

A Study on Implementing a Digital Transformation in Manufacturing Industries

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ABSTRACT

The digital era is characterized by fast development, growth, innovation, and disruption. Organizations that want to survive must be ready to adapt to the new digital landscape. The digital transformation is perhaps the most widely used term in today's business vocabulary and with good reason. It has the power to make or break organizations. Hence, the digital transformation process is more than just implementing new technology, investing in tools, or upgrading existing systems. These steps are important, but they are not the whole picture. If an organization wants to stay competitive, it won't just be able to respond to changes, it should expect them and stimulate innovation itself. To do this, companies need to plan ahead and be active designers for their future. This is where the digital transformation strategy comes in. The digital transformation strategy helps leaders answer the questions for their business such as the current digitalization level, future vision, and how to get there. To be protected from digital disruption, companies need to develop three core competencies related to awareness, informed decision-making, and rapid implementation. The development and implementation of a digital transformation strategy have become a key concern for many organizations across manufacturing industries, but how such a strategy can be developed remains an open question. In this paper, we will be discussing how manufacturing could develop a digital transformation strategy that including a different aspect of the strategy tailored to the nature of the manufacturing sector.

Industrial digital transformation

Industrial digital transformation refers to a set of innovation and transition solutions towards new business models and revenue streams consisting of three fundamental pillars; automation, improved manufacturing processes and production

optimisation. But this type of transformation is not limited to the technologies that are used; it represents a culture of change integrated into all work areas and a transformation in the way different teams are managed. Only in this way can digitalisation have a real beneficial impact on the production of any company. In another post we mentioned the importance of tackling the industrial digital transformation, but now we will also go deeper into what advantages it brings to a company.

Digital transformation - Nexus Integra

As consumers, we live in a digitalised world and constantly expect technology to work for us. This is reflected on our expectations when it comes to buying products and living experiences. For this reason, organisations in mostly all sectors need to continuously invest in advances that satisfy employees and potential customers. Companies that make up the industrial sector are mostly exposed to the changes that digitalisation is producing. These changes have arisen from the progress that has taken place in today's industrial environment; new IoT platforms (Internet of Things), Cloud Computing, Big Data and Artificial Intelligence platforms among others.

Importance of transition

A firm's competitiveness level is directly related to its ability to manage processes and increase productivity. According to a study by McKinsey, companies that previously lived on average more than 60 years now live less than 20 years. As competition continues to grow, it becomes harder for companies to survive in an increasingly saturated market. Companies wishing to survive in their sector must adopt digitalisation as a fundamental part of their core. Digital transformation in the industry has gone from being an option that could give companies a competitive advantage to being a necessity for surviving in the current context of industry 4.0. Industry 5.0 is just

around the corner, and without the digital skills involved in transformation, companies won't be able to keep up with emerging demands or compete against the rest of the industry.

Prerequisites for Digital Transformation

The smooth progress of digital transformation initiatives depends on the availability of company's data in digital form and company's processes that are digitally managed and the right data, at the right time. In other words, data digitization and process digitalization are foundational to digital transformation. Digitization is the conversion or the process of converting information in the form of an image, sound, document, etc. into a digital format that can be processed by a computer. One example of this is the conversion of input signals from transmitters to the DCS from analogue signals to digital signals by using communication protocols, such as Fieldbus; another example is the conversion of paper documents or pictures into PDF documents. Digitalization refers to enabling or improving processes by leveraging digital technologies and digitized data. Given the above preconditions it is necessary for a company that wants to launch digital transformation program to ensure that necessary data are in digital format and processes are digitally managed. In other words, if the company wants to achieve digital transformation of plant floor operations then it must have in place OT systems such as DCS / PLC /MES or if the company wants to achieve digital transformation of supply side processes then it must have in place IT solutions, such as Supply Chain Planning, Supply Chain Management. Digitized data and digital technology managed processes are prerequisites to move forward with digital transformation program.

Developing and upskilling talent

Further upskilling talent is most important before implementing their road map, leaders of industrial companies must identify the key roles necessary for a digital organization and then build their internal talent. Their efforts should encompass the following areas:

Strategy. Leaders of industrial companies should first evaluate their talent needs and identify gaps, looking at both immediate and long-term needs. They should then determine if they can fill any spaces by upskilling employees, forming strategic partnerships, or recruiting external hires. For best results, company incentive systems should encourage employees to achieve their digital goals

