



Whitepaper

# The future of manufacturing

Digitally transform your business and get ready for Industry 4.0

Sage

# Table of Contents

## Page 3

The future factory

## Page 4

What is Industry 4.0?

## Page 5

Why is Industry 4.0 important to your business?

## Page 8

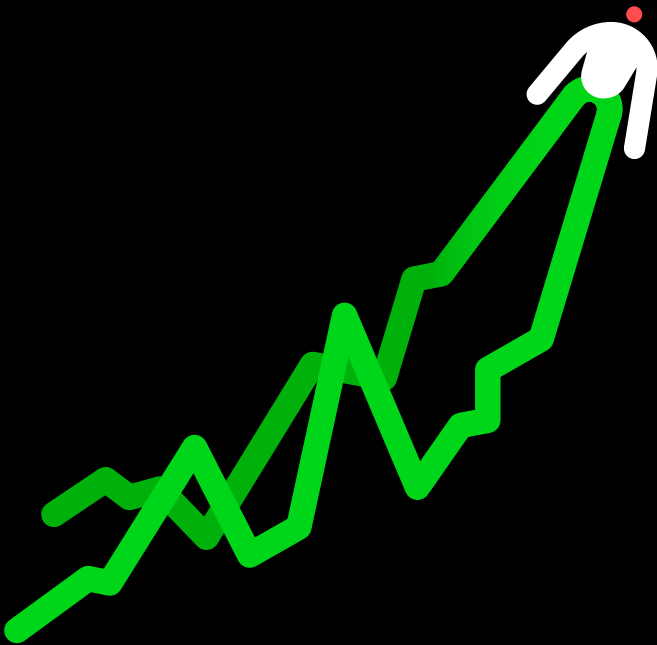
10 tips to help you take advantage of Industry 4.0

## Page 9

How can ERP support Industry 4.0?

## Page 10

Why Sage X3?





# The future factory

Imagine a factory which connects information and interconnectivity—a model of quiet efficiency. Where intelligent machines collaborate with each other, run by a team of analytical, well-trained workers. A center of innovation—the hub of a supply chain that combines customers, suppliers, distributors, and partners with advanced analytical systems.

Now imagine the future—the Smart Factory, where there's minimal downtime, neglect, waste, and inefficiency. Where factory managers, financial experts and boardroom executives use cutting-edge technology to understand data and production—reaching the pinnacle of technology and manufacturing development.

The Smart Factory dream is closer than you think.



# What is Industry 4.0?

The first Industrial Revolution saw the introduction of the commercial steam engine and the birth of the textile industry. The second was sparked by electricity and mass production. And the third was triggered by the computer after World War II.



Today, many experts believe we're in the midst of a fourth industrial revolution, or Industry 4.0. Major innovations in technology are coming into maturity at the same time—embedded by companies around the world that are integrating the virtual and physical worlds to bring forth powerful new ways of working.

## **Powerful Industry 4.0 technology to look out for: The Internet of Things (IoT)**

IoT is the fusion of physical objects such as software, sensors and electronic items with the Internet and machine-enabled data collection and transfer. IoT allows real-time communication, initiating physical systems and giving rise to “smart cities.” This in turn allows traditional supply chains to become more digitized and connected—completely integrated ecosystems that are fully transparent to the contributing marketing, product development, manufacturing, and distribution departments.

## **Big data and advanced analytics**

The way businesses read and analyze the massive amount of data that comes with IoT is vital, especially if it involves critical events such as power outages or an attempted data breach. In manufacturing, the availability of data from product development,

production and testing, for example, can add new dimensions, allowing targeted innovation, marketing and decision making.

## **Robotics and automation**

Robots are already used extensively in the manufacturing world, for example: mechanical arms on assembly arms. Industry 4.0 could see robots' contribution massively increase, like with “smart factories,” where robots take ownership of manufacturing and bringing products to customers by themselves, thanks to computing and communication systems linked to physical systems.

## **Simulations, 3D printing and augmented reality**

Already commonplace, goods are virtually modeled and tested, saving time and reducing the materials, efforts, and money spent. Through 3D printing, we see the creation of customized, complex and lightweight designs at remarkable speeds, while augmented reality sees a future where employees can be trained on the job far more effectively than with paper or monitors.

