www.datamanager.it
December 2019

DATA MANAGER

LA RIVISTA PROFESSIONALE DELL'INFORMATION & COMMUNICATION TECHNOLOGY

COVER STORY

Sinfo One and Toyota

Material Handling Manufacturing Italy

The ERP of the smart factory

Giorgio Polonio Paola Pomi Patrick Malservisi

Sinfo One and Toyota

Material Handling Manufacturing Italy

The ERP of the smart factory

The digital transformation of the long-established forklift factory, acquired by the Japanese giant in 2000, called for total rewriting of the ERP/MRP platform to further boost productivity and quality. With an Italian style admired by the entire Toyota Industries Corporation by Andrea Lawendel photo by Gabriele Sandrini

Once again, our report of digital transformation made possible by technology and know-how designed by **Sinfo One** (www.sinfo-one.it), takes us to a location not far from the headquarters of the Parma software and consulting company. We are still in the Emilia region, but inside a sort of Japanese enclave set up in the industrial district of Bologna, where the **Toyota** group makes not cars but sophisticated forklifts, also known as "smart trucks", sold around the world with the **Toyota** brand (toyota-forklifts.eu).

This is quite a big change from our previous interviews. So far, *Data Manager* had always featured Sinfo One as an information technology player at the service of the food processing industry and of agriculture 2.0. Today, we find them involved in an ambitious project for transformation of the process management of a factory belonging to a giant group that has gained an almost legendary reputation for its revolutionary manufacturing control methodologies. This is a globally-relevant project that gives a more complete picture of the software house headed by **Paola Pomi**, who this year has taken over the role of **CEO** from her father, founder of the company. Today, an important share of Sinfo One's turnover - approximately 30% - is generated by foreign clients, says CEO Pomi with pride. This internationalization process has also touched the financial area: last year, the company was joined by two major shareholders, the German food group Tönnies (European leader in meat processing) and the private equity Fondo Agricolo Italiano I (FAI I), owned by the French Uni-

Patrick Malservisi IS/IT director of Toyota Material Handling Europe Supply
Paola Pomi CEO of Sinfo One and Giorgio Polonio CEO of Toyota Material Handling Manufacturing Italy

grains, historical investment holding specialized in the agri-food sector and in food technology research, representing over 150 cereal farmers.

NEED FOR HARMONIZATION

Sinfo One's collaboration with Toyota Material Handling Manufacturing Italy started almost at the same time as another partnership. In 2016, the Parma-based company joined Redfaire International, the joint venture that brings together the world's leading consultants on Oracle JD Edwards Enterprise One ERP platform.

Toyota Material Handling Manufacturing Italy has involved Sinfo One's experts in a project that, according to **Giorgio Polonio**, **CEO of Toyota Material Handling Manufacturing Italy**, is monitored with great interest by the top management of the great Japanese group, committed to the success of its ambitious digital transformation strategy.

«It all started three years ago – recounts Paola Pomi – when TMHMI ordered an in-depth assessment of the ERP environment to replace a previous patchwork of solutions that seemed less and less suitable for the kind of flexibility needed today, especially in terms of harmonization inside the Toyota Production System».

The software environment used up to that time – continues the CEO of Sinfo One – «carried

Harmonization of factory processes at the centre of the transformation of Toyota Material Handling Manufacturing Italy in order to optimize time, costs and risks

signs of the scars caused by the different interventions made over time. And scars reduce elasticity, just like they do on our skin».

CHOOSING RENOVATION

What brought about the decision for renovation based on JD Edwards? The CEO of TMHMI helps us to retrace the milestones in the history of a company that symbolizes Italian know-how. The factory that today belongs to one of the most reputable brands in the automotive sector, was founded in 1942 as part of the operations of an industrial group established after the war by a distinguished Bolognese family. For sixty years, the old CESAB was one of the leading Italian producers of forklifts. In the year 2000, the company's counterbalance trucks - typically used outdoors in industrial plants - attracted the interest of the Swedish BT Industries, which specialized in the production of reach forklifts, the type of truck mostly used indoors and considered complementary.

