Confederation of Indian Industry

The Magic Triangle

Digital Transformation: A Journey, Not a Destination

August 2019

Strategic Partner

Nitor

Brilliance @ work

Published by Confederation of Indian Industry (CII), The Mantosh Sondhi Centre; 23, Institutional Area, Lodi Road, New Delhi 110003, India, Tel: +91-11-24629994-7, Fax: +91-11-24626149;
Email: info@cii.in; Web: www.cii.in

Confederation Of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering industry, Government, and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, playing a proactive role in India's development process. Founded in 1895, India's premier business association has around 9000 members, from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from around 276 national and regional sectoral industry bodies.

CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes. Partnerships with civil society organizations carry forward corporate initiatives for integrated and inclusive development across diverse domains including affirmative action, healthcare, education, livelihood, diversity management, skill development, empowerment of women, and water, to name a few.

India is now set to become a US$ 5 trillion economy in the next five years and Indian industry will remain the principal growth engine for achieving this target. With the theme for 2019-20 as ‘Competitiveness of India Inc - India@75: Forging Ahead’, CII will focus on five priority areas which would enable the country to stay on a solid growth track. These are - employment generation, rural-urban connect, energy security, environmental sustainability and governance.

With 66 offices, including 9 Centres of Excellence, in India, and 10 overseas offices in Australia, China, Egypt, France, Germany, Singapore, South Africa, UAE, UK, and USA, as well as institutional partnerships with 355 counterpart organizations in 126 countries, CII serves as a reference point for Indian industry and the international business community.

