develop critical thinking in the corporate environment.

Therefore, we will not provide didactic notes to individual cases, but rather ideas for their use in teaching.

Given this objective, we proceeded to the analysis of individual cases and their comparison. In this way, we leave the teacher the task of emphasizing the inductive rather than the deductive methodology.

The aim of this chapter is to allow the reader an integrated and thematic analysis of the various cases, to stimulate students' critical thinking.

As highlighted by Bloomberg and Volpe (2018) the integrated and thematic analysis does not aim to generalize beyond the case but, rather, to understand the complexity of the same, to achieve transferability, that is, to identify how and in what ways understanding and knowledge can be applied in similar contexts

2.2 Methodology

The development of the Casebook was driven by the desire to offer the reader a broad, international, and diversified overview of the various aspects of Digital Entrepreneurship. To achieve this goal, we have defined a "Case study funnel" to identify for each case a plurality of elements characterizing the company under study from different profiles (see fig. 1). Each case follows the structure of the "Case study funnel", identifying a political, strategic, and entrepreneurial perspective; indicating the nationality of the company, the sector of competence, the stage of the life cycle in which the company is located.

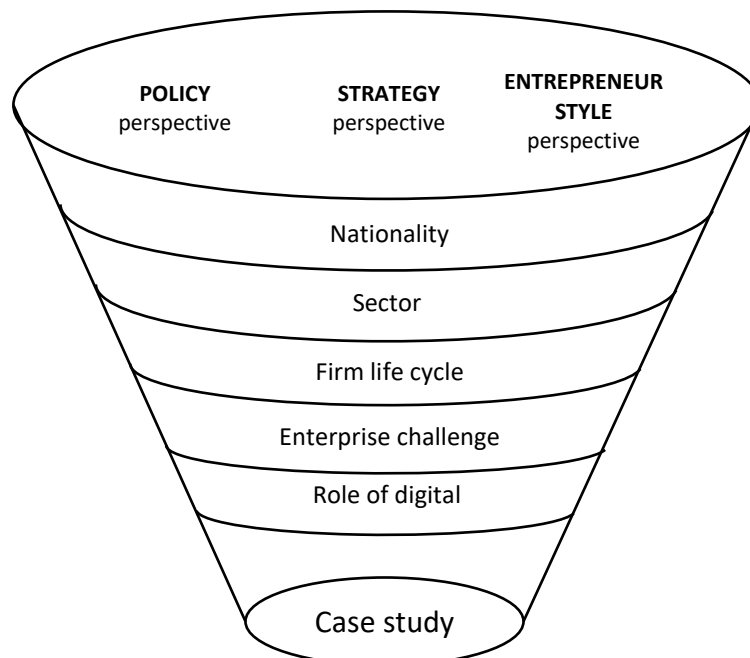


Figure 1. The case study funnel

Source: authors' development

Following and analyzing the conceptualization of digital entrepreneurship within the Digital Entrepreneurial Ecosystem construct (Sussan and Acs 2017; Elia et al. 2020), the funnel

begins with three different perspectives. In particular, the following lines of research perspective emerged:

- Policy perspective: it explores the role of Institutions (such as Government, cities, municipalities, and so on) in facilitating DE, their initiatives to offer an environment comfortable to develop DE overcoming institutional resistance to innovation.
- Strategy perspective: this perspective proposes the firms' point of view and explores opportunities and problems issuing from the digital transformation of the business model.
- Entrepreneur Style perspective: this perspective analyses how digital entrepreneurship represents an opportunity to develop new styles of entrepreneurship aimed at generating a social impact.

The goal to integrate these different perspectives was to increase the value of individual cases and the value of the casebook, which, provides the reader with an overview of the different facets of Digital Entrepreneurship.

The next funnel's levels are represented by nationality and industry sector. Each case reports companies' nationality and sector to which it belongs. Companies' countries of origin are five: Austria, Italy, Poland, Spain, Ukraine. Each case deals with the most disparate sectors: from the financial to healthcare. We selected fifteen cases from different countries operating in different sectors to create a collection of cases as diverse and heterogeneous as possible.

At the third level of the funnel, we have the firm life cycle. To be able to fully transfer the impact of digitization on entrepreneurship to readers, cases concerning companies positioned at different levels of the life cycle (launch, growth, shake-out, maturity, and decline) have been collected.

