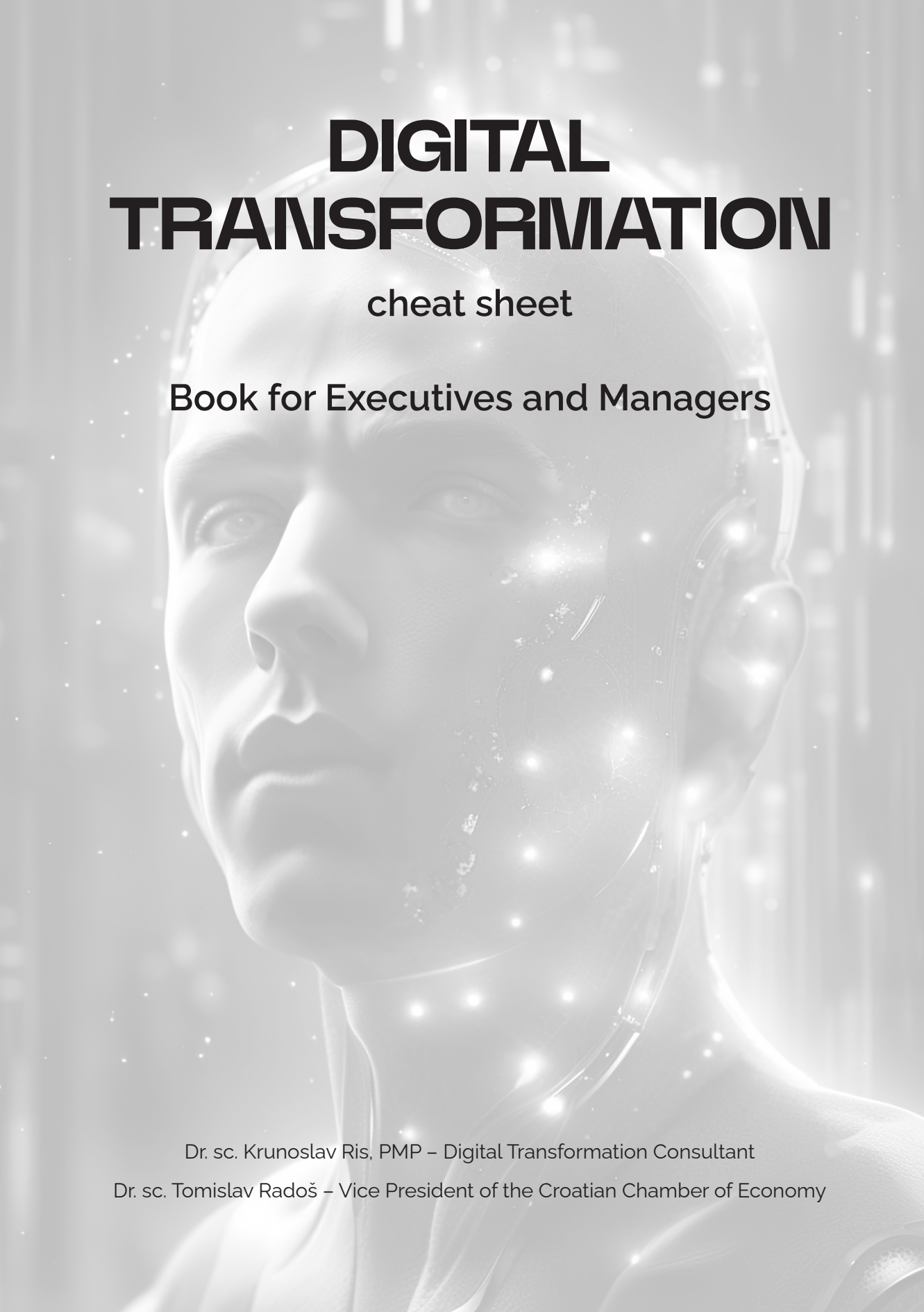
DIGITAL TRANSFORMATION

cheat sheet

Book for Executives and Managers

Dr. sc. Krunoslav Ris

Dr. sc. Tomislav Radoš



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Book for Executives and Managers

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Dr. sc. Tomislav Radoš – Vice President of the Croatian Chamber of Economy

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About the authors

Krunoslav Ris, fondly known as Kruno, is a digital futurist and a seasoned Senior Digital Transformation Leader with over two decades of experience in the IT business. He is the author of the acclaimed book "5G and Next-Gen Consumer Banking Services" and has been instrumental in driving organizational change and managing high-growth agendas.

Kruno's expertise lies in covering current Digital Transformation Business processes. He is an international FinTech speaker who has shared his insights in over ten countries and has contributed to more than 400 projects. For the past 15 years, Kruno has been closely following Digital Transformation processes worldwide, working on several projects across China, South Africa, Indonesia, Germany, Croatia, Canada, and the USA.

As the CEO of the globally recognized Lumen Spei digital consultant agency, Kruno has played a pivotal role in the Digital Transformation of the most prominent Croatian National Institutes and Web3.0 Fintech Projects. His diverse experiences in software development, mentoring, lecturing, software architecting, and strong leadership, combined with his personal qualities, give him a unique perspective on upcoming technologies in the binary digital age.

Kruno's career is a testament to his ability to bring technology to life. He has spent more than 20 years leading digital strategies across multiple channels, transforming ideas into multi-million-dollar businesses, and executing the profitable deployment of new technologies across various industries. He thrives on leading diverse teams and delivering operational agility in rapid growth environments with an entrepreneurial mindset.

Known for his ability to build bridges between Business, Operations, and IT, Kruno is a Mediator in the truest sense. He is a capable organizer and motivator, with extensive experience as a Programme/Business Process/IT Manager. His passion lies in empowering organizations to thrive in the digital age by leveraging the latest technologies and best practices.

Dr. Tomislav Radoš, Vice President of the Croatian Chamber of Economy, was born on April 2, 1971, in Požega, Republic of Croatia. He graduated, obtained his master's degree, and earned his doctorate at the Faculty of Economics, University of Zagreb. The topic of his doctoral dissertation was: "The connection between strategy and business success of Croatian companies".

After completing his graduate studies, he started working in the banking sector in the position of head of the risk management department. After four years of work experience in the banking sector, he moved to the position of a board member of one of the leading Croatian companies, and in 2003 he also became the president of the management board of that company. Six years later, he founded and actively managed his own company that provides consulting services in strategic and project management and renewable energy sources.

From 2013 to 2014, he held the position of advisor to the Minister of Economy in charge of drafting the Industrial Strategy of the Republic of Croatia 2014 - 2020, of which he is also the main author. In 2014, he became the Assistant Minister of Economy for industry, investments, and European Union programs and projects. He was responsible for drafting the strategy for promoting innovation and the smart specialization strategy of the Republic of Croatia.

He is currently the Vice President of the Croatian Chamber of Economy in charge of industry, sustainable development, digital development, and EU projects. He was the leader and responsible for implementing the digital transformation of the Croatian Chamber of Economy, the first digital transformation of a non-profit institution in the Republic of Croatia and beyond. He also gave numerous presentations on topics in the field of digital transformation, such as the creation of a digital strategy and the implementation of digital transformation of the organization and business, where, in addition to theory, he also brought practical experiences in the implementation of digital transformation closer to the participants.

In 2019, he was elected to the position of assistant professor at the University of North, where he teaches the graduate study of Business Economics, the orientation of Digital Economy and Innovations, and at the specialist study of Entrepreneurship and EU funds. In his career, he has published a number of scientific, research, and professional papers and participated in the preparation and implementation of numerous EU projects in the field of innovation and digitization.

Why this eBook

Welcome to a comprehensive guide on digital transformation, tailored specifically for the discerning management and C-suite executives who are the key drivers of change in today's dynamic business landscape. This book is designed to equip you with the knowledge, strategies, and insights necessary to navigate and lead your organization through the digital transformation journey.

Digital transformation is no longer a choice but a necessity for businesses to stay competitive, agile, and responsive to the rapidly evolving digital landscape. It involves the integration of digital technology into all areas of a business, fundamentally altering how it operates and delivers value to its customers. However, the process is complex, multifaceted, and fraught with challenges. This book aims to demystify digital transformation, providing you with a roadmap to successfully steer your organization through this critical process.

Understanding the time constraints and the need for quick, actionable insights of busy executives, each chapter of this book begins with an 'Executive Takeaway.' These concise summaries distill the essence of each chapter, allowing you to grasp the key points and apply them immediately to your digital transformation initiatives.

To further aid your understanding, the book includes a list of key acronyms used in the digital transformation process. These will serve as a handy reference, helping you familiarize yourself with the terminology and concepts of digital transformation.

The author of this book, a seasoned Digital Transformation consultant with over 25 years of experience, brings to you the wisdom gleaned from more than 400 projects. His rich experience, coupled with his roles as a speaker at international conferences on digital transformation and a coach/mentor to several executives, lends a unique, practical perspective to this book. His insights and advice are not just theoretical but are tried and tested strategies that have helped numerous organizations successfully embark on their digital transformation journey.

This book is not just about understanding digital transformation; it's about preparing you, as potential executives, to lead this transformation. It's about equip-

ping you with the knowledge, skills, and mindset necessary to leverage the power of digital technologies to drive growth and success in your organization.

So, whether you're an executive looking to understand the digital transformation process, a manager tasked with leading a digital initiative, or a C-suite leader wanting to drive digital strategy, this book is your go-to resource. Let's embark on this journey together, transforming challenges into opportunities, and steering your organization towards a digitally empowered future.

We need also to mention DESI index

The Digital Economy and Society Index, commonly referred to as DESI, is a comprehensive metric that encapsulates the digital performance and progress of European Union member countries. Initiated by the European Commission in 2014, the DESI serves as a valuable tool for identifying areas that require immediate attention and action.

The DESI is updated annually, providing a snapshot of each member country's digital landscape based on data from the preceding year. It offers a detailed analysis of various digital domains, such as digital skills, the digital transformation of small and medium-sized enterprises (SMEs), and the deployment of advanced 5G networks. This analysis is instrumental in shaping policy decisions at the national and European levels.

The DESI evaluates digital performance across four primary dimensions:

- **Human Capital:** This assesses the digital skills of the population, including the number of ICT specialists and STEM graduates.
- **Connectivity:** This measures the deployment of broadband infrastructure and its quality.
- **Integration of Digital** Technology: This gauges the digitization of businesses and e-commerce.
- **Digital Public Services**: This evaluates the digitization of public services, focusing on eGovernment and eHealth services.

In addition to these, the DESI includes a **Women in Digital (WiD) Scoreboard**. This unique feature assesses the level of digital inclusion and gender equality in digital jobs, careers, and entrepreneurship.

The WiD Scoreboard uses 12 indicators to evaluate member states' performance in areas such as internet usage, digital skills, and employment in digital sectors.

For more comprehensive information and the most recent DESI reports, you can visit the official DESI website. The DESI is a crucial tool for understanding the digital landscape in Europe, and it provides valuable insights for businesses, policymakers, and individuals alike.


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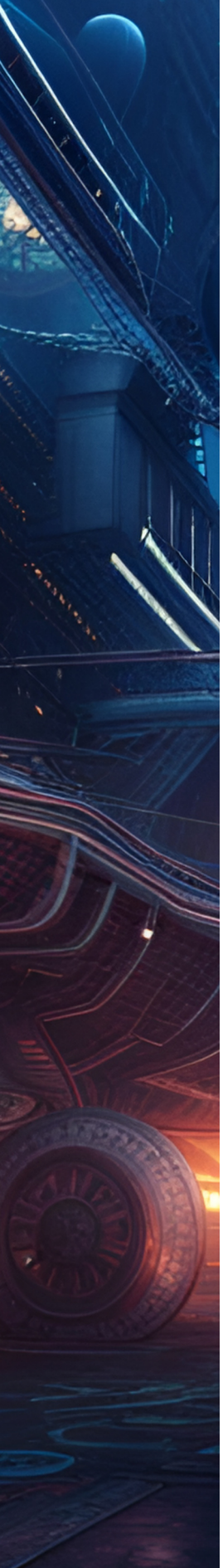


For managers and executives that don't have time

(read this first)

Before embarking on a digital transformation initiative and contracting vendors to assist with the process, executives should consider several key factors to ensure a successful and effective transformation. Here are some mandatory steps to take:

1. **Define Clear Objectives:** Clearly articulate the goals and objectives of the digital transformation initiative. Identify the specific outcomes you wish to achieve, such as improving operational efficiency, enhancing customer experience, or driving innovation. Having a clear vision and purpose will guide decision-making throughout the transformation process.

2. **Assess Readiness and Commitment:** Evaluate the organization's readiness and commitment to undertake a digital transformation. This involves assessing the current state of technology infrastructure, data capabilities, organizational culture, and employee skills. Identify any gaps or challenges that need to be addressed before proceeding.

3. **Establish Leadership and Governance:** Assign a dedicated executive sponsor or transformation leader who will champion the initiative and ensure its success. Establish a governance structure to oversee the transformation process, including defining roles and responsibilities, decision-making processes, and communication channels. This will provide clarity and accountability throughout the journey.

4. **Develop a Transformation Strategy:** Create a comprehensive digital transformation strategy that outlines the roadmap for achieving the desired outcomes. This strategy

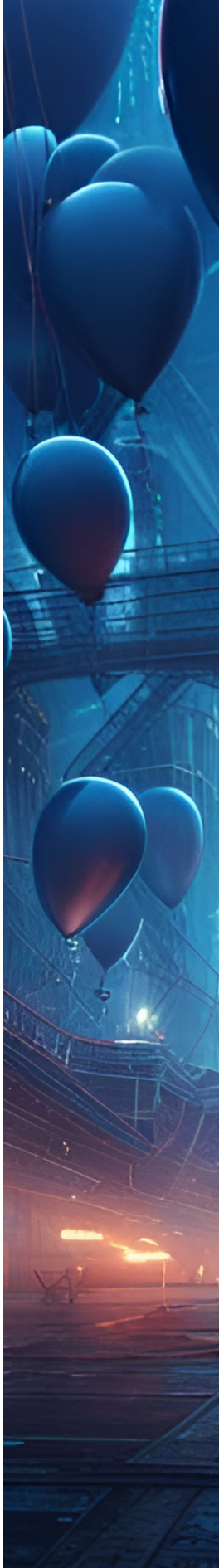
should align with the organization's overall business strategy and address areas such as technology investments, process improvements, organizational changes, and talent development. It should also consider potential risks and mitigation strategies.

5. **Engage Stakeholders:** Involve key stakeholders from across the organization, including department heads, employees, and customers. Seek their input and buy-in to ensure a shared understanding of the transformation goals and benefits. Effective communication and engagement are essential to overcome resistance and foster a collaborative and supportive environment.

6. **Conduct Vendor Due Diligence:** Before contracting any vendors or technology partners, conduct thorough due diligence. Evaluate vendors based on their track record, expertise, capabilities, and cultural fit with your organization. Request references and case studies to assess their past performance and success in delivering similar digital transformation projects. Consider factors such as vendor reputation, financial stability, and ongoing support services.

7. **Define Requirements and Expectations:** Clearly define your requirements, expectations, and success criteria for the vendors. Develop a comprehensive Request for Proposal (RFP) or Request for Quote (RFQ) document that outlines your specific needs, timelines, budget, and desired outcomes. This will help ensure that potential vendors understand your project scope and can provide relevant proposals.

8. **Evaluate Vendor Proposals:** Evaluate vendor proposals based on their alignment with your requirements, their proposed approach and methodologies, the scalability and sustainability of their solutions, and the overall value they offer. Consider factors such as cost, implementation time-



line, support services, and their ability to integrate with your existing systems and infrastructure.

9. **Conduct Proof of Concept (PoC) or Pilot Projects:** Consider engaging vendors in a proof of concept or pilot project to validate their capabilities and assess their fit within your organization. This will provide firsthand experience of their solutions and help mitigate risks before committing to a larger-scale engagement.

10. **Establish Contractual Agreements:** Once you have selected a vendor, negotiate and establish contractual agreements that clearly outline the scope of work, deliverables, timelines, pricing, payment terms, intellectual property rights, confidentiality, and dispute resolution processes. Engage legal counsel to review and finalize the contract to protect your interests.

By following these mandatory steps, executives can lay a strong foundation for a successful digital transformation journey and ensure that the selected vendors are aligned with their goals, objectives, and organizational needs.


chapter
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introduction

Executive Takeaways

- **BCG:** Boston Consulting Group - A global management consulting firm known for its advising on business strategy to help organizations build competitive advantages and ensure long-term value.

- **Digital transformation is** a critical process that involves integrating digital technology into all areas of a business, fundamentally changing how it operates and delivers value to customers.

- **Digital transformation is** necessary to meet changing customer expectations for seamless, personalized experiences that are accessible anytime, anywhere, and on any device.

- **Digital transformation can** give businesses a competitive edge, enhance operational efficiency, foster innovation, boost employee productivity, and promote sustainability.

- **Companies that have** embraced digital transformation are 26% more profitable than their industry peers.

- **Digital transformation is** not just about adopting new technologies. It's a strategic, ongoing process that requires a shift in mindset and culture.

- **Small and medium**-sized enterprises (SMEs) also need to conduct digital transformation to stay competitive in today's digital age.

- **Digital transformation allows** SMEs to refine their operations, introduce new products or services, create superior customer experiences, automate

routine tasks, streamline workflows, improve decision-making, and create new business models.

EU: European Union - A political and economic union of 27 member states that are located primarily in Europe.

SMEs that don't embrace digital transformation risk being left behind in the digital age.

IT: Information Technology - Refers to the use of computers, storage, networking, and other physical devices, infrastructure, and processes to create, process, store, secure, and exchange all forms of electronic data.

DESI: Digital Economy and Society Index - A composite index that summarizes relevant indicators on Europe's digital performance and tracks the progress of EU countries in digital competitiveness.

Acronyms

SMEs: Small and Medium-sized Enterprises

IT: Information Technology - Refers to the use of computers, storage, networking, and other physical devices, infrastructure, and processes to create, process, store, secure, and exchange all forms of electronic data.

DESI: Digital Economy and Society Index - A composite index that summarizes relevant indicators on Europe's digital performance and tracks the progress of EU countries in digital competitiveness.

- **BCG:** Boston Consulting Group - A global management consulting firm known for its advising on business strategy to help organizations build competitive advantages and ensure long-term value.

- **EU:** European Union - A political and economic union of 27 member states that are located primarily in Europe.

Digital transformation is a critical process that businesses must undertake to stay competitive in today's rapidly evolving digital landscape. It involves the integration of digital technology into all areas of a business, fundamentally changing how it operates and delivers value to customers (Bharadwaj et al., 2013).

The first reason why digital transformation is necessary is to meet changing customer expectations. Today's customers demand seamless, personalized experiences that are accessible anytime, anywhere, and on any device (Kane et al., 2015). They expect businesses to know their preferences, anticipate their needs, and provide instant, on-demand services. Digital transformation allows businesses to meet these expectations by leveraging technologies like mobile apps, artificial intelligence, and data analytics.

Secondly, digital transformation can give businesses a competitive edge. According to a report by the World Economic Forum (2018), companies that have embraced digital transformation are 26% more profitable than their industry peers. They can use technology to improve their operations, offer new products or services, and create superior customer experiences. For example, Amazon has used digital technology to disrupt the retail industry, offering a vast selection of products, personalized recommendations, and fast delivery.

Thirdly, digital transformation can enhance operational efficiency. It can automate routine tasks, streamline workflows, and improve decision-making. According to a study by McK-

insey (2016), automation can save businesses up to 20% of their time, which can then be used for more strategic tasks. Furthermore, data analytics can provide valuable insights, helping businesses make more informed decisions.

Fourthly, digital transformation can foster innovation. It opens up new opportunities for businesses to create new business models, improve their products or services, and disrupt their industries (Westerman et al., 2014). For instance, Uber has used digital technology to create a new business model in the transportation industry, connecting drivers and riders directly.

Fifthly, digital transformation can boost employee productivity. Digital tools can help employees work more efficiently and collaboratively. According to a report by Deloitte (2017), companies that use social media internally can increase productivity by up to 25%.

Lastly, digital transformation can promote sustainability. Digital tools can help reduce paper waste, and data analytics can help businesses optimize their energy use (Berman & Bell, 2011).

In conclusion, digital transformation is not just about adopting new technologies. It's about using technology to fundamentally change how a business operates and delivers value to its customers. It's a strategic, ongoing process that requires a shift in mindset and culture. Businesses that fail to embrace digital transformation risk being left behind in the digital age.

Do SMEs needs to conduct Digital Transformation?

Digital transformation is a vital journey that small and medium-sized enterprises, or SMEs, need to embark on to stay competitive in today's digital age. It's about weaving digital technology into every corner of the business, which can fundamentally change how the business operates and delivers value to its customers.

In the modern world, customers expect smooth, personalized experiences that they can access anytime, anywhere, and on any device. By embracing digital

transformation, SMEs can meet these expectations, enhancing customer satisfaction and loyalty.

Digital transformation also offers SMEs a competitive edge. It allows these businesses to refine their operations, introduce new products or services, and create superior customer experiences. For example, by adopting e-commerce platforms, SMEs can reach out to customers far beyond their local area, attracting a global customer base.

Efficiency is another key benefit of digital transformation. It can automate routine tasks, streamline workflows, and improve decision-making. Imagine using cloud-based software to automate accounting, payroll, and inventory management. This not only saves time but also reduces the chance of errors.

Digital transformation also opens the door to innovation for SMEs. It presents new opportunities for these businesses to create new business models, enhance their products or services, and even disrupt their industries. For instance, SMEs can leverage digital platforms to offer subscription-based services, creating a steady stream of revenue.

Employee productivity can also get a boost from digital transformation. Digital tools can help employees work more efficiently and collaboratively. For example, project management tools can help employees keep track of their tasks, collaborate with their team members, and meet their deadlines more effectively.

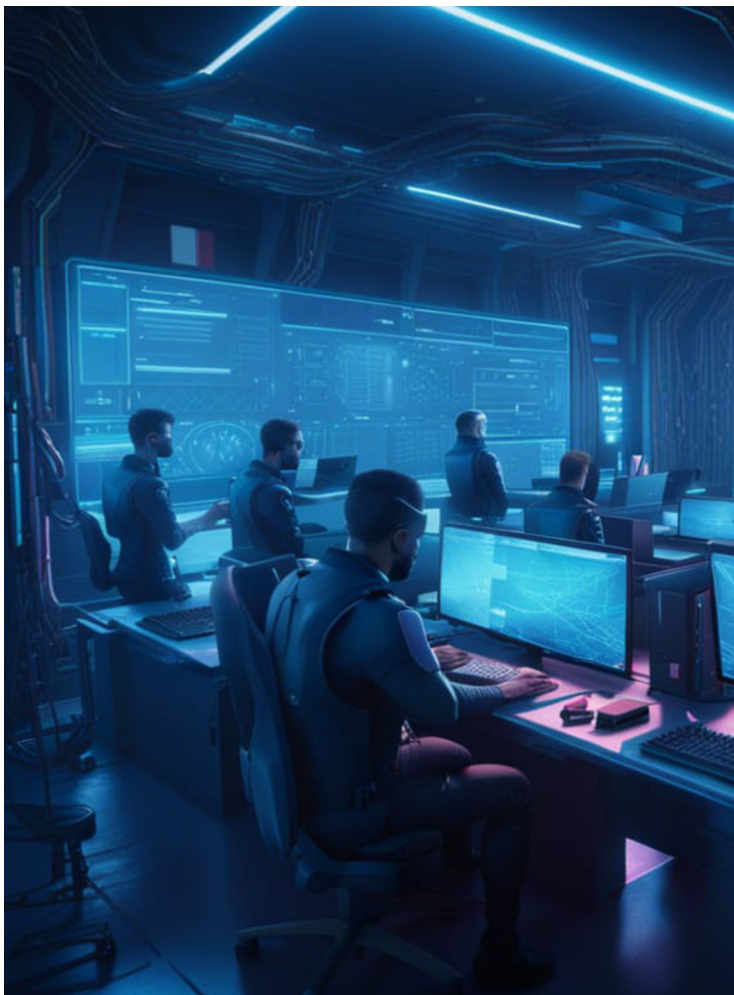
In conclusion, digital transformation is much more than just adopting new technologies. It's about using technology to fundamentally change how an SME operates and delivers value to its customers. It's a strategic, ongoing process that requires a shift in mindset and culture. SMEs that don't embrace digital transformation risk being left behind in the digital age. Therefore, it's crucial for SMEs to start their digital transformation journey, leveraging the power of digital technologies to drive growth and success.

Disrupt your business

Digital disruption refers to the significant and rapid changes brought about by the integration of digital technologies into various industries and sectors, fundamentally altering traditional business models, processes, and practices. It occurs when new digital technologies and innovative business models disrupt the existing market and value proposition of products and services.

Digital disruption is driven by advancements in technologies such as artificial intelligence, big data analytics, cloud computing, Internet of Things (IoT), mobile devices, and social media. These technologies enable new ways of delivering products and services, enhancing customer experiences, streamlining operations, and creating novel business opportunities.

The impact of digital disruption can be seen in various industries, including retail, finance, healthcare, transportation, media, and entertainment. Established companies that fail to adapt to the changing digital landscape may find themselves at a disadvantage, while new and agile digital-native startups may disrupt traditional market leaders.



Digital disruption often results in the following key transformations:

- **Disintermediation:** Digital technologies enable businesses to connect directly with customers, bypassing traditional intermediaries. This can eliminate middlemen and streamline processes, leading to increased efficiency and cost savings.

- **Democratization:** Digital technologies make services and information more accessible to a wider audience. It allows smaller players to enter markets traditionally dominated by larger organizations, leveling the playing field and fostering competition.

- **Personalization:** Digital disruption empowers businesses to tailor products, services, and experiences to individual customer preferences. By leveraging data and analytics, companies can provide personalized recommendations, customized offerings, and targeted marketing campaigns.

- **Agility and Innovation**: Digital technologies enable rapid experimentation, iteration, and innovation. Companies can quickly adapt to changing market conditions, launch new products and services, and respond to customer feedback, fostering a culture of agility and continuous improvement.

- **New Business Models**: Digital disruption often gives rise to novel business models that challenge traditional approaches. Examples include subscription-based models, sharing economy platforms, and on-demand services that revolutionize how goods and services are delivered.

It is important for organizations to recognize the potential of digital disruption and proactively embrace digital transformation. By embracing innovative technologies, fostering a culture of innovation, and staying customer-centric, businesses can position themselves to thrive in the

digital age and capitalize on the opportunities presented by digital disruption.

Digital transformation maturity

Digital transformation maturity refers to the level at which an organization has integrated digital technology to reinvent how it operates and delivers value to its customers. It involves all areas of a business and requires a substantial investment not just in technology but also in processes, operations, and company culture.

There are several models to assess digital transformation maturity, but most of them include stages that reflect the organization's progression in adopting and integrating digital technologies. Here are the stages from a model developed by Google and the Boston Consulting Group:

- **Nascent (Crawling):** At this stage, the organization is just getting started with digital transformation. The company doesn't yet trust relying on data and has difficulty getting different departments to collaborate.

- **Emerging (Walking):** The organization is more comfortable collecting and using quality data, with a focus on improving technology-driven processes and connecting previously siloed departments.

- **Connected (Running):** In this stage, data transformation is well underway with data-driven business practices integrated across multiple departments

and channels. The organization can now connect and use both online and offline data and begin to recognize a measurable benefit from the digital transformation process.

- **Multi-Moment (Flying)**: This final stage sees digital transformation focusing on individual customer transactions and business outcomes. The organization can now use data-driven insights to pursue incremental efficiencies across multiple channels and functions.

The path to digital maturity is not linear and varies from industry to industry. To reach a higher level of digital maturity, an organization must use digital technology to improve both efficiency and effectiveness. The more advanced an organization is within this framework, the more efficient and effective its digital efforts are.

Assessing an organization's level of digital maturity involves determining its ability to adapt to disrupting technologies, trends, and events. A more digitally mature organization is more aware of the marketplace, can react quicker to major events, and is more flexible in adapting to them.

How to calculate Digital Maturity

Calculating digital maturity involves assessing your organization's current capabilities and readiness to adapt to digital changes. This process often involves the use of a digital maturity model, which provides a framework for understanding your organization's current state and the steps needed to advance.

Here's a general process you can follow to calculate digital maturity:

- **Identify Key Areas**: Determine which aspects of your organization are most relevant to your digital transformation efforts. This could include areas like technology infrastructure, data usage, customer experience, digital skills, and organizational culture.

