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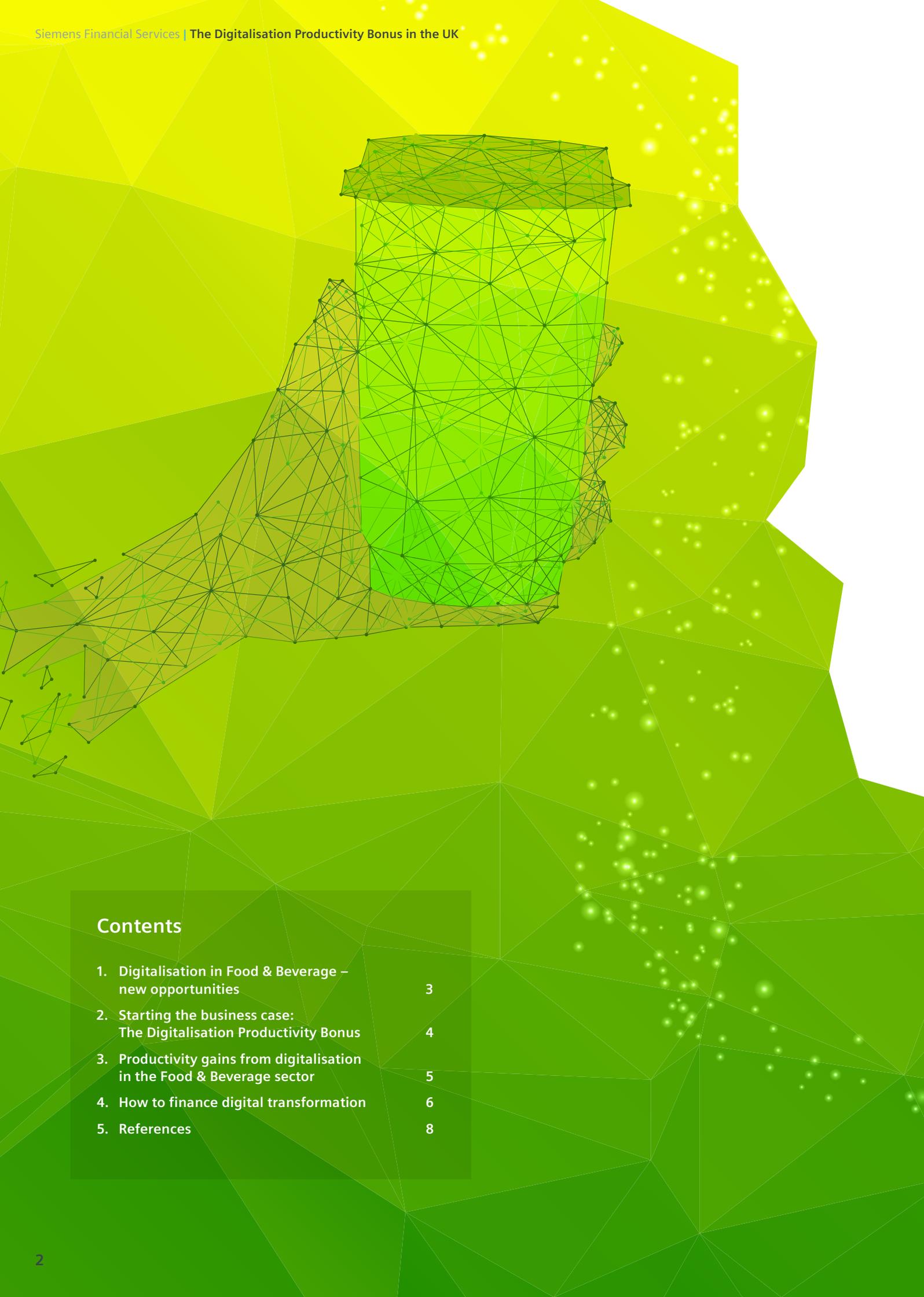
Ingenuity for life



The Digitalisation Productivity Bonus in the UK

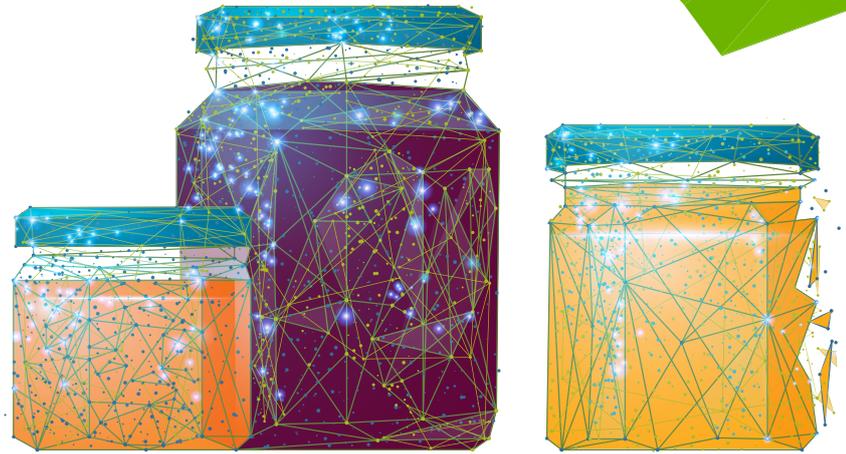
What value does digitalisation offer
Food & Beverage manufacturers?