The different state of the business life cycle is closely related to the Enterprise challenges and the different levels of digital transformation that are the final levels of the funnel. For these reasons business cases that use digital technology to win different challenges (e.g., generational change, internationalization, product innovation, innovation process, acquisition, etc.) and that differ for levels of business digitalization and the adoption of digital technologies in different enterprise's organizational function (logistics, sales, product innovation, etc.) have been selected. In addition to the elements of the "Case study funnel, for each proposed case, the authors have identified a minimum of 4 to a maximum of 7 learning objectives to be pursued.

To the aim to allow the students the integrated and thematic analysis, in the next paragraph, we have cataloged the cases based on four criteria: foundation year, Life cycle, Industry sector and Digital topic.

The choice to use these four parameters to analyze the interconnections between the cases derives from the desire to bring out the transferability of experience or elements between the cases (Crane, 1998), highlighting the theoretical elements that connect to the study paths faced by the students targeted by the casebook.

Finally, the cases are commented based on the trend towards their digital development. In particular in this study the categorization proposed by Hull et al. (2007) has been adopted. This classification distinguishes three typologies of new digital ventures: mild, moderate, and extreme. The first, mild digital entrepreneurship, involves venturing into the digital economy as a supplement to more traditional venues. The second, moderate digital entrepreneurship, requires a significant focus on digital products, digital delivery, or other digital components of the business. Moderate digital entrepreneurship could not exist without the digital infrastructure. The third, extreme digital entrepreneurship, means the entire venture is digital, including production, the goods, or services themselves, advertising, distribution, and the customers.

Table 2. A categorisation of digital entrepreneurship

Category of digital entrepreneurship			
Activity	Mild	Moderate	Extreme
Marketing	Website as supplement	Digital marketing is primary mode	Digital marketing is only mode
Sales	Product may be available for sale digitally	Product can be purchased digitally, possibly exclusively	Product is only available for sale digitally
Product (Good or service)	Product is non-digital	Product may or may not be digital	Product is digital
Distribution	Product is delivered by physical means	Product may be delivered physically or digitally	Product is delivered digitally
Stakeholder management	Traditional interactions, may include e-mail	Significant levels of digital interactions; traditional interactions also, common	Digital interactions are primary; traditional interactions seldom or never occur
Operations	Primarily physical location(s), traditional interactions, may include some virtual team interaction	Primarily physical location(s), traditional interactions, probably includes some virtual team interaction	Strong virtual presence, physical location and traditional interactions possible but not required

Source: Hull et al. (2007).

The study includes companies that are at different stages of digital development, in line with the desire to provide students examples of heterogeneous business realities.

2.3 Results

In this paragraph the fifteen cases are classified according to four criteria (foundation year, life cycle, industry sector and digital topic) and summarized below, highlighting how the case can be useful to students.

Most of the cases (10) concern young companies setting up after 2010, two cases concern companies set up at the end of the last century, in the 90s, three cases concern companies set up in the first twenty years of the 900.

Five out of fifteen companies are in an early stage of life (launch), seven out of fifteen companies are in the growth stage, two out of fifteen companies are in the maturity stage, one case tells the story of a company that faced bankruptcy. The cases are very different concerning the sector. Only two sectors, financial and IT providers, are represented by more than one case, but the companies analyzed are completely different, even if they operate in the same sector.

Concerning the digital topic criterion, four of the fifteen companies concern platform-based business solutions, however, the application of the same solution in different Firm life cycles and Sectors, offers completely different learning opportunities. The same goes for the three companies that have implemented Business Model Innovation processes through digital technologies. The other eight firms analyzed, instead, present a unique digital topic.

The following table summarizes four guiding criteria for cross-case analysis (table 3). Then, the analysis of the specific learning objectives is detailed for each case.

Table 3. Business cases discussed in the book

Case	Foundation year	Firm life cycle	Sector	Digital topic
Diya.business	2019	Start-up	Government services online	Platform to support Country digitalization process
Monobank	2017	Start-up	Financial sector	Mobile bank
Kipferl	2014	Growth	Grocery/retail	Grocery e-commerce
Cargometer	2014	Maturity	Logistics – Freight Measurement	Digital solution to Logistics efficiency process.
Saluber	2016	Start-up	Healthcare	Platform-based business
Mamacrowd	2016	Growth	Financial sector	Platform-based business
Getdressed	2019	Start-up	IT providers	Web Platform for AI model
Work from Bed	2017	Growth	Marketing	Digital organization of HR
Cogne acciai speciali	1911	Maturity	steel production	Digitization of the heavy industry
Beatik	2015-2021	Failure	Classical Music	Artificial intelligence for live music performance
Software del Sol	1999	Growth	IT providers	Digital Business model and Innovation HR organisation
Liderkit s.l.	1991	Growth	Transport Manufacturing	Simulation – Digital Twin – 3D printing - Robotics
La Bottega del Calzolaio	1916	Growth	Cobbler service	Business model Innovation and e-commerce
Picone srl	1920	Growth	Tire sales	Business model Innovation and e-commerce
Medaarch-CAD	2018	Start up	Consulting firm and digital service	Digital education and consulting.