At the time of the acquisition, BT had already been considered of interest by Toyota in Europe. Therefore, a few months later the Italian factory became part, along with similar production plants in Sweden and France, of the European arm of TICO, Toyota Industries Corporation. The industrial roots of this subsidiary of the Toyota Group are in a conglomerate established over 90 years ago, not to manufacture cars but to supply mechanical frames in the modern textile industry.

«In a short time – recounts Giorgio Polonio – what was once an important Italian company, capable of producing 3000 forklifts a year, took on the Toyota brand, joining a company that in Europe alone employs 10600 people, a third of which working in production areas».

A completely different context, starting with the output generated: nearly six times the result achieved by CESAB at its peak.

An important part of the change process that has led to the collaboration with Sinfo One is definitely the approach to technology. Paola Pomi's first contact is **Patrick Malservisi**, **IS/IT director of Toyota Material Handling Europe Supply**. «At the corporate level – explains Malservisi – Toyota has a centralized IT function which, through the group CIO, lays down strategic information guidelines. In manufacturing sites, the processes most closely linked to the plant and to research and development are governed by IS/IT managers». Today, these two functions – continues Malservisi – share many elements but also retain specific features, especially with regards to the application aspects of the single productions. «Another connecting point – adds Polonio – is the Toyota Production System, which acts a lever for development inside and outside the factory for continuous improvement of customer service. In the large container of services accompanying the physical product, we have to pour in a large amount of technological content to provide a strategy-supporting infrastructure».

Polonio and Malservisi insist on this shift from a sale philosophy based on product quality to a strategy that takes care of the quality of customer service and more in general of the experience that

customers must enjoy. «While in the past product quality was enough to motivate purchase, today after-sale service and, increasingly, user experience are becoming formidable decision levers for our customers. And the role of IS/IT has considerable weight as many of the elements of service and experience are purely *soft*».

THE FUTURE IS DIGITAL

When they took over the Swedish company who had recently acquired CESAB, Toyota Material Handling was already present in Europe with a plant in Nantes, but it was in Bologna that the Japanese factory culture found great affinity and immediate synergy. Italians – recounts Polonio – have learnt a lot from the Toyota Production System (TPS) culture. «It was not easy to switch from a culture of "stocked" products, to a "make to order" system, with "just-in-time" production lines, no stocks, no space where to store the components that suppliers deliver at the exact time they are needed in production». In this transition stage, CESAB's 300 suppliers are reduced to 160, many of which introduced with the new plant management. All of these details are important to understand the history of Sinfo One's transformation, and equally important is to point out the successful match that the Japanese and the Italians have been able to achieve on their respective qualities of organization and creativity. In the two decades following the year 2000, two phases of "joint development" were initiated. Both of them resulted in very popular counterbalance truck versions. After 20 years, at the end of a cycle that brought TMHMI to a steady annual production of 17000 trucks, with complete command of every facet of TPS, the company inevitably had to focus on reviewing its processes in terms of digital transformation. «This may be an overused term – Polonio acknowledges – but it gives an accurate picture of a European branch which, from this point of view, did not find a useful benchmark in the Japanese parent company».

How can one explain this apparent paradox? In the car industry, Toyota is the number one global manufacturer, and the merit definitely goes to its production efficiency. The Toyota Production System appears to be more inexorable than a digital algorithm. «It may seem strange» – concedes Patrick Malservisi. «But let's not forget that TPS applies to the factory, not to office work. The idea is that we have to aim for smart factories, but also for smart work». Moreover – continues Malservisi – «you have to consider that the success of TPS, an algorithm designed for people, is linked to the impeccable precision with which processes are planned and carried out by human decision-makers and performers. In Europe and before that in the United States, production systems found increasing support in digitization and it is natural for the parent company to devote great attention to the dynamics of change of information systems and processes in their international companies». And it is probably not a coincidence that the Digital Technology Research Forum - willed by the entire TICO group to study and define guidelines for effective digital transformation - held its first meeting a few months ago precisely in Bologna, to bring together the IS/IT managers of Toyota Material Handling Manufacturing plants and of other enterprises.

