Trendpaper

Digitize Manufacturing. Securing Future.

ARVATO SYSTEMS

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Executive Summary

Medium-sized companies are considered the backbone of the economy. The manufacturing industry is characterized by owner-operated and family-run companies, which are often hidden champions in highly specialized niches. They score with technological strength and maintain a balance between risk-sensitive business ethics and bold visions for the future. But for manufacturing companies to remain a model of success, they must manage the Digital Transformation. Innovative technologies are changing the paradigms of the market, but also offer exciting opportunities for process efficiency, custom focus, and new business and sales models. The fact is that companies with a high level of digital maturity are more resilient in an environment of growing instability and manage to extend their competitive edge with the help of smart IT solutions.

„The pressure is coming from many quarters at the moment. The response of most organizations in the German-speaking countries is called renewal and innovation through digitization, because without IT in the future it will no longer work" Capgemini Studie | „IT wird Kern der Wertschöpfung" [1]

There is still a large gap between theory and practice. According to Capgemini, almost 75 percent of companies in German-speaking countries will increase their IT budgets in 2022, but a survey by Crisp Research [2] shows that around two-thirds of decision-makers are focusing on the short-term cost effects of automation. More is needed to tap the medium- and long-term potential of Digital Transformation: new perspectives and a holistic change in the company - with digital strategies that make IT the enabler of the entire business. Otherwise, there is a risk of the of the midmarket into digital leaders and outdated companies.

„Greater efforts must be undertaken to raise awareness of the strategic importance of digitalisation among businesses, for instance with regard to their positioning in markets, tapping into new customer groups and the further development of existing business models."
KfW | „Digitalisierungsbericht Mittelstand 2022" [3]

In this Trendpaper, you'll learn about ...

- ✓ what challenges manufacturing medium-sized companies are facing
- ✓ the fields of action that determine the success of digitization
- ✓ where IT solutions can be used to leverage potentials
- ✓ why collaborative ecosystems are becoming increasingly important
- ✓ what a roadmap to new growth must be able to do

1 https://www.capgemini.com/de-de/wp-content/uploads/sites/5/2022/03/Studie-IT-Trends-2022.pdf
2 https://cloudflight.io/app/uploads/2022/02/studie_cloud-automation-excellence-mit-automation-zu-skalierbaren-digitalen-geschaftsmodellen.pdf
3 https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Digitalisierungsbericht-Mittelstand/KfW-Digitalisierungsbericht-2022.pdf

The 7 Biggest Challenges for The Manufacturing Industry

Flexibility, stability, futureproofing: Digitization is not a self-purpose, but new technologies are closely linked to business and strategic goals. IT solutions must contribute to this, processes, and products in a customer-oriented manner, identify problems at an early stage, mitigate their consequences and expand value creation. Digital transformation is not just about how, but also the why and the where. Not everything that is made possible by technology makes business sense for every company.

Macroeconomic influences and IT trends are becoming more disruptive and are putting agility and resilience to a tough test. Several challenges therefore affect the entire manufacturing industry, regardless of industry and company size.

CHALLENGE 1 Unstable Supply Chains

The Suez Canal disaster and border closures due to Covid, a shortage of truck drivers, protectionist policies and trade wars: a wide variety of factors have severely disrupted global supply chains and „just-in-time" logistics over the past 30 years. Many companies not only have to absorb rising logistics costs but also to manage material bottlenecks. To be able to act more quickly, they need a transparent and adaptable supply chain.

CHALLENGE 2 Skills Shortage

Demographic change is intensifying the „war for talent" - a quarter of IT specialists will retire in the next ten years. There is a threat of a massive loss of expertise, and the gap between the need for and offer of digital skills in the workforce will grow massively. Process automation, low-code tools, intelligent management management of human resources, and outsourcing can help to relieve the burden on IT departments.

CHALLENGE 3 Cost Pressure and Efficiency

Logistics are not the only cost driver - the war in Ukraine and the resulting consequences, such as the energy crisis and inflation continue to fuel the cost spiral. Geopolitical upheavals, a divided world community and the high dependency on critical raw materials such as rare earths and steel are bring speculative price dynamics with them. In addition to efficient process monitoring strong partner networks are gaining importance in procurement.

CHALLENGE 4 Global Distribution Battles and Pace

Medium-sized companies in the DACH region will have to fight for their position in the global market. This is not only about global price pressure. Emerging developing countries and new players from the Far East are changing the market structure of almost every established manufacturing sector and every comfortable niche. In a complex, unpredictable VUCA environment, it is becoming more difficult to generate growth. And the competition doesn't sleep: it's all about rapid response to opportunities and risks, new thinking and digital value creation. The IT infrastructure in companies must find answers to this economic paradigm shift and monetize it with a short time-to-market, for example through servitization - i.e., the transformation from product to solution provider.

