The Loccioni Case Study (B) - Technological Tailor[1]

Loccioni is world leader in automation and measurement for quality control and sustainability. The company develops and implements custom-made systems tailored to customer needs, integrating measurement expertise with other complementary competencies, such as robotics, sensors, and data science. Loccioni implements projects for industrial (e.g., automotive, household appliances, energy sectors) and service companies (e.g., environmental, health) in over 50 countries in the world, from Latin America to the Far East. From its customers, world leaders in their own sectors, Loccioni accepts challenges of a high technological level that satisfies developing innovative solutions, combining entrepreneurial curiosity and openness with the wellbeing of people, the community, and the environment.

The Business Model

Market Projects

Loccioni integrates "ideas, people, technologies" in the development of automatic measurement and control systems aimed at improving the quality, efficiency, and sustainability of products, processes, and buildings. The company defines itself as a "technological tailor" designing and selling customized systems and solutions for client companies. Its mission is to "transform data into value for the wellbeing of people and the planet". As Gino Romiti, Loccioni Innovation Manager, states:

> *We start from the belief that only what can be measured can be improved. Measuring allows us to identify the defects in the production line, and consequently find a solution to prevent it from happening again. We have developed the ability to analyze numerous types of measurements: physical (e.g., temperature, flow rate, pressure, velocity), optical (e.g., spectroscopy, artificial vision), noise, vibrations, etc. This allows us to meet very different needs.*

Loccioni designs and builds measurement and control systems for companies operating in different sectors. To better manage the numerous projects, and to ensure the structure remains agile and horizontal, the company has created Business Units (BUs), also called market projects, which promote and realize commissions in relation to a determined sector. Currently, the company operates in eight market projects (i.e., automotive, energy, environment, industry, medical, train & transport, aviation, electronics), each of which is the center of a series of competencies and experiences. Managers responsible for a business unit must prepare an annual revenue budget and, with the support of R&D, a three-year plan aimed at stimulating innovation and defining the future positioning of the BU.

The market projects are linked (see Figure 1). They share the quality control measurement competence and, in a broader sense, the management philosophy, the business values, the ownership, and the leadership. In recent years, the company has established some commercial

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subsidiaries abroad (America, Germany, and Asia) to compete more effectively in the global market. Thanks to these foreign activities, Loccioni sells systems in over 50 countries.

Client Companies

In the early years, the company tried to meet all the market demands. At the beginning of the 1990s, Enrico Loccioni sensed he needed to steer the company's growth, and decided that from then on he would work only for leading companies operating in attractive sectors and having strategic problems, that is, expensive, aggravating, and difficult to solve. The problem also had to concern other customers and the solution had to be patentable or difficult to imitate by competitors. In his words:

> *In the course of 1992, I realized that we had to get out of ordinary supply where the customer pays according to hours worked and materials used. Instead, we had to aim to meet the needs of major customers who had to solve aggravating (for example, affecting safety) and expensive problems (for example, with legal consequences). Only primary customers who want to solve aggravating and costly problems can appreciate our ability to identify highly innovative and personalized solutions.*

Today, Loccioni customers are business leaders in their industries. With rare exceptions, Loccioni does not design standardized systems that meet all the possible measurement and control needs of a given company. Conversely, Loccioni prefers to make the most of its own measurement, analysis, and problem solving competencies to meet the specific quality control needs of companies operating in several sectors. The firm operates in a niche characterized by high technological complexity and high integration with the client company. This allows Loccioni to become strategic for customers and difficult to imitate for competitors.

Loccioni creates value for customers by developing more efficient solutions with greater complexity than those available on the market. Recently, for example, it participated in a tender organized by Airbus to identify a system that automates the drilling of the aircraft fuselage. The various international groups that participated in the tender presented large robots able to work on multiple surfaces, but thanks to the experience and skills developed in other sectors - and subsequently patented - Loccioni designed, in collaboration with Airbus, a small robot that works on a movable surface. As in previous experiences, the Loccioni team's higher level of expertise and flexibility facilitated the creation of a climate of trust between the parties, in turn promoting the joint development of innovation up to acquiring a shared patent.

Loccioni wants to integrate its knowledge and experience with that of its client or partner companies. The design of a measurement system is the result of both the exploitation of a vast set of competencies, usually not all present within a company, and the close collaboration and interaction with the client. For example, the medical market project *Humancare* stems from the passion and expertise of Claudio Loccioni, but also took shape thanks to the collaboration with the hospital of Ancona. An important role in this regard is

played by the ‘silvers’, that is, retired managers or researchers who dedicate some of their free time to the firm. In the entrepreneur’s words:

> *Business relationships arise between people who know each other and are esteemed. I have always tried to involve in our initiatives those who have impressed me with their skills and experiences. Some of these, once retired, agree to become ‘silvers’. For a small fee - little more than the reimbursement of expenses - they come once per month to share their ideas and experiences. They contaminate us and help our guys develop new projects. Sometimes they bring other people, expanding our network, and opening new worlds to explore.*

Loccioni client companies are traditionally closed toward the outside. To overcome their mistrust, the company must be proactive and innovative, that is to say, propose solutions that anticipate changes in regulations or technology. For example, Loccioni supported Magneti Marelli in the design of engines that adhere to European regulations and standards. The network of relationships is a second source of business opportunities. Many of the client companies and partners contribute to promoting Loccioni by word-of-mouth, participating in fairs, or producing scientific publications.

The Relationship with Customers

Despite having a strong customer orientation, Loccioni has never purchased visibility or invested in advertising. The company prefers to invest in the relationship with customers.

In the delicate stage of entry into a new sector or geographic market, Loccioni invests in the selection of potential customers and in building a relationship with them. First, the company identifies the target sectors and segments, i.e., those most consistent with its long-term vision of transforming data into value for the wellbeing of people and the planet. Second, it selects the target customers, i.e., leading companies in the sector in terms of size and profitability. Loccioni then analyzes these companies to identify which managers or organizational units to approach, thereafter contacting them to organize a meeting.

Once the first contact has been made, Loccioni invites customers (current or potential) to visit the headquarters, which is effectively a showroom or technological and business culture laboratory. The first “open house”, which involved 70 people from 40 countries, dates back to 1998. On that occasion, Loccioni organized various events at its headquarters and a touristic excursion to present the main attractions of the region. Over time, the Loccioni team has refined the visitor experience through taking care of every detail to make it both an unforgettable and inspirational journey and an important communication tool. Today the company welcomes customers daily and hosts over 9,000 visitors every year.

In addition to company visits, Loccioni promotes and organizes various communities with the aim of understanding the evolution of technologies used in some sectors, such as automotive (*Take a Breath)*, medical and healthcare (*Apoteca)*, reducing environmental impact (*LEAF - Life Energy And Future*), and railway (*Felix)*. The communities involve business managers of client companies, university researchers, and various players in the value chain of each sector with the aim of encouraging the sharing of experiences and knowledge. *Take a Breath* is

aimed at research managers from major car manufacturers, their suppliers, university researchers, and science disseminators. *Apoteca* is an international network of pharmacists and doctors from the best national and international hospitals created to facilitate the exchange of experiences and develop new automation and healthcare technologies. The community produces scientific publications and organizes a meeting at the Loccioni headquarters every two years, in addition to spontaneous meetings in various countries. The *LEAF Community* aggregates companies that undertake the path of energy efficiency and conversion to renewable energies in order to reduce the environmental impact and improve comfort. *Felix* involves companies that manage railway networks or develops technologies for them. A characteristic of these meetings, always informal and friendly, is alternating periods of work - in which participants are the focus of future visions - and periods of leisure - including visits to the medieval castles in the area, tasting typical products, experiencing traditional craft activities, or the thrill of nature excursions.