- **Use a Digital** Maturity Model: Choose a digital maturity model that fits your organization's needs. This model should provide a series of stages or levels that represent increasing digital maturity. Each stage should have clear criteria that an organization must meet to be considered at that level of maturity.

- **Conduct a Self**-Assessment: Evaluate your organization against the criteria in your chosen digital maturity model. This will likely involve gathering input from various stakeholders in your organization, including leadership, IT, operations, and other relevant departments.

- **Score Your Organization**: Based on your self-assessment, assign a score or level to each key area of your organization. The scoring system will depend on the digital maturity model you're using. Some models use a numerical scale, while others use descriptive labels like "nascent," "emerging," "connected," and "multi-moment."

- **Calculate Overall Digital** Maturity: Combine the scores or levels from each key area to calculate your organization's overall digital maturity. This could be a simple average, a weighted average

based on the importance of each area, or another method depending on your model.

- **Identify Areas for** Improvement: Look at the areas where your organization scored lower and identify steps you can take to improve. This could involve investing in new technology, training staff, changing processes, or other actions.

Remember, *digital maturity isn't just about technology—it's also about how your organization uses that technology to create value, improve operations, and adapt to changes. It's a continuous process, and even organizations with high digital maturity should regularly reassess their status and look for areas to improve.*

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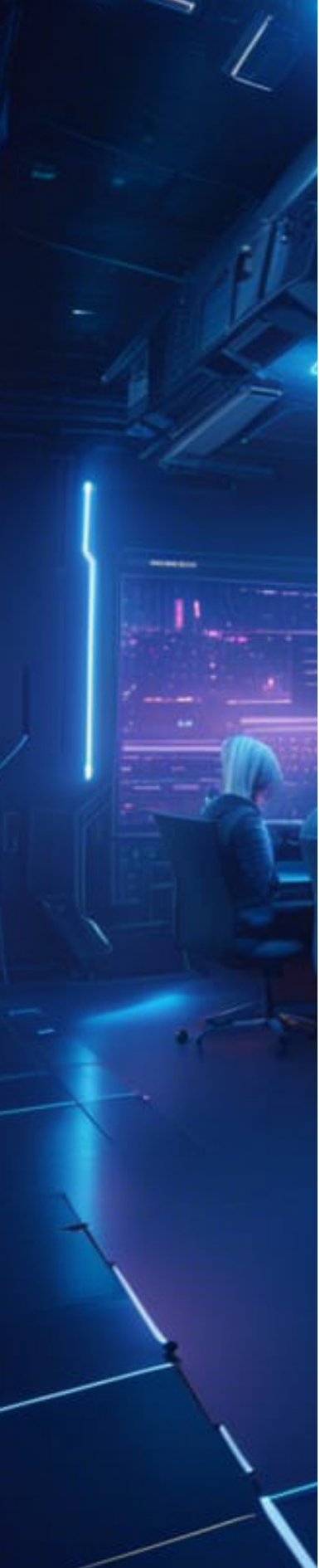
chapter I
Why and How



Executive Takeaways

- **Digital transformation is** the process of leveraging digital technologies to create new or modify existing business processes, culture, and customer experiences to meet changing business and market requirements.
- **It is a** holistic process that allows businesses to reimagine their operations and strategies in the digital era.
- **Digital transformation is** marked as the third phase of the digital revolution, preceded by digitization and digitalization.
- **The COVID-19** crisis has accelerated digital transformation across industries, leading to a shift in priorities and strategies.
- **The future of** digital transformation lies in enhancing customer and employee experiences, improving operations, and transforming business models.

Acronyms from this chapter

- **AI | Artificial Intelligence**: Technology that enables machines to mimic human intelligence.
- **CRM | Customer Relationship** Management: Strategies and technologies used by companies to manage and analyze customer interactions and data.

- **CIO | Chief Information** Officer: The person in charge of IT strategy in an organization.

- **IoT | Internet of** Things: A system of interrelated physical devices that are connected and can exchange data.

What Is a Digital Transformation?

Digital transformation is the process of utilizing digital technologies to either create new or alter existing business processes, culture, and overall customer experience to meet the changing business and market requirements. Also, it is a business reimaging process of surpassing all traditional roles of sales, marketing, and customer service.

Digital transformation is a holistic process that looks at the wider picture instead of focusing on particular business areas. By moving away from conventional business methods to a digital era, business owners have a valuable opportunity to reimagine how to do business with the immense potential of technology at their disposal.

Digital transformation allows both established companies and new businesses to strengthen their position on the market by digitalizing their business processes. More importantly, it is revolutionizing how entrepreneurs and business leaders think about business. To build a successful business in the 21st century, it will have to focus on thinking, planning, and building within digital environment.

Industry Definition of the Digital Transformation

The industry marks digital transformation as the third phase of the digital revolution in business. The first one was digitization, followed by digitalization, and lastly, there was digital transformation. In order to clarify potentially confusing terms, below are their brief explanations:

- **Digitization:** The process of moving from analog to digital in which businesses started converting all their paper records to digital computer files.

- **Digitalization:** The process of digital data usage to simplify and improve the way people work.

- **Digital transformation:** The process of adding value to each customer interaction by revisiting different business aspects to discover a more efficient way of delivering personalized customer experiences.

Simply put, the digital transformation process is reshaping the way businesses approach customer service. The conventional model was less proactive and dependent on customers to contact the company, whether in person or via phone. However, with the rise of social media, companies are being challenged to change how they advertise, market, sell, and service their customers. A more progressive approach allows companies to interact and build long-lasting, meaningful relationships with customers.

The goal of digital transformation is to convert companies into digital enterprises - organizations using

all available technologies to continuously evolve their business models, including what they provide, how they interact with their customers, and how they operate.

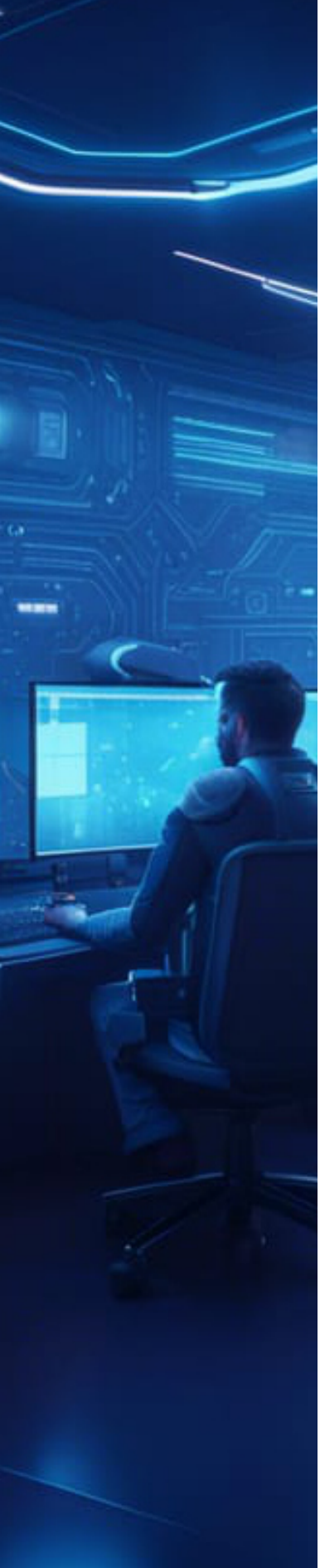
Like evolution, digital transformation typically will not have a clearly defined endpoint. Businesses should evolve the same way technology evolves. They should no longer consider whether to transform their business or not, but how they will do it. By experimenting with different technologies and approaches, digital transformation can evolve these businesses and help them to rethink their status quo.

For enterprises, that means continually seeking ways to improve the end-user experience, whether through offering improved on-demand training, migrating data to cloud services, leveraging artificial intelligenceAI - Artificial Intelligence, and more.

Accelerating Transformation for a Post-COVID-19 World

The COVID-19 crisis pressured companies across all industries to rethink everything about their digital transformation agendas. Companies needed to reinvent relationships with their audiences, including customers and employees. Most companies moved to remote work, another huge challenge that unquestionably affects all customer interactions.

In terms of digital transformation, COVID-19 has created several priorities for businesses like expanding the reach of customer support through interactive tools, automating procedures for resilience reasons,



and an extreme housecleaning of redundant or conflicting systems. We can even talk about "forced digitalization" during COVID-19 situation.

As a response to the dramatic disruption brought by the pandemics, chief information officersCIO - Chief Information Officer (CIOs) started re-negotiating how these organizations connect with digital technology. That said, digital transformation is more of a transformation problem than a digital problem, which challenges the existing leadership to rethink their business in all areas.

Facilitating Digital Transformation Onwards

As both organizations and customers are gradually embracing digital transformation, companies need to leverage this shift and simplify the transformation process in the future. The focus for these companies and their next-generation digital initiatives should mainly be on customer experience, employee experience, operations, and business model transformation.

Customer experience is becoming more personal and requires more emotional involvement than before. With access to data, companies are leveraging the information about their customers to ensure a more personalized and valuable experience, using the most recently developed technologies in the field of artificial intelligenceAI - Artificial Intelligence and machine learningML - Machine Learning.

These two technologies can also increase efficiency when completing routine tasks, along with the aug-

mented realityAR - Augmented Reality that assists employees in ways not possible before. Simplifying and improving employee experience allow companies to re-establish the relationship with their employees, strengthen the company culture, and attract new talents that match company values.

The Internet of ThingsIoT - Internet of Things and Industry 4.0 allows companies to improve their operational performance and introduce new services. Some companies have already introduced innovations such as machine learningML - Machine Learning and digital twins that brought more value from real-time data.

As much as digital transformation is the way of the future, companies can also seek out smaller opportunities that will lead them to digital improvement and information-based extensions. For example, the companies in the insurance sector are monitoring and scoring their customers with the ultimate objective to optimize policy pricing.

Impact of the Digital

Researchers studying scientific progress and technical change in today's society say that digital transformation comes from general-purpose technology. That means that such technology has the potential to evolve itself, continuously branching out and enhancing productivity across all industries. The general-purpose technology will bring immense long-term benefits, but its highly disruptive nature is challenging to implement.

That said, most benefits come from not only adopting the technology but also from adapting to it. In

modern society, one of the best examples is Uber, a taxi company, that utilizes digital technology to provide a more quality service to its customers. Before Uber, there was no other platform to search city rides, leave reviews, and interact with the drivers.

Before society adapts to any disruptive technology, it must be widely adopted first. The technological revolution depends on computers, the Internet, search engines, and numerous digital platforms.

Adapting to new processes takes time before it starts demonstrating its value in replacing its outdated alternative. Innovation and reorganization were always the first pillars of any revolution throughout history.

Although he marketed quite an efficient engine in 1774, James Watt had to wait until 1812 to see the first commercially steam locomotive. It took almost 40 years to demonstrate its benefits for society, so there is no surprise in why there is still so much vagueness around personal computers that appeared 40 years ago.

That, however, doesn't imply that the impact of digital is little. Besides transforming jobs and skills, digital transformation also overhauls numerous industries such as publishing and retail. Solely in the United Kingdom, Internet transactions already report for 20% of retail sales. Compared to 5% from 2008, it is safe to assume that this percentage will continue to grow steadily in the future.

It makes no sense to talk about digital revolutions without mentioning the leading technological breakthroughs of digital - blockchain technology and cryptocurrencies. Blockchain technology is not yet

another solution for online payments. It is also an efficient solution against any illicit activity like money laundering.

The objective of this underlying technology is to fully revolutionize finance by making all transactions more secure and faster while having access to quality information on potential customers can even enhance loan pricing through better analysis of the chances of repayment. In this situation, regulatory institutions are crucial to provide financial integrity and protections to the customers while also focusing on efficiency and innovation.

When looking at what is coming, we can expect to see more disruptions from breakthroughs in technology like quantum computing, which aims to simplify calculations that exceed the capabilities of conventional computers. A few benefits will become evident once the technology is applied. For instance, these computers can potentially undo some of the new technologies like rendering existing standards in cryptology obsolete, which might affect communication and privacy worldwide.

Predictions on Digital Innovation

One of the frequent digital transformation predictions is the connection strengthening between people and the devices used daily. In the following years, that connectivity will continue to grow as more digital applications appear and provide people with an opportunity to create, share and participate.

This trend will probably accelerate with the growth of the employment of smart agents and bots for interaction with others. This continuous and spreading human connectivity impacts how we engage as citizens and potentially changes how we interact with democratic institutions.

Regarding devices, estimation is that the number of connected devices, such as wearables, cars, household appliances, will continue to grow. People are witnessing great benefits from connecting on a deeper level with their environments. This connectivity will continue growing in connected devices and expand across new areas. The objective is to create even more connected environments, such as smart buildings, smart streets, smart plots of land, etc.

That will lead to advancing the level of knowledge people possess about themselves and everything around them, which could drive policy change. Another aspect of the digital era will continue evolving over the next few years - data. The data explosion will impact social and civic innovation in a few possible directions. The most plausible direction is that privacy issues will have a strong effect on norms and behaviors. Also, how this immense volume of data is analyzed will bring more critical observation around the algorithm performance and whether the way that data is being used is fair and explainable.

Digital Transformation – What does it look like?

The digital transformation process needs to be implemented in three key areas: customer experience, business models, and operational processes.

Every organization must aim to understand their customers better, and with technology, there are numerous opportunities to fuel customer growth and create new customer touchpoints.

Also, digital transformation requires organizations to enhance their internal processes by leveraging digitization and automation while also providing their employees with digital tools, gathering data to monitor performance, and making better-informed business decisions.

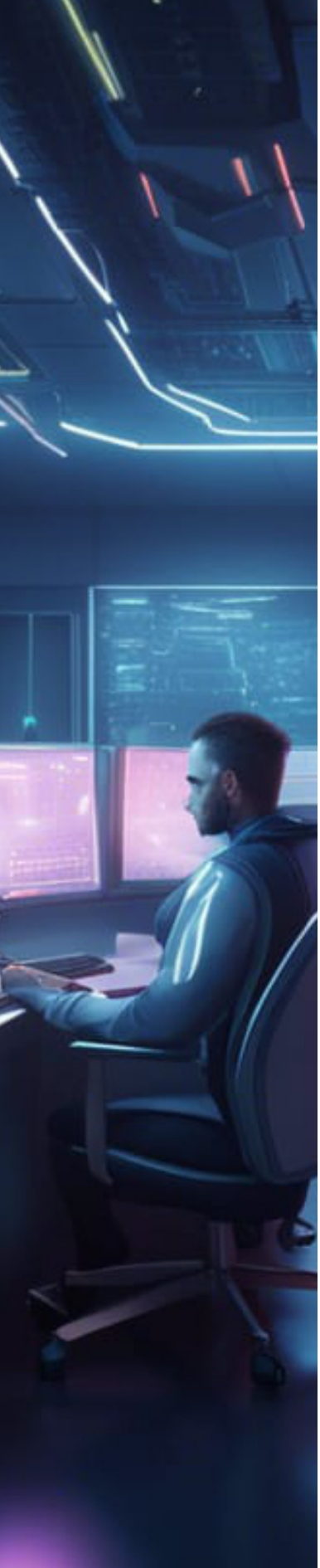
When discussing business models, organizations will transform their businesses by increasing physical offerings with the digital format. They will also introduce digital-based products and use technology to offer global shared services.

Digital Transformation Examples

We are seeing digital transformation happening across almost every industry and job function. To have a better understanding of how digital transformation works, it is helpful to look at the examples.

In a sales department of a typical organization, digital transformation might involve migrating spreadsheets to a cloud CRMCRM - Customer Relationship Management. An expected result of such a process is improving win rates, streamlining customer relationships, and enhancing customer data by implementing a CRM solution.

To digitally transform an HRHR - Human Resouces department, in-person training might be replaced



with online learning by using online audio or video communication tools. This shift can help with onboarding quality, overall training costs, and automate their other HR processes.

In customer support, a digital transformation process might involve replacing a conventional call centre with an online knowledge base.

When it comes to industries, digital transformation will differ depending on the problems it aims to solve. For instance, in the healthcare industry, digital transformation can lead to virtual visits, telemedicine, and patient portals, whereas in the hospitality industry, it might involve online check-in and amenity booking tools. Insurance companies might implement virtual quotes and online claims processes as a result of digital transformation, and retail companies might introduce loyalty cards or e-commerce stores.

Critical Areas for a Successful Digital Transformation

For any organization implementing digital transformation, regardless of the industry, their CIOsCIO - Chief Information Officer will need to focus on these areas to achieve success:

Implementation of Digital Twin

Also known as the digital representation of an entity or system in the real world, the digital twin implementation involves a software model that mirrors an individual physical object, person, process, or organi-

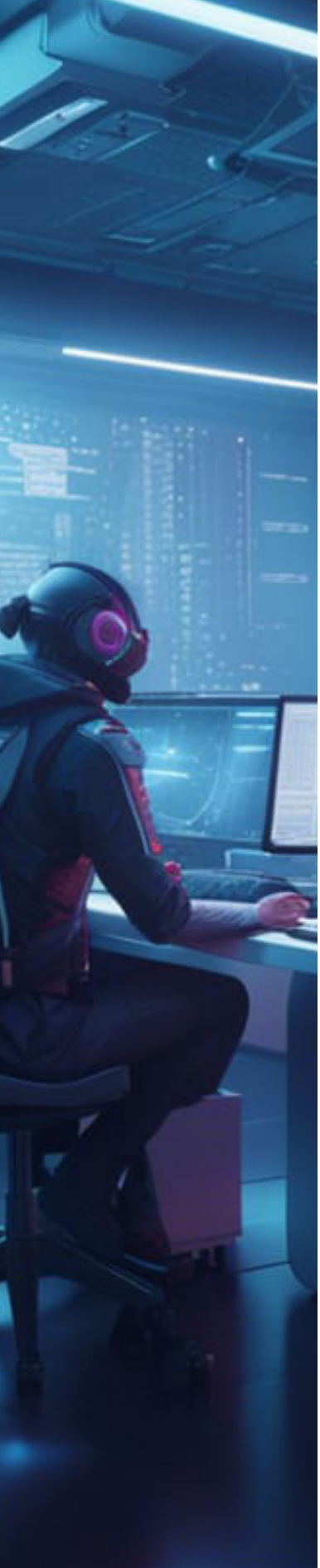
zation. Their purpose is to support the entire process of digital transformation because they simplify experimentation and gather data that supports better-informed decisions.

Privacy

Without efficiently managing privacy, digital transformation cannot be successful. With an increasing number of digital solutions available to organizations, convenience has become one of the deciding factors. However, consumers and employees are not willing to compensate for their privacy and safety for convenience. That is why CIOsCIO - Chief Information Officer must build everything around privacy or lose the support of their customers and employees, which would affect their business in unimaginable ways.

Culture

It is a part of human nature to resist change, although it leads to a positive outcome. Ignoring the cultural consequences of a digital transformation will result in resistance from your employees and customers. Many CIOsCIO - Chief Information Officer report that culture is the biggest obstacle to any change they want to implement in their business, so addressing culture is essential for a successful digital transformation. One of the ways to introduce change to your employees is by having change leaders who vocally support your digital transformation and impact how others feel about it.



Augmented Intelligence

Augmented intelligence is a wider term than artificial intelligenceAI - Artificial Intelligence (AI), permitting people and machines to work together. The data collected and analyzed with the help of AI is more valuable than anything a human can deliver. Yet, augmented intelligence doesn't aim to replace employees with machines but only gather and collect data. Then, people can augment their existing knowledge and be of more value to their organizations.

Digital Product Management

Digital product management involves shifting of mindset from one project to another. Such products have to be designed to improve the overall customer experience and deliver through any digital channels. In digital product management, both industry knowledge and product design are required. A great example of digital product management is when Apple created watches that monitor the health of the person wearing them instead of waiting for the entire healthcare industry to align with the company offerings.

Customer Expectations Continue Growing

Compared to only a decade ago, today's customers are much more empowered than they used to be. They are becoming increasingly savvy and expect a truly personalized experience from businesses and organizations. More importantly, this personalized experience needs to be consistent across all used

communication channels, from the website and social media to direct messaging tools.

Today, customers prefer to spend their money with brands that understand the importance of a personalized shopping experience and will get frustrated when their identity and action have been loo when switched to another communication channel.

The reason behind these growing expectations lies in companies that dared to be the first to create customer-centric platforms, such as Amazon, Uber, and Netflix. Every time a customer interacts with one brand more engagingly, their expectations will immediately grow and be applied to other businesses as well.

A more radical view of these digital transformation drivers names today's customers "digital predators". Because they have the power now, customers can change the markets as we know them by leveraging the power of technology to raise customer expectations to an even higher level. For companies, this means that digital transformation must be a high priority if they wish to avoid becoming "digital prey".

Speed is Crucial

One of the customer expectations that need to be improved is the speed. Companies must prioritize becoming faster in interacting, serving, delivering, and re-engaging their customers because the digital race can only be won by the fast ones, not the big ones like it used to be the case before.

The biggest obstacle to velocity is the current mindset the companies have. To be faster across all

phases of the customer journey, businesses have to change their linear approach. Digital transformation is not linear, and providing solutions with a linear mindset will not bring the desired results. Once they have determined their perspective or the way to respond to an opportunity, things will change again, and they will need to restart the process. The major challenge is learning how to move rapidly towards the future without stopping when any digital disruptors appear.

Strong Focus on Customer Insight

The ability to rapidly respond to all customer expectations will always start with a firm focus on customer insight. Those companies that are considered successful are inventing and designing demonstrate how deeply they understand their customers and their needs. To develop this intuition, they will spend an immense amount of energy on studying and understanding the relevant aspects of the lives of their customers rather than the basic information they get from superficial surveys.

Customer insight needs implementation at several levels, from understanding the entire customer base to understanding the relevant needs of each customer to ensure they get a personalized experience when interacting with your company. However, achieving that level of insight is not that easy. Companies need to develop customer intuition and gather anecdotes, but also leverage data to continue being aware of their customers' preferences.

Digital Transformation Equals Business Transformation

Most digital transformations lack the business perspective when evolving because the true digital value proposition goes beyond the digital. To be successful, it needs to reinvent numerous aspects of the business, often including core technology systems, business models, and vital operating processes. Those who see digital transformation as the fundamental shift in the way a company delivers values and drives revenues are the industry leaders of tomorrow.

Digital transformation comes with consequences, and sometimes, the positive ones will outshine the ones that require additional effort. For instance, when Hilton created a mobile app that allows their customers to unlock doors on their own, besides facing a software development challenge, the company had to change dozens of thousands of locks at their properties and retrain the team on the repairment and maintaining of the new locks.

Other Trends Driving the Digital Transformation

Although these are five key digital transformation drivers, other significant trends challenge companies to adapt to the new world around them. One of them is social media and mobile technologies. The devices we are using, smartphones and tablets, are changing how we interact and behave. This change leads to a long and exhaustive process of adapting to the

dynamic needs of both employees and customers and finding a way to offer relevant opportunities through digital tools.

The 24/7 concept is also something that has become a quality standard across industries. One of the growing expectations was also for companies to be reachable at all times. There is no more waiting for days or even hours to get an answer. The more customers need to wait, the higher the chances are of abandoning the brand. Going back to the velocity, being fast will also include the individual interaction with the customer and ensuring they get everything they need, from information to product, as quickly as possible.

Besides trends outside the company, changes are happening within the organizations too. To constantly deliver new solutions while also being faster than others will require teams to work differently. A few years ago, departments were separated by fields, and each team was working on one product area. Now, all these teams have to work together on satisfying empowered customers. Only that will allow them to exchange information more accurately and quicker between them, and ensure they are keeping up with the market demands.

One term connected to digitization, especially when talking about companies that produce outside their halls is "extended enterprise". It refers to the ability to exchange the content and processes with all involving partners with the help of digitalization. A product designed in Italy can be developed by engineers in Germany and produced in China. All these constructs are a part of the so-called "extended enterprise". That is one of the determining digital transformation drivers for manufacturers, but it can also be applied to

any other company, especially now with everyone moving to digital.

Undoubtedly, AIAI - Artificial Intelligence has an immense value in the digital transformation process, but it is not the only new technology we know. With data becoming more important, companies are focusing their efforts on it. Big data is already revolutionizing how we process unstructured information such as videos, photos, and emails, which will save a lot of time for those companies using their resources to search for valuable information.

Along with the immense amount of data, companies are also exploring the potential behind the Internet of ThingsIoT - Internet of Things (IoT). Such technology adds more intelligence to the existing machines, yet they still need to be monitored. The objective is to optimize business processes, develop new products, and manage and monitor in general.

Lastly, companies can now utilize hybrid cloud IT solutions and infrastructure instead of relying only on their servers. These cloud solutions lead to reducing IT infrastructure costs. Also, they save the time it takes to install, upgrade, or make any other changes to the existing server. Without a doubt, cloud IT solutions are the only way because the companies are also becoming dependent on them due to the high degree of mobile users who expect every aspect to get done online.

Types of Digital Transformation

Any organization considering going through digital transformation, regardless of its industry, will need to consider four main areas of it: process transformation, business model transformation, domain transformation, and cultural or organizational transformation.

Process Transformation

Process transformation includes adjusting the elements of processes within the company to achieve new objectives. Companies will typically engage in a process transformation when needing a radical update. Such transformation aims to modernize the business processes, implement new technologies, save financial resources, and more.

Business process transformation is similar to business process management, but the goal is to drastically improve the way business works. These are the main steps an organization will need to take if it wants to transform its processes:

1. **Determine the goal** of the transformation: Is the company looking to upgrade systems, incorporate new technologies, or adapt processes to their new organizational structure?

2. **Decide on baseline** metrics: Companies need to gather the data, such as costs and time, to prove that the process transformation leads to success.

3. **Gathering all stakeholders**: Approach everyone involved and ask for feedback on the previous and new processes.

4. **Craft the best** scenario: Use a diagramming tool to create the desired workflow path, requiring human and system tasks.

5. **Launch and track**: Introduce the new process to small teams first, and monitor the progress and needed changes to ensure success.

Business Model Transformation

Many companies pursue digital technologies because they want to transform conventional business models that no longer work or produce the results they used to. Almost across all industries, there are examples of such innovation. Netflix is reinventing video distribution and Uber the taxi industry. These are the leaders in their industry, but there are many more examples of smaller companies incorporating these significant business model changes. Companies in the insurance sector are using data and analytics to charge separately by the mile instead of traditional insurance contracts.

By rethinking and changing their current models to achieve more success, companies can find new opportunities that lead to growth. That is why the transformation of the business model will be a priority for companies wishing to stay ahead of their competition.

Domain Transformation

Unlike process and business model transformation, domain transformation is not so much talked about, although it provides enormous value for organizations. With new technologies, companies are redefining their products and services, blurring industry boundaries, and fostering opportunities for non-conventional competitors. This type of extensive transformation provides valuable opportunities for companies.

A great example of how the domain transformation enhanced an entire business is Amazon, the online retailer. The company expanded into a new market domain when they launched their Amazon Web Services or AWS. At the moment, AWS is the leader among cloud computing/infrastructure service providers, leaving behind corporate tech giants like Microsoft and IBM.

To start providing cloud services, Amazon only had to leverage the capabilities and services the company was already using, accelerating the process tremendously when moving into the new space. Those companies that decide to undergo a digital transformation need to be aware of the potential of domain transformation when implementing new technology.

Cultural or Organizational Transformation

It is not enough to update your existing technology or redesign products for a successful digital transformation. Often, businesses will fail to align these digi-

tal transformation measures with their internal values, which leaves a heavy effect on the business culture. Negative consequences will range from slow, complicated adoption of digital technologies to a complete market competitiveness defeat. That leads to revenue and productivity drop, which can be the end of an organization.

When you implement the right one, cultural or organizational transformation can help shift the entire business culture to understand, embrace, and extend digital transformation. Leaders of these organizations need to create a clear trans

formation vision and communicate it successfully throughout the entire organization. Besides that, they need to be aware of the smart risks in front of them and why they are worth taking.

When it comes to digital culture, these are the core elements of it:

- **Promoting external instead** of internal orientation
- **Appreciates delegation over** control
- **Focuses more on** actions and less on planning
- **Aims more for** collaboration instead of individual effort

Those who close their eyes to digitalization risk Failure and extinction

Although no one expects managers to have clairvoyant abilities, the example of the former global brand Kodak shows what happens when corporate management refuses to embrace digital transformation.

Blessed with creative developers, Kodak Labs presented the world's first digital camera as early as 1975. But management put the brakes on the project, fearing that the novelty would hurt Kodak's highly profitable film business. Instead, competitors from Japan did so in the 1980s.