CHALLENGE 5 Climate Change

The Climate change has become a central issue in corporate management. Not only awareness of social responsibility is growing, but also the expectations of customers and business partners is increasing, and legal regulations are becoming stricter. Among other things sustainability reporting is to be expanded into sustainability documentation (ESG). At the same time, the energy crisis is forcing the manufacturing industry with its energy-intensive production to rethink its use of scarce and expensive resources, also for cost reasons. According to a study by Capgemini [4] over 70 percent of companies want to reduce their emissions, largely with direct or indirect IT support.

CHALLENGE 6 IT-Security

The more processes are digitized, the greater the pressure to upgrade Cybersecurity to ensure stable and trouble-free operations. A growing, fragmented IT landscape - often with legacy systems - must withstand increasingly sophisticated attack techniques. This is also evidenced by Surveys on the relevance of technology trends, where mechanisms to protect IoT-enabled devices and Security concepts such as „Zero Trust“ occupy the top spots. Intelligent technologies can significantly improve threat prevention by analyzing large amounts of data in a short period of time and continuously learning.

4 https://www.capgemini.com/de-de/wp-content/uploads/sites/5/2022/03/Studie-IT-Trends-2022.pdf

CHALLENGE 7 Value Creation from Data

The manufacturing industry has been working intensively on automation in production for years, so that (partially) digitized and networked production facilities now generate data volumes that exceed those of any other industry. As part of the holistic Digital Transformation, the task now is to transform these data volumes into value creation. Data silos must be dissolved, data gaps closed and data strategies with good data governance developed. A negative factor here is that many medium-sized companies have not yet filled the role of Chief Digital Officer (CDO). According to a survey [5] this position is only available in 19 percent of the companies and a further 18 percent state that they want to fill or create a CDO position.

„Digital Transformation needs clear responsibilities and competencies. Medium-sized companies should also bundle digital expertise. Successful digitization is not just a question of technology, software and hardware, it needs an engine, and that engine can be a CDO." Achim Berg | President of the Industry Association Bitkom

All in all, there is a highly complex mix of internal and external challenges that influence each other. Smart technologies provide solutions to manage this complexity, but investments in IT islands are not sufficient. In the future, open ecosystems will form to complement individual strengths and create synergies through strong alliances. Catena-X, which links the entire automotive value chain and its players, is a pioneering pilot project in this respect.

5 https://www.bitkom.org/Presse/Presseinformation/Chief-Digital-Officer-Stellen-2022

The 3 Central Fields of Action of the Digital Transformation

What is the logical step after manufacturing automation? How can digitization become an enabler and growth driver for the entire business? How does IT enable companies to flexibly implement new requirements and thus remain competitive and grow?

„The midmarket needs transformation strategies that optimize, integrate or streamline existing systems or streamline, paving the way to a faster, more open, collaborative cloud future, and take employees with them in the process." Dr. Oliver Becker | Vice President Industrial Mid-Caps, Arvato Systems

Digitization Success Is Decided in Three Central Fields of Action:

The Digital Backbone – For a Strong Base

Digital Transformation needs a reliable basis. Only companies that control grown legacy systems and reduce technical debt can improve processes on this basis, work with their data in a way that adds value and implement new services and business models. The target is therefore a „Digital Backbone" - a high-performance, integrated core of systems, precisely aligned with the transformation targets and open for further growth.

Practical Advice: In addition to the technical issues of an evolved application landscape, a common hurdle is the lack of acceptance for new technologies. Develop - if necessary, with external expert support, a coherent argument for the concrete added value and demonstrate the ROI of the planned IT investments so that budgets can be released!

THE KEY POINTS: Important Issues in This Transformation Phase Are ...

Cloud, Data and Infrastructure

Where necessary, the existing IT landscape is being transferred step by step to the cloud and thus made fit for data analysis and data exchange, networking, and the platform economy of the future.

Cyber Security

Hacker attacks and other IT security incidents can bring production to a standstill and result in enormous costs and damage to the company's image, especially when sensitive company data is involved. IT systems must therefore be effectively protected by the company against modern attack methods to detect threats in good time, evaluate them and initiate countermeasures. Modern Cybersecurity concepts combine preventive measures with breach detection systems.