A TRUCK FULL OF SERVICES

«The keyword is growth» – adds Polonio. The Motors division of Toyota experienced an organic expansion, and each time exported its production models to the different geographical areas, whereas the part of industrial vehicles and equipment of TICO evolved by subsequent acquisitions, causing a lack of internal homogeneity in its information systems. «In Italy, we were the pioneers of an initial phase of company infrastructure redesign, but in the end all we did was to aggregate the applications that were considered most relevant in an AS400 environment». This situation remained practically unchanged until, at the beginning of 2017, the pressure on the information systems reached an alert level. The new "servitization" needs that accompany physical products are generating a drive towards greater uniformity. «Quality of product, of service and of experience – claims Malservisi – require better integration and sharing of information. And one of the tools that needs to be applied is business process harmonization». The operational mission that today is being applied on a global scale at the corporate level, is a journey that was started a long time ago by

A production support system to improve efficiency, productivity and safety. Process optimization as a basis for logistics evolution

Toyota production sites. «Greater harmonization in our information systems - specifies Malservisi – allows us to do better work in the direction of service objectives. Digitization can be a good lever to introduce new concepts such as Agile and other approaches». A whole set of goals that were impossible to pursue with the legacy systems of Bologna. The transformation project was started from a short list of solutions which included two ERP platforms.

The final choice was Oracle JD Edwards *EnterpriseOne*, whose MRP (Material requirements planning) module is particularly well aligned with the objectives of TMHMI. The same solution was adopted by Toyota Material Handling Manufacturing Sweden, through an independent selection process. The same software was also chosen by the American Cascade, another Toyota company that produces forklift accessories. Equally rigorous criteria guided TMHMI in the choice of a project partner. «In Sinfo One – explains Malservisi – we saw a company with an approach to business very akin to our own. A financially sound, family-run company with the corporate culture of a public company, with a large number of employees and an excellent reputation». In order to become a partner, Sinfo One had to undergo the same certification procedure that Toyota applies to its suppliers. «In the end, we certified that all the requirements were met. Including membership in the international consortium of Oracle JD Edwards consultants which followed other TICO projects at an international level (always independently) ».

With results that have exceeded growth targets, Sinfo One increases its brand awareness in the global production market by experimenting new approaches

A NEW WAY OF WORKING

An in-depth assessment of the ERP environment: this was the start of what Paola Pomi considers the "engagement" period. «In this stage, together we analyzed every detail of the Toyota production processes in the legacy information system» clarifies the CEO of Sinfo One. This was followed by the actual "wedding": the project of the future production support system, designed not as a mere copy and paste of previously encoded procedures, but as the layout of a new way of working in harmony with TPS. An objective that is far from trivial for a rewriting project that set out to use the standard functions of JD Edwards *EnterpriseOne* as much as possible in order to optimize time, costs and risk management. «Where it was not possible to stick to the standard that we had carefully studied, we always tried to implement a solution that was really able to guarantee a lever effect on our daily work, supporting us in a way that was geared to our future» – states Malservisi. Following the cues provided by the project management committee, the Sinfo One professionals intervened on the methods of interaction with suppliers, on a performance level of the MRP system made even more powerful and complete. Customization even included manufacturing enterprise planning functions without having to acquire specific platform modules.

An aspect of which Paola Pomi and her client are particularly proud is the natural and effective way in which the MRP system of TMHMI was shaped to meet the peculiar needs of the KANBAN and Junjo message regulating the delicate mechanism of deliveries that arrive from the outside directly to the assembly lines. The production line that the Japanese of Toyota have designed to achieve a "continuously improving factory", is based on a just-in-time system. There are no pauses for procurement of the parts to be assembled, nor hold areas where these parts can be kept.