Openness to customers stems from Enrico's belief that "the gap between what the customer knows about us and what we do is large". Reducing this information asymmetry requires creating a climate of trust and jointly designing the future. This approach may be slower, but, in addition to avoiding the problems of growing too fast, it generates several positive effects, such as mutual trust and willingness to cooperate in the long run. The entrepreneur emphasizes that customers appreciate the relationship of trust and continuous investment in the future:

> *When I asked one of our customers why he continued to work with us, he responded by pointing out two reasons. In the first place, he wishes to have partners with an orientation towards long-term relationships so as to reduce the time spent in negotiating contractual details and concentrate on the project's development. In addition, he appreciates the investments we make in young people because he understands that we are building our future.*

Investing in customers generates positive word of mouth because satisfied customers tend to promote Loccioni on the market. Rete Ferroviaria Italiana (RFI) invited Loccioni to the last two Innotrans fairs in Berlin to present the *Felix* system, which tests the track diverter and is the hinge of the company's development in the railway sector. To maximize the return on participating in the fair, sales representatives profiled potential customers and set appointments in advance to present patents, publications, and completed projects. In other cases, the fair's organizers invited Loccioni to present their business model or their innovative solutions.

Mutual knowledge enhances the pleasure of collaborating and spending time together. In some cases, personal and deep relations develop among Loccioni collaborators[2] and those of client companies, leading to celebrating birthdays or going on holiday together. This spontaneous activity is supported by a customer database - which became CRM (Customer Relationship Management) and then PRM (People Relationship Management) - tracking all their interactions.

[2] The term 'employee' is banned at Loccioni, preferring the term collaborators.

The creation of long-term relationships with customers and the ensuing word-of-mouth have fostered the evolution of the business model. Over time, the weight of revenues generated from the sales of custom-made systems has fallen from 100% to 60-65% thanks to the growth in sales generated by services to keep the systems in good working order over their lifecycle (e.g., maintenance, assistance, updates) and by standard systems in small series (such as *Felix* or *Apoteca*) or components (*Mexus*), equal to 20-25% and 15% of the total, respectively. This evolution guarantees greater turnover stability and a corresponding reduction in the level of risk.

The Competition

Loccioni faces two types of competitors. On the one hand, large multinational companies that produce large-scale measures and instruments, and achieve a turnover of several billion euro. On the other hand, small local companies working for one client or carrying only one type of product. Loccioni has an intermediate and clearly differentiated position with respect to these two groups of competitors: it is smaller than the large multinationals, from which it stands out for its tailor-made approach and operating in unattended niches, and is larger than the small companies, from which it stands out for using different technologies and working with numerous clients operating in multiple sectors.

Loccioni continues to invest in improving its technical and managerial skills, and thus maintain its distinctive identity. It is particularly important to develop the ability to integrate numerous internal and external experiences and competencies in agreement with the open innovation principles. Thanks to these skills and the network of relationships created over time, Loccioni can offer a wide range of solutions that are not easily imitable by competitors. For example, the ability to combine the mechanical, engineering, computer science, and optics know-how in a unique interface allows Loccioni to realize measurement systems than others are unable to provide. Further distinctive skills and resources include the ability to develop or adapt algorithms to customer needs, the long and varied experience in the realization of projects for leading companies in different sectors, top level references and certifications, and owning numerous patents.

Project Management

The Project Team

When the customer commissions a custom-made system, a project order is created. The respective managers then create the team responsible for the commission by allocating a Project Manager (PM) and one or more Project Engineers (PE). Loccioni has about thirty PMs, each of whom follows 4–5 orders simultaneously, and a slightly higher number of PEs.

The PM manages the team involved in the project order (including the PE), and is responsible for margins, time, and quality. The PM organizes a weekly meeting with the team, prepares progress reports, and intervenes to solve any problems that may arise. The PE is a technician

who interfaces with the customer and the internal departments to find the best solution to the problem, and is responsible for fine-tuning and testing the system.

Given the greater range of skills and responsibilities, new hires usually start as PEs and only later become PMs. To support the acquisition of the skills needed to become a PM, the company organizes training courses on the technical and relational aspects of the project management activity. The courses, held by an external consultant (Carlo Scodanibbio), involve a tutor to facilitate the participants' learning process.

In a typical project team, the PM coordinates one or two PEs, numerous internal designers specialized in various technologies (e.g., mechanical, electrical, IT), some external companies, and those implementing the systems. The weekly meetings are aimed at analyzing the progress of the project and at identifying appropriate solutions to any problem or delay. The PM and the PE interface with the customer's team, which in the case of large companies is usually composed of a manufacturing and process engineer. The level of familiarity and interaction with the client depends on the business and personal relationships previously established. In addition to formal meetings, Skype calls may be organized, or with old clients, messaging with WhatsApp.

The projects have a variable duration of between several months and a year. Towards the end of the work, a meeting is organized with the client to finalize the project. Various tests are then carried out to control the quality and safety of the system. At the end, a certificate is signed to release payment and a lunch or dinner is organized to celebrate.

Internal and External Competencies

The systems controlling the quality of a product must collect and analyze hundreds of different measures related to a large number of pieces (even several million). Systems design requires the integration of different skills, including IT, mechanics, hydraulics, electronics, etc. The systems are connected to the client's production lines through specific algorithms. The more complex systems require coordinating hundreds of personal computers.

Identifying which competences to harness internally and which to entrust to the network of external partners is crucial. Indeed, this choice has a strong impact on the quality and cost of the system. For example, with regard to computer skills, Loccioni employs 60 collaborators who develop the system design know-how and collaborate on a regular basis with around 50 external professionals. The collaborators are diploma holders or graduates selected and subsequently trained within the company. They are fully operational after only several months of training in which they acquire technical (e.g., new computer languages) and managerial (e.g., the ability to manage large projects) skills.

The external professionals have sophisticated and complementary skills to Loccioni's collaborators. Building a network of reliable suppliers requires considerable time to select and train them. This network is mainly local because the prototypes are bulky and collaboration is intense.

Design is becoming increasingly complex due to the growing needs of customers who want prototypes with levels of performance and reliability typical of consumer products, or impose continuous changes and adaptations in the course of an order. Twenty years ago, the company developed a software solution for each project. Today, this approach is no longer possible because large customers working on global platforms (e.g., OEMs such as BMW and Mercedes) require ever-higher levels of quality and speed, which can only be met with largely standardized software. To respond to this need, Loccioni put five collaborators in charge of understanding how to increase software standardization. Use of standard or non-personalized software allows increasing the system reliability and design speed, which can thus reach levels typical of the financial world. In parallel, Loccioni has also launched a second standardization project that focuses on instruments and components. These projects aim to reduce time and costs, without reducing the system's customization to the specific needs of the customer.