Basic Systems

An important part of the Digital Backbone in manufacturing is a system landscape that is as homogeneous and robust as possible: Transformation backlogs are worked through, and the software architecture is orchestrated to be as low-maintenance as possible - for example, with SAP systems in the standard, while industry-specific requirements are mapped in the cloud. Recognize and fully exploit the potential of different hyperscaler for you.

Modern Workplace

People are increasingly working remotely or in distributed teams, using digital applications and cloud computing, from the office across production to the warehouse. As with the physical workplace, the design,

management, and maintenance of the „digital workspace“ plays an important role - not only for productivity, but also for well-being, team spirit and a healthy corporate culture.

THE BENEFITS: Companies with a strong Digital Backbone ...

- ✓ create the basis for process excellence and transparent E2E processes
- ✓ obtain a reliable source of master data
- ✓ achieve medium-term cost savings through system optimization
- ✓ benefit from stable and secure IT operations
- ✓ make their supply chain more flexible by simplifying the connection of suppliers
- ✓ can further increase their level of automation
- ✓ have more satisfied and more productive employees

The Operations Platform – For Optimized Processes

Once the Digital Backbone is in place with a cloud strategy, standardized interfaces and defined data flows, the way is clear for further process optimization: connectivity enables more transparency, more efficiency, and thus significant increases in productivity. Data is used innovatively and monetized in a targeted manner.

THE KEY POINTS: Important Issues in This Transformation Phase Are ...

Connected Machines

No company can afford to replace its existing machinery when embarking on the Digital Transformation journey. Therefore, a wide variety of machine types must be „made to talk“ and connected to the cloud via interfaces. To prevent all sensor data from being transferred unfiltered to the data center, edge IoT solutions are needed that consolidate the data on the shopfloor.

Process Management and Cost Efficiency

The path to the Data Driven Enterprise leads through process management: What happens in the company? How do processes run? Are the KPIs right? Are decisions necessary? Where does automation lend itself? Process mining can identify unused cost and speed advantages, management works with live data, and process governance for quality standards such as ISO9001 is simplified.

Digital Twin

The digital twin connects the real world with the digital world - with a cornucopia of possibilities to optimize the value chain. More and more companies are exploiting the potential of software simulation for quality assurance or product development, for example. Sustainability documentation (ESG) and new services are also exciting fields of application. In addition, customers can, for example, gain access to the lifecycle of machines via a portal, with manuals, spare parts lists, etc.

Software Optimized Production

Once the connectivity concept for the shopfloor is in place, the IIoT platform can be quickly and easily supplemented with additional software modules from third-party providers - while retaining full control over the IT architecture. This allows companies to implement highly individualized IT landscapes for any manufacturing niche, for example with software for energy management, logistics or automated quality control through image-based AI.

THE BENEFITS: Companies with an Operations Platform ...

- ✓ shorten their time-to-market
- ✓ increase customer orientation
- ✓ combine stability with flexibility
- ✓ can act proactively in the case of crises
- ✓ remain fully scalable for further growth
- ✓ can realize efficiency potentials
- ✓ improve their quality management

The Connected Ecosystem – For New Growth

Manufacturing companies must not only exploit the efficiency potential in process management, but also develop strategies for further growth and a crisis-resilient organization - also considering environmental regulations. IT will play a crucial role here, for example in building strong data ecosystems and transforming marketing and sales.

THE KEY POINTS: Important Issues in This Transformation Phase Are ...

Data Sovereignty

The path to larger, shared data spaces with third parties' places high demands on the company's own data. Manufacturing companies not only need data lakes and interfaces, but also well-thought-out concepts for the preparation, dissemination, and sovereignty of their data treasure, right through to questions of pricing, the DSGVO or lock-in effects.

Sustainability and Resilience

Sustainability transformation is one of the biggest tasks facing industry in the coming decade. In addition to legally compliant documentation of the ecological footprint, this also involves green business models, green IT and resilience factors such as a resilient, flexible supply chain.

