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Succeeding with Data-Driven Manufacturing in the Nordics

The findings from the virtual round table session hosted by IDC and DXC Technology emphasize that digital transformation is key for staying competitive in the manufacturing industry – however it is a much broader topic than just another attempt to increase operational efficiency by eliminating waste. Actually, it spans across the whole value network including suppliers, partners, customers/consumers, governments and all organisational entities within a manufacturer.

Investment priorities are shifting towards data-driven and AI enabled smart manufacturing use cases as they start to deliver measurable benefits. Obtaining relevant and trustworthy data, making them available at the right time in the right place and applying the proper classification is still a challenge and requires a much closer collaboration and integration of the OT domain with IT. Trust between the two organisations is essential in making it work and can be only earned over time by delivering concrete, measurable benefits. Agile approaches, which deliver value fast, incorporate learning swiftly and allow for constant adjustment of the direction are superior compared to static, inflexible waterfall-based approaches.

When working with clients we discover that many companies are running their digital initiatives in silos hence lacking the necessary integration among each other, to realize benefits at scale and even more importantly the alignment with the overall business strategy. At DXC Technology we believe however, that a tight integration with the company's envisioned operating model with a common set of principles is imperative for success – just as it is key to ensure the sponsorship from executive leadership, the individual business units and the production leaders. While IT can educate, inspire and enable, the leadership must reside with the business by mastering the change management aspects.

When transforming, Manufacturing Organizations will have to tackle some of the challenges themselves but will also need to look for outside support and know-how. They must make educated decisions about the balance of in-house vs. partner with a right sourcing approach. This will be depending on their digital maturity as well as the strategic importance / value and maturity of the required capability. Elite performers are building partnerships and tapping into ecosystems instead of buying products or services only.

Trusted by the world's most respected manufactures we have helped our customers to accelerate their digital transformation journeys by leveraging our manufacturing expertise, IT/OT domain know-how, engineering knowledge and smart factory accelerators / blueprints. This resulted inter alia in a 35% increase in productivity for a defence and aerospace company while doubling the manufacturing output in 2.5 years with existing machinery and resources.

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About this Executive Brief

This document is based on presentations and conversations at a virtual round table session hosted by IDC and DXC Technologies in September 2021.

With SKF as a case story for how a traditional manufacturing company can digitally transform, the session brought together a select group of business leaders from Nordic manufacturing companies sharing best practices and discussing the future of manufacturing.

The session focused on the business and organisational aspects of digitally transforming core manufacturing processes as well as R&D and innovation, but also examined the need for and opportunities in digitising the full value chain including end-user engagements.

The data included are based on IDCs Digital Transformation Spending Guide (V1 2021, April 2021), and the results from the Nordic manufacturing companies included in IDCs European Acceleration Survey (May 2021).
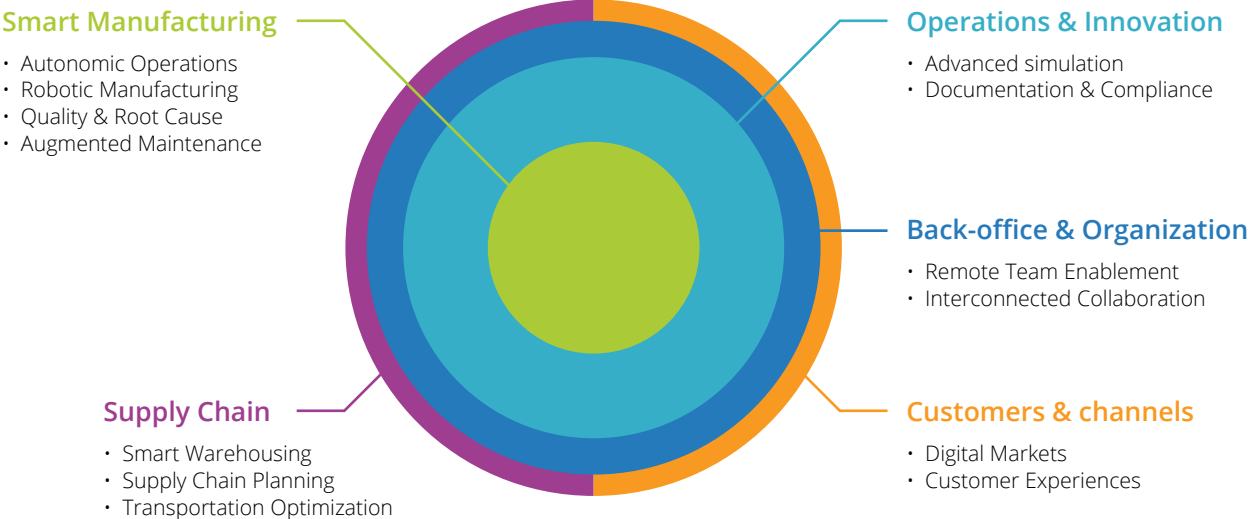
The manufacturing industry is on a digital journey

The Nordic manufacturing industry is impacted by global trends in the economy, the technology evolution, the political development etc. When asked about which trends that have the strongest impact, most executives in the industry emphasize business model transformation, and competition from digital native companies. This shows that there is a clear focus on using new technologies, and leverage data to both optimise and innovate the business.