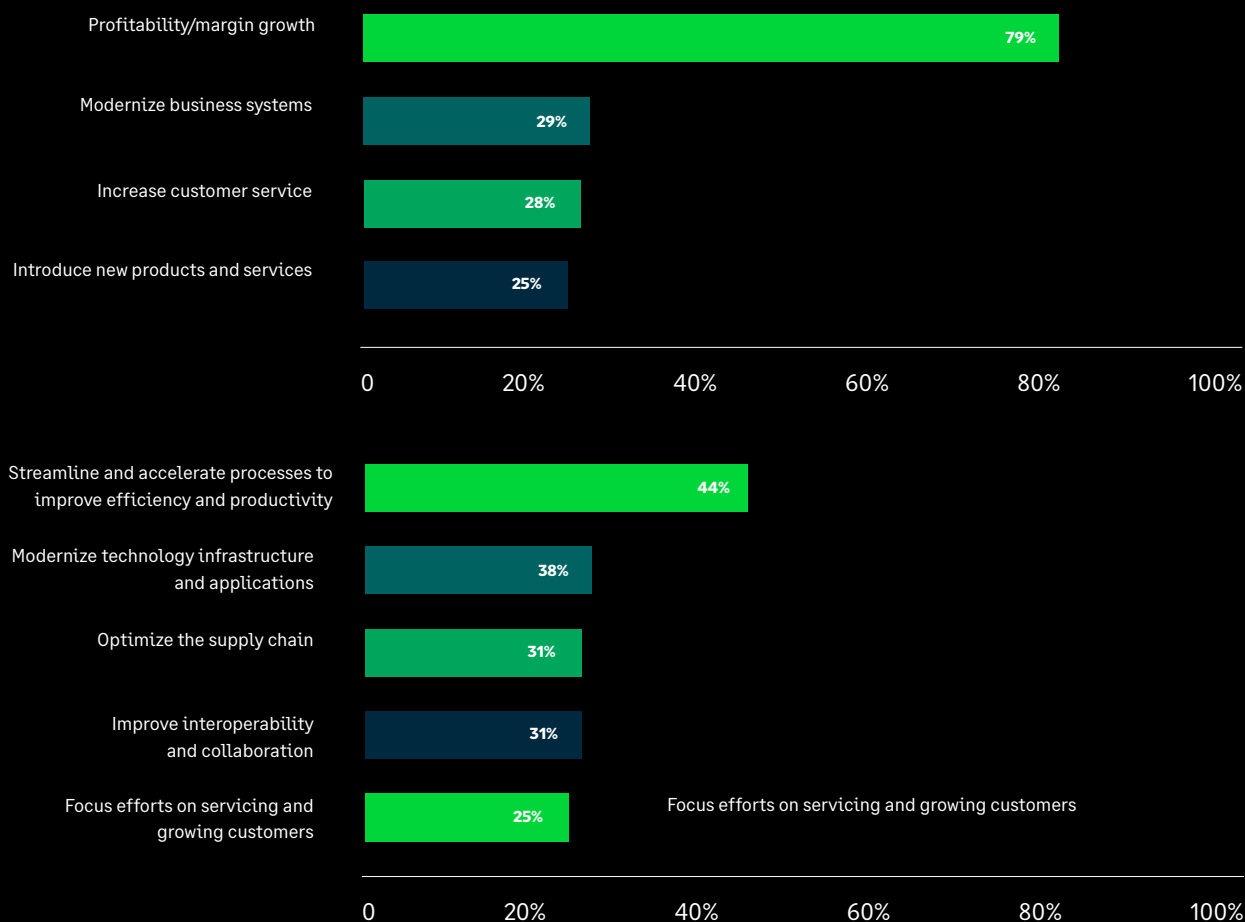
# Why is Industry 4.0 important to your business?

Profitability is the driving force for all businesses. According to Aberdeen Group, this especially holds true for manufacturers.

Manufacturers look for profitability in the face of increasing competition, often from around the world. To differentiate themselves, top performers focus on serving customers—and the way to do this is explore new ways to deliver innovative products and services. For many manufacturers this also means a change in processes, requiring significant changes in production and delivery.