When Kodak finally started making digital cameras, it was too late, and the early advantage was lost. By 2012, Kodak was bankrupt and its $35 billion market value was gone.


chapter II
Digital Trans-
formation
Evolution

Executive Takeaways

- **Digital Transformation Evolution**: The concept of digital transformation has evolved from simply digitizing paper documents to optimizing processes with software, networking, and software as a service (SaaS). The current stage of digital transformation involves harnessing all digitalization potentials to improve existing systems and processes, rather than completely overhauling them.

- **The Role of** External Factors: Factors such as the pandemic, climate change, social unrest, trade wars, and automation processes have accelerated the pace of digital transformation.

- **The Shift from** Optimization to Reinvention: The goal of digital transformation has shifted from optimizing existing business processes to completely reinventing and disrupting them.

- **The Importance of** Strategy: Successful digital transformation requires a well-thought-out strategy that aligns with the business's needs. Technology is a tool to achieve the strategy, not the strategy itself.

- **The Need for** Collaboration: Effective digital transformation requires collaboration between business and technology leaders. Miscommunication or lack of collaboration can stall the progress of transformation.

- **The Benefits of** Digital Transformation: The benefits of digital transformation include increased speed, affordability, low risk, flexibility, and continuous improvement.

The Role of Information in Digital Transformation: Information activation, or the use of data to drive business outcomes, is a crucial aspect of digital transformation.

The Evolution of Digital Transformation Systems: The evolution of digital transformation involves the development of systems of record, systems of collaboration, systems of engagement, and systems of productivity and outcomes.

Acronyms

SaaS: Software as a Service - A software licensing and delivery model in which software is licensed on a subscription basis and is centrally hosted.

CDTO: Chief Digital Transformation Officer - A C-suite title created in many companies to oversee the implementation of new solutions and projects related to digital transformation.

SOR: Systems of Record - Systems that provide an authoritative source of certain types of data in an organization.

CRM: Customer Relationship Management - A technology for managing all your company's relationships and interactions with customers and potential customers.

IT: Information Technology - The use of computers to store, retrieve, transmit, and manipulate data or information.

If we look at the nature of digital transformation from its first moment to today, it's impossible to ignore its

evolution. The meaning of digital transformation is also continuously evolving. Firstly, it implied turning paper into digital form. Then, we used this term to explain process optimization by using software solutions. Naturally, what followed was networking, software as a serviceSaaS - Software as a Service (SaaS) and lastly, we have a new digital economy.

Undoubtedly, the pandemic accelerated digital transformation and changed its meaning once again to explain the change from optimizing a business to transforming it. Climate change, social unrest, trade wars, and automation processes in factories were the main external factors of this change. Adding the pandemic to all of these factors, digital investments were accelerated even further. As a result, we are now having the digital transformation that was expected to happen in the next ten years or so.

A simple example that demonstrates yet another change of the meaning of digital transformation, which can also be seen as the most recent revolution of it, is through a business organization. The emphasis is no longer on revolutionizing the organization's business with digital advancements but on the evolution. Here, digital evolution refers to harnessing all digitalization potentials to improve things as they are now.

Digital evolution allows companies to use what they have instead of throwing it away and building something completely different. After all, organizations spend years building their procedures, and doing everything from scratch doesn't sound like optimization. The evolution in digital transformation is built around incremental advancements that can improve businesses in any industry with gradual changes, which are the pillar of digital evolution. When

approached this way, digital transformation evolution is an efficient and necessary solution for both big and small organizations.

Letting Go of the Past

Only a few years ago, digital transformation was the process of data modernization, core technology improvements, and back-office automation, yet today's challenges differ significantly. Each organization is seeking ways to digitize its end-to-end operations, but that's not the ultimate goal of digital transformation. The digitization of these processes should lead to simplifying how organizations are adapting to constantly changing market dynamics.

The work that is required to digitally transform an organization is more complex because companies need to shift from optimizing to reinventing and completely disrupting not just the lives of their customers but their employees as well. Simply put, to have products that disrupt and enhance the lives of customers, companies also need to disrupt the way their employees work.

The potential of current technology to transform almost every aspect of the company is an excellent opportunity to reinvent the way to do business and also expand their reach. On the other hand, as the game is becoming more complex, the competitors are also difficult to compete against. In each industry, most businesses are already embracing these new tech-supported business models and finding ways to reinvent themselves, so being unique and on top of the game is a bigger challenge than ever before. Finding the value in the way a company does busi-

ness is becoming as important as the quality of its products or services.

Digital transformation evolution implies almost the same amount of challenges as opportunities. Will supply chains find a way to become more agile in scaling up and down? Are remote employees equally productive and collaborative as when in in-person teams? How can businesses anticipate and respond to customer demand? To these and many more rising questions, companies will need to seek their answers in a different way than they used to.

Instead of having ad-hoc solutions that are putting out fires, organizations should aim for subtle, yet more complicated transformations that require additional resources when compared to the previous ones. How a company manages its transformations will determine its overall value, brand perception, customer relationships, sales, and more.

That said, most businesses still don't have the right digital basis in place as their biggest struggle is to link their digital investments to the company's strategic value. When compared to the previous transformations, this one has stronger and more visible consequences. When an organization was focused on investments in their analytics to improve their finance group's performance, it wasn't affecting how the external audiences see them. If the project failed, the company's customers wouldn't even be aware of it.

Now, on the other hand, any inefficiency will be less tolerated as the stakes are high. It wouldn't be unusual to see a business shut down due to a digital transformation gone wrong. Seizing an opportunity doesn't just help an organization in a race with its competitors but also prevents a catastrophe like

shutting down your supply chain, destroying your recently launched product, or putting the business to sleep for good. More than ever before, it's crucial to get the digital transformation right.

The success of an organization's digital transformation lies in putting strategy first, even before technology. As much as digital transformation revolves around all these technologies, it will not produce the desired results if it's not aligned with a carefully thought strategy. All organizations that wish to survive all challenges put in front of them due to the mentioned external factors, and there will be even more of them, should first determine what their business needs and then seek a technology that can provide the best solution to those needs.

A successful digital transformation will require an honest conversation and effective collaboration between business and technology leaders. Any miscommunication or lack of it can stall the progress of transformation and decrease the final output. More importantly, without these two roles working together, a company's digital transformation will be all about technology and strategy will fail.

Regardless of the industry, each business will first need to reply to the question "why" to get to the "what", meaning they need to know why they are implementing a certain technology, and not just what technology will be implemented.

Not to say that just implementing technology will lead to failure. Such an approach has short-term benefits for the business, however, they will soon need to be replaced with new solutions. This lack of long-term strategy might work for several months or

even years, but ultimately, it will lead to bad results, both internally and externally.

The understanding between business and technology is essential with digital transformations. If their incentives aren't aligned, companies will typically abandon the decision-making process and leave it up to the IT department. However, without the business and technology team working together, the conversation will not follow the business strategy which factors in customer insights necessary for the company to succeed.

Finding Common Ground

Addressing this lack of collaboration is one thing, but finding efficient solutions for business and technology leaders to work together seamlessly is another. So, how can both teams truly understand each other and find common ground? They both need each other, as the business cannot discuss technology without the tech team, and the tech team cannot understand the strategy without the business team.

To ensure a company's efforts towards the digital transformation are producing results, forgetting about technology at the beginning of the process is necessary. To avoid miscommunication and maintain the right focus, organizations should focus on these five imperatives to build the right digital foundation:

1. **Experiences.** Both employees and customers want better experiences and to succeed as a business, companies need to reinvent how they provide value to these two audiences.

2. **Insights.** For an informed, valuable decision-making process, companies need new and improved insights.

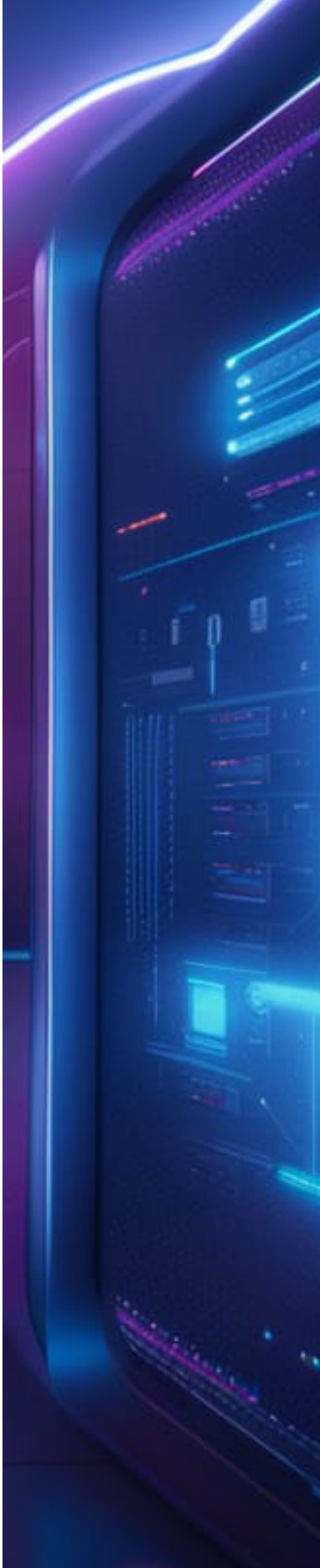
3. **Platforms.** Information is everything, and finding the right platforms to deliver that information is crucial.

4. **Connectivity.** Chosen platforms allow companies to get their information to the right people with ease and much faster.

5. **Integrity.** Companies need adaptive digital infrastructure that stands against any bad factors which might affect how your audiences perceive your company.

These five imperatives of digital transformation need to be communicated to the company's employees. Going one step further, companies that take their digital transformation process seriously should have a conversation with their employees about these fundamentals to hear their opinion and reach a consensus among everyone on what each of these five imperatives means for the business. Besides clarity on the meaning behind each of the terms, business leaders will also avoid miscommunication and making poor decisions during the process of digital transformation.

For instance, if a team manages to solve a data problem that is blocking the digital transformation process in the company, because of the conversation everyone in the company had, each stakeholder will understand that the team didn't just clean up data, but they also improved overall customer experience, insights, and agility. These five pillars of digital transformation allow technology teams to adopt a



business-outcome midset, while the business team learns to communicate in a way that makes sense for IT. That said, they can do much more than just help two or more teams agree on common goals and strategies.

Being clear on what each term represents for the company helps promote empathy and limits confusion among employees, which greatly reduced the possibility for any negative outcome. Also, these digital transformation imperatives promote adoption because all employees understand what needs to get done and the reason behind it, so their communication is clear, time-efficient, and productive.

Without a doubt, the tech will continue to evolve over the next few years as well, but at a much faster rate. By seeing conditions producing a need for high stakes, it's expected to only intensify. Those companies that focus on building all of their efforts around strategy and not technology, will be able to build a plan that will deliver value over a longer period, regardless of the type of tools these companies choose to use. A good strategy will not be relevant only for a few months, but for a few years. If focused on technology, companies are setting themselves to revise and rebuild their strategies every few months because technology changes and the only thing that stays strong even with all these changes is a quality business strategy.

We're living in an era of the biggest disruption so far. We have learned what potential lies in all these digital technologies around us, and businesses are making the leap to a new, reimagine future to cross over to from the current crisis. That's why companies need to be bold when working on their vision and the ways they want to transform their business in the

future, but be constantly aware of all consequences surrounding them. And, most negative consequences for businesses in this digital era starts with not being on the same page with your team.

Digital Transformation Evolution Benefits

As the digital transformation is evolving, there will be new benefits organizations across all industries are noticing. Up to now, there have been several long-term benefits that are motivating not only those who are at the beginning of their digital transformation process but also those who are still not aware of the immense potential this transformation can bring them.

Speed

Companies that have taken a digital evolution approach will be able to get things done faster. When compared to previous performance, businesses marginally reduced the time required to develop and deploy an idea. In business, time is often money, so spending time on processes that might be optimized, automatized, or enhanced in any other way during a digital transformation process.

Affordable

Many wrongly assume that because of its big impact, digital transformation will cost organizations a lot of money. On the contrary, because it's focusing on the current development, digital transformation will lower the company's costs and, at the same time,

increase ROIROI - Return-On-Investment. When businesses decide to create something from the scratch is expensive as it requires plenty of research, testing, new technologies, and skills, and there is always the possibility of things not turning as you hoped and investing again your resources into fixing it.

Low Risk

A transformation will not happen overnight. Whichever changes a business is implementing as a part of their digital transformation process, it will happen gradually. This eliminates the risk most companies are afraid of, and that's jumping into an unknown and complex area that is eliminating everything they've built from the first day. That's why digital evolution provides those who are incorporating it with freedom and peace to operate in a low- or even minimal-risk area. When implemented the right way, these transformations are risk-free.

Flexible

Digital evolution allows companies to set short-term goals instead of being distracted only by the end goal of their transformation. More importantly, companies are constantly in control of their budget and time, allowing them to be flexible as much as they want to at any given moment.

Successful Evolution

As evolution always continues and companies are constantly improving their processes to reach better business results, it might be challenging to determine whether the evolution is being successful or

not. However, in that lies its true value for all companies. If the transformation is not providing a company with the desired results, its business leaders can determine what needs to change to steer the company in the right way.

There will always be something worth transforming digitally in the organization, and until all efforts are focused on making the business work better, the digital transformation will be successful. To ensure that the organization is on the right path, its business leaders need to keep in mind two things: determining the approach and availability of skills.

Determining the Approach

Determining the right goal of a company's digital transformation is vital, however, it will be impossible to achieve any business goals without determining the approach for it. The best way to ensure that the end goal is ultimately achieved is by breaking it into smaller, more achievable goals. When focused more on the set of goals that bring the company closer to its end objective, the idea of revolution becomes replaced with evolution. With each goal being able to reach with the help of technology, companies that recognize the value of IT will simplify their processes and make them more valuable for the entire organization, not just the technology department.

Availability of Skills

Digital transformation requires certain skills a company's teams must possess to move in the direction of digital transformation. Without skills being available whether it's in-house or through hiring a remote team, companies will not be able to implement their

determined approach and ultimately, achieve the goal they've set for their business. There are seven high-demand technology skills needed to implement the digital transformation process in any organization:

- **Cloud computing.** The cloud model enables organizations to scale their businesses and optimize infrastructure costs.

- **Mobile app development**. As the value of the global mobile application market is growing, companies have another powerful way to engage with their audience.

- **UX design.** With a growing number of mobile devices, there is a growing need for valuable digital content that has to be aligned with their customer's needs.

- **Blockchain.** Numerous industries are implementing blockchain-based technologies to improve their processes.

- **Cybersecurity.** With companies moving to the cloud, cybersecurity becomes a crucial aspect of protecting the company and everyone it interacts with, from employees to leads.

- **DevOps.** The entire digital transformation process requires a smooth software development process.

- **Artificial intelligenceAI - Artificial** Intelligence and machine learningML - Machine Learning. The implementation of these two technologies provides vast possibilities to optimize processes and improve efficiency.

Evolving Systems of Digital Transformation

The reason behind the need to make digital transformation a priority for all companies across every industry is the urgency of marketplace competition. Adding to that cloud-based digital transformation that is introducing new products almost every few days, there is no doubt that we're in the middle of the evolution of digital transformation.

Indeed, many companies have already created a new C-suite title, the chief digital transformation officer or CDTOCDTO - Chief Digital Transformation Officer. The purpose of this role is to determine which of all these new solutions and projects should be implemented in the company's everyday business and how. With or without CDTO, it can be a bit overwhelming choosing the system for the company as many requirements need to be met. Companies need to ensure they are taking a modern approach but also meeting the needs of their employees and customers.

Due to the evolution in digital transformation in the business world, companies first need to take a moment to review all solutions available to them at the given moment, select the right system for them, and then determine how to implement the system. Having a clear understanding of all solution types is the first step towards a successful digital transformation and all benefits that follow.

Systems Of Record

The way a company will start its digital transformation journey will depend entirely on the needs of that

business. For companies that have started their transformation early, systems of record were the foundation of their digital transformation. Systems of record or SORSOR - Systems Of Record rely on utilizing internal data to store information that will be easily accessed by employees who need it.

A SORSOR - Systems Of Record example can include a CRMCRM - Customer Relationship Management for a customer-facing business or an electronic health record system for a large health care institution. Systems of record are called like this because they create a record and specialized data a company can then use to make more informed decisions for the business. This is also the first wave of digital transformation because companies realized the potential of data and started seeking an efficient way to make the most of that data and enhance their relevant business processes.

Today, systems of record are still a central piece of the digitization process of any organization. Every business will need to rely on a SORSOR - Systems Of Record at some point to become more efficient, however, having a SOR will not be enough. Organizations cannot be modernized just by having a solution, it needs to be implemented the right way to make the change an organization was looking for.

Systems Of Collaboration

After systems of record, what followed was systems of collaboration. The SORSOR - Systems Of Record didn't live up to its expectations as the data was only available for certain departments of an organization, and there was no simple way to disperse it and ensure everyone is informed. As companies were

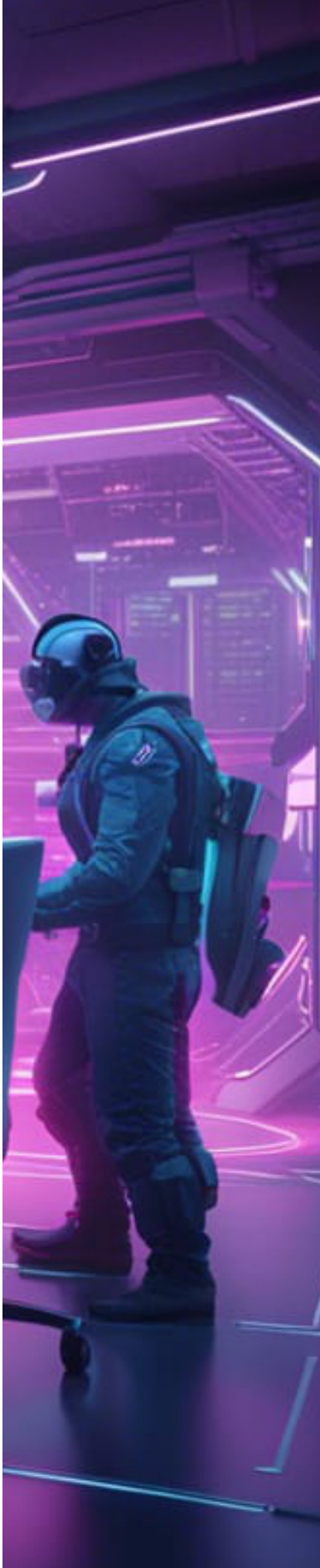
kept siloed, systems of collaboration offered a solution of tapping into that data gathered by the SOR and enabling for a flow of knowledge between departments at a speed impossible to imagine before this technology.

The best examples of platforms that are based on systems of collaboration are Slack and Microsoft Teams which allow teams across the world to communicate and collaborate on different projects. These systems of collaboration also allowed to pull out the knowledge that would stay hidden without them.

Systems Of Engagement

The next step in the evolution of digital transformation was systems of engagement. The previous systems, systems of records, and systems of collaboration gathered an immense amount of information that needs to be compiled and digested in the right way. And to do that, companies were in a need of yet another system. With systems of engagement, advancement in database optimization technology was achieved, so companies were able to gather and source data faster and provide valuable business insights at an impressive pace.

There are many platforms we use today that are based on systems of engagement, such as Zendesk, Constant Contact, and Facebook. The way that collected data is being used with such platforms has never been possible before the systems of engagement. These systems provided leaders and organizations with an ability to quickly process and make business decisions even quicker, turning them to be a crucial role in developing customer service innovation.



Simply put, businesses leaders were now able to develop digital strategies and replace the product-focused approach with a service-focused one. That resulted in an overall enhancement of the customer experience and prepared the business world for the following step in the evolution.

Systems Of Productivity And Outcomes

The last stage of the digital transformation evolution, or the currently best way to transform businesses, involves threading productivity and outcome systems. When organizations began combining digitization with productivity and outcomes, all of their existing systems can be used to work together aiming to add more efficiency to their teams, but without adding more to the current workload.

Finally, we're seeing a progressing technology where businesses can make the most of all the systems available and use them in a unified way to create an improved customer experience platform that delivers revenue and productivity outcomes for everyone - customers, employees, and the company in general. Many companies now provide teams with the ability to link workflows and scale their productivity across the entire organization.

When a company achieved holistic digitization, all the workflows in the company can be mapped out easily, new tools can be adopted quicker, and the company can focus on creating a valuable end-user experience that leads to lucrative business results. The system an organization is using needs to be aligned with the quarterly goals and business outcomes to make it work. These systems are the most

efficient way to make use of everything such technology has to offer, and there is an indefinite number of possibilities with it.

The Value of Information in Digital Transformation

To understand the value of information in digital transformation, it is necessary to go through the three stages of the Web. Web 1.0 was focused on connecting information, whereas Web 2.0 also added an interactive element by using a range of technologies. Finally, Web 3.0 introduced us to the Internet of ThingsIoT - Internet of Things, where devices and artificial intelligenceAI - Artificial Intelligence are connected.

To connect the systems of digital transformation, companies will need to connect information first. This goes beyond adding a few features as it's a rather challenging task in a complicated ecosystem of myriad formats, numerous standards, enhancing volumes, and the acquisition of devices to the entire digital space.

Digital transformation intertwines with information activation. After all, the digital transformation process in the context of digitization referred to the transformation of the physical to digital information. The objective of information activation is to deliver smarter and more valuable outcomes for businesses.

This requires a holistic and hyper-connected optimization for any business considering implementing digital transformation as we know it today. Holistic optimization is the direction in which all transforma-

tions will go, however, it will not be as focused on technology as it will be on the human and emotional aspects.

Digital Transformation vs. Digital Evolution

Is digital evolution just a synonym for digital transformation or do these two terms imply something completely different? When looking into the development of digital transformation, it becomes evident that we're talking about evolution. To continuously increment improvement is the definition of evolution. Yet, with the set of today's technologies and tools, companies can make transformative changes to their processes.

Digital transformation refers to using intelligence to drive transformative business outcomes. However, the transformation that is a result of all these systems doesn't necessarily have to be digital. No doubt implementing technology into a company's business operations can provide many benefits, but does digital transformation stop there? What happens when an organization uses new technologies to augment human workers with greater information, more profound insight, or a more thorough process to amplify their existing intelligence? It seems that the digital transformation has already extended beyond the borders of the digital form, and maybe the next step of digital transformation will be changing the "digital" into "intelligent".

After all, as much as the digital transformation is based on technology, there needs to be awareness of how worthless any new technology will be if it's not

being used in a way that it delivers constant business value to organizations. The capability of technology is what delivers value, not technology itself. Even if the next step of this evolution is an enhancement of all technologies we know today, it doesn't necessarily mean that all organizations will enhance their businesses.

Looking it that way, it's irrelevant whether we call it digital transformation digital evolution, or even intelligent transformation. The name becomes irrelevant in front of the meaning it has for the business world. This evolution involves transforming the digital information an organization has by using all the new technologies, tools, and techniques available to it.

There is another digital transformation term that is rather confusing to a wider audience, and that's "disruptive". In other areas, disruptive indicates a disturbance or a problem that has interrupted something, so why is the term "disruptive technology" considered positive? Many assume it's because the new technology will often disrupt the existing one, however in digital transformation, the disruptive is not the aspect to be celebrated, incremental efficiency is.

The value of technology is not in disrupting the previous technology but in how much new value it can provide to those who will use it. Digital transformation also welcomes using existing and new technologies if the ultimate goal will be achieved easier. Similar to many other terms coined in the IT world, their meaning often evolves and outgrows the name.


chapter III
Digital Trans-
formation
Benefits

Executive Takeaways

Digital transformation is a fundamental shift in how an organization operates, going beyond mere data migration to the cloud. It involves reevaluating and optimizing systems and processes to make them interoperable and flexible, supporting business intelligence and enhancing all organizational facets.

The COVID-19 pandemic has accelerated digital transformation, with businesses that had already begun their digital journey being able to adapt more quickly to the new environment.

Digital transformation can enhance customer experience and value, increase profitability, and reduce operational costs. It also helps in gathering and optimizing data for analysis that drives business forward.

Resource management is a crucial part of digital transformation, consolidating all company resources and decreasing vendor overlap. It involves integrating all business applications, databases, and software pieces into a centralized repository.

Digital transformation requires a data strategy to solve data fragmentation and link all data for enhanced omnichannel marketing and customer engagement.

Customer data privacy is a significant aspect of customer experience in the digital transformation journey. Organizations need to ensure customers are in control of their data and understand how it's being used.

- **Digital transformation has** led to the emergence of digitally conscious customers, who expect personalized experiences and have high expectations for digital interactions.

- **Digital culture, which** defines how technology shapes the way we interact, is critical for organizations to remain sustainable. It encourages upskilling and digital learning among employees.

- **Data-driven customer** insights are essential for business growth. Translating these insights into business outcomes separates successful organizations from unsuccessful ones.

- **The transformation of** a company greatly depends on its leader's behavior. Leveraging data brings objectivity and helps business leaders manifest a comprehensive, customer-driven vision and strategy.

- **Digital transformation is** not just about digitizing everything; it requires a valuable strategy consisting of diagnosis, guiding policy, and a coherent plan of actions.

- **A digital transformation** strategy aims to reposition an organization in the digital economy by leveraging emerging technologies and maximizing new opportunities.

- **Digital transformation is** a complex process that requires a side-to-side approach, involving employees at all levels to understand and embrace the changes.

- **Data is crucial** for a digital transformation strategy, as decisions should be data-driven to identify opportunities and drive business growth.
- **Four key components** of a digital transformation strategy are communications, culture of innovation, technology, and data.
- **Steps in developing** a digital transformation strategy include business assessment, researching the industry and competitors, prioritizing digital initiatives, creating a delivery plan, creating a budget plan, and creating a resource plan.
- **Seven key principles** of a digital transformation strategy are defining the reason for digital transformation, preparing for cultural change, starting small but strategic, mapping out technology implementation, seeking partners, gathering feedback for refinement, and scaling and transforming.
- **The key players** in developing a digital transformation strategy are communications professionals, technologists, and business leaders, each bringing unique skills and perspectives to the process.
- **Examples of digital** transformation strategies vary based on organizational goals and challenges, but leveraging in-demand digital technologies and tools can improve efficiency and productivity.
- **Ad Blocker:** Installing ad blocker software in computer browsers can significantly reduce the chances of bugs and cyber threats, enhancing the cybersecurity of the organization's computers and systems.

- **Allocating Budget for** R&D: Increasing the budget for research and development of digital transformation systems leads to long-term sustainable growth and optimization of technologies, resulting in enhanced business operations.

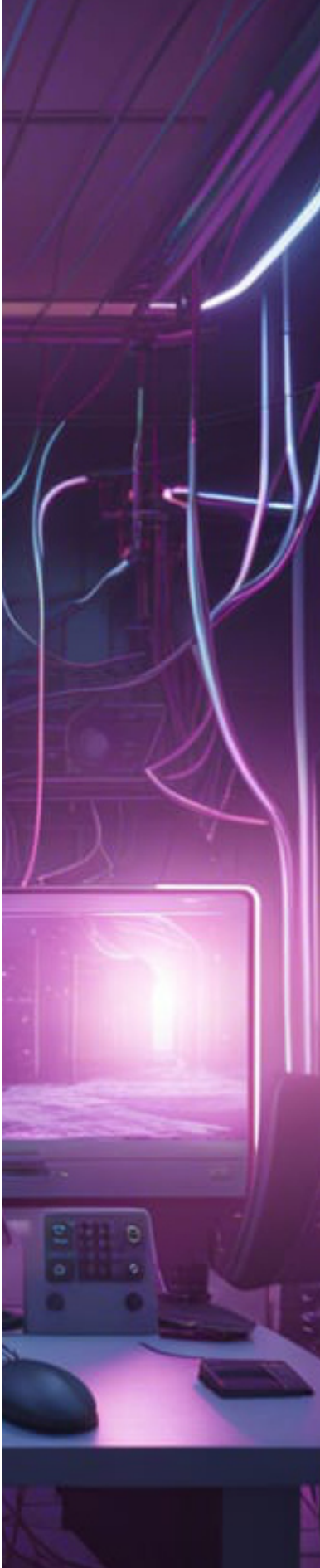
- **Autonomy for R&D** Team: Giving autonomy to the research and development team allows them to make decisions and detect opportunities that can positively impact the business. Collaboration with other teams and sharing information can improve product quality and efficiency.

- **Changing Passwords Regularly**: Educating employees to change their passwords regularly and create strong passwords helps protect valuable information and data, while password manager tools simplify password management without compromising security.

- **Chief Information Security** Officer (CISO): Hiring a CISO is crucial for ensuring the appropriate security of valuable information and data within the organization, protecting against security breaches and disruptions to business operations.