It must be emphasised that business model transformation is a much broader topic than the customer facing, revenue generating activities that are often highlighted. It involves core manufacturing processes, supply chain strategies, R&D and innovation, and complete operating model transformation.

The Nordic manufacturing industry will spend approximately 6 billion Euro on digital transformation initiatives this year*. Nearly two thirds of this, are for core manufacturing – i.e., smart manufacturing and operations & innovation, with the rest going to back-office projects as well as supply chain and customer focused initiatives.

Digital transformation priorities and use-cases in the manufacturing industry

Smart Manufacturing
- Autonomic Operations
- Robotic Manufacturing
- Quality & Root Cause
- Augmented Maintenance

Operations & Innovation
- Advanced simulation
- Documentation & Compliance

Back-office & Organization
- Remote Team Enablement
- Interconnected Collaboration

Supply Chain
- Smart Warehousing
- Supply Chain Planning
- Transportation Optimization

Customers & channels
- Digital Markets
- Customer Experiences

Source: IDC Nordic, 2021

* Estimate based on IDC DX spending guide and IDC ICT spending guide.

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The majority of use-cases evolve around productivity improvements. Whether this is in the form of autonomous production, predictive maintenance of the production assets, advanced simulation in the R&D activities, improved decision making, or many other initiatives across the value chain, analytics is at the heart of it.

The use of analytics is also evolving. Machine learning and artificial intelligence are increasingly adopted, shifting analytics from being descriptive – reactively exploring what has happened – to being prescriptive – going beyond foreseeing what will happen to even advice on what to do next.

Regardless of specific use, the fuel of all analytics is data. Most manufacturing companies have an abundance of data, originating from IT systems and – with the growing adoption of IoT and IT/OT convergence – increasingly from the production environment. However, utilising the data is challenging, as data needs to be available at a constant frequency, in a proper quality and trustworthy, and in formats that allow multisource analytics. This necessitates proper connectivity, feasible storage and adequate compute, as well as viable tools, processes, and data skills.

Today, most companies classify data according to type of data, source of data, and possibly compliance requirements. This needs to be complemented with a use-case or output-based classification. The use of the data and where it delivers value should be the foundation for classifying and prioritising the data. This ensures that data is not just used for descriptive and documentation purposes but reaches the executive management levels to support data-driven decision making.

The digital initiatives often lack integration

Although the bulk of investments are directed to the core business, most companies address the complete value chain – from logistics and supply chain to digital channels. However, in many companies the digitisation efforts are disconnected, with projects running either in silos, or connected to a sub-set of the business only – lacking strategic long-term foundation.

Digital strategic priorities in Nordic manufacturing next year (share of respondents planning to invest)
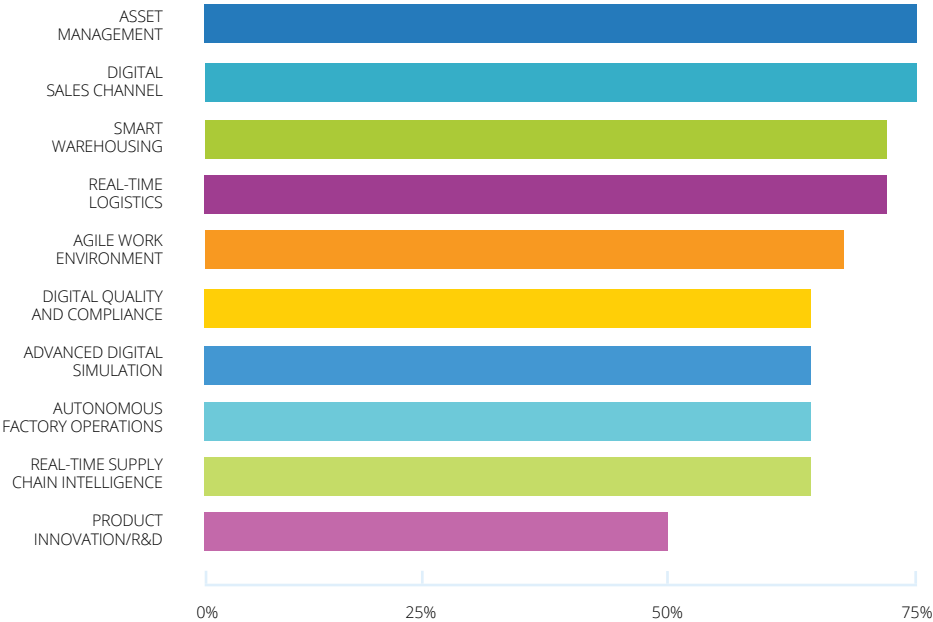
How digital transformation is assessed in Nordic manufacturing companies
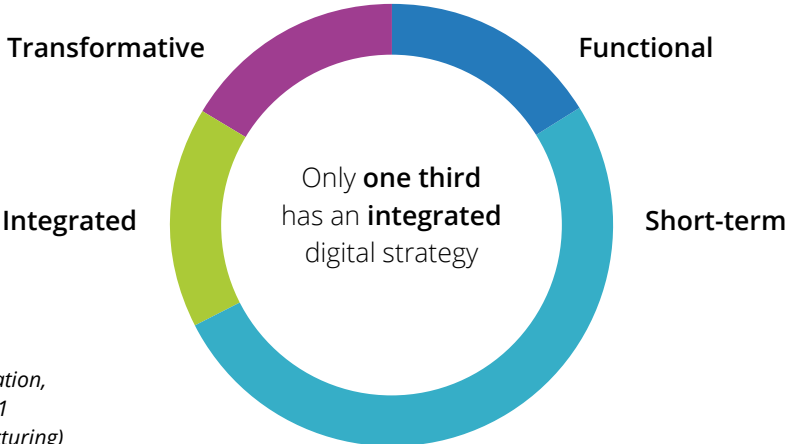
Source:
IDC, European Industry Acceleration, May 2021, N = 31 (Nordic Manufacturing)