Entrepreneurship and Innovation

Research Activities

The research activity was formalized for the first time in 1990 at the suggestion of the aeronautical engineer Cesare Sabatucci. Having returned to the Marche Region after thirty years of working in the United States, he has been at Enrico's side for many years as a well-rounded mentor. Among his main teachings are the propensity to work with leading companies, the emphasis on internationalization, and attention to research and communication. In 1990, the electronics engineer Gino Romiti was appointed as head of the research unit endowed with a couple of collaborators. In 1992, the research activity was moved to Summa with the task of identifying new markets and technologies.

Today, Summa focuses on omnidirectional innovation with at least a 10-year outlook: business, technological, organizational, and cultural innovation. In this future-oriented environment, multidisciplinary teams of young researchers, including 20 PhDs, are dedicated to the development of transversal solutions, integrating innovative technologies to be transferred to the market. The research activity is developed on two main fronts: on one side, the transversal innovation projects, on the other, the customer driven projects. Gino Romiti states:

> *Ultimately, the strategy is simple: for our company, innovation consists in solving new problems. In the market projects, we have a short-term orientation: it must develop a new tool that solves the customer's current problem. By contrast, the innovation team has a medium-term orientation: it must understand how to evolve the technology in order to solve the current and future problems of customers or, more broadly, it must choose which problems to solve.*

Enrico Loccioni leads the innovation and diversification process by guiding and encouraging the BU and innovation managers to explore new business opportunities. In his life, Enrico has met hundreds of people and evaluated as many projects. The experiences and the

relationships he has acquired make him the main node of the network that generates and disseminates innovations.

Enrico is aware that it is difficult to estimate the investments needed to carry out innovation projects. In any case, he knows that a medium to long-term perspective is needed. When someone presents him a new project, he always says: "If you like the idea and believe in it, I'll give you the go-ahead, and we will meet in a few years". Hence, the team starts developing the application to solve a problem. From time to time, meetings are organized to understand whether the project has the potential to go to market. Out of 10 projects launched, only 2–3 do not produce results. Alessandro Salvucci, the *Felix* Project Manager, illustrates the complexity of the challenge:

> *For four years, we invested in the project without generating revenues. Then we understood the feasibility and the market potential. However, even then it is difficult to estimate the revenues. On the one hand, we need to develop the ability to foresee the future; on the other hand, we need to deal with fluctuations and unexpected events. This project was in danger of failing several times because the company referents and the legislation changed. In the end we did it, but it took us four years, two more than expected. People make the difference, they must be insistent to overcome obstacles and reach the end.*

Innovation is an Attitude

Almost 40 people work in the innovation team (including several PhDs). This activity is oriented towards the long term (5–10 years) and aims to develop new measurement tools and skills in advance of customer needs and demands. Even knowing the technology, it is not easy to develop a system that solves a specific problem. Analyzing a huge volume of data requires using complicated algorithms. Loccioni acquires the sensors and basic algorithms externally, and then develops the technology internally thanks to a team of statisticians, physicists, mathematicians, machine learning, and data analytics experts.

Each innovation project has three key decision-making requirements: the choice of technology to explore, the construction of the prototype, and the system engineering. These decisions are taken by the manager in charge of the activity in agreement with the top management and the BU manager, when the project concerns a BU. The financial investments, limited in the first phase of the project, increase in the subsequent phases. The innovation activities are mainly self-financed, only partially covered by external sources, such as European research funding (e.g., Horizon 2020) or client funding.

The team must select the technology of the future based on some criteria that are difficult to formalize given the uncertainty of the expected results. The two primary criteria concern the possibility of mastering the technology (i.e., are we able to do that?), and the market potential (i.e., is it interesting for other clients?). The ideal technology allows designing solutions for a market that varies from a few units to several million pieces, possibly required by more than one customer. Cristina Cristalli, responsible for the innovation approach, describes the objectives and the process in the following way:

Innovation must make us stay young and allow us to harness the measurement technologies that will spread over the next 10 years. We constantly analyze projects funded by research centers, universities, large companies, and the European Commission to try to intercept the technological trends (e.g., artificial intelligence, robotics, deep learning, and artificial vision) that are more consistent with our mission. We invest in the technologies that we can master and that have market potential. We involve a client from the outset to assess their interest.

Since the potentially interesting technologies are numerous, the innovation team must focus on a few research areas. Currently, the team is exploring collaborative robotics and non-contact measurement techniques. Collaborative robotics, integrated with artificial intelligence, can be used to grab different objects without having to program the robot in advance. Non-contact measurements, i.e., so-called artificial vision, allow analyzing different sizes or shapes. In this field, the company is planning a system to separate pills of different sizes, or the good from the broken or chipped, for a multinational in the pharmaceutical sector.

Innovation in the Business Units

The often transversal competences generated by the innovation activities are subsequently transferred to the BUs. The transition takes place through the transfer of documentation and people to support the individual BUs with a short or medium-term horizon (3–5 years). They aim to explore the evolution of the needs of customers already in the portfolio or already known measurement technologies.

In this case, the initiative is usually taken by customers who contact the company to see if it can solve a problem they have. For example, a car manufacturer who is developing a new hybrid engine recently asked Loccioni to design a system to control the heat and frequency when the car travels at 50km per hour. These projects are not remunerative per se, but allow the company to acquire skills and experiences that can be used to satisfy other customers. The criteria for selecting customer proposals are the following three: the customer's strategic importance (is it a leading company in its field?), the replicability of the project (can it also interest other companies?), the relevance of the problem (is it an expensive, aggravating, or difficult problem?).

A fundamental step forward is the *KITE* (Knowledge Intensive Testing Environment) lab. With this testing center, Loccioni can either lease laboratories and testing rooms to customers, or manage the tests on behalf of customers. The opening of the lab to the outside has generated additional revenues that contribute to covering the costs of the laboratory. Loccioni has developed and patented some measuring instruments that have allowed it to become a world leader in some tests.

In addition to fostering the company's technological skills, innovation activities are powerful means of attracting engineering graduates. Typically, new hires are placed in these organizational units that represent a real gym where they can mature their early experiences.

Subsequently, their career paths foresee their moving within the various functions in direct contact with the business.

Entering New Businesses

Innovation activities foster the acquisition of new skills and relationships. At times, the skills developed in some fields can facilitate entry into others. For example, aerospace companies are interested in acquiring the measurement skills developed in the automotive industry.

Over time, Loccioni has established some rules to select the projects to be implemented. First, the company wants to work only for end customers. This entails relinquishing important orders that would be easy to manage from a commercial perspective, inasmuch as they are brokered and promoted by large main contractors. At the same time, it allows the relationship with the end customer to be developed, thus favoring direct knowledge and the creation of mutual trust.

Furthermore, when evaluating the possibility of meeting the needs of a new customer, or more importantly, entering a new sector, Loccioni performs rigorous analyses to avoid technical infatuation. A project is carried out only if it is simultaneously challenging from a technical point of view and interesting from a financial point of view (e.g., market potential and return on investment). Based on this rule, the company does not accept projects that do not hold long-term appeal, even if from important customers. For example, the request from a major IKEA supplier to develop a control system for the production of wood panels was not pursued. After having analyzed the problem along with some local firms producing woodworking machines, Loccioni in fact realized that the low panel price did not justify sophisticated monitoring of the quality of the process. For the same reason, Loccioni declined the request from two important Italian food groups that had contacted the company to solve some measurement problems. Although representing large multinational companies that operate in an interesting industry, the problem identified (i.e., controlling the aesthetic form of the product) did not seem to be sufficiently aggravating or costly.