Source: Author's elaboration.

DIYA.BUSINESS is a portal developed by the Ukrainian government to support the Public Administration and SMEs in the digital transition process. Within the portal, entrepreneurs, who have characteristics indicated in the case, have the opportunity to access the global OnFrontiers market, obtaining free advice on digital business transformation from international experts. The offer of the consulting service is provided through a procedure developed ad hoc for Ukrainian SMEs, which is divided into 9 steps.

DIYA.BUSINESS has today achieved good results, supporting numerous Ukrainian SMEs, in the digital transformation process, in particular digitization of the sales process, product innovation, business model innovation. The case aims to highlight how government support can play a strategic role in the digital transformation processes of SMEs. The case offers students the opportunity to critically analyze the policy practices implemented within their own countries and highlight the strategic role they have for innovative SMEs that want to carry out digital transformation processes. The case also invites students to develop critical thinking in the analysis of a company from a managerial point of view. Access to the services of the OnFrontiers platform of DIYA.BUSINESS passes through a selection process that rewards companies that have certain characteristics, such as a propensity for innovation, transparency, and the enhancement of human resources. The case links the role of the digitization of the Public Administration with the development of "modern" entrepreneurship, offering students the opportunity to think about the state of the art in their Countries and discuss the relationships between PA innovation and business digitization.

The case of **Monobank** concerns the digitization of the financial sector. The case highlights how in the financial context the digitization process is based on a harmonious process of innovation which, to be successful, must involve all areas of the bank's operations. Monobank is the first mobile bank in Ukraine and, the case highlights how, in a sector that is experiencing growing competition, digitalization contributes to the expansion of the customer base, generating an increase in market share, reducing costs, increasing stability financial and bank security. The case offers students the opportunity to think critically about the radical change taking place in the financial sector. The student will understand the elements behind the digital transition of the sector, the main technologies, and their impact on different processes, as well as the impact that the digital transformation of the financial sector can have on different entrepreneurial activities.

Kipferl is an Austrian unicorn (a company with a value of over one billion euros), which operates in the online grocery shop sector. After constant growth since its foundation (in 2014), in July 2021 for the first time, the company had a setback, which the CEO (chief executive officer) justifies as normal and temporary because it is linked to the post-pandemic transience. However, for the COO (chief operating officer) of the company, the causes of this negative result are many and represent a serious problem to be addressed with the utmost attention. The case is analyzed by the eyes of Julia Schuhmacher COO of Kipferl, who has the task of managing relations with investors who certainly will not be convinced by the approximate justifications of the CEO. In her case Julia, she carefully analyzes the company business model, the market, the consumers, and the strategies of the competitors, highlighting how the causes are not transitory, but structural concerning the reference market. The challenge of Julia and the students is to discover the obstacles that have led to the current crisis, to understand what advice to give to the CEO to increase revenue and bring Kipferl back to growth. In addition to the clear challenge addressed to students, the case aims to guide students towards a critical analysis of the complex crisis that many companies and digital startups are facing. The case is intended to cover a comprehensive understanding of the various business challenges that occur during the initiation of the newly established startup.

Cargometer is an Austrian startup based in Vienna, founded in 2014, which offers monitoring services to companies in the logistics sector. The company's goal is to design solutions that automate the measurement and control of logistics processes without distracting interventions. In fact, in 2018, Cargometer launched an innovative product on the market capable of acquiring measurements and other data from a moving object, without the need to stop for this process. The case first highlights the criticalities of the logistics sector, highlighting how this is closely linked to economic and commercial developments in a broad sense, allowing the student to understand how different businesses are complex and closely connected with multiple markets and conditioned by regulations and global trends, such as attention to environmental impact. The case analyzes the corporate crisis of early 2020, in which the company, for the first time since 2016, finds itself in a stagnant situation, with declining sales and stagnation of customers. The case proceeds with a critical analysis of the company's business model and a detailed analysis of the competition and the reference market, offering the student a clear picture to be able to think critically about the negative results. The challenge facing founders and students is to overcome a crisis linked to an inability to make the business scalable and at the same time understand how to restructure the value capture of the company. Students can step into the shoes of a COO (chief operating office) and think critically about the corporate business model with particular attention to the revenue model and the customer segment. At the same time, the case offers students the opportunity to think about the complexities related to the scalability of the business model and the strategy of internationalization.