## What a leading manufacturer strategy looks like

Take a look at the strategies of leading manufacturers, and you'll find many of them have innovations supported by Industry 4.0, led by cloud technologies, IoT, big data, and advanced analytics. Industry 4.0 means your industry is in a state of change, with forward-thinking, top-performing businesses leading the way. Start to take advantage of changing business and production models to streamline processes. Become more productive, improve collaboration across the supply chain, and deliver new products and services that can grow your existing customer base.



Source: "ERP's role in the modern manufacturer: Supporting the needs of Industry 4.0," Aberdeen Group, February 2017; % of Respondents, n=130



# The modern manufacturer business journey

**There are four business pillars your manufacturing business must focus on to become highly productive:**

## **People**

Tasks once managed by people will be handed over to robots and AI—so where does this leave us? Humans will still play a huge part, yet the adoption of Industry 4.0 means there must be a major shift in skills, recruitment and training. To take advantage of new technology, augment traditional manufacturing skills with new skills and requirements, such as a knowledge of automation, data, analytics, programming, and software.

## **Software**

Hardware is nothing without software, and it's the creation of applications by your software developers which will drive Industry 4.0 and the Future Factory. Of importance are modern ERP systems which can integrate all areas of your business, led by inventory, production, sales, accounting, and finance. This will provide a single database and core functionality which allows you to automate your business operations and provide real-time information.

## **Hardware**

Software is also nothing without hardware. The increasing value of software is dependent on your hardware getting faster, bigger and better. Amidst the talk of a “virtual factory,” your products still actually need to be made, and it's the machinery that allows that. Consider innovative technology like augmented reality—that needs good hardware to function—which is being increasingly valued by businesses.

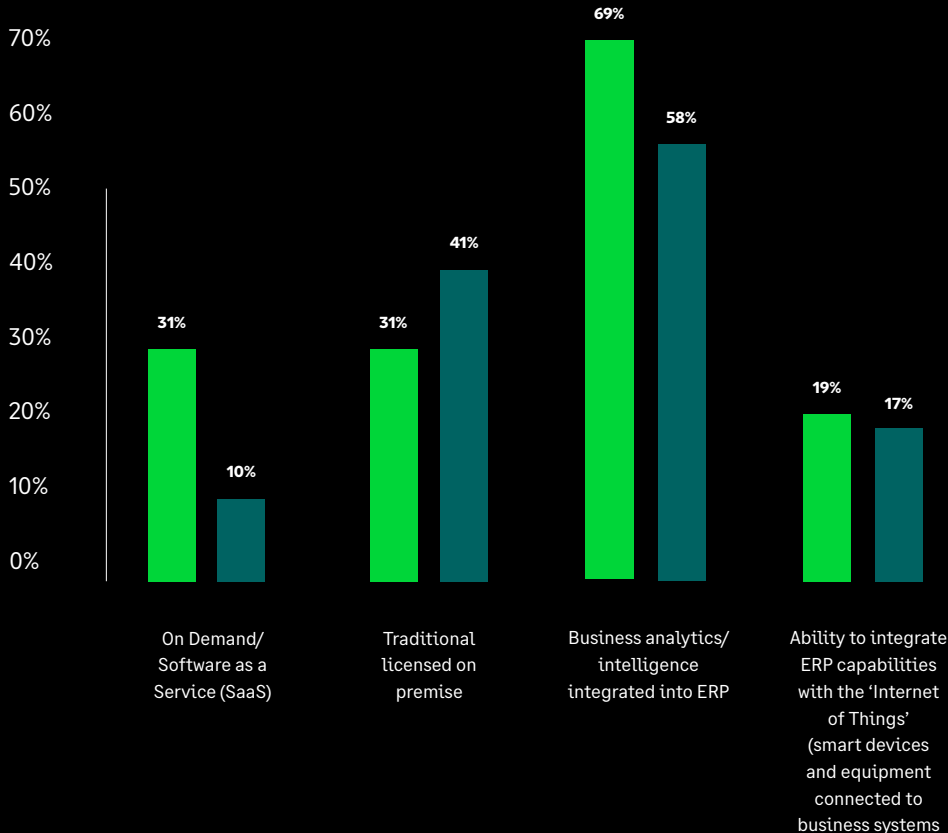
## **Connectivity**

Big data is incredibly important to the future of your manufacturing business. Some would say it's Industry 4.0, as without connectivity, the IoT is simply not possible. Others view big data as the “new electricity,” a power source that drives innovation in the same way steam and electricity did. With big data, you can get all sorts of devices to interact, from tablets and smartphones to robot assembly lines.