New projects are usually born from the initiative of client companies, or more rarely, from Loccioni. *Felix* is an example of a project created at the request of a client company (see Box 1). RFI contacted Loccioni to find out if the company would be able to improve the efficiency of the switch maintenance process. RFI did not intend to invest financial resources in the project, but was willing to buy the system if effective. The Loccioni R&I team worked for several years in collaboration with RFI to develop a prototype that could solve the problem. When the prototype was approved by the customer, Loccioni established a taskforce to industrialize and produce it. After selling the first 38 units, Loccioni set up the *Train & Transport* BU with the aim of analyzing and solving the problems of infrastructures (railway, highway, and electricity transmission).

Apoteca is instead an example of a project born form the company's own initiative. In collaboration with the regional hospital of Ancona, Loccioni launched a project to create a medical system capable of efficiently and safely preparing oncology drugs (*Apoteca Chemo*). Loccioni brought entrepreneurship and innovation, the hospital provided the clinical-health

experience. With the increasing involvement of international researchers and professionals, the project has become an open innovation model aimed at generating innovations that improve the patients' experience. Once the technology and the product were consolidated (*Apoteca*), the company launched *Humancare,* an international community of pharmacists, doctors, and hospitals, with the aim of improving the technology and promote its diffusion.

An example of a B2B project developed internally and then sold to third parties is *Blu Solutions.* In the mid-90s, a consultant developed the idea of a tool to control underground LPG tanks, which by law had to be overhauled every 10 years. Since taking the tank out of the ground took time and involved high costs, a simpler and cheaper way to assess its state of health had to be found. Loccioni constituted a company - together with the consultant and other stakeholders - to launch a project in collaboration with the Austrian TÜV, which owned the technological know-how. Having achieved the objectives, Loccioni sold its shares to TÜV. In 2018, the company moved to Jesi in the province of Ancona and is managed by the former Loccioni collaborator who had adapted the algorithm to carry out the tank overhaul.

Entrepreneurship and Business Networks

Loccioni is a "technological tailor" that designs and manufactures turnkey systems with high technological content. In Loccioni, innovation is an attitude and is open to external collaborations both to share knowledge and to reduce investment costs. Opening towards the outside and creating a network system favor the accumulation of knowledge.

Enrico cultivated the idea of creating business networks when he participated in a course organized by the Chamber of Commerce of Ancona. On that occasion, he sensed the potential of networks and decided to investigate the matter together with Confindustria Ancona (the association representing Italian companies) and some professors from the University's Faculty of Economics. Subsequently, during an event organized by ISTAO (Istituto Adriano Olivetti), he was struck by the speech given by Luigi Maramotti on the value added of networks. In the words of Enrico:

> *Each node of the network has specific knowledge and competences that can be exchanged with other nodes if there is mutual trust. The exchange of information and skills is more efficient than the exchange of goods. In commercial networks, people exchange goods and money, but after the exchange, they have the same initial value. In knowledge networks, people exchange information, and after the exchange, they have more information than at the beginning. This is the great advantage of working through a node or network organization.*

Loccioni innovation is promoted by a system of concentric networks: in the internal circle are the company's teams that work in close collaboration with customers; in the second circle the start-ups (*Blu Solutions, ARCA*) created to seize the market opportunities; in the third circle the networks (*Nexus*) activated to carry out various types of projects together with other companies; the fourth and last circle encompasses the collaborative relationships with suppliers, schools, and universities.

The Loccioni Company

Loccioni is constituted of various companies that play a specific role in the value production process. At the top is Summa (the holding company), which controls the Loccioni operating companies: AEA and General Impianti in Italy, and the subsidiaries abroad. In the first phase of development, the individual companies had assumed their own identity and organizational relevance. More recently, instead, their relevance has been mitigated to better enhance the coherence of the overall Loccioni strategic plan.

Summa designs and builds the company's long-term future: "throwing stones into the water to create waves". Summa has two souls: on the one hand, it imagines future markets and develops the skills to successfully compete; on the other, it provides services to the BUs (e.g., administration, planning and control, R&D, ICT, logistics, communication, organization, and personnel). Summa transversally manages various business processes concerning the BUs, the budget, and the human resources. To analyze these issues, they organize regular meetings - such as the Monday meetings on people or monthly meetings on BUs - as well as spontaneous meetings. Working at Summa are the members of the owner family - Enrico, Claudio, Cristina Loccioni, and their closest managers.

The production of components or elements of the system is entrusted to around one hundred suppliers located mainly in the surrounding area. The great growth in turnover in recent years has prompted Loccioni to outsource a greater volume of activities, thus determining the increase in the level of strategic importance of suppliers. This led to the birth of the *Nexus* project, which has revitalized the network of the same name created by Enrico in 1994. First, the Loccioni team classified the suppliers according to their cultural closeness and skill level. Based on these variables, it divided them into: i) top: Loccioni spin-offs with strong skills and cultural proximity; ii) partners: ambitious companies willing to develop joint projects; iii) trustworthy: companies that carry out work on request. Subsequently, Loccioni created the conditions to increase the outsourcing of assembly activities. In particular, it mapped the production operating flow, organized evening meetings, and temporarily seconded some collaborators to transfer key competences. Finally, it outsourced a greater volume of activities, so that some supplier companies have switched from the assembly of a component to that of an entire system.

Through this project, Loccioni delegated higher volumes of labor intensive activities (such as assembly) and further concentrated on those with higher added value (such as the design and installation of systems or the management of projects and customers). At the end of 2018, the *Nexus* network counted 33 companies that employ 400 collaborators and produce a total turnover of €35 million (of which €8 million with Loccioni). The *Nexus* network has generated various and significant results, including meeting the growing demand of customers, maintaining high strategic flexibility, contributing to business development, and increasing the skills in the territory. In the future, Loccioni intends to continue along this path, widening the network, moving a greater volume of activities to suppliers, and expanding their area of responsibility.

Start-Ups

Loccioni develops projects in collaboration with other companies that have complementary skills and wish to achieve the same goal. In this case, the project is usually governed by a newly established company involving the various partners. In addition to the *Blu Solutions* project aimed at developing acoustic inspection systems for LPG tanks, in 2008, Loccioni acquired a stake in a Californian company, Daylight Solutions, which specializes in the miniaturization of objects, in order to develop possible synergies and share know-how. In 2017, the entire company was sold to third parties, resulting in important capital gains for shareholders. A third start-up relates to a company owned in collaboration with the University of Cassino. In this case, the University granted a patent and Loccioni provided the know-how needed for the projects' industrialization.

A second group of start-ups created by Loccioni concern projects far from the core business. Among these are *ARCA* (Agriculture for Controlled Environmental Regeneration), one of the first Benefit Corporations of the Marche Region (with capital divided equally between Loccioni, Bruno Garbini, and the Fileni Group), set up to develop good practices to regenerate agricultural land; *LOV* (Land of Value), a 30-hectare agricultural company in the San Clemente valley that implements the practices developed by *ARCA*.