Saluber is an Italian digital start-up founded in 2016, that offers ridesharing services for non-emergency medical transportation, thus applying the principles of the sharing economy in the healthcare sector. The company founded by Guido Bourelly, thanks to the participation of a call of INVITALIA (An Italian government agency wholly owned by the Ministry of Economy

and Finance), aims to make the entire healthcare logistics sector more efficient, which especially in the Campania region shows serious technological gaps. The case offers to students the opportunity to critically address various topics, the sharing economy, e-health, and the role of the State in supporting innovative business initiatives. From the analysis of the case, it is also possible to think about the elements that characterize the launch and establishment phase of a new business based on a digital platform, as well as the centrality of the value co-creation approach within digital ecosystems.

Mamacrowd is a leading Italian equity crowdfunding platform for capital raised. The case offers students the opportunity to think critically about the reasons and historical elements that characterize crowdfunding. Through a careful analysis of the corporate business model, and of the business models of the main competitors, students can critically analyze the crowdfunding tool, with particular attention to the financing of highly innovative business ideas. The business challenge, presented to the students, concerns the development of a specific plan to avoid startup downhill and allows students to critically analyze the role that social networks can have for the development of a digital business, specifically the platform. At the same time, the challenge leads students to think about the opportunities/criticalities of the regulatory environment for the development of new business models. The case also allows the teacher to present the changes taking place in the university-business relationship to the classroom, with emphasis on the third mission.

Getdressed is a start-up founded in Poland in 2019, which develops innovative AI-based solutions for clothing and footwear e-commerce. The company offers fashion companies that sell online software solutions based on Artificial Intelligence, which allows the end-user visiting e-commerce to interact with a personal stylist. The idea was born in 2017, among the university desks. In this case, all the challenges that the group of students had to face to go from a university project to a start-up are presented. In this case, it will perhaps be even easier for students to identify themselves in the shoes of founders. The case also presents AI technology in detail, highlighting its potential applications, placing the student in a position to explore the potential of a technology that is not yet widespread. The case also highlights how it was necessary to change the business model several times for endogenous and exogenous reasons, offering students the opportunity to think critically about the Lean approach. Through an analysis of the company's history and the current internal and market situation, the case offers the student the opportunity to identify himself in the shoes of a young founder, who must face more challenges on different but closely related levels: development of the final product, company development, and redefinition of the business model. In achieving the business objectives, the student will have the opportunity to understand the Lean approach in practice in the development of a business idea, critically analyze the various business models and identify an optimal internal company structure.

Work from Bed is a marketing agency that operates in Poland since 2017, using the legal form of a business foundation. Work from Bed creates targeted jobs for people with motor disabilities by providing public relations, marketing, and advertising services, for businesses, the public, and social sectors. The agency uses remote work, digital work tools and implements innovative technologies, adapted to the needs and abilities of disabled employees. This case study covers two interesting and challenging areas, digital entrepreneurship, and social impact, highlighting how digital technologies and the Internet can be used for public and economic benefits, bringing satisfaction to stakeholders: social entrepreneurs, disabled people, and customers/buyers. The case offers students the opportunity to critically analyze an innovative model of entrepreneurship, which combines digital Entrepreneurship and Social Entrepreneurship. The case also presents the criticalities of operating in a highly competitive market, such as that of digital marketing and the organizational criticalities for a company made up of people with disabilities. In trying to find solutions to the various business challenges, the student will have the opportunity to analyze the importance of modern technologies in activating socially vulnerable people, to define highly customized organizational solutions based

on the needs of the company's human resources, and still develop long-term strategies for a social enterprise.