Everything must flow smoothly, after careful planning of the products to be assembled and with suppliers, who must be aware of these plans and who receive, even more than once a day, requests for parts to be delivered at the appropriate time, in a given sequence and at a specific point of the line. To further clarify the concept, Giorgio Polonio explains that TPS does not require suppliers to keep stock: «The suppliers too produce the individual pieces in accordance with the just-in-time principle. In such a context, you necessarily have to aim for a drastic reduction of error margins, because every small hitch can cascade down and affect entire production lines».
The impact of the new platform implemented by Toyota is also in the direction of smarter and automatic planning and of a production system that can better adapt to errors. «We have already had tangible results in this sense, with a reduction of the people involved in daily planning » – explains the CEO of TMHMI. «Obviously, our goal is to redeploy these resources to higher-value duties».

Fewer people, fewer paper documents, optimized processes, increased resilience in case of errors: in practice, the mantra of digital transformation.

ACCELERATING CHANGE

Even more surprising is the method used by Toyota Material Handling Manufacturing to implement all of the above. In its peak phases, the project involved around 20 experts from Sinfo One and about 40 key users at the Bologna plant. On average, 20 to maximum 25 key users worked during the various implementation stages. The "big bang" formula was chosen for the go-live: on the set date the old system was shut down and the *JD Edwards Enterprise One* was switched on. Today, out of the 570 people working for TMHMI approximately one third - counting white collars and technical staff - have access to the new ERP.

Malservisi dwells on the aspect of user experience, on the positive climate created during the project, on the involvement, the curiosity expressed by everyone. «The first users have become the real advocates of the solution» – recounts the project leader. «Their colleagues ask questions and they answer them. There's a lot of curiosity in everyone and great enthusiasm about adding new functions. The other day, a young colleague told me: *Patrick, now that I have a Ferrari in my garage, I want to be able to drive it well*. I forgave him for mentioning the name of a competitor only because I live in Maranello».

Satisfaction beams in Paola Pomi's eyes, as she comments: «The whole Toyota operation is further proof of the positive recognition of Sinfo One's implementation for foreign clients. Our brand continues to be perceived positively as an example of Italian family-run enterprise, but the presence of two international stakeholders has given us a stature that we lacked in the past». A prestigious component that is precious from the point of view of marketing. However, there is also a strong element of intrinsic value. The private equity fund, which is formally Italian but French in origin, is a powerful interface with the entire world of food industries, a sensitive ear to the needs of a market with an increasingly strong demand for products and solutions. With the Tönnies group, Sinfo One is studying new extensions to the management systems implemented so far, new applications that can go beyond the aspects of daily management, business intelligence and planning. «We are talking about the issue of product quality, with the progressive automation of advanced control systems» – continues Paola Pomi. «Also, the use of machine learning and artificial intelligence in researching new consumer trends in food products, which are strongly affected by seasonal variations and by the public's tastes».

BEYOND ERP PLATFORMS

Thanks to the success of its implementations, this year Sinfo One has once again closed the financial year on October 31st with a result that exceeds the EBITDA target. «This is a remarkable achievement because the objectives we had set were particularly challenging, considering also the expectations of the new shareholders» – states Paola Pomi, who points out that the result is due to the skills of every one of the company's 155 employees and of other consultants, but also to the action that Sinfo One can carry out in technological areas and on applications that before could not be handled with the same effectiveness. Artificial Intelligence is one of these aspects. «We are also covering the subject of blockchain, on some specific requirements involving not only the supply chain, but also on issues concerning, for example, the certification of supply contracts. With the help of affected clients, we are experimenting new implementation methodologies, mixing typical blockchain features with other aspects derived from our experience with ERP, scaling solutions to make them appealing for small and medium-sized enterprises too».

Experimenting takes place on advanced fields such as robotic process automation, the use of robot software to emulate the forms of interaction between human beings and digital systems, making the management of a given business process automatic. «We already have four live clients with Robotic Process Automation projects, both small and large-sized companies, and this is a cause of great pride for us» says Paola Pomi without faking modesty. Sinfo One applies previously unexplored, innovative methodologies and technologies geared to acceleration and simplification, so that classic ERP platforms can become increasingly autonomous, useful and flexible tools in the hands of end users. **DM**

Artificial intelligence and blockchain for total quality. Sinfo One steps into new application areas for the certification of supply and tracking contracts