- **Cooperating with R&D**: Sharing information among different departments fosters a collaborative culture, maintaining high-quality products and improving efficiency in the organization.

- **Digital Transformation Roadmap**: A well-planned digital transformation roadmap helps organizations move from their current state to the desired future state, guiding the implementation of digital initiatives, including technology, people, processes, and resources.



- **Developing User-Friendly** Systems: User-friendly digital systems are essential for successful digital transformation. Systems should be efficient, simple to navigate and install, and follow organizational rules and standards to minimize costs and increase benefits.

- **Ensuring All Connections** Have VPNs: Implementing Virtual Private Networks (VPNs) between office locations protects the organization's network, particularly for connections using public Wi-Fi services, enhancing overall cybersecurity.

- **Two-Factor Authentication**: Using Two-Factor Authentication (2FA) adds an extra layer of security by requiring employees to provide additional verification, protecting against unauthorized access and security breaches.

Acronyms

- **2FA:** Two-Factor Authentication

- **AI:** Artificial Intelligence - Refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions.

- **IoT:** Internet of Things - Refers to the network of physical objects—"things"—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet.

- **IT:** Information Technology - Refers to the use of computers, storage, networking, and other physical devices, infrastructure and processes to create,

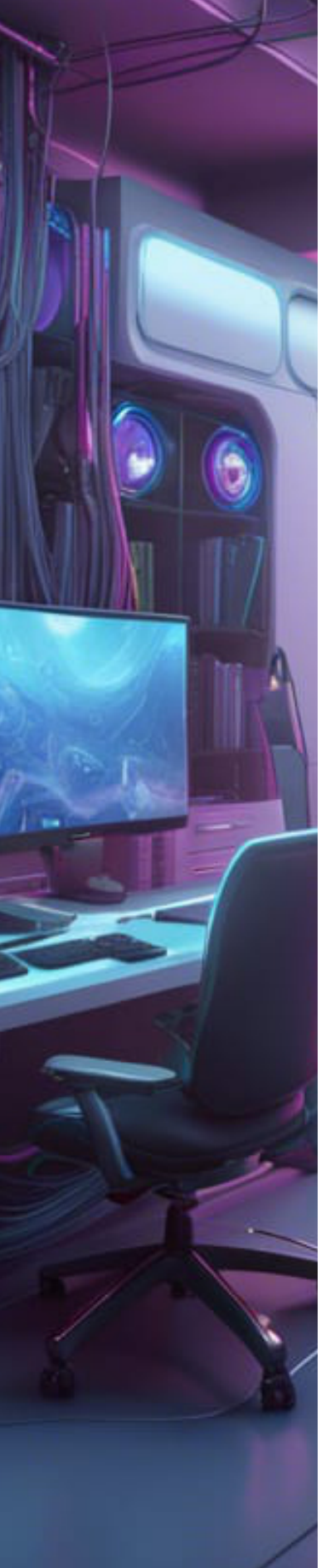
process, store, secure and exchange all forms of electronic data.

- **GenZ:** Generation Z - Refers to the demographic cohort succeeding Millennials and preceding Generation Alpha. Researchers and popular media use the mid-to-late 1990s as starting birth years and the early 2010s as ending birth years.
- **CISO:** Chief Information Security Officer
- **COVID-19:** Coronavirus Disease 2019 - Refers to the disease caused by the SARS-CoV-2 virus, which led to a global pandemic starting in 2019.
- **DAP:** Digital Adoption Platform
- **R&D:** Research and Development
- **VPN:** Virtual Private Network

When integrating digital technology into all relevant business areas, fundamental changes will occur in how an organization operates its business. Many industries are already benefiting from digital transformation, from modernizing legacy processes and accelerating efficient workflow to increasing profitability and strengthening security.

Most companies today are working in the cloud, but the true value of digital transformation goes beyond data migration. It can spread across the entire organization and create a technology framework converting services and data into actionable insights that enhance every organizational facet.

Instead of just migrating organization data to the cloud, businesses should begin reevaluating and



optimizing their systems and processes and making them interoperable and flexible to support business intelligence and provide the organization with everything it needs to succeed. A digital transformation process will affect every level of an organization and gather all the valuable data allowing teams to work together more efficiently.

When organizations add workflow automation and advanced processing, they can strengthen the customer journey and provide more value. Organizations can now generate immense value from transforming the way they work.

Recent Events

The COVID-19 pandemic has irretrievably changed the world as we know it, and all organizations had to adjust as well. Those businesses that began their digital transformation before the pandemic were able to make rapid adjustments by relying on the cloud architecture, latest security protocols, and the entire range of robust technologies to support the remote-work environments and virtualized business-related transactions and interactions.

On the other side, non-profit and governmental organizations struggle to adjust to the rapidly changing economic and social conditions. Those that managed to provide rapid answers to the new environment were the ones that succeeded and those that haven't noticed negative trends in their business numbers.

The market is now changing more rapidly. More changes are happening quicker than 10 or 15 years ago. Businesses that are more mature in their digital

transformation process have witnessed much less disruption and saved money because of it. In the wake of the so-called COVID-19 disruption, business leaders have decided to accelerate their digital transformation initiatives and are aware that more changes are coming their way.

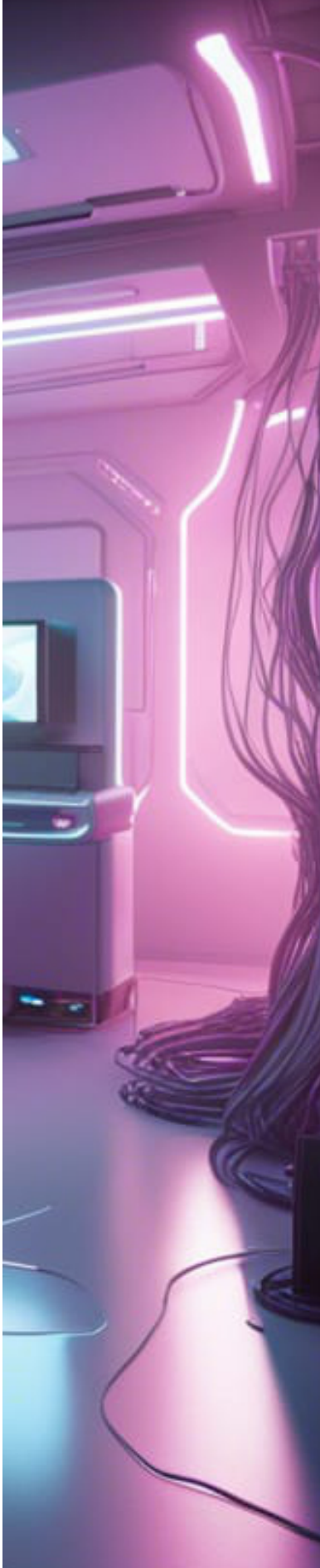
Organizations have the opportunity to work faster and more innovatively. Due to cloud computing and mobile technologies, they can provide reliable access to crucial business platforms from anywhere. Not to mention that such automation will also speed up business processes, decrease errors and focus employees' attention on higher-value actions instead of basic repeatable tasks.

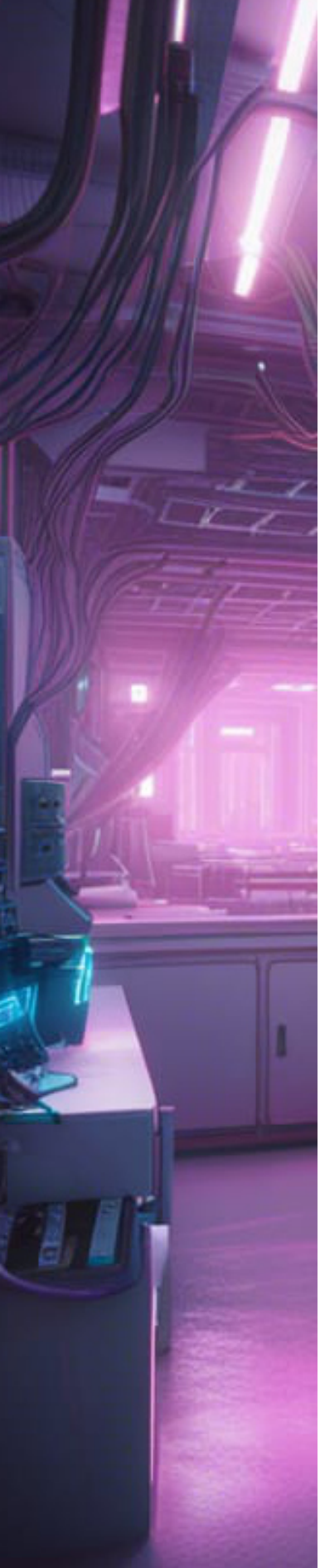
When adding artificial intelligenceAI - Artificial Intelligence, the value for businesses can augment tremendously. Employees will work more efficiently and organizations will improve how they interact with their audiences, leading to more sales and profitability.

As lowering operational costs is one of the main drivers for digital transformation, it is essential to be aware of its capability to reduce hardware and software costs, among other digital transformation benefits. As organizations continue transforming the way they do business, new technologies will appear, leading to undiscovered benefits for organizations.

Data Collection

Each business relies on its customer data to excel. Gathering them was an issue that was easily solved with Google Drive, Dropbox, or any other cloud-supported platform. The value organizations have from data is not in gathering, but optimizing them for anal-





ysis that drives their business forward. With digital transformation, organizations have a data-gathering system that also incorporates it entirely for business intelligence at a much higher level.

Digital transformation also helps these organizations to translate raw data into valuable insights that show an overview of the customer journey, operations, finance, and production. To constantly transform how customer data is collected, stored, and shared, it is needed to evaluate data collection and optimization processes frequently.

Without a doubt, data management still prevails to be the core challenge for many businesses considering implementing digital transformation. Understanding how to enable, activate, and manage the right data is more difficult than it seems at first. Evaluating the customer journey as part of the digital transformation process helps organizations give their clients higher autonomy over their data and demonstrate how crucial data privacy is for them. With customers becoming increasingly aware of how their data is being used, businesses must collect and manage data in a way that favors their customers. That's why many organizations have already developed their data strategy.

Having a defined data strategy in place is vital to solving fragmentation that typically occurs with organizations gathering a large volume of data. The main elements of a successful data strategy involve data, technology, analytics, and delivery services that lead to higher reach, revenue, and return. For organizations implementing digital transformation, a data strategy serves as a roadmap to link all data, both online and offline, to define steps required for

enhanced omnichannel marketing and customer engagement.

To solve data fragmentation, organizations need a unified data layer, which is where most digital transformation falls apart. That is why it is necessary to build a quality data strategy within a digital transformation plan. A unified data layer is an open, trusted framework for data that provides companies with an omnichannel customer view that is essential when seeking opportunities for sustainable growth.

Resource Management

In digital transformation, information and resources are converged into a suite of business tools. Instead of having a range of software solutions and databases, resource management consolidates all company resources and decreases vendor overlap. On average, an enterprise business will use several hundreds of applications. These applications are not integrated into one process that demonstrates a clear overview of all business operations, and this is exactly what digital transformation can do.

Digital transformation aims to integrate all business applications, databases, and software pieces into a centralized repository. This funnels all organizational workflows into one and saves a tremendous amount of time employees spend migrating data and managing processes across different workspaces. It also reduces errors as everything is stored in one place.

Besides technology, other priorities in digital transformation are efficiency, communication, and customer-centric approach. All three of them can be delivered with resource management. Just like digi-

tal transformation, the objective of resource management is to help any organization adapt to a constantly-evolving business landscape. That is done by optimizing how managers prioritize projects and tasks, manage resources, and lastly, implement certain technologies.

Besides a defined data strategy, quality resource management practices should be an integral part of any digital transformation strategy. These practices allow organizations to prioritize all initiatives around digital transformation efficiently, meaning that the crucial areas are implemented first. That prepares organizations for a smooth transition that results in optimal returns on investments by strengthening workplace productivity, resource management, and a customer-oriented approach.

For a resource management strategy to succeed, it will need to have these three key components:

- **Collaboration.** Every organization's members should work with others to ensure that the shared vision is achieved.

- **Responsibility.** The organization's members should be involved in the planning, implementation, and decision-making processes.

- **Flexibility.** As business and technologies are constantly evolving, organizations need a dynamic strategy that yields growth and development.

A digital transformation initiative can only excel if the organization's teams and resources are well managed. As much as the large organizations are considered to be actors of poor project management and performance, there is a lack of quality in this area in

almost every business, regardless of its size. That is why resource management should be a top priority for organizations implementing digital transformation or any other vital business initiative.

Four Actionable Solutions of Resource Management

Organizations looking to improve digital transformation through resource management should focus on four actionable solutions leading to desirable results.

1. Measuring the Ongoing Digital Transformation Performance

Access to accurate data and real-time analytics is essential when planning and implementing any digital transformation strategy organization has decided. There is immense value in measuring the impact a digital transformation initiative has had on its organization and determining if it helped achieve the business outcomes it was supposed to. When measuring the ongoing performance of organizational efforts to implement a digital transformation strategy, business leaders can easily optimize it and maintain long-term growth and development.

Implementing effective resource management solutions help businesses manage and use these resources more efficiently, which is crucial for digital transformation success. To ensure quality resource management initiatives have been implemented, businesses leaders must cover the following:

- **Provide their employees** with a platform that is simple to use for managing tasks, projects, team

members, and assets to simplify and streamline the entire digital transformation process,

- **Help all project** managers involved make better-informed decisions around allocating work and resources,

- **Enable managers to** map out action plans and break these actions into prioritized tasks needed to achieve digital transformation.

2. Transparency Around Digital Transformation

When implementing a digital transformation strategy, organizations should have one crucial goal - creating holistic workplace transparency throughout all levels and hierarchies. People within the workspace will be the ones that have the needed experience and technical knowledge, which makes their opinion valuable when planning and optimizing the digital transformation strategy. Also, organizations must ensure that all executive teams are included in the strategy as soon as the initial planning stage has terminated.

By keeping everyone in the loop during the entire transformation journey, the level of effectiveness will constantly grow. Allowing employees to have an open line of communication for any feedback or reporting issues, securing that leadership is updated and well aware of performance at the same time, helps everyone involved make better-informed business decisions. The outcome is an organization able to collaborate cohesively to achieve goals on all levels and hierarchies.

3. Optimizing Collaboration and Productivity Through Technology

A fast-paced environment in which businesses operate today makes resource management solutions necessary to guarantee optimal collaboration, especially for larger organizations managing multiple projects. Both digital work and resource management will enhance any transformation initiative by:

- **Creating a clear** communication channel for all stakeholders, managers, and employees can discuss all project information in real-time without being restricted with internal silos,
- **Supplying a visual** representation of project workflow from beginning to end,
- **Simplifying the process** of identification and correction of any arisen problems for managers.

In the digital era, being adaptable distinguishes successful organizations from unsuccessful ones. Those who can quickly implement new strategies when needed and collaborate across their internal and remote teams will experience digital transformation success. As tech resistance is one of the most common digital transformation errors organizations make, it is evident how vital is quality resource management. Businesses embracing software solutions that improve team collaboration and communication will more likely adopt a unified approach towards simplifying and streamlining digital transformation. That makes it much easier for these organizations to achieve their business objectives.

4. Becoming Agile

Undoubtedly, agility is what drives digital transformation. Businesses that are agile and dynamic in their operations are a better fit to facilitate any digital transformation initiative effectively. The reason for that lies in agility tearing down bureaucracy. That can be achieved by:

- **Stepping away from** the traditional hierarchical structures and choosing a team-oriented approach,
- **Eliminating the focus** only on conventional metrics indicating profitability and shifting to finding efficient ways an organization can cope with dynamic customer preferences,
- **Embracing a broader** range of strategic execution methodologies.

Organizations that can quickly shift their strategies, change objectives, and adopt new technologies will easily align their transformation strategy with the market expectations. An approach that is based on agility will replace a milestone-driven mindset with continuous delivery. Such shift will result in managers, stakeholders, and employees being better equipped to satisfy any growing digital transformation needs in a dynamic and very competitive environment.

Blending It All

These four actionable solutions of resource management shouldn't be singled out but blended in. The way an organization manages work and resources

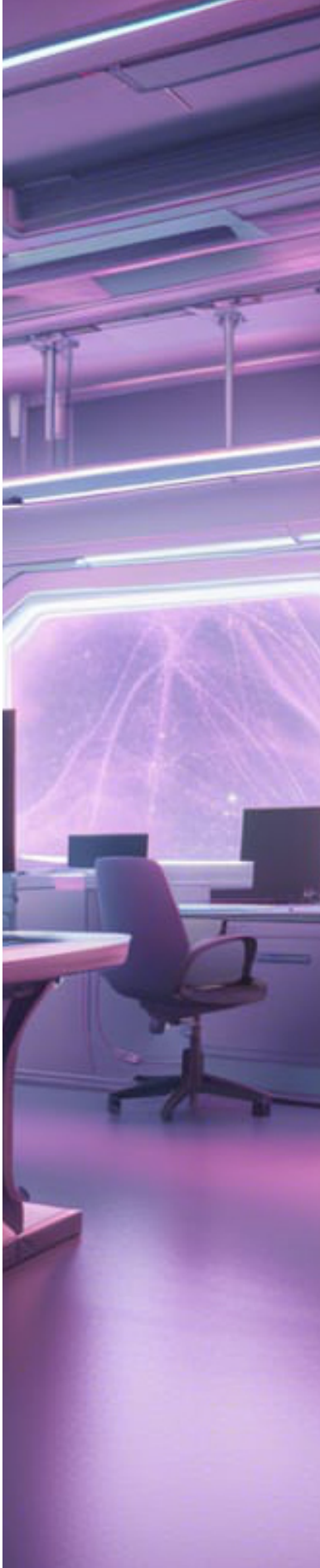
plays a key role in determining the triumph of any digital transformation initiative. The ultimate objective all businesses should strive to achieve complete transparency.

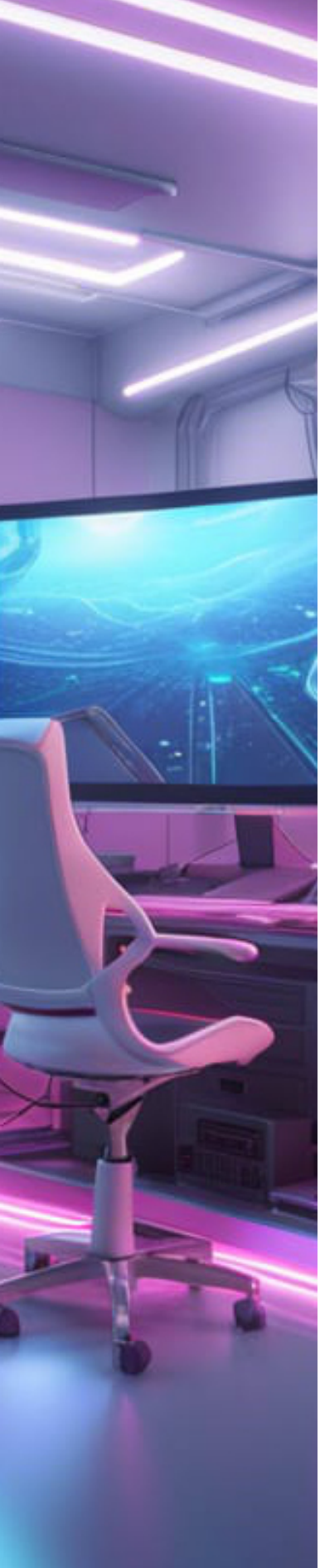
With full transparency, it becomes easier to assess both strengths and weaknesses of digital transformation strategy accurately because the immediate priorities, issues preventing the completion, and ways to improve cross-organizational collaboration become clearer. When doing digital transformation like this, organizations gain deeper insight into how it can be utilized to improve their overall performance.

Data-Driven Customer Insights

To fully understand and take action from customer insights, they need to be data-driven. Once organizations began getting a clear understanding of their customer needs, they can develop a business strategy that is based on a customer-centric approach. Any type of data can be valuable for an organization, from unstructured data like social media metrics to personal customer information. The more data a company has, the more possibility it has to drive sustainable business growth and optimize all areas.

Moreover, quality data also leads to more relevant, interactive, and personalized content for customers. After all, today's customers need convincing from businesses to buy from them. If an organization doesn't know how to sell its products or services through words, its sales numbers will suffer. Without a doubt, organizations that know how to leverage





data to drive digital transformation will prosper higher than their competitors who don't.

Business leaders need to possess a detailed understanding of their audience. That includes dynamic demographics, recent behavior patterns, interactions, and expectations, which are incorporated then in the design of new company products, services, and value propositions. Digitalization has surpassed just conventional marketing technologies, and mobile and social platforms and expanded to multimedia, IoTIoT - Internet of Things, cloud, automation, and artificial intelligenceAI - Artificial Intelligence. All of these technologies are utilized to redefine customer value propositions.

When an organization redefines customer value into products and services, digital technologies can be used to deliver incredibly valuable experiences to customers, leading to higher customer satisfaction and operational efficiency. Besides revolutionizing business models, products, and processes, digital transformation irretrievably changes leadership style, organizational structure, and company culture. Those who manage to master these fundamental elements will guide their organizations to become more valuable, competitive, and profitable in the digital age.

Transforming Companies with Data

The transformation of a company will always greatly depend on the behavior of its leader, which consists of assumptions, individual perspectives, personal experiences, and risk profiles. Personal human factors can impact the way a company is embracing digital transformation and differences between lead-

ers can be devastating for company success. Herein comes the immense potential of data.

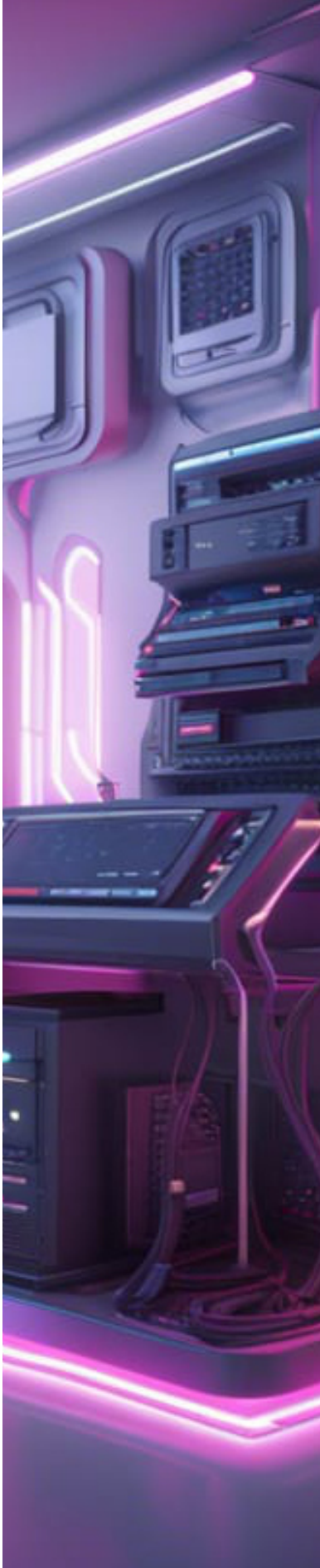
Data beats assumptions, hunches, and personal bias. Data is not affected by personal human factors and it can only be read in one way. Leveraging data brings objectivity and an intrinsic commitment to priorities across the entire organization. It also helps business leaders manifest a comprehensive, customer-driven vision and strategy that will produce the desired results because they are based on technology that studies customer behavior in detail.

Data Leads To Competitive Advantage

Digital maturity has gotten to the point that many organizations are generating business growth from their digital transformation processes. Implementing data-driven customer insights into business strategies ultimately generates more success because today's customers know what they want and they buy from those who give them just that.

Translating customer insights into business outcomes will separate successful organizations from unsuccessful ones. Essentially, digital transformation is becoming the foundation of new business models, combining unified technology systems with the engine of growth and data as its fuel. As data-driven business models are being implemented across all industries, it's crucial to pay more attention to data management.

Data is only as valuable as its management across the entire organization. There is still a lack of data and analytics outside the IT function. Data management and blending are factors that most companies miss



when implementing digital transformation. In other words, being aware of data value is not the same as leveraging that data in a way that generates business growth.

Enhancing Customer Experience

With digital transformation, organizations are unlocking efficiencies in their teams, but they are also delivering more intuitive experiences for their customers. It goes from email communication to digital products and user portals, and even the way you reach out to your new prospects. Today's customers have elevated expectations for digital experiences. They are used to having numerous choices, reduced prices, and quick delivery. Customer experience is the new hot area for brands in most industries, and organizations are becoming increasingly aware of it.

Customer experience is becoming the key driver of sustainable growth for most businesses. By enhancing how customers interact with their businesses, larger organizations can increase their annual growth by millions of dollars.

One of the most concerning aspects of customer experience is customer data privacy. Those who successfully demonstrate how they value their customers' privacy can differentiate themselves from the overwhelming competition. Customers must be in control of the way their data is being collected and used, but also empowered to make any further decisions around their given data.

Digitally Conscious Customers

Digital transformation is based on digital technologies, which have completely transformed customer habits. The evolvement of mobile devices, endless number of apps, automation, and machine learningML - Machine Learning enable customers to get precisely what they want at the moment they want it. Moreover, these digital technologies have triggered a shift in customer expectations, creating a new type of modern buyer. Customers of today are continuously connected and aware of the potential that lies behind these technologies.

Due to numerous opportunities that appear from using these new technologies, customers often evaluate organizations on the digital customer experience first. The digital-first approach challenges organizations to rethink the existing ways of interacting with their customers and adding more value to them.

From a sales perspective, this implies replacing cold calling with social selling. Customers are active on social media, and that is where organizations need to be as well to sell. Rather than waiting for a customer or prospect to make the first contact, organizations should reach out to them first. That change allows organizations to build deeper relationships and educate their customers about their business and the products or services they are selling.

From a marketing perspective, the digital-first approach requires reducing the amount organizations are spending on offline marketing activities - direct mail, billboards, and TV ads. Customers are expecting highly targeted messages, which can only be accomplished through a data-driven marketing strategy. Organizations need to use all these digital

channels to implement search engine marketing, email marketing, and account-based marketing strategies.

From a customer service perspective, teams no longer have to wait for the phone to ring or fax to come through. With the digital-first approach, companies are becoming proactive instead of just reactive. Customer service teams need to be proactive in ways they help their customers, keeping in mind that they use a range of digital channels to look for support. Now, social media, forums, review sites, and online communities are part of the customer service ecosystem.

Reimaging the Entire Customer Journey

Customers are becoming increasingly in control over how companies deliver experiences, meaning that every new experience a company builds should meet the customer demands. As every experience with an organization impacts a customer's overall perception of the business, all these organizations must apply a customer-centric approach throughout all their business strategies. More importantly, this shift to digital allows businesses to create enhanced relationships with their customers.

To do so, they must create an elegant, flexible IT environment. Having the needed technology to make the most of digital strategies is essential for success in today's business world. That's why organizations across many industries are recognizing the need for agile systems, in which cloud technologies stand out as the most implemented solution. Cloud technology allows organizations to be faster, more dynamic, and flexible, providing them with the opportunity to test new cost-effective and low-risk

projects. When implemented the right way, this technology helps tremendously to meet customer demands faster.

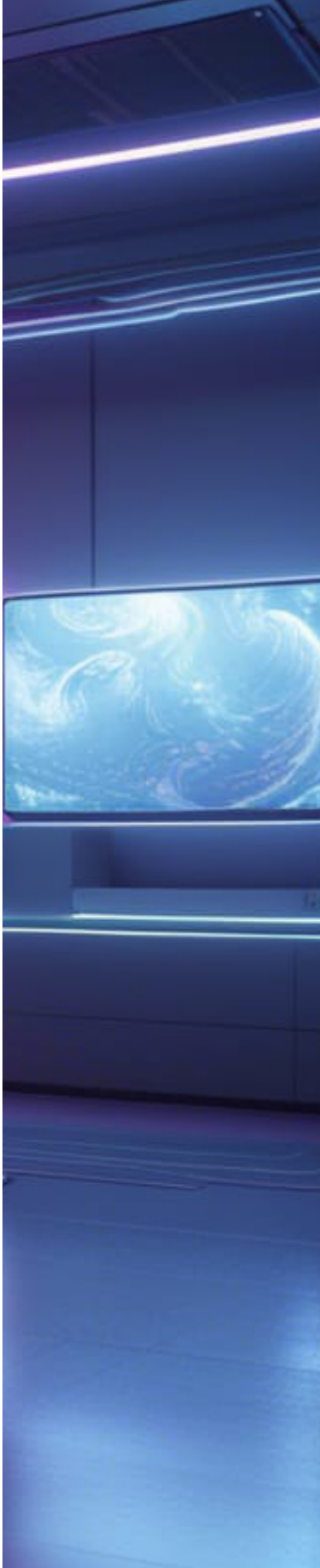
However, even the best data-driven business strategy will not produce the desired results if it's not based on personalization, one of the vital factors in digital transformation. Customers want organizations to treat them as unique individuals and know all about their personal preferences and recent purchase history. There are three aspects of personalization that should be a part of any digital transformation strategy:

- **Recognizing all customers** by their name,
- **Having all information** about customer's purchase history,
- **Recommending products suitable** for them and based on their recent purchases.