Cogne Acciai Speciali is a global leader in steel production, with a registered office in Italy, five production centers in 3 different continents, and a turnover in the year 2020 of 455 million euros. Through an analysis of the different innovative steps, the case offers students the opportunity to follow the ten-year innovation process of a company operating in heavy industry, highlighting the main characteristics of the different phases, up to Industry 4.0 and digitization, which has opened the company more and more towards listening to customer needs, guiding management towards the adoption of the Lean approach. Through an analysis of the advantages and disadvantages deriving from the corporate innovation process and its impact on international competition, the student is enabled to critically analyze the strategy adopted by the company, as well as the role of digitization inside a company operating in the heavy industry market. The case aims to expose students to an understanding of the different digital practices currently implemented by the company, both in terms of economic/financial planning and in terms of the difficulties and advantages related to digital changes within reality. corporate.

The **Beatik** case concerns a Spin-Off of the University of Jaén, whose main product is an App for mobile devices capable of "listening" to music and following it in a digitized score, supporting the single musician and the orchestras in the execution of the performance. The case first highlights the role of the third mission within universities, guiding the student to think critically about the role of universities as the important actor in the development of innovative entrepreneurship, and the role of spin-offs as a tool for converting basic research into applied research, which can lead to disruptive innovations in the form of commercial products. The case also highlights how some sectors that seem to be little inclined to digital transformation, instead present opportunities for digital entrepreneurs. The case aims to guide the student in identifying the potential of information technologies to improve efficiency and productivity in mature and traditional sectors and the business opportunity, in traditional and mature sectors, which do not use information technology intensively. Due to the inactivity of the music industry, caused by the Covid-19 pandemic, Beatik has ceased to exist. However, the case offers the student the opportunity to think in a circumstantial way on the reasons for business failure, also highlighting the importance of defining a specific business model for a Spin-Off.

Software DELSOL is an innovative company in southern Spain, founded in 1999. DELSOL is a very important Information Technology provider, that promoted the adoption of IT among Small and Medium Enterprises (SMEs) in Spain and Latin America, using a business model based on the Freemium model. The success achieved over the years by the company is based on foresight in the application of the freemium business model and the careful management of human resources. The case is interesting for students because it allows them to think critically about two central elements within Digital Entrepreneurship: The importance of innovation in the business model of the IT provider and the importance of managing people in innovation within the digital economy, using advanced practices that will result in better business outcomes, to retain and attract rare talent. In summary, the objectives of the case are to make the student think about the business model, in particular Freemium, and about organizational innovations.

LIDERKIT S.L. is a leading company in the national and international market in the manufacture of bodyworks for vehicles that are distributed in kits to assemble, founded in 1991 in Spain. Following a joint analysis by the Research, Development, and Innovation (R+D+i) department and the commercial department, which has shown potential for market growth in the coming years, the company's management has taken the determination to increase production by 15% over the next three years, maintaining the quality, service, and delivery times that its customers require. The management of LIDERKIT S.L. has decided to rethink, redesign, and develop its business model adapting it to the dynamic market conditions. At the same time, the need to optimize the inventory control system and warehouse management, the production process, purchase and sales management, and customer contact are considered.

The analysis carried out leads the student to think about the opportunities offered by digital technologies, in a process of business management optimization, within a strategic growth plan. The student is also called to critically observe the various tools used by company management to measure the company's digitization rate, analyzing, and consequently defining a digital transformation plan, consistent with the company objectives and with the potential opportunities and threats of technologies. emerging. The objective of the case is to place the student in the shoes of the entrepreneur who must decide how to plan a digital transformation process, which allows him to be still competitive soon within a market, which is becoming more complex. and competitive.

La Bottega del Calzolaio is a small family artisan company with over a century of history in the cobbler sector. The generational shift offers students the opportunity to think about family business models and understand what are the key factors that lead a small family artisan company to success. In this case, the different moments that led the small shop to gradually grow over time are described, highlighting the key elements of the innovation process. Through the analysis of the criticalities of the previous corporate business model, students can think critically about the importance of business model innovation within SMEs and carefully analyze the role of human capital. within the craft sectors, and the different professional skills required in the various stages of development of the business model. The results obtained thanks to a gradual digital transformation, on the other hand, offer students the opportunity to understand the potential of digital technologies for artisan businesses. The business challenge is to understand how it is possible to innovate further, to grasp the stimuli offered by the market, and this is the challenge that students must win. The case offers students the opportunity to wear the role of partner within a family business, where in addition to business interests, decisions are also guided by emotional ties.