The increasing value of software is dependent on your hardware getting faster, bigger and better.



# You need more than a “typical” ERP for Industry 4.0 According to the Aberdeen Group



Source: “ERP’s role in the modern manufacturer: Supporting the needs of Industry 4.0,” Aberdeen Group, February 2017; % of Respondents, n=130

- **Leading manufacturers are over three times as likely to deploy their ERP solution in the cloud**

Conversely, leaders are less likely to deploy their ERP solution using an on-premise model. This is because cloud solutions can be used anywhere with accessible Internet, providing real-time data and community across different countries. Also, cloud solutions can be continuously updated, providing support for new best practices, regulations, and emerging technology.

- **Leaders are more likely to have business analytics integrated into their ERP systems**

Leaders are 16% more likely to have business analytics integrated ERP, which lets them do more with data. For example, they can analyze the effectiveness of processes, determine profit trends, and monitor customer data. This leads to better decisions, made with insight, that positively affect the bottom line and boosts profit.

## **Leaders are more likely to integrate ERP capabilities with IoT**

A business connected to the Internet of Things will revolutionize the way it delivers products and services, as it offers an ability to analyze equipment, machinery, and product data. Although adoption is relatively low, 72% of manufacturers plan to implement IoT technology before 2019. Using sensors as part of an IoT strategy, manufacturers can enable alerts that trigger changes in production or maintenance schedules.

# 10 tips to help you take advantage of Industry 4.0



## 1. Don't wait!

Your competitors may have already forged their own path towards a new business landscape and digital transformation. Inaction could cost you and turn you into a follower rather than a leader.

## 2. Identify the opportunities

Dig down into your business and find out where your processes are lacking, how long products are taking to get to market, your company's reaction to demand, and where your resources are stretched. Then prioritize your biggest challenges and explore how cloud, analytics, and IoT fit into your business strategy.

## 3. Start off small and move step by step

Wholesale change is disruptive, so begin your journey with small actions, like deploying sensors in your factory and seeing what type of intelligence you can draw.

## 4. Choose the right partners and work with them

You'll want to collaborate with vendors who understand the industry you're in and work according to best practice, supporting your path to innovation.

## 5. Keep improving

Industry 4.0 is big but it's not the end. Make sure your business—employees, process, and technology—has the flexibility to work with change as it happens.

## 6. Rethink the way you experiment

Make sure you evaluate technology through a business lens. This'll allow you to experiment with technology that differentiates your company, with the aim to expand capability so you can do things your competitors won't be able to.

## 7. Engage with your emerging technology ecosystem

Identify the organizations and start-ups that research and use the tech relevant to your industry, products, customers, and markets. Establish working relationships where suitable and keep an eye on all of them. For example, you could think about partnering up with a university or other suitable educational institution.

## 8. Build your own learning lab

If your business keeps growing, think about having an innovation team to gain business value from ideas—perhaps through the creation of demos and prototypes. Share whatever you create internally, or with selected partners and customers.

## 9. Develop a maker's mindset

Enterprises need to develop thinking that allows them to draw connections across technology and solve real-world problems. Be a "maker" who's willing to try, test and fail, get your hands dirty, and share and build on other people's discoveries.

## 10. Establish a process to scale emerging technology

Regular enterprise work processes, like building a business case and planning projects with the financial benefits in mind, won't work for tech-driven innovation. Try processes with shorter stages that include advancing ideas, developing prototypes, market testing, and scaling.



# How can ERP support Industry 4.0?

In manufacturing, it's recognized that ERP is the foundation for success. ERP provides support for quality product delivery at low cost. For example, it should support internal collaboration, so product requirements are clearly defined and communicated, with production coordinated with the delivery and product teams.