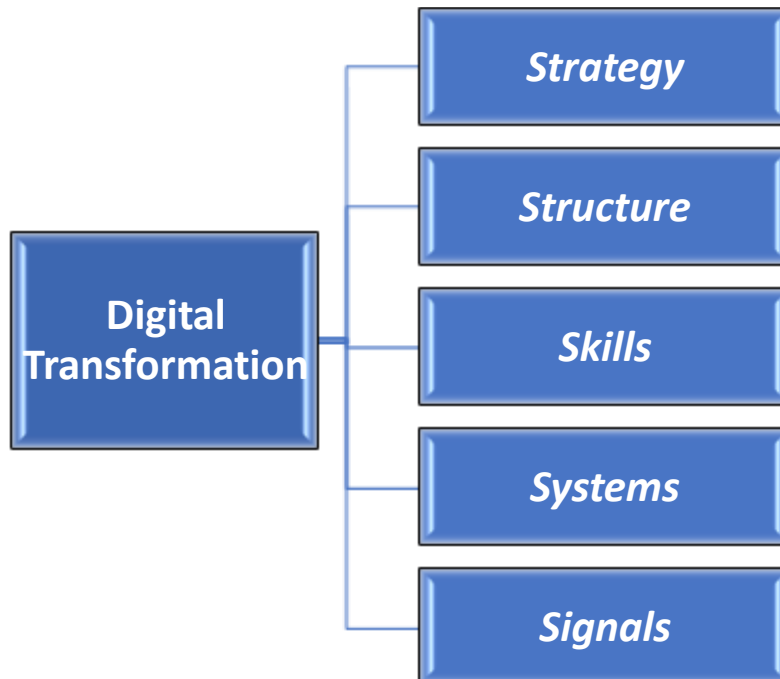
(for instance, rewarding sales groups for generating a certain portion of revenue from online sales). While some companies may redesign their entire talent strategy, others will focus on select groups or business lines. Taking an approach drawn from venture-capital players, industrials can reinvest any returns from their digital growth initiatives into new programs to continue developing their online presence and technological capabilities.

Structure. Industrials will need a new structure and deployment model to integrate any new digital team members into the organization. They may want to consider creating a new role, directly reporting to the CEO, that oversees digital initiatives. At some companies, the title for this role may be chief growth officer or chief digital officer. Major responsibilities will include reducing costs and generating real impact from digital initiatives throughout the end-to-end customer journey. As part of this effort, the executive must establish metrics for e-commerce, such as those related to acquiring new users, increasing convert-to-purchase rates, and improving lifetime value from customers by raising retention. While e-commerce teams will have some responsibility for delivering results on these metrics, core business roles, such as those in sales, marketing, and operations, will also be involved.

Skills. Industrials should introduce digital-learning programs to increase knowledge and capabilities across the organization. They should also encourage employees to embrace a growth mindset that enables continuous learning and breaks them out of fixed routines. Constant experimentation will become the norm as companies shift to a learn-and-pivot mindset that makes it safe to fail.

Systems. Modernized systems and applications, such as workflow-management tools, help reduce onboarding time for new employees, increase productivity, and decrease human errors. Digital employees can leverage these technologies to increase client engagement and optimize sales and marketing.

Signals. The best companies will leverage external sources, including their business partners, to enhance capabilities and promote additional cultural shifts along the entire value chain. For instance, they could invite external thought leaders to speak to employees about innovation and growth. These events and similar initiatives should occur frequently to keep the focus on continuous learning.



Benefits of Digital Transformation

1. Reduces costs

Technology is a great ally in the process of minimising an industrial company's expenses in face of the future. The integration of digital technologies lead to a transformation of procedures and a digitalisation of documents that result in an overall process optimisation. In consequence, unnecessary expenditure is cut, resulting in a reduction of labour costs. Furthermore, digitalisation allows companies to calculate and estimate expenses infinitely more accurately, ensuring that budgets are under control. In addition, it eliminates and/or replaces unnecessary tasks within processes, making them much more efficient. This efficiency is transformed into a time saving that results in a much more cost-effective production.

2. Decentralises Production

Industrial digital transformation provides companies with fully remote monitoring systems, so production can continue to function on its own. This means that, in exceptional circumstances such as Covid-19, digitalised companies have not had to stop or even slow down their production chain. These systems can work without stop-offs and function many more hours a week than any worker. In addition, digitalisation increases methodologies' flexibility and their responsiveness. For example, if there is a problem in a production plant, a warning will be sent automatically and the problem will be handled regardless of the day, time, or whether someone is physically present at the time.

3. Enhances Efficiency and Productivity

Smart product connectivity gives devices the ability to interconnect and communicate machine-to-machine (M2M). This allows them to make decentralised decisions. For many of the tasks, companies no longer need an employee to be physically present at all time. This new manufacturing and production model eliminate monotonous and sometimes even dangerous tasks, as well as making them more accurate, efficient and responsive.

Beyond optimising processes and tasks, digital transformation enables faster, more effective decisions based on accurate, real-time data. In addition, training, modifications and repair processes are no longer a problem since they occur less frequently and are largely automated.

4. Creates new business opportunities

New digital systems enable the production of new products and/or services that were previously unviable to the company, therefore creating new sources of revenue. In addition, the speed with which new services (innovation or reorientation) are launched is much faster. Through a good use of big data and artificial intelligence, companies have the possibility to experiment, get ahead of trends and predict which new developments will succeed among customers. These technologies can even make it easier for companies to become environmentally friendly, creating products that are greener and less harmful to our eco-system.