Personalization is the value customers expect from organizations that collect their data. Knowing that providing their data will allow companies to provide a better customer experience creates a positive change in customers' perspectives.

Encouraging Digital Culture

When employees are given the right tools, which are tailored to the organization's environment, digital transformation can encourage a digital culture. Inevitably, tools that allow employees a seamless team collaboration and increased efficiency are also responsible for moving the whole organization ahead, especially digitally. Digital culture is critical for



organizations to remain sustainable. It pushes the upskilling and digital learning among employees to maximize all digital transformation benefits.

Digital Culture

Digital culture can best be described as a concept that defines the way technology and the internet are shaping the way we interact. It impacts the way we behave, think, and communicate with other humans and as a society in general. Digital culture is the result of persuasive technology and disruptive technological innovations that follow it. It can be applied to numerous topics, but it always revolves around one main point - the relationship between humans and technologies.

There are a few reasons why organizations implementing digital transformation can benefit from digital culture:

- **Breaking hierarchy:** Incredible value lies in allowing employees to make their judgments which are not limited to hierarchy.
- **Accelerating work:** With better judgments, employees can make quicker and better decisions.
- **Stimulates innovation:** Organizations become workplaces where employees are motivated to try and learn new things.
- **Attracting new generations**: Millennials and GenZ seek environments that don't offer traditional 9-5 jobs but are autonomous and collaborative instead.

More than talking about changes in actions, digital culture focuses on changes in the way these organizations think about business. Changing the mindset is essential when talking about digital culture in businesses implementing digital transformation. For instance, understanding that a report cannot provide as valuable customer feedback as the customers themselves is one of such changes. A change in mindset leads to changes in actions, so these businesses will start making decisions in real-time based on the data gathered from the customers.

Without a doubt, building a digital culture is challenging, but it's the only way to quality technology adoption. Digital culture also takes time and requires to be accepted company-wide and employee-wide. That is why organizations must have a clear vision and strategy for the way these digital changes will be implemented, including defined goals, to ensure everyone is moving in the right direction.

The organization's employees are at the heart of digital culture, so there must be constant two-way communication. Business leaders should maintain employees informed about the digital culture at all times but also ask for their opinion in the building and implementing phase. On the other hand, employees must actively participate in creating the digital culture in their organizations by learning new things and engaging more with their colleagues and executives. If employees are confused about their role in the transformation process, the digital culture cannot be built.

True digital changes will occur when all levels of the organization are aligned with the digital transformation strategy and can participate in it in their way. If everything else stays the same and organizations

push for digital culture implementation only during meetings and presentations, employees will feel the disconnect between the organization's words and actions and the change will quickly hit the wall.

All decisions must lead to changes in the day-to-day operations, but they should also be made differently than they used to. By focusing on digital culture, organizations will naturally start changing the ways they do business. An organization must support innovation at all levels without allowing leaders to squash change and agility. That said, digital transformation is a coin with two sides and it doesn't have any value without both of them - technology and culture.

Improving Efficiency and Profitability

Companies that begin with digital transformation report improvement in their efficiency and profitability. Committing to digital pays off in the long run, so companies that have already started with their digital transformation process report an increase in their profitability numbers. As talent management and development are considered key drivers of digital growth, one of the outcomes will inevitably be improved efficiency and profitability.

Companies are increasingly focusing on talent attraction and retention, knowing that employees are crucial for sustainable business growth. Another vital element is an investment in the organization's digital skills, which is expected to steadily increase revenue in the next few years. This conclusion comes from comparing organizations that have implemented

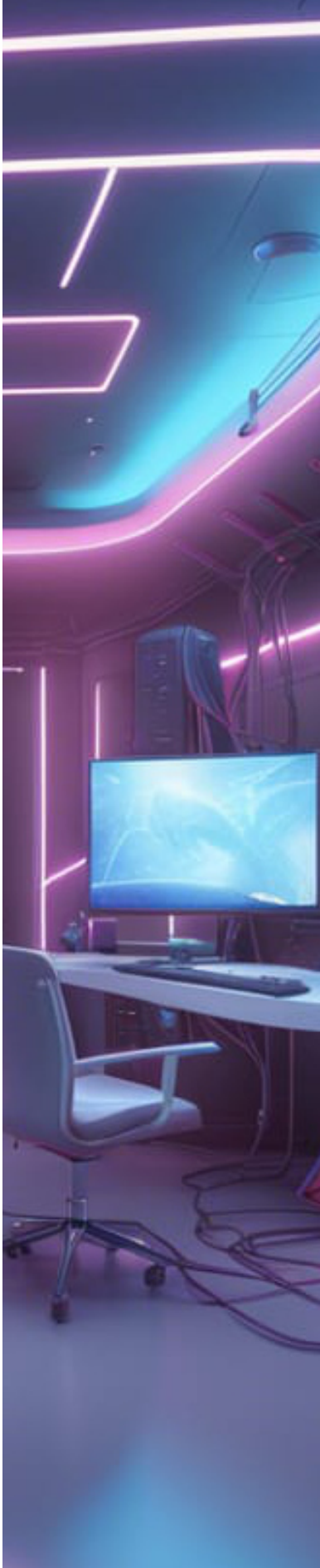
digital strategies and organizations that have yet to adopt them.

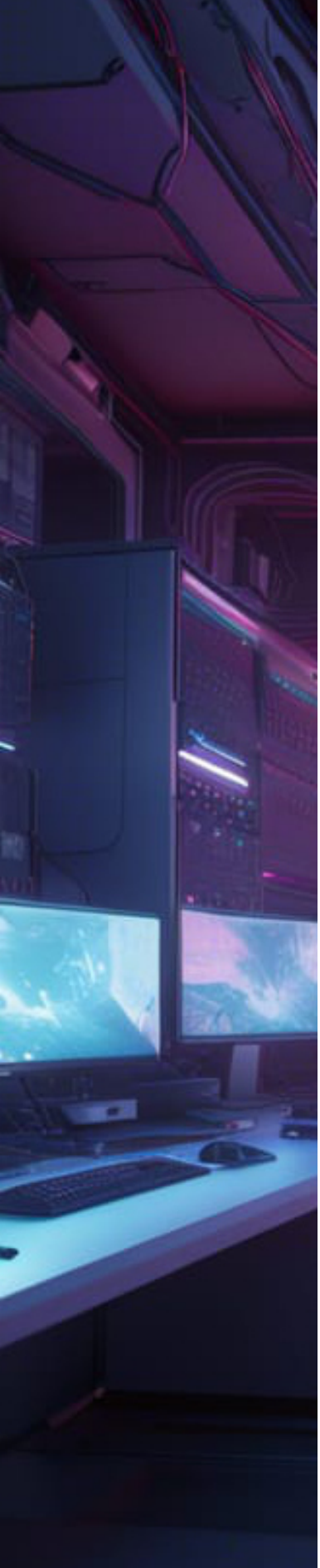
Their main difference is in the talent management approach. The leaders of digitally transformed organizations anticipate that digitization will change talent management, as opposed to their counterparts who are not putting any focus on it. More importantly, digitally transformed organizations understand that digital transformation has simplified the process of talent attractions and retainment.

Businesses that will lead tomorrow are the ones putting their employees at the center of their digital strategies. A successful digitalization depends on employees who work in innovative and forward-looking organizations devoted to investing in their people to ensure they have all needed to face the challenges of tomorrow.

Employee engagement can also be improved when the digital transformation is completed. Once the digital strategy is fully implemented, the employees in the organizations tend to become more engaged. This is because they are being heard during the moment of changes, and their opinions matter to the organization. If these changes occurred without a proper dialogue with the organization's employees, the level of engagement would be either the same or even lower than before the transformation.

Organizations implementing digital strategies must also be aware of the potential need for new roles that haven't existed before. Businesses should prepare their resources to create new roles that are aligned with their technological goals. These roles will be focused on maximizing the potential of any digital transformation project, while also growing the rev-





enue. After all, there is no value in digital transformation without the people using it.

The biggest value of digital transformation lies in the employees. The way they work, things they know, and the skills they possess to face their dynamic workplace are what determine whether a transformation has been successful or not. As most companies have only started to realize the immense value of human factors, investing in digital skills is what will differentiate successful organizations from the ones that will stay behind.

Key people across an organization are what is driving a business to success, but more importantly, it gives consistent worth to these organizations which need human factors to connect with their customers and reach their business targets. Understanding, implementing, supporting, and making the most of any type of change begins and ends with employees. Organizations that fail to align their digital transformation processes with their employees will not be able to keep up with their competitors and ultimately, lose the race.

More Agility

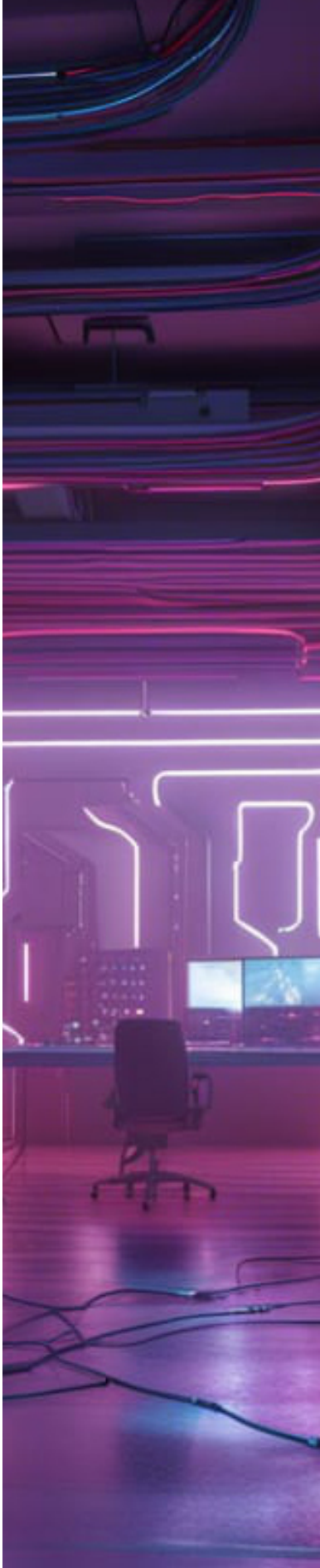
Organizations are increasing their agility with digital transformation as they enhance speed-to-market and implement Continuous Improvement strategies, policies that help organizations focus on improving regular tasks and projects through regular incremental enhancements or larger process enhancements. With more agility, organizations have more opportunities for faster innovation and adaption, but also generally improving the business.

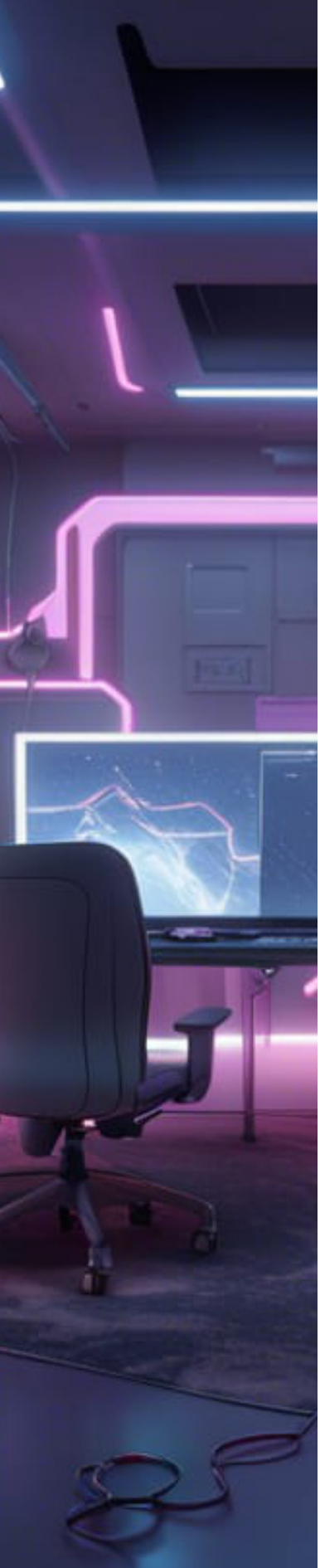
Agile organizations will gain a competitive advantage more easily than the ones that are not. As digital transformation implies a lot of changes on many levels, agility ensure that businesses have what it takes to adapt and continue moving towards their objective. What most businesses lack is implementing agility on a holistic organization level instead of sections of it. Having agile technology or project management team is important, however, it will not suffice in today's competitive business world. By being more agile on all levels, organizations can minimize risks and ensure planned outcomes are always achieved.

The reason why most organizations haven't implemented agility into their business methodology is fear of failure. Business leaders are taking a set of actions to avoid business failure, so embracing it is not a part of the company culture as we know it. Yet, to become an agile organization that completed the digital transformation successfully, it is required to accept failure as a valuable part of the entire process.

In digital transformation, failure becomes 'testing and learning'. By incorporating agility, organizations accept the unknown and are ready to discover whether the new ways and ideas work or not. This approach is hugely beneficial for organizations that seek innovative ways of doing things and are not afraid of failure. The fear of failure results in business leaders bending the truth to present apparent success when the project's objective hasn't been achieved. Besides the lack of transparency, this makes organizations continue with projects that don't work, without even realizing it.

As businesses are becoming more open to the 'test and learn' approach, there is a new trend of trans-





parency which leads to all stakeholders feeling more involved and responsible for the success of a project. Agility puts an end to embellished performance reports that are causing harm to organizations slowly but steadily and creates a healthier environment where everyone involved is informed about the performance in real-time and can take improvement actions at any given moment.

Resistance to agility is often justified with high costs and the possibility that the 'new' cannot replace the 'current', but the costs of risks that appear due to lack of agility can be even higher and more harmful for the organization as they cannot be predicted. Agility is necessary for businesses to rethink their existing strategies and adapt to new challenges in such a dynamic environment. Without it, they will experience lesser success and the objectives from their strategies will ultimately not be achieved.

All organizations need to take their first step towards agility by understanding that failure is a part of the learning experience and shouldn't be considered as a negative consequence. They can do so by revising the terminology that is placed deeply in their company culture. For instance, terms like 'failure' or 'unsuccessful' should be replaced with 'piloting', 'learnings', and 'exploration'.

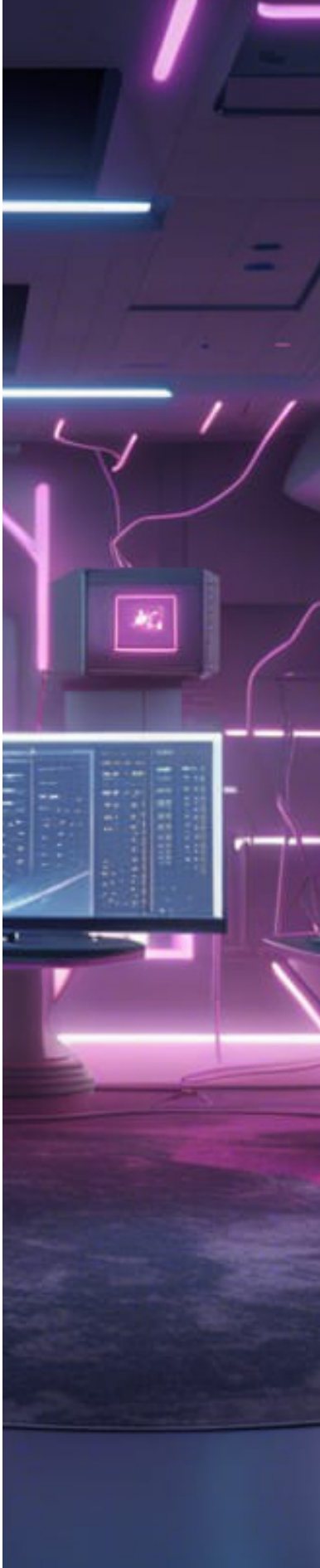
Instead of having two potential outcomes of each project - success and failure, organizations should start focusing more on 'test and learn' phases throughout their entire project planning. Such testing involves both technical testing and employee and customer feedback and consultations, risk analysis, and more. Expanding the understanding of 'testing' to more than just technical projects, and seeing its value when implemented on the corporate level is

where organizations should seek drivers for digital transformation success.

Exploring and reacting to learnings gained from testing is another aspect lacking in project planning. Agility requires time, and skipping any of these steps will not provide organizations with valuable learnings that lead to success. These learning are crucial for future projects and will help employees enhance their knowledge and skills needed for a thriving business.

Finally, by taking an agile approach to digital transformation, organizations focus on setting a goal, but not the time or costs required. These projects are broken down into sprints, where each sprint has an individual goal and there is enough time to make all needed adjustments to ensure that the desired outcome is achieved. Because these sprints are aligned with the core project objective, they can easier be completed. They contribute to the overall success of the project even more than just taking actions in a wider strategy that lacks comprehensive planning and outlining of milestones needed to bring the business closer to the objective.

A digital transformation strategy is a high-level tool that outlines an organization's objectives and digital initiatives. It refers to the means of the use of technology to complete tasks that were before done manually. At a higher organizational level, digital transformation is an opportunity to completely reshape the business by aligning the existing operating model with new ones that are appearing.



What is a Digital Transformation Strategy?

In a highly competitive environment, businesses cannot succeed without a strategy. When it comes to digital transformation, digitizing everything is simply not enough. As a fairly new concept, digital transformation is something most organizations still don't understand profoundly, making it even more challenging to create a valuable strategy. That said, not every plan can be called a strategy. To-do lists, resource plans, operational plans, and capital investments are not strategies.

A valuable strategy must consist of the following components:

- **Diagnosis,**
- **Guiding policy,**
- **Coherent plan of** actions.

Considering these components, a digital transformation strategy refers to a plan of action to reposition an organization in the digital economy. Such a strategy will be based on data to detect new opportunities and conduct a plan of actions to achieve them. The long-term goal of a digital transformation strategy is to continuously leverage emerging technologies and maximize new opportunities with proper skills and mindset.

When working on their strategy, organizations must be aware that digital transformation will not be top-down or bottom-up, but side-to-side. These changes are complex, so they cannot happen all at once or be

willed into existence. For digital initiatives to be implemented successfully, employees will need to understand and embrace them.

As data is key for a digital transformation strategy, businesses must change how they seek opportunities. That means their decisions should only be data-driven to excel. Here is where the value of strategy comes in, exhausting the data to find numerous opportunities for business growth. When based on data, a digital transformation strategy guides organizations through change and gets them to the digital side.

An organization can put as many resources into the digital transformation implementation, but there will be no digital transformation without an in-depth strategy. Organizations can have the best technology but lack the right people. Or, have enough resources but lack a good understanding of data. Each of these components is crucial for any digital transformation strategy, and without them, a business will only be able to digitize instead of fully transform.

Components of a Digital Transformation Strategy

Four components will need to be covered in a digital transformation strategy and incorporated into the business mindset as well. If people don't believe in the changes they are implementing, the digital transformation strategy will fail. That is why all organizations implementing a digital transformation strategy should equally focus on developing a quality strategy and changing the business mindset.

Communications

Changes a strategy aims to implement should be communicated to everyone inside and outside the organization. The strategy must respond to 'what will be said', 'how it will be said', and 'what is the value it will create'. All audiences, including employees and customers, should be educated about the value these changes bring to the business. Even the most efficient and profitable changes will fail in the long run because their value lacks proper communication towards the employees, customers, or other stakeholders.

That said, these changes should be big enough to be considered transformational. Minimal changes, such as a promotional video or a last-minute initiative, will not convince anyone. Organizations should communicate relevant changes that benefit the business as well as their employees and customers, and not try to present small changes that will have little to no impact as something revolutionary.

Culture of Innovation

Every digital transformation strategy has to address innovation and create the actions around it. After all, its ultimate objective is creating a culture of innovation. To constantly innovate something new, a high level of creativity is needed. That requires organizations to nurture creativity which is often marginalized. Innovative businesses are the ones that understand and focus on developing creativity, knowing that practicing creativity leads to innovations.

However, numerous businesses will mistake good ideas for innovation. Purchasing technology and

implementing it is not enough to transform business, but it only makes an aspect of it more efficient. Innovation begins with a customer issue or pain, which the strategy has previously identified and aims to solve these issues or pains with a set of carefully thought actions.

Technology

Technology inspires innovators and allows new business models. Leaders need to understand the business potential of emerging technology. Their understanding doesn't have to be profound, but they need to possess knowledge about how this technology can bring more value to the organization.

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Data

To have an overview of business problems, an organization will need data. Having access to valuable data and knowing how to use it helps business leaders identify business problems, the foundation for any digital transformation strategy. With its main components - diagnosis, guiding policy, and coherent plan of actions - organizations can find the 'unknown' through data.

In a way, business problems reveal data and data reveals business problems. Once the business problems are known, the process of innovation begins.

Submerged in data, any innovation and technology implementation processes result in more predictability, which is essential when strategizing.

Steps of Digital Transformation Strategy

Besides incorporating these four components in their in-depth digital transformation strategy, organizations must follow steps to ensure business success. These steps help companies meet their objectives through a set of detailed actions and their audience embracing the digital initiatives it involves.

Business Assessment

Each strategy should start from assessing the current business in detail. A comprehensive initial assessment should cover the strategic goals, key performance indicators (KPIsKPI - Key Performance Indicator), and growth opportunities an organization has.

Researching The Industry and Competitors

Once the business is assessed, an organization should compare itself with its direct competitors and the industry. Have the competitors already started the process of digital transformation? Which digital solutions have they implemented? Which emerging technologies or tools are used within the industry? Conducting a competitive analysis helps organizations understand the market and identify opportunities to maintain a successful business.

Prioritizing Digital Initiatives

The digital initiative of one organization will be significantly different than the one their competitor has. This is because each business works on its initiative by determining its scope, resources, and return-on-investment (ROIROI - Return-On-Investment). Prioritizing initiatives should be based on their value, estimated effort, and most importantly, their impact.

Creating a Delivery Plan

The organization's delivery plan should have a roadmap for all digital initiatives organization is planning to implement during the digital transformation. The organization should also include resource requirements and criteria to measure results. Before they start incorporating the delivery plan, they should identify all development and delivery processes needed for forming standard practices that will apply to the entire organization.

Creating a Budget Plan

Most digital transformations fail because organizations don't have enough budget for their implementation. Creating a budget, anticipating delays, and planning for the emerging technology contributes to the overall strategy as those deciding on the actions will have enough resources to implement them well.

Creating a Resource Plan

However, technology is not the only digital transformation cost. Organizations need to assemble their teams with the right skills and mindset to put the

strategy in motion. Besides that, they will need to assess their current abilities and the people they need to implement their digital initiatives.

Principles of Digital Transformation Strategy

Not only do the organizations need to cover four components and follow certain steps in their digital transformation strategy, but they also need to incorporate seven key principles if they wish to excel. These principles help organizations stay on track with their digital transformation efforts and achieve their objectives more easily.

Defining the Reason for Digital Transformation

Within one organization, digital transformation will have different meanings for different people. The mistake that many business leaders make is they assume that digital transformation leads with technology and the rest of it will fall in place during the implementation. That approach often fails because it starts from the finish line. A successful digital transformation begins with identifying the needs and objectives and then building the strategy.

The strategic goals are a great start to any digital transformation strategy. What is the plan for the next five or ten years? This approach look at digital transformation from a more efficient perspective than starting with technology. A clear business value needs to be identified from the beginning to implement any digital initiative.

Digital transformation is not a one-off project but a comprehensive, ongoing strategy that aims to position the organization for the future. The organization is set for success when building the digital transformation strategy on business priorities and unique business value.

Preparing for Cultural Change

Being enthusiastic about digital transformation is critical for cultural change that must occur over time. C-suite support, which includes CEOs, CIOsCIO - Chief Information Officer, and CTOs, often determines the outcome of a digital transformation. Without their support, the organization will lack a person in charge of making decisions and ensuring the proper implementation.

Technology cannot make up for people missing to implement the digital initiative. As people are naturally resistant and sceptical towards changes, organizations need those leading others into the digital transformation. They are cheerleaders of change due to their understanding of the digital transformation vision and benefits for everyone in the organization.

That is why as much as C-suite is crucial, it cannot stand alone amid the digital initiative. All departments and teams, including sales, design, and marketing, need to be prepared for cultural change by understanding what it implies and what it brings.

It is bit of utopia to expect no resistance among employees in digitalization process. Even manage-

ments in larger companies are willing to ask additional questions instead of trying to use new things. Start from yourselves. If someone would give you an Android instead iOS how long would it take you to get used? Same and even worse with more resistance goes when talking about new processes. Mid aged people could sometimes be "harder to crack" since they know how to do the job. They are used to one process. Only optimal approach in such cases is to open their eyes through education and what is the main goal of our digital transformation. By doing so we'll be having at least minimized resistance and hopefully after seeing the results it would be gone for good.

It is known that people's resistance can be hidden or postponed. Making digital transformation strategy familiar and clear is a way to make that resistance lower and involve our employees in each step of its implementation.

Starting Small, But Strategic

Digital transformation is a long-term journey that doesn't require completion to be considered successful. Digitally transformed companies can always find something to improve, optimize, or eliminate. Such transformation requires strategic thinking while focusing on more than completion.

On the other hand, its beginning is very clearly defined. Organizations must identify small and strategic actions putting the digital transformation into action while motivating people to embrace the changes. These actions are often called "quick wins" as they lead organizations to success quickly and

improve team morale. Quick wins usually show measurable results within six months.

That said, these quick wins must align with the digital transformation. Mostly, these are actions derived from an overall strategy. Once the organization has defined its digital transformation strategy, it will break the strategy into actions that will help achieve the ultimate objective. The objective of a digital transformation is why it decided to start with the digital transformation in the first place.

Mapping Out Technology Implementation

When organizations add new technology to their existing operations, it doesn't result in digital transformation as much as in inexpensive, inefficient operations. When implementing one of the emerging technologies, it is essential to change the processes and cultures of the organization as well. Keeping in mind that technology is just one of the principles of digital transformation, organizations must have an in-depth strategy and informed, engaged people before jumping into technology implementation.

Once the organization has covered the first three principles, the technology becomes a needed tool to help it achieve its desired business objectives. While mapping out technology implementation, organizations must create a vision to build the business case for any digital initiative. These steps need to be simple and with measurable results.

Some of the most commonly used technology across organizations when implementing technologies are:

- **Mobile:** The number and usage of mobile devices is increasingly growing over the past years, and mobile technology became the cornerstone of the digital transformation strategy. Mobile enhances the speed and volume of interactions between an organization and its audience.

- **Internet of ThingsIoT** - Internet of Things (IoT): How organizations use data to enhance business makes the Internet of Things potent and the Internet of Transformation. The combination of data and intelligence strengthens innovation and transformations, resulting in the cloud, big data analysis, and other related technologies becoming key for digital initiatives.

- **Digital Twin:** This technology learns and updates itself constantly using real-time data to represent operating, working, and environmental conditions in almost real-time.

- **Cloud:** All types of emerging technologies, including private, public, and hybrid cloud platforms help create or modify business processes, culture, and all customer experiences to meet the market's needs.

- **Robotics:** As a perfect solution for replicating repetitive operations and performing time-sensitive tasks faster, robotics is a cost-effective solution that also reduces the number of human errors.

- **Artificial IntelligenceAI - Artificial** Intelligence & Machine Learning: Artificial intelligence uses algorithms to create or modify programs to maximize the insights gained with machine learningML - Machine Learning. When using both of these tech-

nologies, organizations can gather and analyze data to better understand their customers.