Without communication, it's impossible to make sure products are delivered to specification, on time, and without excessive costs. Externally, it's essential for working with suppliers to secure favorable prices, and with regulatory bodies and customers.

## However, not all ERP is created equal

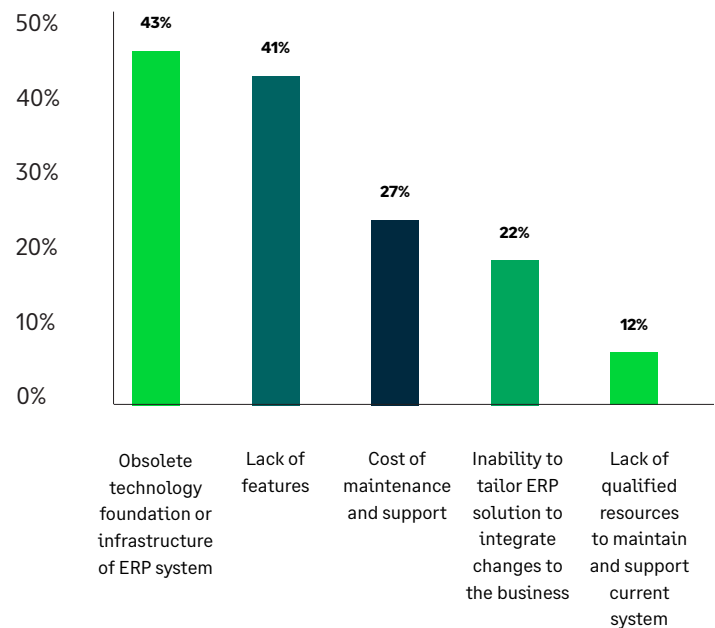
ERP has a problem. According to a report on ERP Systems and Enterprise Software, Panorama Consulting Solutions said only 12% of corporate executives were "very satisfied" with their current ERP solution, and that 59% of global companies were "burdened" by them.

ERP is designed to move away from working with Excel and spreadsheets for basic finance and accounting; and it's meant to provide a centralized system that controls all relevant business processes, providing actionable data and insight.

Unfortunately, enterprises in different industries have had challenges with ERP, and there are numerous implementation horror stories—with lawsuits and litigation over failed rollouts a genuine risk.

Businesses in general have found they're not achieving value from their ERP solutions. They understand the full benefits of having a more modern solution and seek a partner who helps them with business innovation, as well as industry best practice and technology.

## Obsolete technology foundation or infrastructure of ERP system



Source: "The Cost of Doing Nothing: Why you can't afford to sit on an ERP software decision," Aberdeen Group, March 2017; % of Respondents, n=231

# Why Sage X3?

Your manufacturing businesses can now replace its legacy ERP systems with modern enterprise management solutions that support the challenges of globalization, increasing business efficiency and improving collaboration.

## **Sage X3 can help your manufacturing businesses:**

- Consolidate its work systems into one solution.
- Achieve process and product consistency across varied operations.
- Gain real-time visibility and insight across the global supply chain.
- Accommodate future merger and acquisition activity.
- Support more lean and agile processes.
- Access support for mobile sales forces.

According to Aberdeen, leaders are 44% more likely than followers to have real-time visibility into the status of all processes. This enhanced visibility, which can be enabled by Sage X3 and integrated technology, provides invaluable insight that leads to more informed decision-making, agility, and efficiency.

You'll be better able to trace materials, monitor quality and compliance, and understand the components needed for profitability. Through Industry 4.0, you can be a more informed and productive manufacturer with Sage X3.



## **Sage X3 can support:**

- The connection of supply chain and logistics with the shop floor, to improve demand management.
- The connection of manufacturing operations with new product development.
- The sharing of data outside the business with suppliers, resellers, customers, and regulatory bodies.