Digital Sales and Aftermarket

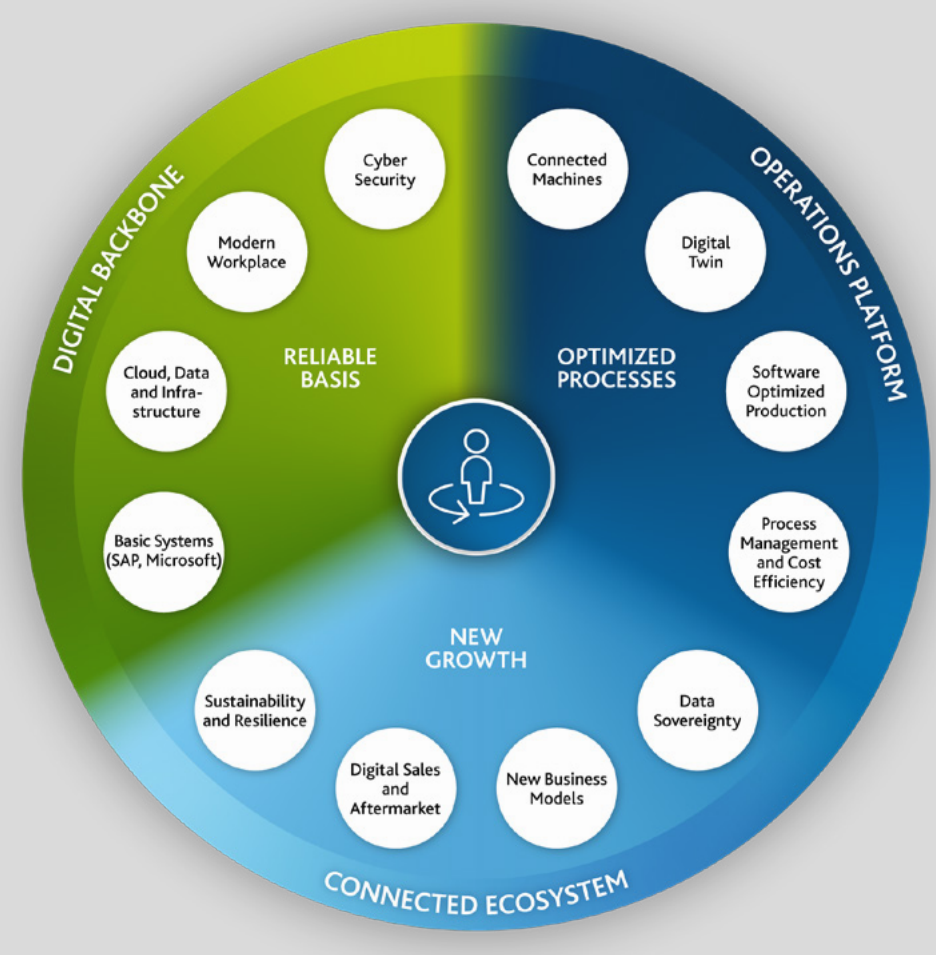
Digital customer folders that update themselves automatically, customer KPIs at the push of a button, mobile sales apps, or self-service customer portal: Sales needs new, digital tools to do justice to changed customer behavior and a modern customer journey.

New Business Models

Modern technologies enable companies to supplement the traditional core business of the manufacturing industry with innovative services - even completely new business models are possible, such as subscription models or customized production.

THE BENEFITS: Companies with a Connected Ecosystem ...