Finally, Loccioni has encouraged the creation of start-ups in the territory through the *Nexus* network. To achieve this goal, various activities have been organized, including the publication of a manual and the provision of support services for starting a new business. This project has generated around a hundred new ventures created by Loccioni collaborators who set up their own businesses to undertake single processes or parts of the systems. Loccioni does not acquire share capital, but supports the first stages of development by providing advice and guaranteeing supply contracts; in exchange, it asks the supplying companies to remain on the market, that is, to have more than 50% of turnover with other companies.

External Networks

Loccioni involves other companies or people in numerous projects not necessarily aimed at developing the core business or generating new business in the short term. This opening to the outside stems from the entrepreneur's belief that, "If you want to go fast, go alone. If you want to go far, go together" (African proverb). Among the main collaborative networks created are:

- Nexus: network promoted by Enrico after visiting the technological center of Montpellier to create discussion opportunities between small and medium-sized businesses in the province of Ancona. The network aims to create synergies between companies, nurture the birth of new companies, and encourage the cultural growth of the territory. The project has recently been revitalized to boost the network of strategic suppliers.
- U-Net: a network with the scientific and university community (local, Italian, and international) to collaborate on common projects.

- Crossworlds: a network created to promote the transfer of technological know-how between companies operating in different sectors (e.g., from automotive to household appliances, from aerospace to medical).
- Apoteca Community: an international network of pharmacists and doctors from the best national and international hospitals created to facilitate the exchange of experiences and develop new automation and technologies for healthcare processes. The community produces scientific publications and organizes a meeting every two years.
- LEAF Community: a network created to aggregate companies that develop projects and technologies aimed at reducing the environmental impact and improving comfort. *LEAF* (Life Energy And Future) is the leaf that feeds and produces energy thanks to sunlight. The *LEAF* community uses solar heat or water and wind power to produce energy, which it stores and uses when needed.

Collaborative Relationships

Every year, the company organizes various events on technical-scientific issues and welcomes around 9,000 visitors - e.g., suppliers, clients, consultants, students, researchers, and journalists. The company headquarters is a place where knowledge and experiences are shared, projects are discussed, and new initiatives are launched. The opening towards the outside has favored the birth of numerous medium-long term collaborations with companies, organizations, and associations. The company boasts collaborations with over 40 universities and research centers at the national and international level.

Entrepreneurship and People

People are at the center of the Loccioni business projects, and as a result, the company has created the conditions to foster their professional growth: it has eliminated the hierarchical levels and favors teamwork. Each Loccioni collaborator must become a builder of networks and an entrepreneur both inside and outside the company.

The Organization

The organization is aimed at developing the potential of people, who are the company's most important asset. The relationships within the company are not hierarchical, but based on trust and involve everyone in the realization of the projects. Collaborators must be able to express themselves, that is, they must identify and seize the opportunities for professional growth within the company thanks to their initiative and teamwork.

The company does not publish an organization chart because it does not want to run the risk of crystallizing the positions. The organization is constantly changing due to the evolution of the business and the skills needed to compete successfully. The company's top management is constantly looking for organizational methods aimed at facilitating entrepreneurship within it. As Renzo Libenzi, General Manager, states:

Up until 15 years ago, we had a sales manager and a production manager in every company. Over time, we realized that this approach was against two guidelines we set ourselves. The first is that we want to be a continuous start-up, the second is that we want to create career and business opportunities for all collaborators. The sales manager and the production manager are focused on the present and do not generate business. Furthermore, if they are both young, we risk blocking the careers of eager-eyed youngsters.

The organizational structure is a matrix: on the one hand, there are the business areas specialized in the design and implementation of systems to satisfy a given market; on the other hand, there are the functions (i.e., electrical design, mechanical design, purchasing, logistics, administration and finance, infrastructure, and human resources). At the center of the two main axes of the matrix are the project orders coordinated by a project manager and one or more project engineers (technical experts).

Then there is a third geographic dimension, namely, the commercial companies abroad in Germany (Stuttgart), the United States (Washington), China (Shanghai), Japan (Nagoya) and India (New Delhi) in which around 50 collaborators work. The foreign offices were created to manage the sale, installation, and maintenance of Loccioni systems and, more generally, to nurture the relationship of trust with customers. At the same time, they provide valuable information on the evolution of customer needs and the local market.

The Double Hat and Couples

An important tool for professional and organizational growth in Loccioni is the so-called "double hat". In practice, people work alongside their main role on a second activity that is not strictly linked to it. For example, sales persons can spend part of their time collaborating with the human resources team. This tool facilitates the horizontal expansion of the collaborators' skills.

A second organizational tool is the "commercial-technical couple". The company, traditionally characterized by a technical culture thanks to the presence of numerous experts and engineers, has over time promoted the entry of business graduates to cover commercial roles. The roles of the technician and the salesperson are perfectly complementary because "the engineer is passionate about the project, the salesperson is passionate about the customer". The company has evolved the commercial role by creating key account figures. These were initially located within the business areas, while today are transversal to them to facilitate the sale of different systems to the same customers. Claudio Loccioni illustrates the value of couples well:

The medical model is based on three couples: those who manage (a chemist and a management engineer), those involved in innovation (a computer scientist and a biologist), and those who oversee services (a technician and a biomedical engineer). They are always mixed couples to balance the various points of view. With this structure, I seek to prevent a single person from influencing the line too much, thereby reducing the risks induced by short-sighted or subjective choices. I want to

trial it, in the knowledge that every structure has its pros and cons. For example, the couple structure can slow down decision-making.

The Management of Collaborators

Enrico Loccioni has the objective of creating a play-organization and working environment to foster passion for work, creativity, and openness to change among collaborators. This in the belief that the pleasure of working improves performance and is contagious; play feeds creativity and learning.

Loccioni is a *Play Factory* - a concept developed together with the Japanese engineer and designer Isao Hosoe (see Box 2) - characterized by a horizontal organization aimed at facilitating dialogue, enhancing potential, and improving the quality of life of collaborators. The *Play Factory* has no employees, but collaborators and knowledge shareholders who invest their resources in the business and share the final result.

The company's attention to quality of life is demonstrated by the open physical spaces, the presence of ergonomic tables and chairs, the careful adjustment of lighting and temperature, the presence of the company values on the walls of the offices. In Summa, there is also a large open space with articles and books presenting the company, some technical magazines, an exhibition on the measurement devices, the prizes and awards received, and a meeting room.

Loccioni does not have a personnel director. This responsibility is divided among some people (Enrico, Claudio, and Cristina Loccioni, Renzo Libenzi, and over 40 managers) who strongly identify with the company's values. Loccioni pays great attention to the selection, training, and evaluation of each collaborator in the belief that these activities have a decisive impact on its long-term success. Staff issues are usually addressed at a meeting organized every Monday afternoon.

Loccioni carried out the first analysis of the organizational climate (now called organizational wellbeing) in 1987, when this practice was used by few companies in Italy. The analysis is based on the collective opinion of collaborators on various topics of business life, such as, for example, the work environment, relationships with colleagues, quality of communication, satisfaction. Since 1987, the analysis has been repeated every year to identify the strengths and weaknesses, and therefore areas for improvement. This attention to corporate wellbeing has won the company a top place in the "Great Place to Work" ranking for many consecutive years.