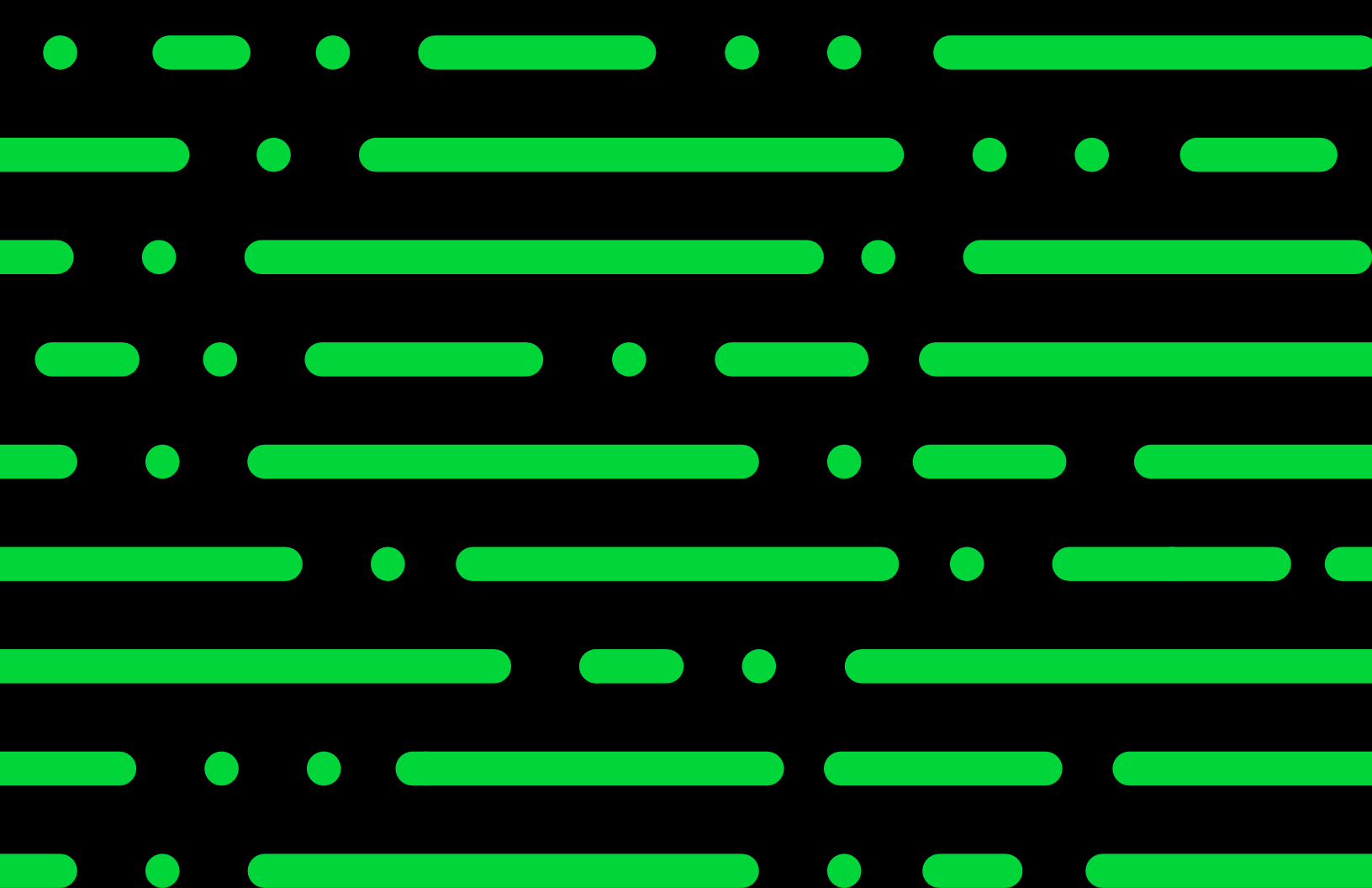
## **Sage X3 can:**

- Scale and allow extension/integration as your business grows.
- Automate rigid, time-consuming, error-prone manual processes.
- Be agile enough to cope with changing needs.

Sage X3 is an integral part of the Sage Business Cloud that will future proof your organization. The great thing is you can join the platform at any stage of your business and grow over time by adding new products as you need them.

Contact us for a business review:

[www.sage.com/en-us/sage-business-cloud/sage-x3](http://www.sage.com/en-us/sage-business-cloud/sage-x3)



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