



# Food & Beverage - Technology Adoption

Industry: Food/Beverage

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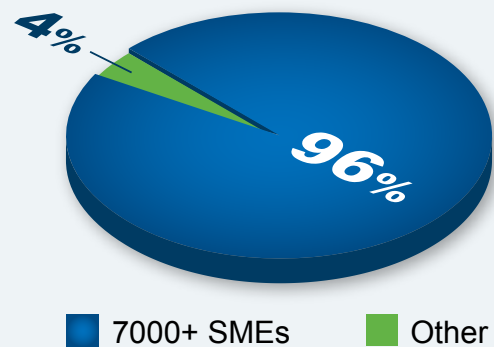
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# Food and Beverage Market Overview

The Food and Beverage sector plays a significant role for all countries around the world. Globally, the industry is worth ~\$8 trillion and is growing at a rate of ~6%/yr. As in most countries, the sector is very fragmented although most will no doubt be familiar with the largest and most well-known global food brands: Nestlé, PepsiCo, Unilever, Danone, Mars, Mondelez, Coca-Cola.<sup>1</sup>

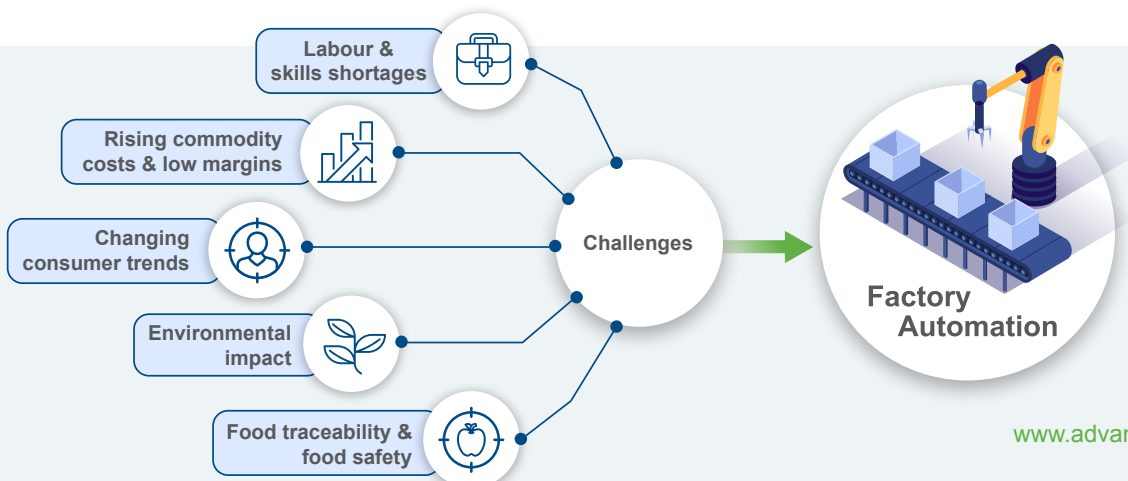
What you will be a little more surprised to hear is that the largest percentage contribution comes from the 7000+ SMEs that make up 96% of the food and beverage market. Because of this diverse sector there is a broad range of technology adoption. Large global manufacturers will have a mix of modern, fully automated installations coupled with sites that have legacy technology. At the other end of the scale SME's will have smaller production lines/units with a mix of old and new technology that operate independently of one another. Within these businesses investment in technology varies considerably, but the F&B sector needs to adapt more quickly than others as it tries to keep up with changing demand, consumer trends and more stringent regulations.

## Food and Beverage Sector



## So, what are some of the more universal challenges faced by the food & drink sector?

- **Labour & skills shortages** - Like most sectors skills shortages have been an ongoing theme for many years and is a perfect mix of an outgoing aging workforce coupled with insufficient number of young people entering the professions. However, the F&B sector is particularly exposed due to the perceived 'unattractiveness' of the industry and lower earnings potential. Changes too in immigration laws have seen the reduction in the so called 'low skilled' labour which has a major impact on seasonal industries and low technology adoption businesses.
- **Rising commodity costs & low margins** - Annual increase in commodity costs and rising pressure from retailers result in lower operating margins for manufacturers. This in turn forces manufacturers to look to reduce operating costs which hinders investment in new technology. As alluded to above, even some of the largest F&B companies have ageing sites within their portfolio where the manufacturing systems and processes are +20 yrs old.
- **Changing consumer trends for example sugar and packaging.** A great example of consumer trends and pressure over the last few years is the issue of plastic packaging. Rising awareness of the impact of plastic in our environment from well known nature programs has seen some manufacturers act by redesigning packaging formats to include less plastic. The use of sugar as an additive is another great example. Increasing awareness of the health impact of having a high sugar content diet has forced the industry to re-formulate their products and to accommodate the change in buying habit with the demand for 'healthier' products.
- **Environmental impact** - Food is a basic human requirement and there will always be a measurable impact to the environment. Presently, however, F&B accounts for over a quarter of greenhouse gas emissions globally and of that, 6% comes from food waste! The majority of this food waste is 'lost' in the supply chain for example through poor storage and handling techniques, lack of refrigeration or spoilage in transportation and processing. Consumers are more aware of environmental issues and this will have an impact of the performance of food brands. There is already 'sustainability' messaging on most of the large global manufacturer websites promoting a 'responsible' environmental policy BUT there is still a long way to go to eliminate waste from the manufacturing process.<sup>2</sup>
- **Food traceability & food safety** - consumers today require more information on the products they buy from exacting ingredients to origin information as a basis of trust to what they are eating.