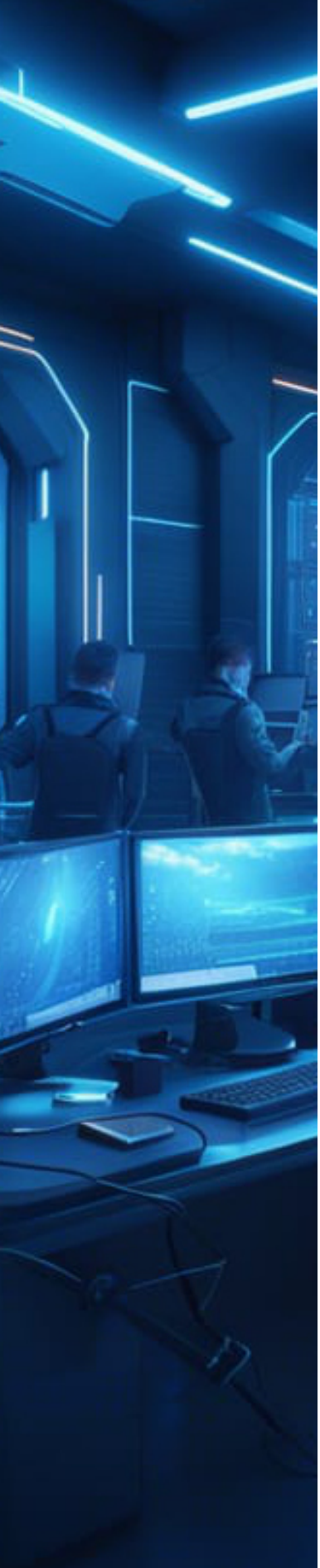
- **Augmented RealityAR - Augmented** Reality: This enhanced version of the physical world presents an entirely new way of engaging with machines and performing tasks which is incredibly beneficial for organizations implementing digital transformation.

Using one of the mentioned technologies often will not be enough to achieve the wanted business outcomes. Simply using them will not suffice, as technologies an organization decided to utilize must align with the overall digital transformation strategy and have a clear purpose to fulfill. As these technology providers will often be located outside the organization, it is essential to choose technology partners wisely and ensure they are the right for organizational needs.

Seeking Partners

When an organization has decided on the technology that will drive the digital transformation changes, it will need to start seeking its technology partner. That said, any products or services that will need to be outsourced should be considered in detail as they might affect the business outcome organization is striving to. There are several questions that each organization seeking partners for their digital transformation must ask itself before committing.

One of the most important questions to answer is whether or not will the technology and the vendor support business scaling. If an organization and the vendor don't share a similar vision for a particular dig-



ital initiative, the results will be devastating. The partner should support the organization in its long-term strategy and have a clear idea about integrating these emerging technologies with the existing ones.

Organizations cannot implement even the best technology without the right partner. The chosen partner should have enough knowledge, experience, and background to be valuable to organizations seeking to digitally transform their businesses because they know what works and what doesn't. Such partners will also be efficient in solving problems across the entire organization, and not just one or two departments.

Gathering Feedback for Refinement

Organizations gather feedback to see what is the result of the implementation, but also to improve it. Once technology partners have been chosen and the company has a clear digital transformation strategy to implement, it is essential to ensure that everyone is aware and accountable for what they need to deliver. Each of these deliveries is what will contribute to the digital transformation success.

At the same time, organizations will need to create a strong feedback platform where all stakeholders can learn from the experience as the digital transformation is being implemented. Because the digital transformation is just a journey, it consists of progress, adjustments, and improvements. When implemented right, technologies are flexible and agile to respond to any change.

Scaling and Transforming

Once these six principles are implemented into the digital transformation strategy, the results from the initial use cases will follow. This success should be leveraged to gain momentum and initiate collaboration in the following stages of the strategy. As the digital transformation continues, an organization will identify new ways to transform the business digitally. When it comes to scaling, businesses must scale both horizontally and vertically. Scaling horizontally refers to applying similar strategies to more locations while scaling vertically suggests connecting additional technologies.

As already said, the digital transformation is without its destination. If an organization implements all six principles, it doesn't imply that the digital transformation is completed. With the dynamic environment these organizations operate in, it is impossible to expect nothing will change from the first moments of working on the strategy to obtaining the desired business outcome. There will always be changes pushing organizations to seek answers through a digital transformation, over and over again.

Key Players in Digital Transformation Strategy

There are three key groups involved in creating a digital transformation strategy in organizations - the communications professional, the technologist, and the leader. They are incredibly valuable for developing a strategy to transform the business and improve the market position. An in-depth digital transforma-

tion strategy must include all three groups in the strategy development phase.

Communications Professional

With every organization, there is always more than just one target audience. Organizations communicate to their employees, customers, prospects, potential employees, investors, etc. Business value can be explained through communication. When something changes in the organization, communication becomes even more important. With digital transformation, there are two stakeholder groups - internal and external.

Internal stakeholders are employees, who need persuasion that the changed state is better than the last one. A skilled communications professional helps organizations understand their employees and empathize with their need to fight change. Without understanding the employee perspective, organizations cannot convince them that digital transformation leads to something better, and a communications professional can do both of these things.

Communications professionals understand that people are not afraid of the change itself, they fear the unknown, so their role is to demystify the unknown by answering all questions and concerns employees might have until they possess a clearer understanding of the digital transformation. Employees don't have to have the same amount of information as the business leaders, but they need to have enough to feel like they are not stepping into the unknown.

The communication professional takes their guidelines from the digital transformation strategy. There, they find what information is necessary to communicate to other employees and at which stage. Without the communications professional understanding the vision, it will be difficult to have all other employees on board. That also implies that the digital transformation strategy must be clear and detailed enough so all stakeholders can act accordingly upon it.

Technologist

If an organization has excellent technologists, they will probably not be even aware of their presence. The job of every technology department is to ensure all threats and issues are resolved for the business to run smoothly. Until their business is affected, most business leaders forget about software developers, app developers, systems integrators, network engineers, and data professionals. Yet, this doesn't diminish the role of a technologist in digital transformation, which is one of the key players to success.

The communications professionals will ask technologists to help them with actions that might result in data leaks or any other cyber threat that might harm business in any way. On the other hand, technologists should be involved during the entire digital transformation implementation, not just when things go wrong and they are called in to solve the issue. With proactivity and being present during the entire transformation, technologists would help organizations by preventing any potential problem and maintaining all systems at all times.

To maximize the knowledge, skills, and experience of a technologist, the organization must first change its

mindset. They are not the maintenance professionals called when something happens, but valuable stakeholders in digital transformation. Leaders need technologists during experimentation and both sides need to change how they approach experimentation in general. Technologists shouldn't hide mistakes anymore because they fear the consequences. Transparency is crucial when implementing a digital initiative successfully. Mistakes that technologists make during experimentation are expected and could still lead to a positive outcome.

Business leaders should avoid putting too much pressure on their technologists during experimentation. These high expectations pressure technologists into hiding their mistakes and affecting the progress of the digital initiative. Correcting the mindset from both ends is essential if businesses want to thrive. Even the best technologists cannot digitally transform a business if that mindset stays the same.

Business Leader

Besides the communications professional and technologist, the business leader is also crucial when developing and implementing a digital transformation strategy. Business leaders are in charge of creating a data-driven strategy that brings clarity to everyone and helps them understand their role in digital transformation. However, creating a data-driven strategy is everything but easy. Such a strategy involves understanding where the emerging business opportunities will come from and allocating the resources to exploit the opportunity when the moment is right.

Yet, the digital transformation strategy doesn't end with just detecting an opportunity when it arises. An organization must fit the opportunity into the wider picture, determining the way to displace business-as-usual and restructure the entire business to serve the customer more efficiently. As new digital business models appear, organizations are constantly faced with the fact their existing business silos are not adequate to serve the customers. That is why business leaders need to focus on building teams based on customer tasks, which requires a lot of agility.

The responsibility of every business leader is to ensure that customers are getting their needs met at different touchpoints of the organization. Customers can interact with organizations through various communication channels, so a leader must enhance these interactions and maintain satisfied, happy customers.

A digital transformation strategy will not succeed if these three roles are not deeply involved in creating and delivering it. A transformation change is challenging if these three roles are not working together towards the same objective. As each of them brings a unique skill set, they should all participate in developing a digital transformation strategy because the business will suffer without them. In smaller organizations, one person will often take on more than just one role, which can work as long as the person is aware they have two major responsibilities to take care of.

Examples of Digital Transformation Strategies

There are many different strategies organizations can opt for when digitally transforming their business. An organization can create its digital transformation strategy without copying existing examples. Each organization has its challenges and issues they aim to overcome with the digital transformation. In a way, there is no good or bad strategy per se. It depends on all factors mentioned in this chapter - components, steps, principles, and key players. If all these factors are covered and implemented well in the strategy, it will be easier to transform a business, regardless of its ultimate objective. If an organization lacks any of these factors, it will struggle and face more challenges during the implementation of the strategy than it can take.

Examples of a digital transformation strategy serve organizations as recommendations instead of rules that need to be followed blindly. This type of strategy requires creative solutions that will improve the ways a business operates and interacts with its customers by making the most of all digital tools available.

Leveraging In-Demand Digital Technologies

Investing, leveraging, and utilizing digital technologies that show positive results will bring the organization closer to people. Determining which digital technology is the right choice to capture the attention of potential and existing customers and facilitate

how all stakeholders within the organization work and interact with each other is complex.

An organization will typically have several types of audience, and they all will not necessarily have the same expectations from the organization. So, before leveraging any digital technologies, business leaders must be aware of how chosen technologies serve all stakeholders. This often requires testing and modifications of digital technologies. Also, it is typically the moment where business leaders seek help from technologists.

With the right digital technology, businesses can build value and enhance efficiency on their existing business models. Companies need to prioritize all strategies empowering digital technologies and be aware of what to use them for, how they function, and how to use big data and information. Ultimately, strategies that leverage in-demand digital technologies boost the organization's productivity as well as the quality of its products or services.

There are three types of digital technologies that have proven to bring enormous benefits to any business type - project management, time tracking, and social media management tools. Each improves efficiency on all organizational levels when implemented the right way.

Project Management Tools

A project management tool can help organizations have more productive and cooperative teams by having a clear overview of how everyone is investing their time and effort. A project management tool

improves transparency because every task has a responsible person, deadlines, and comments.

Time Tracking Tools

Time tracking tools help organizations measure the performance of each member, whether they are working on smaller tasks or bigger projects. Because of its deeper insight on employee performance, time tracking tools can help team leaders address issues on time and improve the performance of a person or entire team to ensure the objective is reached as predicted.

Social Media Management Tools

With automated digital tools that simplify managing of all organization's social media accounts, social media specialists will be able to create content in advance and schedule them within the tool. This leaves them with more time to focus on analyzing social media data, which is tremendously valuable to other marketing and sales strategies.

Enhancing Cybersecurity of Used Technologies

Even though we live in a digital era, security is considered important but not a priority. With organizations treating security as just another area that needs to be taken care of when working on digital initiatives, it is not easy to transform a business digitally. Such an approach often leads to breaches in the system. Lack of cyber security is a serious threat to any organization as the number of viruses and cyber incidents

continue growing, and technologists and leaders cannot ignore it because the consequences can be disastrous for the business.

Companies that managed to overcome cyber challenges by implementing digital initiatives recommend hiring Chief Information Security Officer (CISO-CISO - Chief Information Security Officer). Many organizations are still unaware of cyber threats, so it is difficult to justify allocating the budget for another tech role. However, this role is crucial for ensuring all valuable information and data within the organization are kept and secured appropriately. Otherwise, the security breach that could occur might disrupt numerous business operations in the organization.

When talking about security breaches, each organization is responsible for protecting the information and data they possess. Besides hiring a Chief Information Security Officer, many other actions might improve cybersecurity across used technologies in the organization.

Changing Passwords Regularly

All employees should be educated and reminded to change their passwords. Also, they should always create strong passwords each time they replace the old with the new one. To go one step further in protecting information and data, organizations are using passwords manager tools, which simplify managing and sharing passwords without compromising them.

Ensuring All Connections Have VPNs

Every organization should implement Virtual Private Networks or VPN connections between their office

locations. VPN connections protect the organization's network, which is crucial for those connecting through public Wi-Fi services. That is why all connections used by the organization must be secured by VPNs.

Installing Ad Blocker in Computer Browser

Ad Blocker is one of the trusted cybersecurity features in the computer browser as it protects employees while browsing the internet. This significantly decreases the chances of bugs entering the computer and affecting the cyber health of the organization's computers and systems.

Using Two Factor Authentication

All employees should use Two Factor Authentication to prevent any hacking incidents. Many organizations have witnessed other entities trying to log into work emails to access sensitive information. With Two Factor Authentication, organizations protect vulnerable data and employees from security breaches.

Allocating the Budget R&DR&D – Research and Development of Digital Transformation Systems

Expanding the budget for research and development of systems will result in long-term sustainable growth, and there are no valid reasons for organizations to continue avoiding it. Although many business

leaders expect that their revenues will grow after the digital transformation adaption, there is still a huge discrepancy between these beliefs and increasing the budget to maximize the potential of digital transformation systems.

Technology cannot improve on its own, but it requires exploration and testing to determine how it could contribute better to the whole organization. With profound research and development, IT systems can be maximized and optimized. With an increased budget, organizations can leverage their technologies and take their business to a higher level. Not to mention that optimized digital transformation systems ultimately result in enhanced business operations in general.

Giving Autonomy To the R&DR&D – Research and Development Team

A research and development team will not be able to do their job if someone else makes the decisions for them. These experts have the needed knowledge and skills to make their decisions and detect potential opportunities that will lead to positive business results. Including them in conversations about the market's performance will provide them with valuable information to do even better.

Cooperating with R&DR&D – Research and Development

As much as the R&DR&D - Research and Development professionals need autonomy to make their

decision, they still need the help of other teams and other business operations. In one organization exists the same culture, so sharing information among different departments can help maintain high-quality products while also improving efficiency.

Developing User-Friendly Systems

The user-friendly aspect is not mentioned enough in digital transformation. Every transformation aims to enhance certain business areas and people using these technologies and systems is what makes it successful. Organizations build digital systems to support and perform daily tasks and replace humans with machines. This allows the human workforce to focus on more complex tasks and functions that will be more beneficial for the organization.

However, digital systems need to be user-friendly. The purpose of having a certain digital technology is to allow the human workforce to move onto other tasks and projects, but complicated and confusing systems won't bring any benefits. It will bring more issues and challenges for employees who will need to manage these systems, leading to increased costs and time spent.

Each digital system an organization decides to implement should be efficient, simple to navigate, install, and remove, and without the need to use third-party software. These systems must be effective when handling errors and follow rules or standards set by the organization. The more user-friendly the system, the more successful its implementation will be, followed by numerous benefits on a much higher level.

Digital Transformation Roadmap

Many organizations will talk about a digital transformation roadmap, but only a few will know how to deploy one and get the most out of it. Establishing an efficient process addressing all crucial needs of a unique organizational environment allows businesses to find what works well for them and to create a strategy to make it real.

A digital transformation roadmap is a well-thought plan that moves an organization from here (point A) to there (point B). In the current situation, organizations are using their existing processes, but to get to where they want to be, they will need to start using new digital processes. A digital transformation roadmap helps organizations define and manage the digital initiative. It provides them with a structure to migrate from one tool to another, including technology, people, processes, and other resources required for a successful transformation.

However, just having a digital transformation roadmap doesn't guarantee it will be completed successfully. Organizations use different methods to ensure their roadmap is being successfully deployed, and one of the most efficient is turning employees into change ambassadors. Organizations need their employees to be on board with the changes they want to implement because they will be directly affected by them.

Even if the digital initiative is to reduce the human factor by replacing it with machines, employees will still need to be involved to a certain point. That is why their opinion about digital initiatives is crucial for suc-

cess. To turn employees into change ambassadors, department heads or senior management should first understand the purpose and value of the change, so they can go and inform their teams about it.

Also, setting a faster transformation pace and sharing quick wins in the first phase of the initiative improves the company morale. The first few months are essential because they will set the tone for the rest of the digital transformation journey. Because there will be many new things happening in a short period, all employees will be observing, and showing them how it all works as planned is the way to motivate them to participate even more. Employees participating in the first victories should communicate and celebrate with the rest of the company.

When using change management tools, staying on track with the digital transformation roadmap and making the new technology implementation even more efficient becomes easier. Many tools can support different aspects of the roadmap. One of them is the digital adoption platform (DAPDAP - Digital Adoption Platform), which empowers users to start maximizing new tools and processes quickly with in-app walkthroughs, contextual guidance, smart tips, task lists, etc.

Feedback-gathering tools are also an excellent way of supporting the roadmap success because it motivates employees to engage, simplify sharing ideas between them, and gather insights through the process. When it comes to new information, the best way for employees to learn them is by creating knowledge wikis that will serve as a central point for all training materials. Of course, many other methods might facilitate how employees reach digital change

and the choice will depend on the needs of the organization and its employees.

10-Step Process to Build a Digital Transformation Roadmap

To build a digital transformation roadmap set for success, organizations should follow a straightforward ten-step process. From gathering and analyzing data and prioritizing issues to creating a culture passionate about digital transformation, an organization will need to create a comprehensive roadmap that calculates all potential opportunities and risks and prepares itself to reach them.

Gathering and Analyzing Data

Before making any changes, organizations will need to assess their starting point. Which of the existing processes or systems is currently working well? Where can these processes or systems be improved? Which specific changes does the organization expect to see from digital transformation? Gathering and analyzing data before starting with a transformation provides the organization with the foundation to measure how effective is the initiative. For instance, if the objective of the digital transformation is to improve team productivity, those implementing the changes will need to know how much time the team members spend on particular tasks before the new tools or processes were introduced.

Once the transformation process is completed, measuring and comparing outputs will demonstrate

whether the initiative was successful or not. Ensuring to have the right data and insight to set a stable foundation for the rest of the organization's transformation path. This is why it is essential to gather whatever information is missing before getting started with the digital initiative as this helps tackle all the digital transformation challenges an organization might face throughout the digital transformation journey.

Getting Senior Management Involved

When first looking at it, digital transformation can seem like a simple change in technology or process. To succeed, digital transformation requires a complete cultural change. Implementing a new system within the organization will require training and often a learning curve, which implies that the entire team needs to be committed to achieving the objective of the digital initiative.

However, senior management is mostly in charge of showing the way when changes occur in the organization. If senior management is not committed to making the initiative work, all efforts to change or improve something will fail. So, for a digital transformation to succeed, senior leadership support is needed. That means that those who are aware of the value that lies in the particular change will need to gather the right information to convince the senior management on why this change is essential for the business.

To connect with the senior management, those who seek to drive changes in the business should relate digital transformation to the organization's goals and values. Explaining how undergoing digital transformation will bring the organization closer to achieving

its major objectives will have an impact on the senior management. Also, demonstrating to them how this change will help the organization better align with its values will show them that the change is not the additional element to the organization, but its evolution.

Focusing on return on investmentsROI - Return-On-Investment will also prove to senior management that the investment required from them will have positive results for the business. Another thing that all senior management members love to hear is numbers. As much as digital transformation is a complex process that often cannot be reduced to just numbers, presenting a case supported by numbers will have a greater impact.

Quantifying and Prioritizing Issues

In the initial digital transformation meetings, a lot of issues will probably come up. Keeping in mind that these issues can be solved and that they will not end the digital transformation is crucial. Many times, those who advocate for change will feel discouraged because nobody will understand their enthusiasm and motivation for that change to happen, but it takes time to convince people that embracing change brings benefits.

Instead of getting discouraged, those seeking change should identify these issues and note them down. Then, they should take a look at the entire list of issues brought by other employees and start classifying them. Once categorized, these issues will need to be presented with a solution the next time the change seekers discuss digital transformation with the management of the organization.

One of the ways to present these issues is by creating a high impact vs effort chart. This chart allows detecting whether high-impact opportunities have issues associated with them. Oftentimes, organizations will be overwhelmed with the potential benefits of their digital initiative that they will fail to see all obstacles around opportunities. Creating a plan with solutions for each issue that might arise is the only path to digital transformation success. These solutions must be detailed and they should mention all resources needed for each issue to be resolved.

Detecting potential issues on time allows organizations to prepare for the obstacles they will find on the way. For instance, if an organization is seeking to start gathering a large volume of data, identifying the need for hiring a cyber security expert will reduce the chance of data breach or any customer data violation in the future.

Setting Goals

An organization must set clear, realistic, and measurable goals to drive the initiative. Setting these goals helps organizations set themselves up for success and achieve the return on investmentROI - Return-On-Investment much faster than without them. To set goals properly, the organization will need to determine the ultimate goal of their digital transformation process, also known as Point B in the roadmap. Most organizations avoid setting ultimate goals because it feels far away, too ambitious, and difficult to achieve, but knowing what is on the finish lines helps discover all the obstacles that need to be overcome to get to the goal.

Most of the time, the ultimate goal of the digital transformation will require a phased approach, followed by smaller, more achievable goals. For instance, if the ultimate goal of one organization's digital initiative is to increase team productivity, a smaller goal can be to replace tools proven to be time-consuming and challenged to manage with simpler alternatives.

When establishing goals for digital transformation, organizations should follow the S.M.A.R.T. structure:

- **Specific:** Determining which goal the organization seeks to achieve.
- **Measurable:** Deciding on the metrics that will indicate that the goal was achieved.
- **Achievable:** Considering whether the organization has the capacity the achieve the goal.
- **Relevant:** Identifying the way the goal aligns with the organization's business plan.
- **Timely:** Determine the deadline for the goal.

Establishing Accountability

An organization cannot begin or complete a digital initiative without its employees. As much as employees must be informed about digital transformation from their managers, they should also be given responsibility for the projects they will be working on. When the digital transformation strategy is approved, it will need to be broken down into smaller projects that can be given to certain employees or teams in the organization. They will become set

owners who will be accountable for completing the project they were assigned to.

That said, giving a digital transformation project to an employee is not the same as assigning them regular work they are used to. For most employees within the organization, digital transformation will be a completely new area and they might feel confused or lost. That is why it is important to provide them with all information and guidance they need. Some organizations decide to employ one person to serve as a center of information for all those working on digital transformation projects, while others increase the availability of managers to employees to ensure there is enough time to cover all questions and track the progress.

Ensuring employees have all they need to execute their project successfully is essential, but delegating authority to certain areas will get the project done quicker and more efficiently. Managers are aware of the capacity and skill set of each team member, so allocating work to certain employees boosts productivity and team collaboration. Also, this provides managers with more bandwidth to handle other issues with a higher priority.

Allocating Time and Budget

Digital transformation should be approached as a series of projects the organization plans on the undertaking, meaning it needs to be considered in terms of time to money to excel. Organizations should plan regular meetings to go through the issues that might affect the delivery of these projects, but also think about how much time and money each of these projects require.

Each owner of a project should have a budget that will allow them to complete it successfully. While allocating the budget, it is important to also discuss the impact on business resources to keep everyone on track. If any changes in budget or time resources appear, everyone working on the project should be informed on time. Regarding deadlines, managers should decide what is the time required for the project to be completed successfully. Input from those working on it here is essential as they will have the best idea of the time needed to complete the project.

Taking a Phased Approach

As digital transformation will be divided into smaller projects, each project should have a timeline and related subtasks. Many organizations will start implementing all of these mini-projects at the same time, which leads to overwhelming the team and poor performance. Instead, business leaders should execute, review and create a retrospective for each task. This will help business leaders to look back to see the progress and detect ways to work quicker and more efficiently.

By approaching the digital transformation process in phases, it is much easier to understand whether the performance was good or bad, gather feedback from employees and make adjustments where it makes sense. Testing continuously and planning globally allows organizations to see valuable benefits from completing these smaller tasks, while also ensuring they don't fail to complete other mini-projects within their digital transformation process.

Creating a Culture Passionate About Digital Transformation

The importance of getting everyone within the organization committed and excited about the digital transformation is essential for its success. If a team doesn't see the value of new processes and technology that will be implemented, it will be quite challenging to get them involved.

When employees are informed and included in the discussions about digital initiatives, they will be more interested to see how it works. Everyone in the company should know why there is a need for change and how this change will enhance efficiency and productivity. Also, employees should be encouraged to ask questions and raise their concerns. This will benefit the business leaders as well because once the transformation begins, everyone will be well-informed and will not interrupt the process in any way.

However, it is vital to keep in mind that people are hesitant to change. Organizations must allocate a certain time for adjusting to the proposed plan of action. Expecting that everyone is on board with the digital initiative from the first day will only lead to confusion and frustration between everyone in the organization.

Investing in Agile Project Management

Agile project management focuses on building a collaborative environment to implement, test, and respond to such changes. Agile project management provides organizations with the chance to continuously revisit their plan and adjust according to the needs and concerns of their employees.

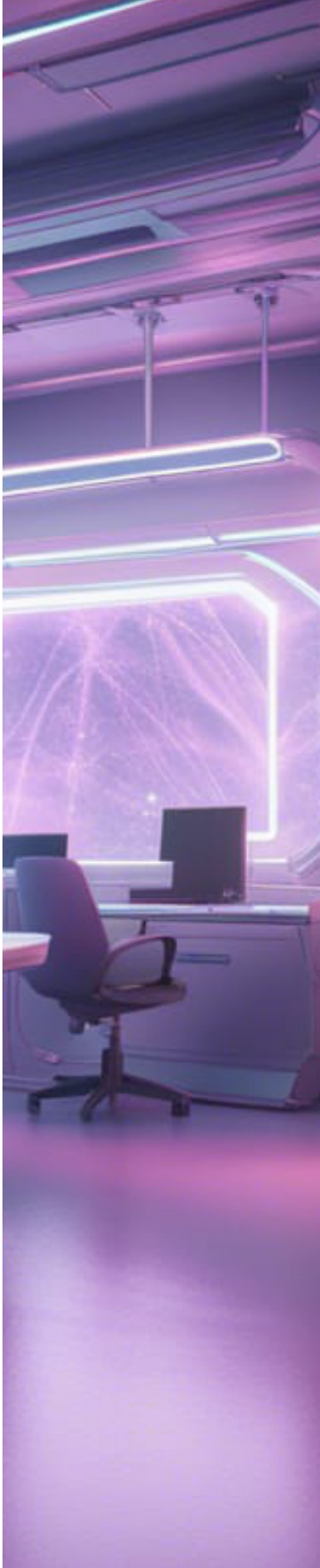
It also improves the success rate for all transformation efforts by dividing the project into sprints. This ensures better tracking of how each bit of change impacts the organization, including getting teams' feedback on what is working and what isn't, to improve the implementation process on time. Agile project management can be best described as a co-pilot in the passenger seat on a road trip to the ultimate goal of digital transformation.

Seeking Post-implementation Feedback

Once the digital transformation has begun and everyone knows what they will be working on, it's important to communicate with those implementing the changes. Employees who are directly working on these tasks will know best how was something implemented, what issues might appear, and how to find alternative solutions. However, their feedback is not only valuable during the initial phase of digital transformation.

Organizations that have implemented the digital changes should seek post-implementation feedback from everyone in the company. After all, everyone should be affected by the implemented changes, so it is only natural to seek their feedback about it. Once the tasks have been implemented and transformation is seeing its end, the organizations should start gathering feedback to measure how successful the implementation was.

The best way to do that is by surveying the people and partners impacted by these changes and analyzing the responses to ensure that all changes are optimized on time and employees and customers




chapter IV
Data-Driven

Executive Takeaways

- **Artificial Intelligence and** Big Data: Big data is essential for artificial intelligence systems to learn from behavioral patterns, perform real-time analysis, and make predictions.

- **Big Data:** Large volumes of data collected by organizations, characterized by their volume, variety, and complexity. Data analytics processes this data to extract valuable insights for decision-making and digital transformation.

- **Big Data Analytics**: The use of technologies and mathematical developments to store, analyze, and cross-reference large volumes of data to detect behavioral patterns. It helps organizations gain comprehensive insights into customer behavior and offer personalized experiences.

- **Challenges and Opportunities**: Organizations face challenges in managing and utilizing big data effectively. However, leveraging data through analytics and digital transformation can lead to improved operational efficiency, enhanced customer experiences, and increased revenues.

- **Data agility:** The ability of organizations to quickly and effectively adapt to changes in the market and make informed decisions based on data.

- **Data-driven decision-making:** Organizations make decisions based on data gathered from various sources, aiming to optimize processes, enhance initiatives, and gain a competitive advantage.

- **Data Analytics:** The process of analyzing big data to extract meaningful information and insights. It helps organizations make informed decisions, improve operational efficiency, and create personalized experiences.