Loccioni uses eight variables to monitor the wellbeing of collaborators: interest in work, the physical work environment, workflow and fluidity, information on/for work, inter-functional relationships, interpersonal relationships, relations with the hierarchy, the image. The results of the analyses indicate that the company has an excellent score on six variables (the strong points) and a lower score on two (workflow and fluidity, inter-functional relationships), which represent weaknesses or areas for improvement. These weaknesses are likely the consequence of working on commission that imposes the close coordination of the functions and the higher commitment of people.

The great attention to the collaborators' wellbeing has favored the absence of a union presence within the company. The direct dialogue between the entrepreneur, managers, and collaborators is a point of strength, also because a company that works on commission must operate with flexible working hours.

Collaborator Selection

At the beginning, Loccioni was unknown and could not hire experienced collaborators. For this reason, the company hired new graduates or diploma holders who compensated for the lack of experience with the energy and motivation typical of young people. Over time, the company realized that due to the type of activities it carries out, young people are the most suitable, not having been negatively conditioned by previous experiences, and consequently open to change.

Today, thanks to the reputation gained, the company is able to hire collaborators with the desired professional profiles. However, for some positions, such as software developers, mechanical designers, or system engineers, it still encounters some difficulties because the skills required are not widely available on the market. The lack of these skills restricts the company's development. To overcome this, Loccioni invests in the territory and in the selection of talent. For example, the company recently designed a training course and published a book "Il ladro dei numeri" (The Thief of Numbers) to teach coding and digital transformation to 250 elementary and middle school teachers, who in turn will transfer this knowledge to their students. Loccioni has also created two training programs for high school or university students. These programs comprise various activities - guidance, training, and internships - aimed at increasing students' awareness and skills.

The selection of collaborators is coordinated by Graziano Cucchi, a consultant who has worked with the company for over twenty years. The process foresees the candidate going through a selection interview with different company collaborators. The assessments regarding the candidate's competence and passion are shared in a meeting with the personnel management team. The company prefers to select people from the territory because they have a greater cultural affinity and because they favor a lasting relationship. Collaborators who take more than an hour to get to work will tend to leave the company sooner or later, as most prefer to work close to home. From this point of view, it is easier to attract and retain young collaborators who may come from outside the region but establish themselves close to the company.

To encourage the spread of the spirit of the extended family, Enrico Loccioni invites all new hires to his home to share a family lunch. At the same time, to facilitate their entry in the company, each new collaborator attends the *ManageMente* program, a course of variable duration from 1 to 3 months that alternates work activities, learning activities, and the realization of a project.

Collaborator Training

The entrepreneur is aware that to implement his business projects he must engage and motivate numerous talented collaborators. He is also convinced that people are often unaware of their talent, and therefore end up wasting it. In his words:

> *Talent multiplies if used to realize a dream and a project. If we share it with others, it nurtures entrepreneurship and the growth of people. If we bury it, the contribution to the project and to the company erodes. We must learn to exchange our talent with that of others so as to become owners of a shared dream.*

The company aims to actively recruit and manage talent, creating an organizational environment in which each person contributes to the realization of the project for the customer. In 1998, Loccioni implemented the first talent training project that consisted of a cognitive interview, a test of their potential, and two classroom days. Over the years, numerous projects have been carried out to train and enhance the talent in the company. In 2011, the *Talent Tutoring* project was launched, a voluntary training program aimed at fostering the entrepreneurial activities of collaborators. 126 of the 302 collaborators responded to the invitation, 22 of which were selected to participate in three days of training. At the end of the program, each prepared a document titled "My Loccioni Vision".

The company also organizes programs aimed at aligning collaborators' skills with those required to develop the business. People-training is a process without interruption: it starts before they enter the company, continues during their stay, and even after they leave. To meet this objective, the company has created several training projects: *Bluzone*, which deals with activities dedicated to students and relationships with schools; *Redzone*, which includes activities dedicated to collaborators and their families; *Silverzone*, which involves those who, having retired, share their experience, passion, and enthusiasm with the company's collaborators.

Loccioni devotes great attention to developing the skills of its collaborators. The entrepreneur is convinced that they can easily acquire the technical skills, but not those to effectively manage a team. For this reason, between the late 1990s and the beginning of the new millennium, the company created training courses intended to provide managerial skills aimed at managing a project order: i.e., diagnosis, teamwork, time management, and the ability to resist stress. Subsequently, the training of collaborators was aimed towards the acquisition of more entrepreneurial skills, i.e., ability to innovate, take risky decisions, plan, control, communicate, and lead (leadership).

The company also offers its collaborators programs for updating their technical and linguistic skills in which they participate either voluntarily or on the request of their manager. Classroom training is accompanied by on-the-job training, which is carried out by senior collaborators assisting in managing a project order. The company also and above all invests in the relational and entrepreneurial abilities of collaborators with the aim of creating real entrepreneurs. The entrepreneur and the management team are aware of the risk that some particularly capable collaborators may leave the company to go to another or establish a new one. However, they prefer to continue to invest in the training of collaborators because in this way they nurture the development of the company and the territory.

In terms of internal training, the entrepreneur and top managers always try to create new opportunities for discussion and learning. This is to prevent collaborators from focusing on the contingent problem, and forgetting what they learned the day before. In the words of Maria Paola Palermi:

> *We must never give up. We must always activate new communication activities. We use different tools to reaffirm the importance of the corporate culture, especially in a high-tech company: meeting opportunities to propose job rotations, the suggestion of a reading, such as "Il quinto stato" (The fifth State) by Angelo Pasquarella, and the consequent feedback that in turn becomes a book, a social campaign to communicate the founding values, events open to families at our headquarters. Sometimes we put projects in the pipeline that aim to make everyone aware that we are doing something that will last over time, beyond us, like Noi siamo 2068 (We are 2068). This is a series of meetings to codify and share our model, the value system we believe in, the vocabulary we use, the words and images to narrate, but above all to share the vision of the company that we will be in 50 years and that we are building now, together.*

Collaborator Assessments

The success of the company depends on the ability to hire people who take responsibility, share the business project, and seek to provide continuity. Given the centrality of people for success, the entrepreneur has always tried to surround himself with excellent collaborators, and at the same time, has paid great attention to their assessments.

The management and assessment of collaborators is almost continuous. Every Monday afternoon, an extended meeting is organized where members of the entrepreneurial family and several managers analyze the issues related to people, for example, to discuss the indications of those in charge of the expiry of a contract. Claudio Loccioni meets the BU managers every two weeks to analyze the various issues related to personnel management. Once a month, Enrico organizes a meeting with the staff team to monitor the performance of collaborators and identify excellent and critical cases.

The formal assessment takes place annually and concerns all collaborators, with the exception of the first reports who are informally assessed by the entrepreneur. The process begins with assigning each collaborator the annual team, individual, and development goals. The first two types are *SMART* (Specific, Measurable, Achievable, Realistic, Time-based), the third is instead qualitative, for example, an increase in technical or relational skills. For collaborators who work on project orders, the team results are measured using a Kc indicator (commission coefficient) that measures performance in terms of time (delay compared to the expected delivery date), cost (comparison of the final balance with the budget), and quality (customer satisfaction questionnaire). Collaborators receive a rating equal to the average (weighted according to the hours worked) of the assessment of the commissions to which they contributed during the year. Although this parameter enables summarizing the team results for those who worked on the project order, it is more difficult to identify effective parameters for collaborators who work in staff functions.

