



Smart Machines for food & beverage

The food & beverage landscape is changing. Faced with frequently shifting consumer dining habits, healthier eating trends and fads, as well as increased globalization of the supply chain, the food manufacturing industry must react. That means more modularity in production lines, more flexible output, and integration with the Industrial Internet of Things (IIoT). Christian Chatel talks about the changing face of the food & beverage industry and the evolving portfolio of Schneider Electric.

What are the major trends influencing the Food & Beverage (F&B) industry today?

There is growing demand for wider product diversity, forcing the F&B industry to offer a much broader range of products. This approach is driving smaller batch production and requires more flexible production line and preparation solutions.

Furthermore, regulations around food safety are becoming increasingly strict, with standards around hygiene at a much higher level now than ever before. It's important that the industry delivers seamless product tracking from the farm to the fork. The machines making our food will not only become more efficient, but also more transparent. This is easily achievable with solutions in Schneider's current product portfolio. And the IIoT offers additional opportunities.

What kind of components and solutions does Schneider Electric's F&B portfolio contain?

We can deliver small components as well as a complex dedicated production line solutions. We have know-how in process automation and machine design, and can deliver supervisory control and data acquisition (SCADA) solutions and visualization tools like those from Wonderware.

With these tools, we support the innovations and interconnected environments created by the IIoT. And our F&B customers benefit by getting these solutions from a single supplier.

How are food and beverage companies positioned today in terms of automation? Where is the most significant potential for improving the efficiency of production?

In general, automation is everywhere in the industry. However, the level of automation in F&B is already very high and growing at a faster rate than overall market growth. We clearly see a difference between the big players – the ones which set standards and have made some great progress in a lot of automation projects – and smaller companies, which often struggle to seize the same opportunities.

It can be said that for all sizes of companies, production processes are perfectly optimized in most cases. However, where these processes interconnect there's room for improvement.

What kind of challenges are machine builders facing now as a result of this? And what will they face in the future?

We can see challenges at every level: machine builders will be challenged to deliver more flexibility, faster changeovers, modular machine design incorporating robotic solutions, and much more data provision from the machine. We consider the latter to be one of the most critical aspects. It means modern machines must deliver more data than before and consequently require more sensors.

As machines get more and more complex, operation and maintenance must become easier – at a much lower cost. The answers to this challenge is innovation at every level.

Let's talk about the Industrial Internet of Things. Is it already recognized in the food and beverage industry on a broad scale?

The industry started to look at the benefits of IIoT-based technologies and has already developed some very interesting early solutions. To us, it is all about supporting machine automation through the construction of smart machines and production lines.

To us, the term 'smart machine' means that it is safe in terms of use, but also against hacker attacks and malware, and is better connected and can communicate with different systems. At Interpack, we dedicated a special area, the Smart Machine Corner, to this topic, highlighting solutions using augmented reality or cloud-based services. However, we feel that we are just at the beginning of an exciting journey.

Can IIoT challenges be met with current technology?

Many of the technologies have been available for a while. Basically, everything needed on the hardware side exists, these are just gateways for data to pass between machines. With SCADA we are making good progress in this regards: independent of the location we can see data, visualize a solution via the cloud, extract data and situation reports, change parameters, and update software. This shows that SCADA is a capable technology in the IIoT era.

However, in the industry there is often the perception that IIoT concepts work best on a blank page of paper, or to be more exact, if an end user builds from scratch. What we need to do is show the industry that there are viable ways of deploying it in existing sites.

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What other technologies will have a huge impact on the food & beverage industry?

Currently we're seeing great improvements in many areas. A good example is augmented reality. By using data goggles, a machine operator has a significantly improved view of the machine. This could include a heads-up display of real-time production data and KPIs, maintenance data and, in case of a problem, visual guidance on where the fault is and how to rectify it.

The yield from that could be reduced downtime, resulting in improved overall equipment effectiveness (OEE) for the machine. Predictive maintenance, achieved by visually indicating the end-of-life of certain parts, coupled with instructional videos showing how to swap out parts, fits into this scenario.

A big increase in robotics installations is predicted in Europe – what is needed to make this successful?

Our solutions focus on high-performance pick-and-place applications. In this segment, the robotics market all is about offering a versatile and flexible solution. One that is equal or better than a dedicated, single purpose design. No dedicated parts and components are needed and with simple reprogramming a new small batch production can start.

This is a major business driver.

Another important aspect here is that the robotic parts need to be designed with the special hygienic requirements of the industry in mind.

What role is machine safety playing in the food and beverage machinery?

Machine safety, in terms of preventing accidents or injuries involving machine operators, is a must. Nevertheless, it has been seen that even though there is strong enforcement, accidents still occur as machine operators and maintenance engineers don't always follow the correct procedures. This can happen as a result of time pressure and inadequate training. We typically see most accidents occurring in areas where machines are connected or where materials are loaded into a machine.

Machine builders and end users are looking at ways to continuously reduce accidents and increase overall machine safety. Over the last 10 years we have seen multinational, end-user companies enforce global initiatives to help achieve and maintain minimum safety standards based on ISO or IEC standards. Within Schneider Electric we support our OEMs and end-user customers to design safe machines and machine lines which are aligned with these industry standards.

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Christian Chatel joined Schneider Electric in 2000. He has nearly 30 years of experience in motion control and 20 years of experience in the packaging market. At Schneider Electric, he holds the position of the Segment Manager Consumer Goods. In this position, he works closely with end users and machinery equipment suppliers. Christian Chatel is also Schneider Electric's representative at OMAC and Weihenstephaner Standards.

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