Picone srl is a family business with over a century of history, involving three generations of entrepreneurs. The firm now operates in the tire distribution and sales sector, but when it was founded, it was a grocery store in a small town in southern Italy. Already the gradual transition to a different business offers students the opportunity to think critically about the entrepreneurial ability to be flexible and seize the opportunities offered by market trends. The focus of the case is on the last ten years of the company and offers the student the opportunity to learn about the critical issues of a saturated market, with low-profit margins, where small businesses had to compete with large distributors. In an already complex market, the advent of the internet could be the final blow for SMEs. The business challenge, and therefore also the student/entrepreneur's challenge, will be to understand how digital technologies can support the innovation of the corporate business model, helping the company not only to survive but to grow. The case offers the student the opportunity to think critically about the opportunities and threats that digital transformation can generate in a saturated market with low-profit margins. The case also offers the student the opportunity to think critically about the importance of competences in the digitalization of business model.

The **Medaarch-CAD** case is the story of an Italian consulting firm, which core business is to help SMEs, artisan firms, startupper to exploit the potential of new digital technologies in transforming their business and acquiring valuable knowledge in the field. The case highlights how a non-profit association activity can turn into a company, offering students the opportunity to think critically about the role of associations in this historical context. The fundamental transition of the company took place thanks to an agreement with the PA which co-financed the recovery of the structure where the company is based today. With a view to urban regeneration and entrepreneurship with a social impact. The student can think about the centrality of the corporate social impact also in terms of the possibility of obtaining support through public funds. The CAD model, however, was not meant to be scalable, but today the market is conducive to scaling. Students have the task of identifying themselves in the shoes of Medaarch's Management and identifying strategies that allow the company to climb. Through a careful analysis of the competition, students have the opportunity to think critically about the concept of differentiation and Value proposition. The need to think about scalability strategies

leads the student to carefully analyze the factors that have guided the success of the business model, which are not deliberately expressed clearly in the case. In addition, the case offers the student the opportunity to put himself in the shoes of a charismatic founder leader, who must be able to relinquish control of his company for it to grow.

2.4 Discussion

The comment of the cases published in this collection considers the detection of a fact that unites all the companies in question, and which consists of the growth of their level of digitization over time. Although it originated at different times, has developed in different forms, has led to different results, the trend towards development in the digital sense is uniquely detectable in all the cases presented.

Based on the framework of Hull et al. (2007), we classify the cases presented in this book, categorizing them into mild, moderate, and extreme (see table 4).

Table 4. Case studies Categorization

Category of digital entrepreneurship	Company names
Mild	Cogne Acciai Speciali Liderkit Picone Srl
Moderate	Cargometer La Bottega Del Calzolaio Medaarch-Cad Monobank, Kipferl Work from Bed
Extreme	Beatik Delsol Diya Business Getdressed Mamacrowd Saluber

Source: Author's elaboration.

Six out of fifteen, show a moderate level of business digitization. These are those companies in which the product may or may not be digital, as in the case of Monobank, or companies that sell online but also have a physical shop, such as Kipferl or La Bottega del Calzolaio.

Six out of fifteen cases have an extreme level of digital entrepreneurship. This is the case of those companies where digital marketing is the only mode, such as e.g., Getdressed, or companies where the product is digital, such as DELSOL or Beatik, stakeholder management takes place mainly through Digital interactions, as in the case of Saluber.

Finally, only two out of fifteen companies have a mild level of digital entrepreneurship. These are two companies that have defined a digital transformation plan, consistent with company objectives, but which still provide for a non-digital product.

The classification of cases based on the level of digitization can be useful to students and teachers for a deeper understanding of the phenomenon of digital entrepreneurship that will become more common (Matlay and Westhead, 2007; Yen et al., 2002).

Through the use of cases, students are provided with examples of experiences in the field of digital entrepreneurship at different levels. This methodology is useful because learning about entrepreneurship through entrepreneurs' experiences allows students to better understand the situations that arise in the enterprise.

Many scholars contend that entrepreneurship is a "learning by doing" subject. Indeed, some would suggest that the practical application of learning about entrepreneurs through their experiences is the most significant method of enhancing one's understanding of the

opportunities and challenges involved in establishing one's enterprise. It has therefore been argued that case studies are a very important teaching tool in seeking to offer a detailed insight and understanding of entrepreneurship as they provide a greater emphasis on experiential and action learning. It has been further argued that case studies help students to develop a wide range of life skills that extend beyond the boundaries of entrepreneurship education, although evidence regarding this argument remains largely anecdotal. However, over the past decade, the use of case studies has been increasingly recognized internationally as a critically important instrument in entrepreneurial education, as they enable students to identify more comfortably with local role models and with local challenges than might be possible through purely theoretical programs.

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