At the end of September, the company asks collaborators to update their curriculum, describing the three main projects on which they worked. In parallel, managers evaluate their own collaborators by completing a questionnaire. The assessment also uses qualitative parameters derived from the Charter of Values (i.e., results orientation, responsibility, teamwork, flexibility, communication, innovativeness) presented in a form that describes the expected behaviors along a Likert-type scale from 1 to 7. The collaborators' values and behavioral aspects are more important than the technical aspect, perhaps because those who enter the company already possess high technical skills.

The assessment process is not automatically linked to monetary incentives. The company has not formalized Management By Objectives (MBO) for any collaborator, including the commercial and BU managers. The department or BU managers can, however, propose some financial benefits for their collaborators: a one-time bonus, an increase in salary, or a higher contractual level. The final decision is taken by a committee that includes the Loccioni family, Renzo Libenzi, Graziano Cucchi (external consultant), and Alessandro Regini (responsible for training and growth in the People team).

The collaborators are divided into three groups: the greens are those in line with expectations, the yellows are those with some reservation, the reds are those who carry out the work without taking responsibility. The manager delivers the feedback to the collaborator, presenting the results achieved, the objectives for the future year, the points of strengths, and those to be improved. The process promotes the growth of collaborators who like to take responsibility, accept different challenges, and have a spirit of initiative. Alessandro Salvucci sums up his experience in Loccioni:

> *My first project in Loccioni was the behavioral installation Pro-gettare by Isao Hosoe. Then I attended the corporate Master and started working on software for computer vision systems. Within the innovation area, I worked simultaneously on three projects: the system for controlling the quality of wood, that of the rivets on the aircraft nacelle, and that of railway switches. I have changed different roles and visited more than 35 countries. Thanks to two experiences - one in Tokyo in the field of robotics and one in Stuttgart in computer vision - I gained the skills to take responsibility for the Felix project. Today, I am responsible for the Train & Transport business line, I manage a team of 20 people producing a turnover of around €3 million.*

Alessandro Regini records the course of each person within the company. The red cases, the critical ones, are managed through job rotation or, in the most serious cases, evaluating together with collaborators their exit from the company. If the collaborators are permanent and have good technical skills, the company tries to encourage their transfer to suppliers in the area. They seek a shared solution, as long as the behavior is transparent and fair. In the words of Enrico:

> *If I wake up at night it's because of people. What troubles me most is the betrayal of persons I work with and I know they already have their head elsewhere. I help and counsel all those who wish to start their own business, but I cannot do the same with those who are not transparent.*

A Glance at the Future

The last ten years of Loccioni have been decidedly positive. Figures 2 and 3 illustrate that in this period of time, the consolidated turnover doubled from €44 million in 2007 to €110 in 2018, and the percentage of gross income on turnover from 6% to 15% in the same period.

50 years after its birth and in a particularly positive time, the company launched the *Noi siamo 2068* (We are 2068) initiative to create the solid foundations for its future development. The project has made it possible to redefine the company's vision, mission, values, and methods. The vision coincides with the idea of an open company, the choice of working for the best customers and with the best partners (e.g., collaborators, suppliers) in the world, the family dimension of the company, the centrality of the person and the territory. The mission is to transform data into value for customers, the wellbeing of people and the planet. The values include listening to anticipate, energy and willingness, transparency in communication, innovating to innovate, flexibility and adaptability, initiative and intelligence. Finally, the methods define three levels of analysis: (i) the business model with a 100-year horizon; (ii) Summa with a 10-year horizon; and (iii) the business areas with a 3-year horizon (see Table 1).

The 2068 project strengthened the belief that the company should continue to invest time and energy both to expand and refine its skills and relationships, and to explore new market segments. In the words of Renzo Libenzi:

> *We need to move forward. Keeping the same customers and the same projects means going backwards. Every three years we have to open a new sector by working with a world leader who has a strategic measurement problem and who sees us as a partner of great value. In recent months, we have been visited by managers of leading multinationals who are leaders in their field. With these companies, which are not yet our customers, we explore potential areas of collaboration. We receive more challenges than we can accept. We don't win them all, but a win can compensate for many lost challenges.*

The company continues to invest in its future by exploring new business areas, such as the control of photovoltaic panels for space, acquiring new skills such as block chain, expanding the nursery of talent in the area, opening new offices abroad. The long-term goal is to become the benchmark for global measurement and to help make the Marche Region a territory synonymous with hospitality.

Table 1. The Loccioni method

Level	Time horizon	Drivers
Company Model	100 years	Values, territory, continuity, family
Summa	10 years	Strategic vision, people and organization, new markets/customers, innovation research
Business area	3 years	Market/customer development, R&D, three-year plans, annual budget

Source: *Noi siamo 2068*, p. 13.

Figure 1. Business units and their links

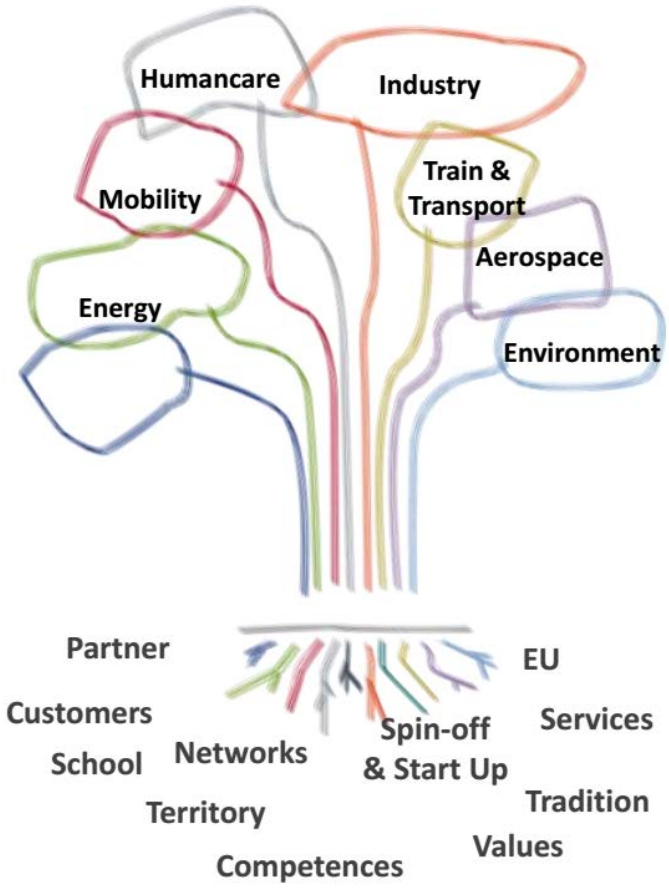


Figure 2. Sales trend between 2007–2018 (in million euro)