**Adoption of new Technology:**

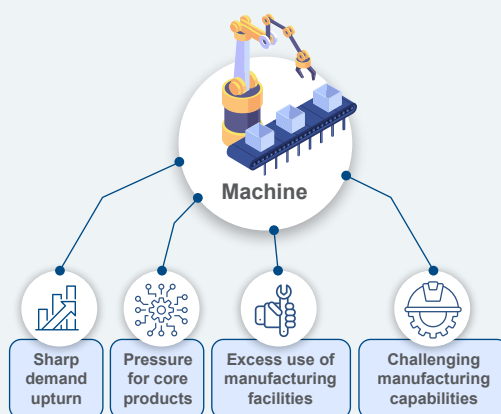
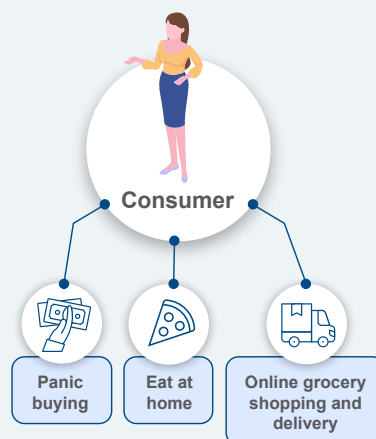
The food & beverage industry does face many challenges and the adoption rate of new technology to help with those challenges has always been somewhat well behind other sectors such as Automotive and Aerospace. Until now, F&B manufacturers have been well served, on the whole, by so called traditional automation with the minimal inclusion of robotics in the production process. But in order to satisfy the need moving forward Industry 4.0 and digitalization is the key. What we have seen so far is a modest, piecemeal adoption of Industry 4.0 IIoT technologies such as AI/ VR, cloud computing, data analytics, predictive modelling, block chain and digital twin etc. The full potential of these technologies is aptly realized within the 54 'Lighthouse Factories' as detailed by the World Economic Forum.<sup>3</sup> Unfortunately, more often than not, new technology adoption, especially that which is concerned with 'digitalization', rarely progresses beyond the pilot phase.

**An unexpected 'Accelerator':**

However, 2020 introduced an 'accelerator' in the form of Covid-19. As the global impact of Covid-19 unfolded, the urgency with which the rate of adoption of automation and digital technologies needs to increase became abundantly evident. Supply chain disruptions, panic buying of core commodity items, a massive shift to online grocery shopping and delivery caused a global system shock. What did this mean for manufacturers – a sharp upturn in demand with the populations of many countries forced into lockdown, increasing 'eat at home time' and pressure for core products. Manufacturing facilities were running longer between maintenance schedules, sweating their assets more than usual and

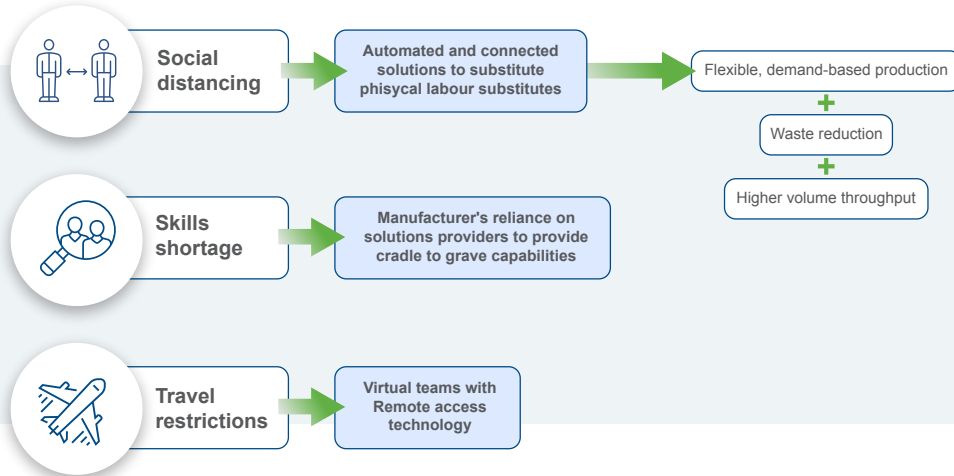
in turn exposing vulnerabilities in their supply chain, manufacturing process and resourcing capabilities.