www.siemens.co.uk/food-beverage-industry



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Digitalisation in Food & Beverage – new opportunities

There are a myriad of pressures currently facing the UK Food & Beverage industry. They include sugar and health, packaging and recyclability, local sourcing, animal welfare, ethics and traceability, and the ever-present Brexit. And all this is happening at the same time that food and beverage manufacturing is going through a massive disruption known as Industry 4.0, or 'digital transformation'.

Digital transformation requires widespread investment in new manufacturing technology (or substantial retrofit), and that poses a major challenge for the industry to find the capital to make such investments. At Siemens Financial Services, we provide financial solutions that help avoid the need to raise (and spend!) large amounts of capital upfront.. Instead, new digital technology can be installed now, and the benefits delivered impacting the bottom line – through efficiency, productivity or competitive advantage – can be used to pay for it.

Starting the business case: The Digitalisation Productivity Bonus

The vast majority of manufacturers and expert consultants interviewed for this paper¹ confirmed that the ability to *increase manufacturing productivity* is a universal starting point for determining measurable value from digitalisation.

The ability to manufacture the same product volume at less cost, or manufacture more products for little or no increase in costs, resonates with manufacturers considering digital technology investment as a competitive enabler. This was felt to be the case for both manufacturers taking their first steps into automation and those looking to install the latest sensor-based technology to fully digitalise their production environment.

Respondents estimated that manufacturers could make production productivity gains equivalent to between 6.3% and 9.8% of their annual revenues. Termed the **Digitalisation Productivity Bonus**, this gain was identified by respondents as the most reliable starting point to make a business case for investing in Industry 4.0 technology upgrades.

Estimated <i>Digitalisation Productivity Bonus</i> – reduced production costs resulting from conversion to digitalised technology for UK Food & Beverage Manufacturers	
	Baseline Bonus (production cost reduction)
Food & Beverage Industry	£6,144.9m



Productivity gains from digitalisation in the Food & Beverage sector

There are a number of areas for potential productivity gains that are uniquely relevant to the Food & Beverage industry. Shelf life is undeniably a real issue for many food manufacturers and where businesses are making fresh products the same day they are being shipped-out, it is important not to over-produceⁱⁱ.

Digital information flowing up and down the distribution and supply chains helps to better match supply and demand (which may fluctuate as frequently as each day) to guard against over-ordering and over-production. Electronic traceability allows producers to track items from delivery to supermarket shelfⁱⁱⁱ.

One commentator notes that Food Manufacturing 4.0 introduces highly flexible “lights-out” (totally automated) manufacturing that enables new economies of production^{iv}. The results are reduced personnel costs and optimised personnel deployment, reduced human error, higher process accuracy.

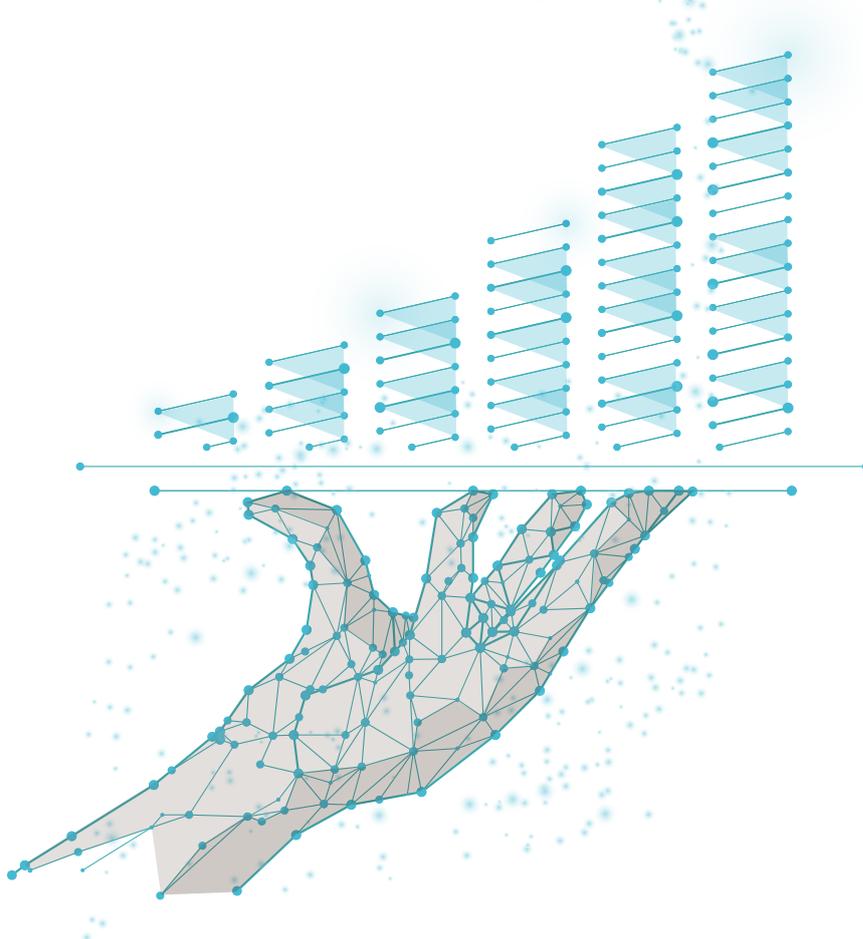
Digitalisation also permits the optimisation of preventive maintenance programmes, so that expensive and delay-inducing machine failures are all but designed out. A good example is industrial bakery ovens, which operate to very tight ‘fresh bake’ delivery schedules. Oven failure at times of peak production can be absolutely disastrous^v.