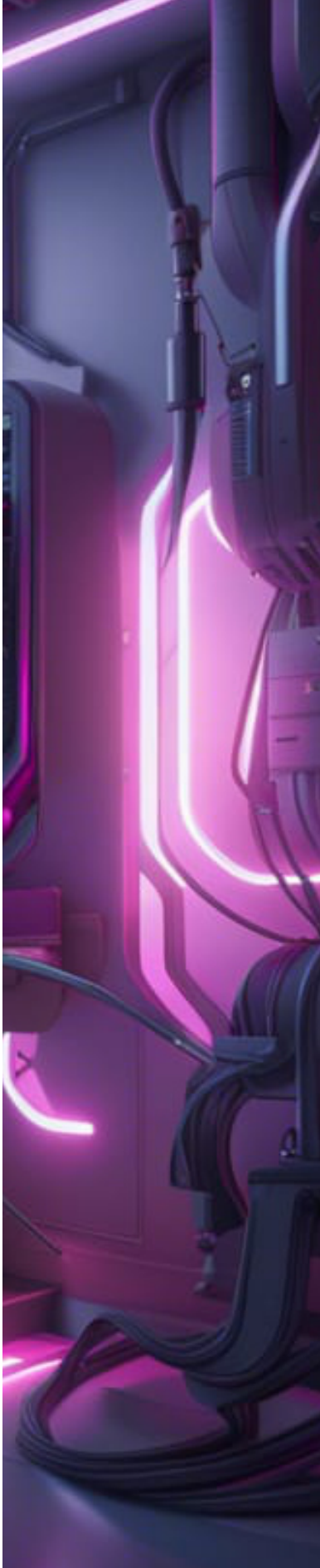
- **Datafication:** The process of transforming social action and analog processes into quantified, digital data. It enables real-time tracking, analysis, and optimization of various aspects within organizations.

- **Datafication vs.** Digitalization: Digitalization refers to the conversion of information into a digital format, while datafication focuses on converting analog processes and customer touchpoints into digital ones, enabling the collection and analysis of data.

- **Digital transformation:** The process of transitioning from offline, manual processes to online, digital ones, which involves digitizing data and content within an organization.

- **Digital experience platforms (DXPs):** Platforms used by data-driven organizations to create personalized and customized experiences for their audience by identifying customer needs, organizing around customer journeys, and training teams on data and analytics.

- **Data-driven society**: Society is increasingly reliant on data-driven services and decision-making processes, impacting various aspects of life, including marketing, sales, customer service, and product development.



- **Data-driven leadership**: Leaders play a crucial role in fostering a data-driven culture by developing a clear vision of success, enabling easy access to data, maintaining data cleanliness, building agile teams, and implementing reward systems.

- **Data holders' responsibility**: Organizations that gather and manage data have a significant responsibility to ensure the security and proper handling of customer data.

- **Data ingestion:** The process of collecting and integrating data into a data warehouse or other systems for analysis and processing.

- **Extract-Load-Transform (ELT):** A workflow used in cloud-based data warehouses where data extraction, loading, and transformation occur within the warehouse itself, providing flexibility and agility for data engineers and analysts.

- **Smart Cities and Datafication:** Datafication plays a crucial role in smart city initiatives, enabling public administrations to collect and analyze data from sensors to improve efficiency, safety, and quality of life for citizens.

Acronyms

- **DXPs:** Digital Experience Platforms

- **ELT:** Extract-Load-Transform

- **IoT:** Internet of Things

With more users on social media platforms and other interactive platforms on the Internet, people are cre-

ating more personal data every day. Humans are not the only ones adding this data because the sensors in the environment around us are also picking up data constantly. From Google, Apple, Amazon, and Facebook to other tools and platforms people use for professional and private purposes, these companies focus on gathering and managing our data. The entire process of collecting personal information is difficult to understand from the user's point of view, so many are not even bothering to learn about it.

There are numerous forms of data generated continuously, including personal data. Once gathered, these companies will store and manage this data somewhere. The purpose of data might differ from one organization to another. For instance, one company might use it for their one-on-one marketing strategy, ensuring their services match their customers' preferences and personal interests. Another company might use this data to create a new product that will be precisely what their customers need.

As this movement continues growing and more interactive online places appear, it is safe to say that we all collectively are approaching the age of the data-driven society. The connection between data and the physical world is so sophisticated that it is often challenging to notice it, yet it produces a new value for organizations across all industries. Data tremendously affects how we live our lives and choose between different options, even when we are unaware.

When a person is looking for a suggestion on where to eat, they will often depend on the restaurant recommendations from a search engine. The same goes for online shopping or any other online activity where you seek a certain piece of information. As

much as these examples might seem obvious, they are confirmations that we have already entered the age of data-driven society. As our lives are becoming intertwined with data, the quality and speed of the decision-making process should also improve. Potentially, this might enhance the quality of life, but humans will need to learn how to use their data on their own.

All organizations, which are also data holders, have the immense responsibility of ensuring their customer data is secured and managing them in a way that serves the customers. That said, it's also crucial for customers to be aware of giving correct personal data, especially in certain situations.

Not to mention that technological drivers like the Internet of ThingsIoT - Internet of Things, blockchains, and artificial intelligenceAI - Artificial Intelligence are interrupting human lives like no other technology before, so it is essential to regulate this future data-driven society. As most existing national legal instruments have already started tackling the challenges put in front of regulatory institutions to protect personal data from any threat that might occur in cyberspace, they need to revise these legal instruments and update them instead of creating new ones each time a new challenge appears.

Today, society relies on data-driven services to enhance the quality of citizens' lives. This data-driven culture could enrich transport, energy, and health, to name a few areas. The wider it becomes, the bigger the need for a common regulatory umbrella aiming to maintain a harmonized vision of cybersecurity.

But, what does data-driven society mean for organizations that are data holders as well? If an organiza-

tion gathers data, it can undoubtedly help with marketing and sales strategies, customer service, and product launches. To make any of these business objectives successful, an organization will need access to valuable data. However, when this data is disorganized and not properly handled, it will be almost impossible to get any value from it.

Organizations need quality tools to help them with data visualization, data analytics, and how this data ingests. With an overwhelming volume of gathered data, organizations are turning to technologies like artificial intelligenceAI - Artificial Intelligence, machine learningML - Machine Learning, and data warehousing to turn it into a constantly-enhancing driver of strategic decisions and actions. But, getting there is a long, frustrating process, and it requires deep knowledge on how to use data to benefit the organization it is gathering data in the first place.

Data Ingestion

Before an organization can do any type of data analytics or the application of cognitive systems, it will need to ingest the data it gathered. Organizations can take a few data ingestion points and the most comprehensive one is working with an intelligent data warehouse because organizations can integrate that data later with a range of systems, such as data lakes, artificial intelligenceAI - Artificial Intelligence, machine learningML - Machine Learning engines, etc.

Data warehouses used to be based on a rigid data model, including only structured data. New data warehouses can ingest even unstructured data and conclude data models and schemas on the go.

When the cloud appeared, it helped create the next generation of data ingestion points and locations where data warehouses come in. A cloud-based data warehouse implied that the entire design process should be more lightweight. Of course, identifying data sources and user needs is still crucial, but the data ingestion happens with just a click of a button. More importantly, organizations can explore and transform this data while in the data warehouse.

This specific workflow is called Extract-Load-Transform or ELTELT - Extract-Load-Transform. It provides mighty flexibility for data engineers and analysts as they will not have to come up with the entire process, from the data model to the OLAB cube structure. The ELT workflow allows them to define the process when new data pours in the data warehouse and new user needs appear. These cloud-based data warehouses show a more efficient way to extract information from data and analyze it. More importantly, they are accessible and effective not only for larger organizations but also for small and medium ones. These companies no longer have to spend millions of dollars and wait for months to have their monolithic data warehouse set up. With cloud-based data warehouses, organizations can set it all up in just a few days and with several hundred dollars per month. Time and money are crucial factors for any business, and cloud-based data warehouses save both.

All this new technology allows organizations to maximize the data potential by:

- **Exploring and better** understanding source data,
- **Preparing, optimizing, and** delivering data solutions,

- **Integrating with data** visualization to allow deeper visibility into market patterns,
- **Generating data models** for a range of use-cases,
- **Deploying data-driven** solutions quicker,
- **Reacting proactively to** market trends due to increased insights.

Simply, organizations that work with data warehouses will benefit from data agility, which allows changes and improvements each time the market shifts and changes. This level of agility is crucial for creating competitive advantages and staying ahead of the competition. Every organization working with numerous data sources and struggling to find the value in its data should start by rethinking how it ingests this information and where a data warehouse seems like an efficient solution.

Data-Driven Society in Digital Transformation

There is no doubt anymore about the incredible value data holds for organizations. Workplaces are becoming more dynamic, and to be ahead of all changes that affect business, organizations must adopt and implement the needed cultural changes. Digital transformation is impossible without data. The initial step towards digital transformation is learning how to manage data appropriately and eliminating all obstacles preventing the organization from using it. Although more business leaders are becoming aware of data being a valuable asset in their organizations, there is still a lack of understanding of its

transformative potential and how to utilize it the right way.

Before data, leaders relied on their gut instincts, an ability to decide based on their intuition, but this quality has become completely undesirable in modern business settings. Instead of relying on intuition and crossing fingers their hunch will work, business leaders need to switch their mindset to data management and analysis. At the core of every data is the potential for transformation that might enhance one or more business aspects by optimizing processes and facilitating certain tasks and projects for employees.

Not to say that organizations that have yet to learn how to ingest data need to implement advanced data analytics and catch up with the rest. Besides being impossible, it will cause more damage than good to these organizations. Like digital transformation is a process that requires time to mature, learning how to work with data will not happen overnight. Whether organizations seek to satisfy their customers or improve their workflow with data, they will need to go through the entire process step by step as its complexity allow no alternative. A clear data strategy with modest actions, perfectly aligned with an ultimate objective, is a way to successfully manage data and transform them into a valuable asset for the organization.

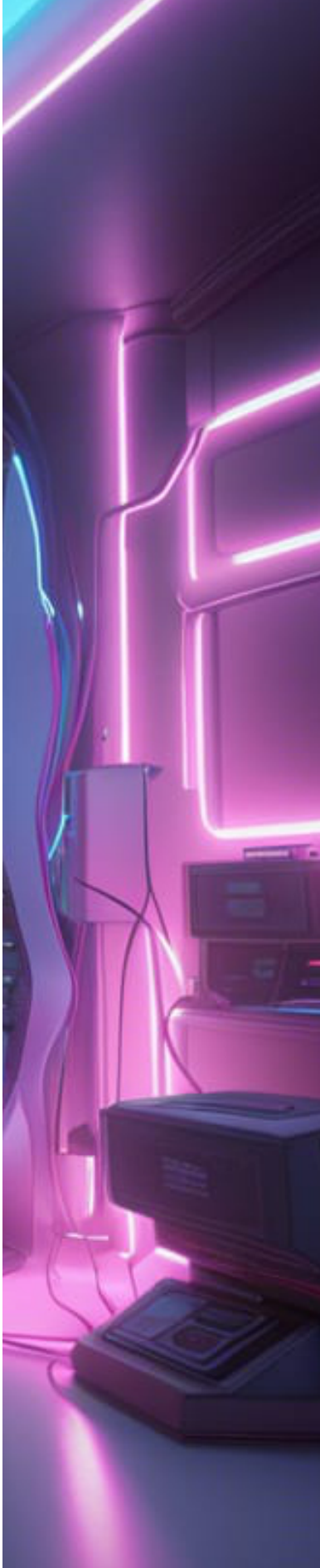
In such a data-driven society, all business decisions are made with data. From simple financial figures to advanced analytics results, organizations decide on their future based on data they gather from various data sources. In a data-driven society, data becomes the primary source of insights in each department of an organization. Data is a cornerstone of each

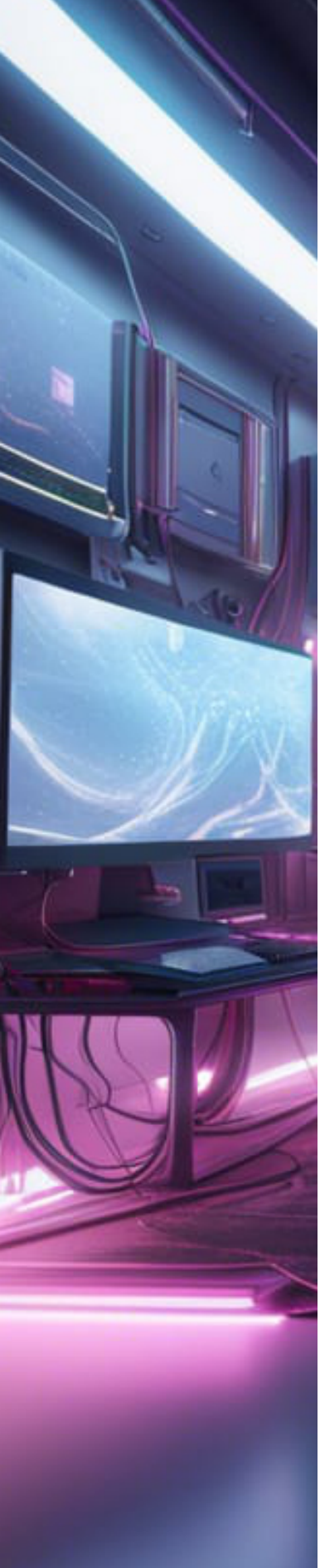
department's strategy and the overall business strategy that drives the organization forward. The concept of being data-driven focuses on numbers, but the way these numbers are interpreted is where the value lies for these data holders.

In organizations, data is used to empower everyone to make more informed decisions, enhance initiatives, and improve the competitive advantages of the organization. Also, the objective is to build a collaborative culture among all employees of the organization to allow data to be that cornerstone for them.

Finally, the objective is to build a collaborative culture that involves all organization members to ensure that data is the basis for all business decisions. Data should help everyone make more informed decisions, from the data owner to the data analyst and everyone else who will use it. To make the most of it, organizations will need to develop new, data-driven applications, detect data patterns, and experiment with analytics platforms to determine what works in all these processes. A data-driven society is enabled by access to data, data quality management, methodological knowledge for data analytics, and technologies that allow them preparation and analysis.

Many businesses fall into the same trap with data and digitized projects. They see this initiative as an opportunity to upgrade technology, assuming it will enhance workflows and productivity simply by incorporating new systems and applications. Although it will have a certain impact, such thinking lacks critical strategic focus. When trying to maximize the potential of data, these organizations need to have a clear goal determined and set of actions that will help them achieve it.





A digital transformation initiative will typically involve migrating from offline, manual processes to online, digital ones. In a sense, this means that all digital transformation projects are also data projects because they involve digitizing data, content, and any relevant information within the organization. On the other hand, each organization determined to implement any digital initiative will need to consider how its strategy will lead the organization to the desired business outcomes, but most of them will overlook the implications of such transformation on data.

For digital transformation to be successful, it must work in two ways. The gathering and use of data have a tremendous impact on the digital plan, and the way this data is managed impacts how successful the digital transformation will be. That said, it is pretty evident why data and digital strategies need to be aligned.

For organizations, data has become one of the crucial elements. In this digital era, data is unparalleled to anything else. Only when organizations have access to the right data, the platforms can create personalized and customized moments of realization for their audience. In the digital transformation process, these platforms are called digital experience platforms or DXPs.

A data-driven organization can use digital experience platforms for:

- **Identifying immediate customer** experience needs to scale the business,
- **Organizing around the** customer journey by making data and insight actionable,

- **Training teams on** data and analytics, leading to building a data-driven mindset.

To create data-driven leadership, organizations need to start with efficient data leadership. Once the culture of data-driven leadership has begun with its implementation, business leaders will need to monitor how it is manifesting and provide their teams with the right tools.

To ensure an evolving data-driven culture in an organization, leaders will need to take a few steps. First, an organization will need to develop a clear vision of success, involving data implementation into every business aspect. Second, they will need to implement a data-driven mindset by enabling employees to access data easily and create a culture shift within the entire organization. Third, data will need to be maintained clean and clear at all times. Fourth, an organization will need to build agile teams rather than just focusing on implementing the right tools. Finally, organizations should consider implementing a reward system to encourage healthy competition between the employees.

Big Data

We cannot talk about data and how it impacts digital transformation without mentioning big data. For organizations that don't understand big data and how to leverage its power, this concept can seem a bit overwhelming. Big data is the large volume of data collected by organizations daily. It is characterized by its enormous volume, variety, and complexity, which makes it challenging to process using conventional data management practices. Due to that, big data

needs fresh and innovative data processing methods like data analytics.

Data analytics processes big data and extracts valuable information from it. Organizations use this information to make marketing, sales, and business decisions while going through digital transformation. With digital transformation, organizations can embrace change and remain competitive in their industry, but the real value of big data in digital transformation comes from organizations' ability to combine both to allow digitization and automation of organizational operations. Both digitization and automation result in improved efficiency, boosted innovation, and new business models.

Big data analytics enables organizations to have detailed information about specific customer groups. This information can come from the actions customers take when on the organization's website, products or services they buy, how often they buy, and if they will buy the same product again. By using all this granular information, organizations can implement changes to meet the needs of their customers while determining the way to meet these needs. To complete their digital transformation, organizations should adopt both big data and data analytics.

When using big data and analytics in business, data presents a separate challenge on its own. Many organizations gather a lot more data than needed or unnecessary types of data. As the volume and type of data an organization gather grows, the complexity of data analytics also increases. Therefore, organizations should narrow down the data types which would be most valuable to them. This would reduce the data volume they gather in the entire process.

So, before an organization starts collecting data, it should identify the biggest short-term and long-term challenges. This list of challenges will help an organization to break down the data it gathers to useful insights that can be used to make more informed decisions in business and drive growth. With more organizations becoming aware of the data value, the demand for talent with data analytics skills continues growing. This is also one of the main reasons why data science and data analytics skills are some of the highest demanding roles in the field.

When setting the objectives data helps to achieve, organizations need to be as specific as possible. Objectives such as improving the bottom line are not specific enough. An organization should focus on finding answers to how to do it and what to do instead. For instance, business leaders can set specific objectives such as retaining customers and reducing operational costs, as both of them improve the bottom line.

Once the organization has identified its objectives, it should focus on gathering data sets that help it meet its objectives. If the objective is gaining new customers, the organization can focus on its data from social media platforms and other sales channels because such data often shares valuable information for customer acquisition strategies.

However, big data and data analytics can obstruct digital transformation if data is not managed properly. Having access to a large volume of data means nothing if the organization is unable to organize and manage this data to facilitate its usage. To maximize the potential of advanced analytics and machine learningML - Machine Learning models, the data needs to be trustworthy. This is why it is essential to

gather the right data and manage it efficiently. Ensuring the data is trustworthy helps organizations enjoy more benefits when using this data.

While organizations have this urging need to hire a data analyst to bring sense to all this data they continuously collect, small organizations collecting a small volume of data or those without enough resources will not be able to follow this path. They can use a range of tools and platforms that allow business leaders to gather data, segment it into data sets, manipulate and organize them in a way that the entire organization can evaluate and understand them. Also, these tools help small businesses to track the impact of the decisions they made by utilizing data and current industry trends and projections.

When an organization has the tools to analyze data sets, with or without a data analyst, it can start taking steps to digital transformation. Such digital transformation, based on quality data, can then be used to gain a competitive edge in any industry.

Ways Big Data Reveals Digital Transformation Opportunities

When managed properly, big data brings to the spotlight neglected, dark corners of the organization. A large volume of well-managed data can deliver a better comprehension of operations, customers, and markets if implemented within an analytics or artificial intelligenceAI - Artificial Intelligence program. For a digital transformation to succeed, organizations need large amounts of data and quality management.

On its own, big data is completely useless unless the organization has a digital transformation strategy to make use of it. Big data ensures that organizations gather a large volume of data, which ultimately increases the chances for success. When digital transformation and big data converge, a change of real value for the organization becomes possible. As the number of IoTIoT - Internet of Things devices, smartphones, and wearables grows, the amount of data these devices generate also grows. The combination of all that data, the potential of big data analytics, and digital transformation enables organizations to adjust in almost real-time to their customer needs, but also predict their behavior in the future.

The growing increase of internet-connected devices, evolving data-driven business models, and globally connected business ecosystems require that organizations build a cohesive, modular digital platform, powered by big data. The return on investmentROI - Return-On-Investment that an organization can generate from its investments in the digital platform will greatly depend on its data value extraction potential. When digital technologies focus on deriving maximum value from big data, it can allow technology leaders to build data hubs for accumulated and staging data from various sources. Many big data providers offer pre-built analytics and machine-learning algorithms that these leaders can leverage and implement in their digital transformation initiatives.

However, big data and linked digital transformation efforts must be clearly defined for the organization and the industry. For instance, an organization will need to define whether the goal is to increase revenue with connected products, cut costs with a more optimized platform, or something else. Only when

the objective is clearly defined, IT leaders are ready to determine an in-depth strategy for their big data, IoTIoT - Internet of Things, and cloud.

Every digital transformation effort should have an objective in mind. Whatever the goal of the digital transformation strategy, all actions that follow need to align with it. More importantly, a digital transformation strategy defines the path and guides all employees in implementing chosen technologies.

Another thing that organizations need to be aware of is losing the business perspective. Too many digital transformation initiatives start within IT departments and fail to succeed because they weren't business relevant. If an effort involving big data is executed on its own, it will seem like a solution that lacks a problem to solve. The most successful digital transformations allow technology, including big data initiatives, the glide path. Big data and digital technologies enable organizations to understand better their customer preferences and behavior to create more personalized experiences.

This introduces a range of insight-based products and services and allows the organizations to combine big data and digital transformation to design new products and services that give them a competitive advantage. Yet, if big data is poorly managed, it might slow down or harm the entire process of digital transformation. That is why organizations need to understand the value that lies in metadata management, data catalogs, data quality, data ownership, and assigned security. All these factors impact more the digital transformation than having fewer data to work with than you expected.

Technology leaders being proactive in using big data in aid of digital transformation will be the most successful ones in their industry. They will begin their digital transformation by crafting a strategy for data management. After all, a digital transformation cannot be successful if its data lacks trustworthiness. Organizations that invest in data governance, advanced analytics, and machine learningML - Machine Learning, will see the most benefits from their overall strategy. The most common benefits that come from such strategies are improved operational efficiency, enhanced customer experiences, and increased revenues.

Datafication

Datafication can best be explained as the transformation of social action into quantified data which allows real-time tracking and predictive analysis. Datafication refers to taking previously invisible activity and converting it into data, which can be monitored, tracked, analyzed, and optimized. Many emerging technologies have enabled numerous new ways to datafy daily activities within an organization.

It is a technological trend converting various aspects of organizations into computerized data by utilizing processes that result in data-driven enterprises by giving new forms of value to data. Datafication aims to turn the most basic, daily interactions of humans into a data format, which can later be used for social purposes.

There are already numerous examples of datafication. Social media platforms like Facebook and Instagram collect and monitor data information to market

more targeted products and services to their users. Promotions we see on social media are also the result of the monitored data and more importantly, all of this changes our behavior. When seeing these target promotions, we decide to make a purchase, learn more about the advertised company, subscribe to their newsletter, etc. In this example, however, data is being used to redefine the way content is created by datafication instead of informing recommendation systems.

Besides social media, there are other industries where the datafication process is already being used, such as insurance, banking, human resourcesHR - Human Resouces, hiring, and recruitment, to name a few. Insurance companies use data to update their risk profile management and business models, while human resources use data to detect employee risk/taking profiles, among others.

Maybe the most interesting example of datafication is Netflix, an internet streaming media provider. Many are unaware of the fact that Netflix started as a DVD rental company 20 years ago. Aware of the power of personalization, Netflix was recommended and mailing DVDs to its customers. Yet, this personalization was very limited, allowing Netflix to operate based on data points like the past rental history, the length of time each DVD was held, and basic demographic information. When the company launched a streaming service, the datafication of user behavior started. Now, the company had access to information about user browsing history, points where users press forward/rewind/pause, titles they add to the wish list, etc.

This allowed Netflix to divide its customers into thousands of micro-clusters or taste communities, where

each individual can be a part of different taste communities. Netflix uses datafication to better understand its users to provide them with a more personalized experience, from a customized homepage to a personalized Recommended for you list.

Undoubtedly, data is the new gold. With more data, improved algorithms, and enhanced products, organizations can support business model innovation and create more value for their customers. That is why every company that starts with digital transformation should venture on a datafication journey, which involves continuously extracting data from activities and transactions that occur naturally in the organization and establishing data pipelines that allow large amounts of data with high velocity.

Starting to implement datafication in an organization means to be aware of the value that lies in in-depth knowledge of the customers. After all, companies like Amazon and Google are leaders in their industries because they have a profound knowledge of their customers. As humans, we are more social and predictable than we think. As most of our daily activities include smartphones and the rest of the devices, we are leaving behind digital bread crumbs, recording our behavior even if we're not aware of it. This digital information about each person can be very valuable to those who know how to use it right. Companies like Amazon and Google do, and they have analyzed millions and millions of customer data to understand the market and deliver exactly what they expect.

Data is everywhere, so the real question is not should an organization gather data, but how they should manage it in the first place. For instance, data can show they tend to go to the same fast-food restau-

rant once or twice a week, purchase a subscription to many platforms (e.g., Netflix, Amazon Prime, and Spotify), order a new card, walk about eight kilometers every day, etc. As mentioned above, this data is gold - but only to those who know how to use it.

There are different ways that organizations can utilize the extracted data. For instance, two organizations in the same industry can have access to the same data, but they will come up with different ideas based on that data. One organization might decide to partner up with a popular brand that is preferred by its market, while the other might decide to launch a new highly-personalized product or service that will satisfy all current customer needs.

Datafication vs Digitalization

Many organizations still confuse digitalization with datafication. Digitalization involves the conversion of any type of information into a digital format, such as converting photos into JPEG, music into MP3 files, text to HTML, and so on. Digitalization will increase the amount of available data exponentially. Essentially, digitalization refers to capturing human ideas in digital form to be transmitted, manipulated, reused, and analyzed.

Datafication refers to turning analog processes into digital processes and customer touchpoints into digital customer touchpoints. In other words, datafication involves gathering data within the entire organization, from HRHR - Human Resouces data and financial data to sales data, customer data, and social media data. The Internet of ThingsIoT - Internet of

Things (IoT), a network of connecting products and devices with a connection to the Internet, is why datafication is possible. All these connected devices allow businesses to analyze all types of processes within their organizations.

There is an endless number of possibilities to datafy an organization. Any device, process, infrastructure, or customer touchpoint can turn into smart because of the sensors connected to the Internet. As the number of connected devices is increasingly growing, datafication has everything it needs to become possible for all organizations. Shortly, all these connected devices and sensors will surely result in smart homes, smart cities, but also smart offices. There are approximately 20 billion connected devices globally, and this number is expected to reach 75 billion by 2025. Furthermore, the prediction is that by 2035, we will interact with a connected device every 18 seconds.

Over the next few years, as the number of connected devices continues growing, the amount of data will continue to grow as well. This creates an environment of data, allowing organizations to truly datafy themselves. Once they are growing the large volume of data, their analytics will also become more valuable and will provide the business leaders with more in-depth insights, which is incredibly beneficial when crafting strategies.

The first step in building the organization that will excel in the era of digitally transformed businesses is to datafy the organization. However, it is crucial to be aware that datafication is not only a technical challenge for organizations. This process touches upon every area within the organization, such as business workflows, data governance, strategy processes, pri-

vacy aspects, company culture, and security. All these aspects must be considered when preparing the business for datafication.

There are almost no limits with datafication, as long as the organization complies with regulations protecting its employees and customers. That said, the datafication of personality utilizing websites and applications is not that simple. Growing attention to privacy and security, but also regulations like GDPRGDPR - General Data Protection Regulation, make storing sensitive customer data challenging for organizations.

When an organization starts with datafication, it should start small. Each organization, regardless of its size and resources, should start with processes simple to datafy. Because many organizations start too ambitiously, their datafication initiatives ultimately fail. Once an organization has gained enough experience with datafying its processes, it is ready to focus on more complex areas of the organization.

The technology needed for datafication is IoTIoT - Internet of Things devices and smart sensors, which will be used to streamline and enhance existing business processes. Simply put, the datafication of an organization is the first phase of transforming into a data organization, and later to digitally transformed business.

Big Data Analytics

It is estimated that around 2.5 trillion bytes are generated worldwide and stored by public administration and private companies every day. Also, cities across the world are becoming full of sensors gathering

different types of feed regarding weather, traffic, telephony, etc. Besides being a data-driven society, we have also become data.

Another concept that organizations should be aware of when talking about data, is big data analytics, a process of clustering all technologies and mathematical development to store, analyze, and cross-reference that data to detect behavioral patterns. A growing number of organizations are focusing on this new paradigm, thinking it provides a more comprehensive view of how customers behave. This data allows them to offer a more personalized experience, regardless of the industry.

Big data analytics involves a variety of digital concepts which are already familiar, such as data lakes, data mining, machine learningML - Machine Learning, and repositories where raw data is stored before analysis. Data mining extracts data to be analyzed by a human, machine learning identifies these patterns and performs actions correspondingly. One of the examples is Facebook's feed feature. The social platform learns from our interactions and adjusts the information in our feed according to our behavioral patterns. This ensures we as Facebook users are offered more relevant content to our preferences.