Business buy-in is key
to successful integration

To ensure integration it is necessary to establish a coherent platform that provides access to reliable data, and the agility to quickly launch and scale digital services. Today, this includes a modern architecture leveraging cloud services, containerisation, APIs along with having the right expertise and tools etc.

Though the technology platform is necessary, it does not ensure integration and strategic alignment. This requires a tight integration with the company's operating model and dedicated buy-in from the business – including sponsorship from the executive leadership and the adoption by individual business units. Achieving business buy-in is ultimately about proving that the digital services bring measurable benefits to the business.

In the manufacturing industry where companies may have multiple factories producing different goods, using different processes and advanced technologies, it is particularly challenging to establish a set of applications and services that support the common digitisation journey.

" It is important to not assess each individual service or initiative purely financial and in isolation. In a digital transformation journey, there may not always be an economic pay-off, but the activity is nonetheless essential for progressing through the digital journey. Hence, there should not be rigid requirements tied to the individual services.

Proving the value of service, is also about personal engagement and communication. Even if IT has a management mandate to push new services to the business, they will not be fully adopted if the business users feel coerced to using them or are unable to see the value. Consequently, IT needs to educate and inspire the business on the possibilities to create a demand for digital services – and of course deliver on this to ultimately gain the business' trust.

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As manufacturing companies evolve and establish new digital strategies – or preferably business strategies built on a digital mindset – work processes change, and the need for new capabilities arise, and the importance of existing ones may fade.

An essential element in the digital transformation journey, is to formalise a digital operating model that is aligned with the new strategy and business objectives – i.e., what is the business values, how is it achieved, who should own it etc.? Based on this, the business will define new value chains, new work processes, new corporate values, new partner requirements and collaboration forms, and technology requirements.

The digital operating model is the foundation for identifying and subsequently prioritising the needed business capabilities. By mapping the capabilities in a strategy canvas, a Wardley map (©DXC) or other business strategy models, each capability is assessed in terms of strategic importance, value, and core differentiator.

The most strategic and core capabilities must be developed and digitally supported in-house, while non-strategic core capabilities can be sourced or supported leveraging generic tools and services, and strategic non-core capabilities should be done through collaborative efforts.

	Core	Non-Core
Strategic	**In-house**	**Collaborate**
Non-Strategic	**Leverage**	**Eliminate**

When acquiring capabilities for a digital operating model and a digital business strategy, it is essential to build ecosystems rather than buying products and services. Some capabilities – for example related to sustainability, compliance, or supply chain – may be addressed through collaboration with competitors, while customer facing, and demand generation activities will require working with partners in the value chain.

Digitisation and automation are essential for staying competitive in the manufacturing industry – especially in the Nordics, where employment costs are high. However, staying relevant, means going beyond optimisation initiatives. This includes advanced automation of the supply chain and existing manufacturing processes to become more agile, leveraging customer data to develop new experiences, as well as augmenting and automating innovation and decision making.

Becoming digitally driven may seem overwhelming, but it is not only necessary – it is also achievable. The key to success is to ensure that "digital" is embraced across the organization and that digital initiatives are aligned to a roadmap for the target state of the business.

When the direction is set and the business leadership engaged, all tasks in the value chain can be addressed case-by-case to make the transformation more accessible and ensure continuous progress.

About DXC Technology

DXC Technology (NYSE: DXC) helps global companies run their mission critical systems and operations while modernizing IT, optimizing data architectures, and ensuring security and scalability across public, private and hybrid clouds. The world's largest companies and public sector organizations trust DXC to deploy services across the Enterprise Technology Stack to drive new levels of performance, competitiveness, and customer experience.

Learn more about how we deliver excellence for our customers and colleagues at DXC.com.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For more than 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives.

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