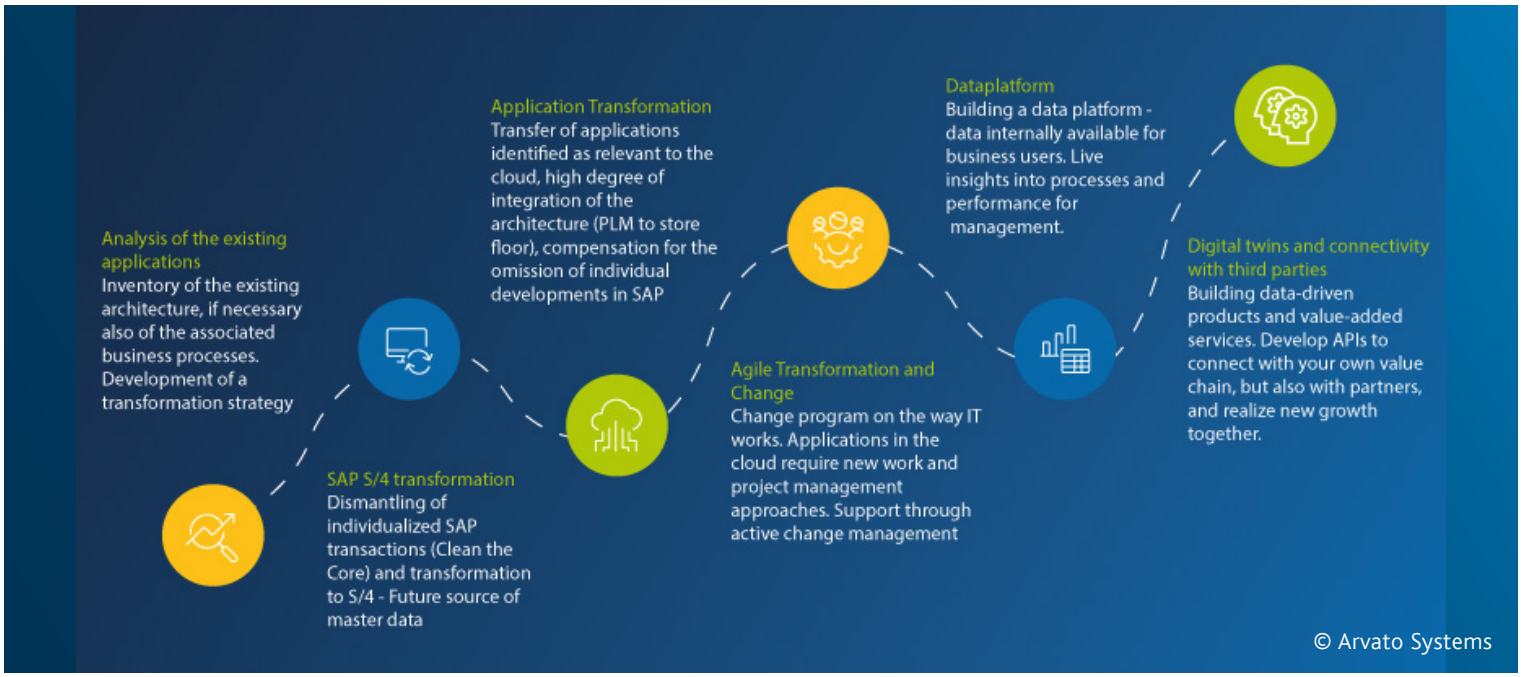
- ✓ strengthen their organization through collaboration
- ✓ use their data in an innovative and monetizing way
- ✓ position themselves as a sustainable company
- ✓ meet current and future environmental regulations more easily
- ✓ grow through strategic, data-driven portfolio expansion
- ✓ open up additional sales channels



How to Start? The Path to an Individual Roadmap

No manufacturing company starts digitization „on the greenfield". And that is precisely what often acts as a brake on transformation. Established medium-sized companies cannot start from scratch like startups and build their machine and IT landscape completely free. Transformation approaches in the manufacturing industry are therefore always a balancing act between the handling of old IT burdens (keyword legacy) and the desire for rapid success at reasonable investment costs.

There is no one-size-fits-all approach because the manufacturing industry in particular, with its hidden champions in specialized niches, is highly individual. Strictly linear digitization projects rarely lead to success because both the starting situations and the goals are different. To avoid the risk of over-engineering or dead-end investments, flexible frameworks that solve acute problems and drive sustainable transformation in parallel, with the possibility of course corrections based on ongoing insight, prove their worth.



Extract from our references

Success Stories - Digital Transformation in Practice:

Successful Digital Transformation requires a large ensemble of skills. This is where an external digitization expert can help compensate for a lack of skills or a missing workforce.

In the role of IT architect, CDO and implementation partner, a digitization partner can ...

- ✓ identify long-term potentials and quick wins
- ✓ provide chains of argumentation
- ✓ develop a holistic digitization concept
- ✓ relieve internal IT and empower employees
- ✓ support a smooth technical implementation

Conclusion: The Future of the Manufacturing Industry Starts Now

Current crises and challenges show clearly that resilient corporate structures are crucial for survival and further growth. Manufacturing companies cannot cushion this resilience by preserving the status quo, but only through the willingness and competence for continuous change.

„The Digital Transformation is an essential part of the paradigm shift. It is therefore no longer a question of whether Digital Transformation is necessary - what matters is how quickly and how successfully it is implemented."" Achim Reupert | Expert in IT Solutions for the Manufacturing Industry

Would you like to know how we support your Digital Transformation in a very concrete way? I look forward to your questions and an inspiring exchange!

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Über Arvato Systems

Arvato Systems is an international IT specialist that supports major companies in Digital Transformation. We stand for strong industry knowledge, in-depth technology expertise and a clear focus on customer requirements. Working as a team, we develop innovative IT solutions, transition our clients into the Cloud, integrate digital processes, and take on IT systems operation and support.

As part of Bertelsmann, we are built on the solid foundations of a German global corporation. At the same time, we rely on our strong strategic partner network with top international players such as AWS, Google, Microsoft and SAP. We make the digital world easier, more efficient and more secure and our customers more successful.

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