That is why artificial intelligenceAI - Artificial Intelligence will become more dependent on big data. This is no longer only a matter of efficiency in tools, but they should also perform in real-time, learn from behavioral patterns, and predict them. Many companies and public administrations have already started using the virtues of data analysis to provide a more targeted service. Walmart, an U.S. retail company, stores data from millions of transactions made by its customers every day to predict which products are

going to be demanded at which hour, day, week, or occasion.

Smart cities also depend on datafication. Public administrations use data gathered from sensors all over the cities to become more efficient, safer, and provide an overall better quality of life for their citizens. Dubai, one of the technologically most advanced cities, plans to digitalize all government services and make them available through the DubaiNow app. A datafication implementation example is a monitoring system using artificial intelligenceAI - Artificial Intelligence for bus drivers in Dubai, which has tremendously reduced traffic accidents typically caused by fatigue.

Another smart city that has progressed significantly with datafication initiatives is Oslo. The Norwegian capital is increasingly focusing on climate change, so the government has started using sensors to control lighting, heating, and cooling in buildings, accountable for around 40 percent of total energy consumption. Their goal is to cut emissions by 95 percent by 2030 with building control through sensors and electric vehicle development and technology.

This is only the tip of the iceberg when talking about the potential of data in society. The technology revolution will continue to transform organizations and data will play a key role. There are still some challenges about privacy lurking around data and a certain amount of legislation is required to trigger va change in society, which can be compared to the arrival of electricity. Only this time, instead of electricity, the society, which includes organizations as well, will need to learn how to make the most of the immense amounts of data they produce daily.


chapter V
Lexicon

Introduction to the Lexicon: Understanding Digital Transformation

In the following pages, you will find a comprehensive lexicon designed to enhance your understanding of the exciting and ever-evolving field of digital transformation. This lexicon serves as a valuable reference tool within this book, providing definitions and explanations of key terms and concepts related to digital transformation.

Why is a lexicon necessary within a book on digital transformation?

Let us explore the reasons:

1. **Definition of Key** Terms: Digital transformation encompasses a wide range of technologies, strategies, and processes. This lexicon will provide clear definitions of essential terms used in the book, ensuring that you grasp the specific language and terminology employed in the context of digital transformation. It serves as a foundation for understanding the concepts discussed throughout the book.

2. **Enhanced Comprehension:** Digital transformation involves complex ideas and interconnected concepts. By including a lexicon, we aim to enhance your comprehension of the subject matter. Instead of searching for external sources, you can conveniently refer to the lexicon within the book to quickly access definitions and refresh your memory on previously discussed terms. This ensures a smooth reading experience and a deeper understanding of the content.

3. **Avoid Misinterpretation:** Technical terms and industry jargon can be easily misinterpreted or misunderstood. Our lexicon helps you navigate through the intricacies of digital transformation by providing accurate and reliable definitions. By clarifying terminology, we aim to prevent any confusion or misapplication of concepts, ensuring that you grasp the intended meaning behind each term.

4. **Convenient Reference:** As you delve into the chapters on digital transformation, you may encounter unfamiliar terms or need a quick reminder of previously introduced concepts. Our lexicon serves as a convenient reference tool right within the book itself. You can effortlessly flip to the lexicon section, saving time and effort while gaining immediate access to concise definitions and explanations.

5. **Educational Value:** Education and learning are at the core of our mission. The lexicon within this book supports your educational journey by building your vocabulary in the realm of digital transformation. By familiarizing yourself with industry-specific terminology, you will gain the confidence to engage in discussions and apply the concepts discussed in real-world scenarios.

6. **Consistency and Accuracy**: In the world of digital transformation, consistency and accuracy in terminology are crucial. The lexicon helps us maintain a standardized language throughout the book, ensuring that we communicate ideas clearly and consistently. By establishing a shared understanding of terms, we can effectively convey the principles, strategies, and best practices of digital transformation.

As you embark on this exploration of digital transformation, we encourage you to use this lexicon as a valuable companion. It will empower you with the knowledge and vocabulary necessary to navigate the dynamic landscape of digital transformation and fully grasp the concepts discussed within this book.

Let us embark on this enlightening journey together, embracing the transformative power of the digital age.

A

- **Adware:** Software that automatically displays or downloads advertising material when a user is online.
- **Affiliate Marketing:** A type of performance-based marketing in which a business rewards one or more affiliates for each visitor or customer brought by the affiliate's own marketing efforts.
- **Agile Methodology:** A project management approach, often used in software development, that emphasizes flexibility, collaboration, and customer satisfaction.
- **Agile Software Development:** A set of principles for software development under which requirements and solutions evolve through the collaborative effort of self-organizing and cross-functional teams.
- **Algorithm:** A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.
- **Analytics:** The systematic computational analysis of data or statistics.
- **API (Application Programming Interface):** A set of rules and protocols for building and interacting with software applications.
- **Application:** A program or piece of software designed and written to fulfill a particular purpose of the user.
- **Artificial Intelligence (AI):** The simulation of human intelligence processes by machines, especially computer systems.
- **Augmented Analytics:** The use of enabling technologies such as machine learning and AI to assist with data preparation, insight generation, and insight explanation to augment how people explore and analyze data in analytics and BI platforms.
- **Augmented Reality (AR):** An interactive experience of a real-world environment where the objects that reside in the real world are enhanced by computer-generated perceptual information.
- **Autonomous Things (AuT):** Devices that use AI to automate functions previously performed by humans.

B

- **Backlink:** An incoming hyperlink from one web page to another website.
- **Bandwidth:** The amount of data that can be transmitted in a fixed amount of time.
- **Big Data:** Large and complex data sets that traditional data-processing application software is inadequate to deal with.
- **Biometrics:** The technical term for body measurements and calculations. It refers to metrics related to human characteristics.
- **Bitcoin Mining:** The process by which transactions are verified and added to the public ledger, known as the blockchain, and also the means through which new bitcoin are released.
- **Bitcoin:** A type of digital currency in which encryption techniques are used to regulate the generation of units of currency and verify the transfer of funds, operating independently of a central bank.
- **Blockchain:** A system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system. It is essentially a digital ledger of transactions that is duplicated and distributed across the entire network of computer systems on the blockchain.
- **Botnet:** A number of Internet-connected devices, each of which is running one or more bots.
- **Bring Your Own Device (BYOD):** The policy of permitting employees to bring personally owned devices (laptops, tablets, and smartphones) to their workplace, and to use those devices to access privileged company information and applications.
- **Business Analytics (BA):** The practice of iterative, methodical exploration of an organization's data, with an emphasis on statistical analysis.
- **Business Intelligence (BI):** Technologies, applications, and practices for the collection, integration, analysis, and presentation of business information to support better business decision making.
- **Business Process Management (BPM):** A discipline in operations management in which people use various methods to discover, model, analyze, measure, improve, optimize, and automate business processes.
- **Business Process Reengineering (BPR):** The practice of rethinking and redesigning the way work is done to better support an organization's mission and reduce costs.

- **Business-to-Business (B2B):** A situation where one business makes a commercial transaction with another.
- **Business-to-Consumer (B2C):** Business or transactions conducted directly between a company and consumers who are the end-users of its products or services.

C

- **Cache:** A hardware or software component that stores data so that future requests for that data can be served faster.
- **CAPTCHA:** A program that protects websites against bots by generating and grading tests that humans can pass but current computer programs cannot.
- **Chatbot:** An artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps, or through the telephone.
- **Click-Through Rate (CTR):** The ratio of users who click on a specific link to the number of total users who view a page, email, or advertisement.
- **Clickbait:** Content whose main purpose is to attract attention and encourage visitors to click on a link to a particular web page.
- **Cloud Computing:** The delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.
- **Cloud Storage:** A model of computer data storage in which the digital data is stored in logical pools, the physical storage spans multiple servers (and often locations), and the physical environment is typically owned and managed by a hosting company.
- **Compiler:** A program that translates instructions written by a human programmer into more specific codes that can be directly read by a computer.
- **Content Delivery Network (CDN):** A geographically distributed network of proxy servers and their data centers.
- **Content Management System (CMS):** A software application or set of related programs that are used to create and manage digital content.
- **Content Marketing:** A type of marketing that involves the creation and sharing of online material (such as videos, blogs, and social media posts) that

does not explicitly promote a brand but is intended to stimulate interest in its products or services.

- **Conversion Rate:** The percentage of users who take a desired action.
- **Cookie:** A small amount of data generated by a website and saved by your web browser. Its purpose is to remember information about you, similar to a preference file created by a software application.
- **Crowdsourcing:** The practice of obtaining information or input into a task or project by enlisting the services of a large number of people, either paid or unpaid, typically via the Internet.
- **Cryptocurrency:** A digital or virtual currency that uses cryptography for security.
- **Cryptography:** The practice and study of techniques for secure communication in the presence of third parties called adversaries.
- **Customer Experience (CX):** The product of an interaction between an organization and a customer over the duration of their relationship.
- **Customer Journey:** The process that a customer goes through when interacting with a company, from the initial discovery of a product or service to the final purchase or interaction.
- **Customer Lifetime Value (CLV):** A prediction of the net profit attributed to the entire future relationship with a customer.
- **Customer Relationship Management (CRM):** Strategies, technologies, and practices used by companies to manage and analyze customer interactions and data throughout the customer lifecycle.
- **Customer Segmentation:** The practice of dividing a customer base into groups of individuals that are similar in specific ways relevant to marketing, such as age, gender, interests, and spending habits.
- **Cyber Espionage:** The use of computer networks to gain illicit access to confidential information, typically that held by a government or other organization.
- **Cyber-Physical Systems (CPS):** Mechanisms controlled or monitored by computer-based algorithms, tightly integrated with the internet and its users.
- **Cybersecurity:** The practice of protecting systems, networks, and programs from digital attacks.

D

- **Darknet:** An overlay network within the Internet that can only be accessed with specific software, configurations, or authorization, and often uses a unique customized communication protocol.
- **Data Analytics:** The science of analyzing raw data to make conclusions about that information.
- **Data Breach:** A leak or spill of data which is released from a secure location to an untrusted environment.
- **Data Breach:** An incident in which sensitive, protected, or confidential data has potentially been viewed, stolen, or used by an individual unauthorized to do so.
- **Data Center:** A large group of networked computer servers typically used by organizations for the remote storage, processing, or distribution of large amounts of data.
- **Data Governance:** The overall management of the availability, usability, integrity, and security of the data employed in an enterprise.
- **Data Integration:** The process of combining data from different sources into a single, unified view.
- **Data Lake:** A storage repository that holds a vast amount of raw data in its native format until it is needed.
- **Data Mining:** The process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems.
- **Data Modeling:** The process of creating a data model for the data to be stored in a database.
- **Data Privacy:** The aspect of information technology (IT) that deals with the ability an organization or individual has to determine what data in a computer system can be shared with third parties.
- **Data Recovery:** The process of salvaging inaccessible, lost, corrupted, damaged, or formatted data from secondary storage, removable media, or files, when the data stored in them cannot be accessed in a usual way.
- **Data Science:** An interdisciplinary field that uses scientific methods, processes, algorithms, and systems to extract knowledge and insights from structured and unstructured data.

- **Data Scrubbing:** The process of amending or removing data in a database that is incorrect, incomplete, improperly formatted, or duplicated.
- **Data Security:** Protective digital privacy measures that are applied to prevent unauthorized access to computers, databases, and websites.
- **Data Visualization:** The graphical representation of information and data.
- **Data Warehouse:** A large store of data collected from a wide range of sources used to guide business decisions.
- **Decryption:** The process of taking encoded or encrypted text or other data and converting it back into text that you or the computer can read and understand.
- **Deep Learning:** A subset of machine learning in artificial intelligence (AI) that has networks capable of learning unsupervised from data that is unstructured or unlabeled.
- **Deep Web:** The part of the World Wide Web that is not discoverable by means of standard search engines, including password-protected or dynamic pages and encrypted networks.
- **DevOps:** A set of practices that combines software development (Dev) and IT operations (Ops) to shorten the systems development life cycle and provide continuous delivery of high-quality software.
- **Digital Asset Management (DAM):** A business process for organizing, storing, and retrieving rich media and managing digital rights and permissions.
- **Digital Customer Experience (DCX):** The sum of digital interactions between a customer and an organization, resulting in the customer's perception of the brand.
- **Digital Disruption:** The change that occurs when new digital technologies and business models affect the value proposition of existing goods and services.
- **Digital Divide:** The gap between those who have ready access to computers and the internet, and those who do not.
- **Digital Economy:** An economy that is based on digital computing technologies, including the internet, cloud computing, and other digital services.
- **Digital Ecosystem:** A network of interconnected digital tools, platforms, and stakeholders that interact to deliver value.
- **Digital Footprint:** The trail of data you create while using the Internet. It includes the websites you visit, emails you send, and information you submit to online services.

- **Digital Immigrant:** A term for individuals who were not born into the digital world but have adopted the technology later in life.
- **Digital Innovation:** The creation of new and novel digital products, services, or processes that add value to an organization or its customers.
- **Digital Literacy:** The ability to use information and communication technologies to find, evaluate, create, and communicate information.
- **Digital Maturity:** The extent to which an organization has developed its capabilities to adapt to digital changes and disruptions.
- **Digital Native:** A company or individual born or brought up during the age of digital technology and therefore familiar with computers and the internet from an early age.
- **Digital Rights Management (DRM):** A systematic approach to copyright protection for digital media.
- **Digital Strategy:** A plan of action designed to achieve a business goal through the implementation of digital initiatives.
- **Digital Transformation:** The integration of digital technology into all areas of a business, fundamentally changing how you operate and deliver value to customers.
- **Digital Twin:** A digital replica of a living or non-living physical entity. By bridging the physical and the virtual world, data is transmitted seamlessly allowing the virtual entity to exist simultaneously with the physical entity.
- **Distributed Ledger Technology (DLT):** Consensus of replicated, shared, and synchronized digital data geographically spread across multiple sites, countries, or institutions.
- **Domain Name System (DNS):** The Internet's system for converting alphabetic names into numeric IP addresses.
- **Downtime:** Time during which a machine, especially a computer, is out of action or unavailable for use.

E

- **E-business:** Any kind of business or commercial transaction that includes sharing information across the internet.
- **E-commerce:** The buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet.

- **E-Learning:** Learning conducted via electronic media, typically on the Internet.
- **Edge Computing:** A distributed computing paradigm that brings computation and data storage closer to the location where it is needed, to improve response times and save bandwidth.
- **Email Marketing:** The act of sending a commercial message, typically to a group of people, using email.
- **Encryption:** The method by which information is converted into secret code that hides the information's true meaning.
- **Endpoint Security:** The practice of securing endpoints or entry points of end-user devices such as desktops, laptops, and mobile devices from being exploited by malicious actors and campaigns.
- **Enterprise Resource Planning (ERP):** Business process management software that allows an organization to use a system of integrated applications to manage the business and automate many back-office functions related to technology, services, and human resources.
- **Ethical Hacking:** An authorized simulated cyberattack on a computer system, performed to evaluate the security of the system.

F

- **Firewall:** A network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules.
- **Fog Computing:** A decentralized computing infrastructure in which data, compute, storage, and applications are distributed in the chain

G

- **Gamification:** The application of game-design elements and game principles in non-game contexts.
- **General Data Protection Regulation (GDPR):** A regulation in EU law on data protection and privacy for all individuals within the European Union and the European Economic Area. It also addresses the export of personal data outside the EU and EEA areas.

- **Geotargeting:** The practice of delivering different content to a website user based on his or her geographic location.
- **Graph Database:** A database that uses graph structures for semantic queries with nodes, edges, and properties to represent and store data.
- **Grid Computing:** The use of widely distributed computer resources to reach a common goal.
- **Growth Hacking:** A process of rapid experimentation across marketing channels and product development to identify the most effective, efficient ways to grow a business.

H

- **Haptic Technology:** Technology that interfaces with the user through the sense of touch.
- **Hash Function:** A function that can be used to map data of arbitrary size to fixed-size values.
- **Heatmap:** A graphical representation of data where the individual values contained in a matrix are represented as colors.
- **Heuristic Evaluation:** A usability engineering method for finding usability problems in a user interface design, thereby making them addressable and solvable as part of an iterative design process.
- **Hybrid Cloud:** A cloud computing environment that uses a mix of on-premises, private cloud, and third-party, public cloud services with orchestration between the two platforms.
- **Hyperlink:** A reference to data that the reader can directly follow either by clicking or by hovering.
- **Hypertext:** Text displayed on a computer display or other electronic devices with references (hyperlinks) to other text that the reader can immediately access.

I

- **IaaS (Infrastructure as a Service):** A form of cloud computing that provides virtualized computing resources over the internet.
- **Identity Theft:** The deliberate use of someone else's identifying information, usually for financial gain.
- **Image Recognition:** The ability of software to identify objects, places, people, writing and actions in images.
- **Impression:** The point in which an ad is viewed once by a visitor, or displayed once on a web page.
- **Information Retrieval:** The activity of obtaining information system resources relevant to an information need from a collection of information resources.
- **Information Security:** The practice of preventing unauthorized access, use, disclosure, disruption, modification, inspection, recording or destruction of information.
- **Infrastructure as Code (IaC):** The process of managing and provisioning computer data centers through machine-readable definition files, rather than physical hardware configuration or interactive configuration tools.
- **Internet of Behaviors (IoB):** The gathering and use of data to drive behaviors, from commercial to health-related, based on data collected from users' online activity.
- **Internet of Services (IoS):** The internet-based infrastructure for the programmable economy where services are traded in open platforms.
- **Internet of Things (IoT):** The network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators, and connectivity which enables these things to connect and exchange data.
- **Internet Protocol (IP):** The principal communications protocol in the Internet protocol suite for relaying datagrams across network boundaries.
- **Intrusion Detection System (IDS):** A device or software application that monitors a network or systems for malicious activity or policy violations.

K

- **Kanban:** A scheduling system for lean and just-in-time (JIT) production.
- **Key Performance Indicator (KPI):** A type of performance measurement. KPIs evaluate the success of an organization or of a particular activity in which it engages.

L

- **Landing Page:** A standalone web page, created specifically for a marketing or advertising campaign.
- **Latency:** A time interval between the stimulation and response, or, from a more general point of view, a time delay between the cause and the effect of some physical change in the system being observed.
- **Lean Manufacturing:** A systematic method for waste minimization within a manufacturing system without sacrificing productivity.
- **Load Balancing:** The process of distributing network traffic across multiple servers to ensure that no single server bears too much demand.
- **Location-Based Services (LBS):** A software level service that uses real-time geo-data from a mobile device or smartphone to provide information, entertainment or security.
- **Log File:** A file that records either events that occur in an operating system or other software runs, or messages between different users of a communication software.

M

- **Machine Learning (ML):** A type of artificial intelligence that allows software applications to become more accurate in predicting outcomes without being explicitly programmed.
- **Machine-to-Machine (M2M):** Direct communication between devices using any communications channel, including wired and wireless.
- **Malvertising:** The use of online advertising to spread malware.
- **Malware:** Software that is specifically designed to disrupt, damage, or gain unauthorized access to a computer system.

- **Managed Service Provider (MSP):** A company that remotely manages a customer's IT infrastructure and/or end-user systems, typically on a proactive basis and under a subscription model.
- **Metadata:** Data that provides information about other data.
- **Metasearch Engine:** A search tool that sends user requests to several other search engines and/or databases and aggregates the results into a single list or displays them according to their source.
- **Microservices:** A software development technique—a variant of the service-oriented architecture (SOA) architectural style that structures an application as a collection of loosely coupled services.
- **Mixed Reality (MR):** A blend of physical and digital worlds, unlocking the links between human, computer, and environment interaction.
- **Mobile App:** A computer program or software application designed to run on a mobile device such as a phone, tablet, or watch.
- **Mobile Device Management (MDM):** A type of security software used by an IT department to monitor, manage, and secure employees' mobile devices that are deployed across multiple mobile service providers and across multiple mobile operating systems being used in the organization.
- **Multifactor Authentication (MFA):** An authentication method in which a computer user is granted access only after successfully presenting two or more pieces of evidence (or factors) to an authentication mechanism.
- **N**
- **Natural Language Generation (NLG):** The use of artificial intelligence programming to produce written or spoken narrative from a dataset.
- **Natural Language Processing (NLP):** A subfield of linguistics, computer science, and artificial intelligence concerned with the interactions between computers and human language.
- **Net Neutrality:** The principle that all Internet traffic should be treated equally by Internet Service Providers.
- **Network Security:** Any activity designed to protect the usability and integrity of your network and data.
- **Neural Network:** A series of algorithms that endeavors to recognize underlying relationships in a set of data through a process that mimics the way the human brain operates.

- **NoSQL:** A non-relational database that provides a mechanism for storage and retrieval of data that is modeled in means other than the tabular relations used in relational databases.

O

- **Object-Oriented Programming (OOP):** A programming paradigm based on the concept of "objects", which can contain data, in the form of fields, and code, in the form of procedures.
- **Omnichannel:** A cross-channel content strategy that organizations use to improve their user experience.
- **Open Source:** Denoting software for which the original source code is made freely available and may be redistributed and modified.
- **Operating System (OS):** Software that, after being initially loaded into the computer by a boot program, manages all of the other application programs in a computer.
- **Organic Search Results:** Listings on search engine results pages that appear because of their relevance to the search terms, as opposed to their being advertisements.

P

- **PaaS (Platform as a Service):** A category of cloud computing services that provides a platform allowing customers to develop, run, and manage applications without the complexity of building and maintaining the infrastructure typically associated with developing and launching an app.
- **Packet:** A small segment of a larger message. Data sent over computer networks is divided into packets.
- **Page View:** A request to load a single HTML file of an Internet site.
- **Parallel Computing:** A type of computation in which many calculations or processes are carried out simultaneously.
- **Password:** A string of characters that allows access to a computer, interface, or system.
- **Patch:** A set of changes to a computer program or its supporting data designed to update, fix, or improve it.

- **Pay-Per-Click (PPC):** An internet advertising model used to drive traffic to websites, in which an advertiser pays a publisher when the ad is clicked.
- **Paywall:** A method of restricting access to content via a paid subscription.
- **Peer-to-Peer (P2P) Network:** A decentralized communications model in which each party has the same capabilities and either party can initiate a communication session.
- **Personalization:** The use of technology to accommodate the differences between individuals.
- **Phishing:** The fraudulent practice of sending emails purporting to be from reputable companies in order to induce individuals to reveal personal information, such as passwords and credit card numbers.
- **Predictive Analytics:** The use of data, statistical algorithms, and machine learning techniques to identify the likelihood of future outcomes based on historical data.
- **Predictive Maintenance:** A technique that uses data analysis, machine learning, and statistical modeling to predict when equipment or machinery is likely to fail, allowing for proactive maintenance and minimizing unplanned downtime.
- **Privacy Policy:** A statement or legal document that explains how a company or website collects, uses, and manages the personal information of its users or customers.
- **Product Lifecycle Management (PLM):** The process of managing the entire lifecycle of a product, from ideation and design to manufacturing, service, and disposal.

Q

- **Quantum Computing:** A type of computation that harnesses the collective properties of quantum states, such as superposition, interference, and entanglement, to perform calculations. The devices that perform quantum computations are known as quantum computers.
- **Quantum Cryptography:** A branch of cryptography that uses principles of quantum mechanics to ensure secure communication and protect data from eavesdropping or interception.

R

- **Ransomware:** A type of malicious software designed to block access to a computer system until a sum of money is paid.
- **Real-Time Analytics:** The analysis of data as it is generated or received, providing immediate insights and enabling rapid decision-making.
- **Responsive Design:** An approach to web design that ensures websites or applications adapt and provide an optimal user experience on different devices and screen sizes.
- **Responsive Web Design (RWD):** An approach to web design that makes web pages render well on a variety of devices and window or screen sizes.
- **Robotic Process Automation (RPA):** The use of software robots or "bots" to automate routine tasks and processes.
- **Robotics:** The design, construction, and operation of robots, as well as the use of computer systems for their control, sensory feedback, and information processing.

S

- **SaaS (Software as a Service):** A software licensing and delivery model in which software is provided on a subscription basis and is centrally hosted.
- **Scrum:** An agile framework for managing knowledge work, with an emphasis on software development.
- **Search Engine Marketing (SEM):** A form of internet marketing that involves promoting websites or web pages by increasing their visibility in search engine results pages through paid advertising.
- **Search Engine Optimization (SEO):** The practice of increasing the quantity and quality of traffic to your website through organic search engine results.
- **Search Engine:** A software system that searches for and identifies items or information based on user queries or keywords, providing a list of relevant results.
- **Server:** A computer or system that manages network resources and provides services to other computers or devices (clients) in a network.

- **Serverless Computing:** A cloud computing execution model in which the cloud provider runs the server, and dynamically manages the allocation of machine resources.
- **Six Sigma:** A set of techniques and tools for process improvement.
- **Smart City:** A city that incorporates information and communication technologies to enhance the quality and performance of urban services such as energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs.
- **Smart Contract:** A computer program or a transaction protocol which is intended to automatically execute, control, or document legally relevant events and actions according to the terms of a contract or an agreement.
- **Social Engineering:** The use of deception and manipulation techniques to exploit human psychology and trick individuals into revealing sensitive information or performing actions that may be harmful.
- **Social Media:** Websites and applications that enable users to create and share content or to participate in social networking.
- **Software as a Service (SaaS):** A software licensing and delivery model in which software is provided on a subscription basis and accessed over the internet.
- **Software Development Life Cycle (SDLC):** A process used by the software industry to design, develop and test high-quality softwares.
- **Software Engineering:** The application of engineering principles and practices to the design, development, testing, and maintenance of software systems.
- **Spam:** Unsolicited and unwanted email or electronic messages sent in bulk, often for advertising or phishing purposes.
- **Supply Chain Management (SCM):** The management of the flow of goods and services and includes all processes that transform raw materials into final products.
- **Supply Chain:** The network of organizations, people, activities, information, and resources involved in the creation and delivery of a product or service to customers.
- **System Integration:** The process of combining different sub-systems or components into a single system that functions as a whole.

T

- **Telecommunication:** The transmission of information, signals, messages, or data over long distances using electronic or electromagnetic means.

U

- **User Experience (UX):** A person's emotions and attitudes about using a particular product, system, or service.
- **User Experience Design (UXD or UED):** The process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure provided in the interaction with the product.
- **User Interface (UI):** The point of human-computer interaction and communication in a device.
- **User Interface Design (UI):** The process of designing the visual layout, interaction, and user experience of a software application or website.

V

- **Virtual Private Network (VPN):** A secure and private connection established over a public network, typically the internet, to ensure secure communication and data privacy.
- **Virtual Reality (VR):** A simulated experience that can be similar to or completely different from the real world.
- **Virtualization:** The act of creating a virtual (rather than actual) version of something, including virtual computer hardware platforms, storage devices, and computer network resources.
- **Voice Recognition:** The technology that enables a computer or device to identify and interpret spoken words or commands.

W

- **Web Design:** The process of designing and creating the visual appearance, layout, and user experience of websites or web applications.
- **Web Development:** The process of building, creating, and maintaining websites or web applications using programming languages, frameworks, and other tools.
- **Wi-Fi:** A wireless networking technology that allows devices to connect to the internet or communicate with each other using radio waves.
- **Wireless Communication:** The transfer of information or data between devices without the use of physical connections, such as wires or cables.

X

- **XML (eXtensible Markup Language):** A markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.
- **XPath:** A language used to navigate XML documents and select nodes or elements based on their structure, attributes, or content.
- **XSS (Cross-Site Scripting):** A type of security vulnerability in web applications that allows malicious attackers to inject and execute scripts in the browser of other users.

Z

- **Zero-Day Vulnerability:** A security vulnerability in software or systems that is unknown to the software vendor or developer, making it exploitable by attackers before a patch or fix is available.
- **Zettabyte:** A unit of information equal to one sextillion (10^21) bytes, commonly used to measure data storage or transmission capacity.

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About the Book

Welcome to a comprehensive guide on digital transformation, tailored specifically for the discerning management and C-suite executives who are the key drivers of change in today's dynamic business landscape. This book is designed to equip you with the knowledge, strategies, and insights necessary to navigate and lead your organization through the digital transformation journey.

Understanding the time constraints and the need for quick, actionable insights of busy executives, each chapter of this book begins with an 'Executive Take-away.' These concise summaries distill the essence of each chapter, allowing you to grasp the key points and apply them immediately to your digital transformation initiatives.