

Survey on the
impact of Industry 4.0

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formation that helps us to face a competitive market.

② The opportunities of Industry 4.0 are, first of all, relaunching industrial investments in research and development, but also to help the economic growth. Last but not least customers have the opportunity to improve their network infrastructures and spread extensive knowledge about Industry 4.0.

Thanks to hyper-depreciation and super-amortization, Industry 4.0 has accelerated a generational turnover of industrial machines. According to the most recent estimates – reported on the Sole24Ore which is an Italian financial newspaper – by the end of 2019, when the effects of the incentives will be exhausted, Italian companies will have bought about 50,000 digital machines, almost 20% of the entire quantity already installed in Italy.

Before the launch of Industry 4.0, the average life of the Italian industrial machines was over 13 years, the greatest obsolescence ever recorded. At the end of 2019 the average life of these machines will decrease to nine years. I think that this change will be an opportunity for all those companies that manufacture industrial machines because they will also improve their sales.

③ All SEI Laser systems are Industry 4.0 Ready, including the Packmaster CW-WD systems dedicated to the flexible packaging industry.

They are all certified to satisfy the following requirements: control by means of CNC (Computer Numerical Control) and/or PLC (Programmable Logic Controller); interconnection to the factory IT systems with remote loading of instructions and/or part program; automated integration with the logistics system of the factory or with the supply network and/or with other machines in the production cycle; simple and intuitive interface between man and machine; compliance with the most recent parameters of safety, health and hygiene at work.

Source: SEI Laser



Søren Maarssø
CEO – Trésu Group

① The essence of Industry 4.0 is “digitalization” – the automation and connectivity – not only of the workflow, but the manufacturing value chain. This represents a significant step-change in manufacturing. The key elements of Industry 4.0 are:

- Smart computer networks that allow us to monitor and understand processes, in turn enabling us to use information for adding value;

- The Internet of Things (IoT), where equipment and devices used feature sensors, electronics and software, to support data-exchange

- The cloud, where many computers are networked together sharing resources that are accessible by many users

- Cognitive Computing, or the ability of electronic equipment to self-learn.

② The idea of Industry 4.0 is that manufacturing efficiency is optimised when all information is shared and used by every aspect of the organisation, and that this process is as automated as possible. Automation and the flow and access of information is vital for improving efficiency and productivity, so that suppliers can stay profitable and flexible, in a value chain where service is paramount

③ As supplier of flexo inline printing machines to a number of leading, international manufacturers of packaging material we are constantly looking at ways to increase the online service level for our customers.

In our version of “Internet-of-Things” (IoT) we have several projects in the pipeline with the purpose of improving our competitiveness and provide better customer service on several parameters by optimizing the amount of data for knowledge acquisition and continuous historical analysis.

More digitisation means more machine servicing can be done by the Internet, faster. One simple example of how we adopt Industry 4.0 in our service offering is with

Source: Trésu



Source: norris-digital

remote diagnostics. We embed machines with a large number of sensors and data collection points, which enables constant monitoring and process recording. A member of our support team logs in to the machine software of the customer's printing machine, wherever they are worldwide, from our headquarters in Denmark. It also gives a much shorter response time than if we have to travel to the customer. Any problems can be resolved faster, so the converter can enjoy improved uptime.

Sharing of information by cloud-based devices is allowing us to build and install machines and equipment with greater efficiency. As a result, internally, all employees have the right information available so that the complex process of machine assembly can begin without delay. Operators have instant access to the correct information for each component, such as different tolerances. Once, this information had to be laboriously looked up, but now, all material is available at the employee's workstations via human-machine interfaces and portable devices.

Our customers will benefit from this because we are able to react faster, eliminate errors, be more precise and avoid sending technicians on long-distance trips to diagnose and repair defects. By collecting digital feedback remotely we will be able to respond in time and prevent costly breakdowns to a higher degree than today.

Diego Taioli

Assembly and production department manager – Uteco Converting S.p.A.

① Industry 4.0 represents the future, the fourth industrial revolu-

What does Industry 4.0 mean for the package printing and converting industry worldwide?

tion that will allow companies to combine productivity and speed in responding to market, by making their systems more productive and competitive. It is clear that those who do not undertake this path and manage the digital transformation will be excluded by the global competition.