5. Accelerates reaction to demand trends

The responsiveness of advanced production systems facilitates rapid response to volatile changes in demand. Tasks can be rescheduled in a matter of hours and products can be produced using customised patterns adapted to each consumer, without it involving a waste of time. In this way, companies can obtain greater customer satisfaction without having to manually manipulate each of them.

6. Fosters competitive advantage

New technologies improve the quality of manufactured products by incorporating new functionalities into production systems that improve the final outcome. This leverages the differentiation of the product in question and provides added value to the brand. On the other hand, comprehensive quality reviews are generated that ensure compliance with standards and different regulations. In addition, it allows workers to develop their potential and professional skills rather than being engaged in tasks that do not contribute intellectual value to the company.

7. Stimulates innovation against disruption

Digital transformation drives the culture of innovation, leading the company to discover new value propositions and upcoming trends. Nurturing data, companies have the possibility to innovate with previously unexplored information to prepare themselves for future trends and therefore save money in face of future disruptions.

8. Boosts internal cohesion

The flow of information born from digitalisation facilitates communication between departments, allowing the involvement and collaboration of employees from different areas of the company in projects and decision making. In addition, it gives businesses an overall view of the different entities of the organisation. This enables more profitable global management. On the other hand, the fact that information is immediately accessible from anywhere and at any time, facilitates the work between different teams.

9. Improves use of data capacity

Digital transformation builds a data-driven decision-making culture collected by technology tools. The improvement in analytical systems results in a deepening of data understanding. This strengthens informed decision-making, key recommendations and rapid responsiveness.

10. Bring new talent's interest

Digitalised businesses who are up-to-date with trends and processes attract the most interest from trained professionals with capabilities that are fundamental in this complex and disruptive

environment. In addition, if the change is managed in an appropriate and responsible manner, it will benefit all its parts, generating a greater value of job satisfaction for employees. Human motivation, together with effective digital tools, will be reflected in the productivity and profitability of the company.

CONCLUSION

Digital transformation creates new possibilities for your organization with innovative products and services, better ways of working, and nimble organizational models. Often, digital transformation fails because organizations focus solely on technology—and do not pay as much attention to people and processes. Approach digital transformation by uniting people, processes, and architecture using open source principles. It helps in understand the elements of digital transformation, learn how to adopt an open approach, find out how to practice open transformation and uncover resources to help you on your digital transformation journey. Hence, manufacturing companies are continually on the lookout to improve their business, production and operational processes with the objective of maximizing revenues and profits. There are many ways to achieve these objectives, but the most common strategies include improving overall productivity & efficiency, maximizing cost savings, enhancing customer experience, adapting to market dynamics and reducing plant downtime. Manufacturing companies can greatly benefit by turning to their advantage the power of digital technologies.

REFERENCES

- [1]. Anna De Carolis, Marco Macchi, Elisa Negri, Sergio Terzi, "A Maturity Model for Assessing the Digital Readiness of Manufacturing Companies", *Advances in Production Management Systems. The Path to Intelligent, Collaborative and Sustainable Manufacturing*, 2017, Volume 513
- [2]. Piccinini, E., Gregory, R.W., Kolbe, L.M., 2015a. Changes in the producer-consumer relationship-towards digital transformation. In: *Wirtschaftsinformatik Conference*, Osnabrück, Germany: AIS Electronic Library, pp. 1634–1648
- [3]. M. H. Ismail, M. Khater and M. Zaki, "Digital Business Transformation and Strategy: What Do We Know So Far?", University of Cambridge, Working Paper ITWeb IoT Survey.

- [4]. http://v2.itweb.co.za/index.php?option=com_content&view=article&id=166391&Itemid=3087, [15 April 2017] (17) (PDF) Factors Influencing the Intended Adoption of Digital Transformation: A South African Case Study. Available from:
- [5]. https://www.researchgate.net/publication/336071506_Factors_Influencing_the_Intended_Adoption_of_Digital_Transformation_A_South_African_Case_Study [accessed Dec 23 2019].
- [6]. Majchrzak, A., Markus, M.L., Wareham, J., 2016. Designing for digital transformation: lessons for information systems research from the study of ICT and societal challenges. *MIS Quart.* 40 (2), 267–277.
- [7]. Matt, C., Hess, T., Benlian, A., 2015. Digital transformation strategies. *Bus. Inform. Syst. Eng.* 57 (5), 339–343.
- [8]. JinMyeong Jang, Seung Ju Seo, Yuna Lee, Youn Sung Kim, "A Study on Improving the Quality of Clothing Companies: Focusing on Kutesmart using Quality 4.0 Matrix", *Journal of the Korean Society for Quality Management*, Volume 47(1); 2019.