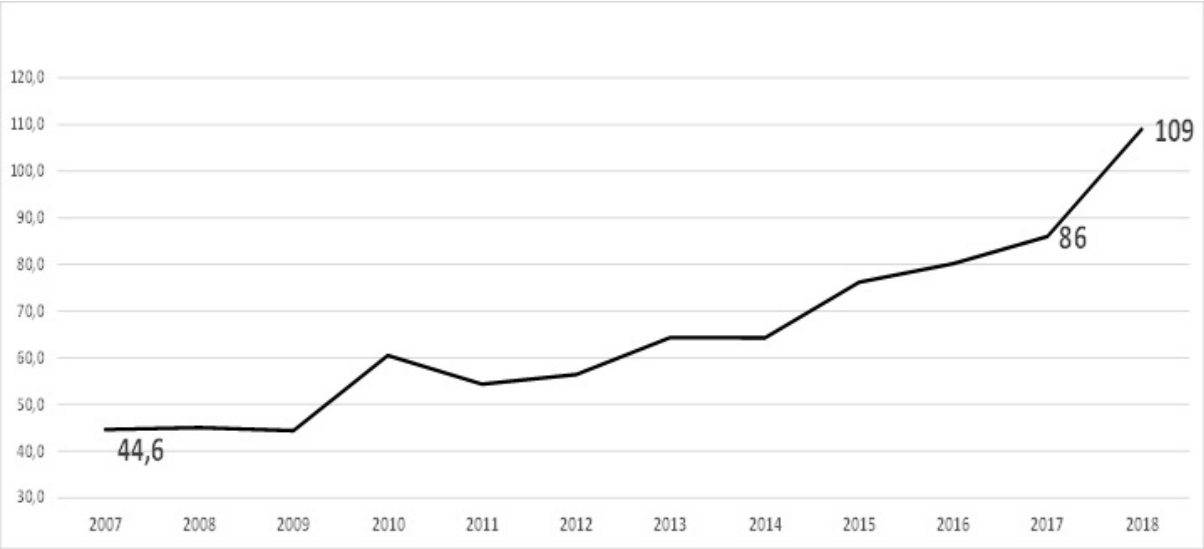
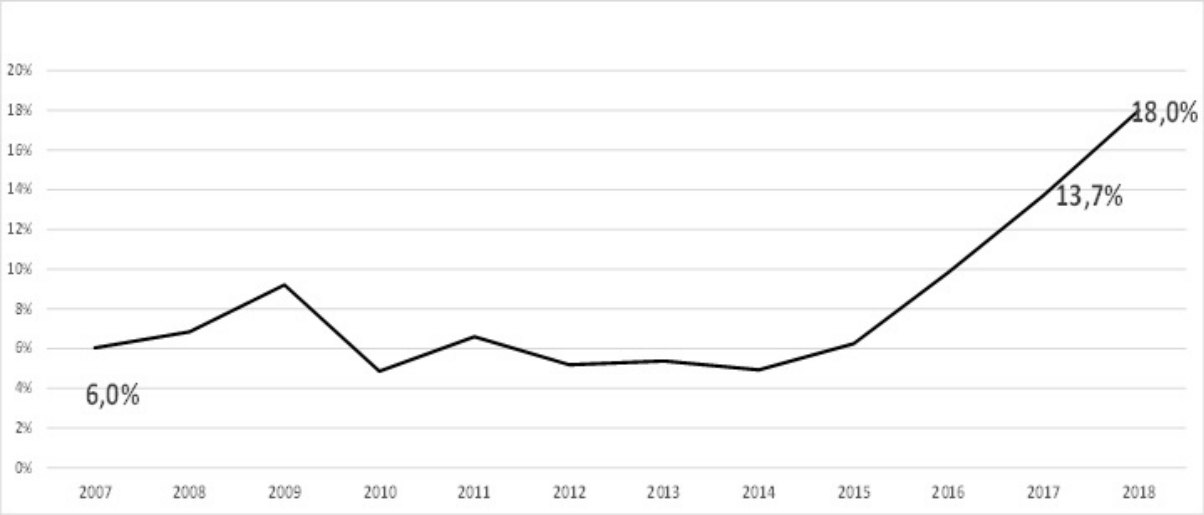


Figure 3. Gross profit trend between 2007-2018 (in percentage of revenues)



Box 1. The Felix project

The Felix project required 8 years of development with Rete Ferroviaria Italiana (RFI). The project was born from the initiative of RFI that, after finding Loccioni on the internet using the keyword "measurement systems", contacted the firm to see if it could improve the switch maintenance process. Switch control was then carried out using two operators and a manual caliber. The problems encountered concerned the time needed to complete the operation and its limited effectiveness in ensuring total safety.

RFI did not support the project financially, but undertook to purchase 38 units if the system proved efficient. Loccioni worked several years to develop a prototype and to validate the technology. Subsequently, it produced more and more engineered prototypes up to series production (a few dozen pieces). In 2010, a feasibility study was carried out adding a camera, laser, and other innovations (such as modularity).

The *Felix* system enables measuring and analyzing the rolling stock with great precision. The system can be used by two operators and can easily be mounted and removed in just a few minutes. The robot connects to the RFI database via the internet to understand the technical specifications of the switch that it must analyze. Thanks to this information, it is able to automatically slow-down in critical areas to collect more precise measurements. It then sends the measurements and photos collected for analysis. *Felix* is revised and checked periodically and is certified in collaboration with Bureau Veritas. The system is protected by three worldwide patents.

RFI is not just a customer, but also a technological and commercial partner. RFI receives and tests system changes, helping to test the new technology. Furthermore, RFI presented *Felix* at the Innotrans fair and organized a community with users. Finally, RFI's international expansion projects further drive *Felix* sales.

Other business opportunities are emerging from this project. To date, Loccioni has sold 38 units of *Felix* to RFI, but in Italy the potential market is 90 units and even larger abroad. Furthermore, a maintenance system for the entire network may be developed, a process that is currently managed by some yellow trains that monitor the network traveling at good speed. Other opportunities include developing a system for maintaining tram networks or underground lines, or monitoring the upper part of the railway line to assess cable wear.

Box 2. Research, play, and design

The meeting with Isao Hosoe, a Japanese aerospace engineer and industrial designer who has won numerous awards, allowed the company to expand its concept of innovation. From this collaboration, Loccioni understood, for example, how to enhance design. Isao instilled two projects in Loccioni. With the first, he introduced the principles and elements of design in measurement systems. Isao designs places and work tools that combine technological efficiency with aesthetic beauty, with the ultimate goal of improving and rendering the interaction between humans and machines more enjoyable. With the latter, he introduced a work culture based on play, fun, passion, and beauty. Isao defines Loccioni as a *Play Factory*, where the unexpected and surprises typical of play stimulate intelligence and creativity. The *Play Factory* is a place where people generate solutions to complex problems, working as a team and taking responsibility for their choices, possibly also having fun.

Isao has left a tangible mark in Loccioni. In 2008, on the occasion of the 40th year of the company's foundation, he created *Play40*, the game of 40 managerial cards that facilitates brainstorming processes by stimulating the birth of new ideas. In the same year, he also implemented the behavioral installation known as *Pro-gettare* (a play on words as *progettare* means to design or plan, but also from its Latin root to throw forward, into the future): a platform from which a ball is thrown into a basin of water aided by a measurement system of the curvature and speed. The installation represents the playful spirit of corporate culture and invites people to design the future. In Isao's vision, the ball is an idea that, thanks to the energy imprinted with the throw, generates waves that propagate in space and time. Finally, Isao designed the game *Behavioral Energy*, which is inspired by the traditional Japanese paper ball (*kami fusen*). Striking it vigorously transfers energy, the air inside warms up and the ball takes on a round shape; in the absence of energy, the air cools and the ball loses its spherical shape. All these games have been recognized by ADI (Industrial Design Association) and are used by Loccioni customers and partners to nurture their creativity.