② In the future our customers will be connected with their customers and suppliers in order to save time and money with more quality, but this will be possible only if they:

- Automate and connect the production process such as machines, sensors, measurement tools, equipment, terminals, printers, and so forth, all of which will be connected to the network.

- Equip operators with PCs, tablets, smartphones, etc. that are connected to the network and be constantly online.

- Abolish "Pens and Papers" to transmit information, that means: to avoid sending information like designs, instructions, notes to operators on papers, reporting any information by filling up paper documents and identifying any type of material through labels, etc.

- Use an IT system to connect machines, people and information systems in order to reach the integration that is the basis of Industry 4.0 concepts.

③ Uteco machines offer a new technological solution known as U.D.A.A. (Uteco Data Acquisition & Analysis) to manage the production orders, scheduling the production operations by taking into account materials availability and resource capacity and generate and send purchase orders if needed:

- Send work instructions and tasks to operators and automation system either for the execution of the production process or for the automatic picking of the necessary material;

- Receive production data, such as quantity and scrap, and simultane-

ously manage the following events:

- Maintenance, to signal anomalies that will be repaired based on the breakdown reason detected by the control system,

- Quality, to execute control tests when reaching a determined machine production time, quantity or when some process parameters stray out of tolerance,

- Warehouse, to supply the production line without going out of stock and being forced to stop production.

- Make production process information available through the network and the use of graphical charts and dashboards.

This allows the factory of an Uteco customer to be transformed into a Smart Factory, a dynamic and intelligent company where events start autonomously, automatically and in real time.

Ulrich Harte

Head of marketing printing and finishing – Windmüller & Hölscher

① Industry 4.0 is a vision and thus a goal to be achieved: machines and systems independently monitor the state of all of the important processes and systems, share information with each other and optimize the production processes throughout the entire process chain. This will bring major benefits regarding quality, efficiency and ergonomics in the whole process of flexible packaging production.

However, the road to completely implementing this vision is a long-term evolution rather than a rapid revolution. For us it is especially important that an Industry 4.0 solution must not be an end in itself because only solutions offering real benefits prevail in the market. This is why we have created the term Packaging 4.0 with a focus on the flexible packaging market and its specific needs. Packaging 4.0 stands for intelligent machines with integrated processes and intuitive operation.

② Industry 4.0, or Packaging 4.0 as we call it, is both a future is-

sue and is already being implemented today in real solutions. The Packaging 4.0 vision gives a common direction for developments in all product areas, from extrusion to printing to converting. This is important because value chains are constantly becoming more dynamic. Production processes are linked between work steps and production sites. This networking also goes beyond the company's own boundaries and includes suppliers and customers, for example. Digitally networked "intelligent machines" are the key to further increasing productivity. On the other hand there are many innovations being offered today that follow the Packaging 4.0 concept and already provide real benefit in day-to-day production.

③ The advancing intelligence of the machines through integrated automation and intelligent operation increases the level of control over the machine. For example, Windmüller & Hölscher has been offering automation and assistance modules which simplify the operators' work for many years. These assistance systems generating efficiency and quality gains have become indispensable in today's printing world. In the past, however, flexographic and gravure printing presses have tended to include a range of systems from different providers for web monitoring, inspection, printing impression, register setting and more.

Inevitably, this has led to added complexity and interface problems. At drupa 2016, W&H brought the integrated assistance system Vision to market. This package combines these systems, with a single operator interface. The deep integration of the modules into the press operating structure means less data entry when starting a job, faster machine changeovers, and reliable, faultless print production – essentially, greater quality and efficiency. In its most advanced stage VISION even identifies faults, displays possible causes and suggests solutions to the machine operators. In future, machine intelligence like this will be continuously improved. The notion of Industry 4.0 gives this development extra momentum.

- ① In a few words, how would you define Industry 4.0?
- ② What opportunities are opening up to you and/or your customers as Industry 4.0 comes into effect?
- ③ What products, up-grades and packages are you offering your customers to help them take advantage of Industry 4.0?



Source: Uteco



Source: Windmüller & Hölscher

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