Finally, in the factory, where the cold or hot chain must not be interrupted while the product is being processed, IoT monitoring of fridges and other temperature controlled environments is critical, with automated alerts and escalation routines making it possible to identify and rectify irregularities quickly^{vi}.



How to finance digital transformation

The Digitalisation Productivity Bonus, provides a really solid starting point for building a business case. Yet smart, specialist, tailored financing is often needed to make the digitalisation process affordable, and aligned with the rate of benefit which the digital technology will deliver. That's why it is important to partner with a specialist financier such as Siemens Financial Services, as we understand the technology, how it will be applied, and the benefit it is likely to deliver.



These specialist 'Finance 4.0' tools can be summarised as follows:

↳ Pay to access/use equipment and technology finance

This enables the acquisition of a system or piece of equipment. Technology, service and maintenance are all included in a single agreement. Periods can be adjusted to match payments to the financial benefits gained. Master agreements can be established that help speed up future technology acquisitions.

↳ Technology upgrade and update

Manufacturers want to access technology innovations as they appear (and digital innovation cycles are shortening^{vii}). Finance can also offer options to upgrade during the financing period, whether to replace with a newer model or retrofit enhancements to the main technology platform.

↳ Software finance

By definition, most Industry 4.0 technology solutions involve both hardware and software. Because specialist financiers understand how the software is implemented and likely benefits in practice, they can understand the associated risks and include the software as an element in the total financing package.

↳ Pay for outcomes

These arrangements base payments on the expected business benefits, or "outcomes", that automation or digitalisation technology makes possible^{viii}. Actual financial savings, such as reduced electricity consumption, are used to subsidise or even totally fund monthly payments, making the technology cost neutral for the manufacturer.

↳ Transition finance

Manufacturers do not want to start paying for their Industry 4.0 technology platform until it is installed, tested and operational. Finance 4.0 recognises the challenges of transition and offers financing arrangements that defer payment – known as 'extended payment terms' – for a new system until it is reliably up and running, eliminating any period of cost duplication for the manufacturer.

↳ Working capital solutions

Finance can be optimised in more areas than technology acquisition. Improved competitiveness can lead to sudden growth, which exerts pressures on supplies, inventory and overall cash flow. Financing services – usually based on some form of invoice finance – are available to help manage the broader financial challenges that success through digitalisation brings.

REFERENCES

- ⁱ Methodology: Over 60 international manufacturers, international management consultants and specialist academics were interviewed in January and February 2017. Respondents gave their expert estimate of financial gain from increased manufacturing productivity resulting from implementation of the new generation of digitalised and/or automated manufacturing technology and equipment classified under the title of Industry 4.0 or The Fourth Industrial Revolution. Respondents expressed their estimates of this financial gain as a percentage of total revenues, using their knowledge of gains calculated as a proportion of total operating costs (total operating costs for manufacturing companies varies between 75% of revenues in Europe to 85%+ in China, according to official statistics). This model was then applied to total revenue data of the manufacturing sector in different countries and manufacturing subsegments around the world to estimate the financial gain from increased manufacturing productivity resulting from implementation of digitalisation and automation in each of these geographies and segments.
- ⁱⁱ <http://www.foodmanufacture.co.uk/Manufacturing/Food-manufacturers-should-prepare-for-Industry-4.0>
- ⁱⁱⁱ <http://www.foodmanufacture.co.uk/Manufacturing/Food-manufacturers-should-prepare-for-Industry-4.0>
- ^{iv} <http://www.telegraph.co.uk/sponsored/business/business-reporter/11853908/new-food-manufacturing-technologies.html>
- ^v Source: original research, France
- ^{vi} Source: original research, China
- ^{vii} Research from Siemens Financial Services published in "Investing in Success" (2016) indicated that 67% of manufacturing respondents observed that technology replacement/upgrade cycles are shortening.
- ^{viii} This whole subject is discussed in the Siemens Financial Services research paper "Opportunities and Outcomes" (February 2017).

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Published by

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Updated (unless stated otherwise): September 2019