**COVID-19 PANDEMIC effects on Food and Beverage Consumer and Manufacturer**



## MANUFACTURER'S NEW TECHNOLOGIES

adoption to accommodate to the new production landscape



### The 'new' F&B landscape:

As we move forward, how has this lack of resilience changed the adoption of automation and digitalization by manufacturers? There are signs that investment strategies have and are changing with manufacturers prioritizing more automation and digitalization to accommodate the new production landscape. Where social distancing becomes the norm, automated and more importantly connected solutions can help continue operations (24/7/365) where traditional physical labour cannot. In food and beverage production, automating and connecting the most labour intensive parts of the production process means greater resilience within the manufacturing environment adding improved efficiency gains, flexible demand-based production runs, waste reduction and higher volume throughput.

As manufacturers adopt newer technologies to improve their resilience more reliance will be placed on their solution providers (both system integrators and machine manufacturers) to provide a 'cradle to the grave' support capability. Because of the skills shortage experienced by manufacturers they now rely more on their solution providers for technical support to the point where they can be thought of as an extended 'virtual' team to their business. To help facilitate this support model solution providers have turned to the use of remote access

technology. Remote access is now considered a vital solution to include with all new technology delivered to manufacturing sites. Covid-19 has highlighted this by the travel restrictions imposed across the globe. Technology vendors unable to travel to customer sites as they normally would now use remote connectivity to satisfy that customer support need.

Of course, adopting Industry 4.0 and digitalization technologies does present its own challenges. Cybersecurity, traditionally associated with government institutions, is now an important topic within manufacturing. Well documented cases of security breaches on manufacturing sites have raised awareness of the risks associated with connecting the manufacturing environment to the outside world.

Using remote access as the obvious example it is vital that the solution uses the latest encryption techniques, two-factor authentication, independently assessed to international cybersecurity standards, offers role based restricted access and is IT approved/ OT friendly.

**The good news is that starting your Industry 4.0 and digitalization journey is not as daunting as it first seems. Seek guidance from technology vendors that provide scalable, robust, secure solutions. Start small - realize the benefits - repeat!**

## Advantech-Secomea collaboration – to enable reliable Industry 4.0 platforms

The Industrial IoT era is bringing communication capabilities across all devices, but three challenges of safe communication, simple setup and wide offer are affecting the implementations. Advantech and Secomea's partnership allows having Advantech's rugged industrial PCs, including HMI series, equipped with Secomea's remote and secure connectivity solution. This fulfills the three main challenges, providing the perfect solution for customers.

**“Advantech firmly believes in Co-Creation, a model of cooperation leading to the digitalization of industry. This partnership is beneficial for both companies completing each other”**

said Marco Zampolli, Advantech Solution Architect.

**“That's why the company is proud and really glad to collaborate with Secomea.”**

Kasper Holst Wochner, Chief Commercial Officer at Secomea, added:

**“The ability to combine our unique Secure Remote Access with Advantech's leading edge IIoT products brings a solid solution to the market. Secomea is pleased to collaborate with Advantech in this area, and with a collaboration model, which will be strengthened via each member of our strong force of Distributors and Channel Partners. An excellent opportunity for knowledge sharing and expertise to implement and support the solutions into the market.”**

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## Source

<sup>1</sup> <https://www.foodengineeringmag.com/2020-top-100-food-beverage-companies>

<sup>2</sup> <https://ourworldindata.org/environmental-impacts-of-food>

<sup>3</sup> <https://www.weforum.org/agenda/2020/09/manufacturing-lighthouse-factories-innovation-4ir/>

## About Advantech

Founded in 1983, Advantech is the leading manufacturer of industrial computing, display and communications products. Advantech offers its build, configuration and design services worldwide, through a global sales, logistics and support organisation that works with its customers and their end-users wherever our equipment ends up. We cooperate closely with our distribution partners, software, hardware and communication partners, system integrators and consultants to provide complete solutions to complex computing and communications challenges. Our mission is to enable an intelligent planet by developing the automation and embedded computing products on which it will run. With Advantech products, the application and innovation potential is unlimited.

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