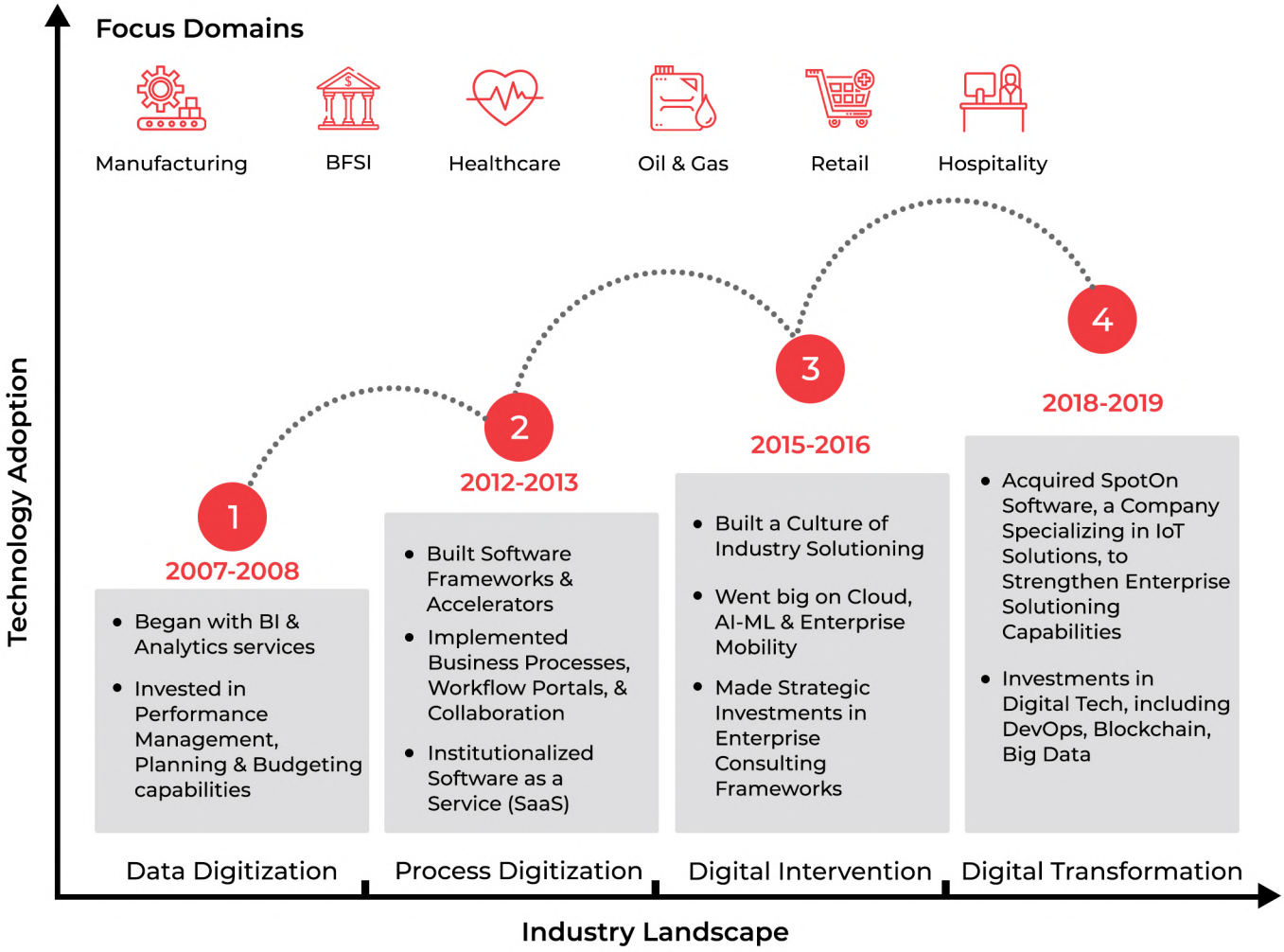
Nitor Infotech

Nitor Infotech's journey of over a decade has helped enterprises and ISVs explore new frontiers with the help of technology. Over the years, Nitor Infotech has helped clients align technology with business goals to give them an edge by reducing costs, automating existing processes, and turning analogue business models to digital channels. The challenge for today's organisations lies in continuously sharpening digital skillsets, which ensures that the organisation retains an edge over competitors. Continuous improvement and constant vigilance are necessary because the competitive edge is lost when an organisation's peers catch up with regards to technological and business transformation.

With enterprise digitalization service offerings, Nitor Infotech aims to help organizations create a new competitive edge and sustain it, while ensuring reusability of current IT investments and assets.

Nitor Infotech believes that every enterprise needs to achieve a threshold of technology adoption to transform processes, business models, and customer experiences by exploiting the pervasive digital connections between systems, people, and processes.

Nitor Infotech's value proposition while delivering quality solutions is backed by their multi-modal approach which involves focusing on innovation while running existing projects, supporting clients who are navigating the evolving industry landscape, and on-boarding the right talent to enable this. Their approach, defined with help of Gartner analysts, combines data science, design thinking, and deep industry/process knowledge with technology capabilities. The aim is to modernize IT and reduce its complexity, as well as to design transformational roadmaps for industries.



PREFACE

Confederation of Indian Industry

Manufacturing has emerged as one of the high growth sectors in India. With a strong focus shown by the government towards enhancing the manufacturing sector of India, we have the opportunity to reenergize this sector, taking it to the next level of efficiency and competitiveness. India is becoming one of the most attractive destinations for investments in the manufacturing sector, thanks to the Government of India's various initiatives directed to flourish this sector. The programs of the Government like Make in India, initiatives like enhanced "Strategic Partnership" model, ease of doing business actions etc. would certainly enable the manufacturing sector to grow in the future.

We all know that the manufacturing sector has undergone a massive change. From robotics to mass automation, to the creation of the 3D Printer, innovative technologies and approaches are continually disrupting the manufacturing industry globally. And therefore, to stay competitive, manufacturers ought to be demand oriented and adapt to dynamic new business models with the aid of real-time monitoring and smart insights to optimize production.

With the emergence of digital technologies, it has become imperative for the Indian industry to invest in redesigning their processes and business models with a futuristic outlook to stay relevant in the coming years. Other business sectors have also witnessed digital disruptions and emergence of new excellence models.

As we speak of operational excellence, we are in an era where manufacturing excellence can be largely controlled by being digital. Digital revolution has led to creation of lot of data within the organization which should be put in use for improvement of the processes. The manufacturing companies can apply these data in real-time to prevailing challenges, while using the same information to make improvements. Competitive flexibility, improved profitability, reduced costs and higher customer satisfaction are some of the benefits which can be reaped using a new approach of data driven manufacturing.

I am happy to present this report that would highlight the common traits of digital leaders and help the manufacturing industry progress on their digital maturity journey. I take this opportunity to thank all the companies who have submitted the surveys and helped us with their valuable inputs. I also take this opportunity to thank **Mr. Abhay M Pendse**, Convenor, Forum on Operational Excellence & Vice President & Head – Shindewadi works, Godrej and Boyce Mfg. Co and **Mr. Rajnikant Behera**, Co-Convenor, Forum on Operational Excellence & Executive Director, RSB Transmissions (I) Ltd for their continued guidance and support for putting this document together. I also take this opportunity to thank **Nitor Infotech** who have been our Strategic Partner and worked with us in consolidating this report.

I do hope all my Industry colleagues will read through this report and give us your concrete feedback and suggestions, so that it becomes meaningful and useful to take forward.

Mr. Shrikant Bapat
Chairman, CII Pune Zonal Council & General Manager – Building Technologies & Solutions, India & Managing Director Johnson Controls (India) Pvt. Ltd.

Nitor Infotech

Digital transformation is no longer just a vision for businesses. It is a reality.

An increasing number of companies across India are adopting technology, or gearing up to do so, and going digital. The region's Small and Medium Businesses (SMBs), especially, are looking to harness the power of technology to overcome key challenges, unlock new avenues of growth and scale rapidly when required.

Technology is also a great equalizer for SMBs as it empowers them to compete effectively with larger competitors. However, the SMB sector is highly complex. Businesses in different industry sectors face different challenges and have unique growth opportunities, which then vary from region to region due to several difference such as infrastructure, availability of skills etc.

To better understand these and help the SMB sector with possible technology solutions, Nitor Infotech as CII's Strategic Partner commissioned a research to look at the state of digital adoption of SMBs across Pune region using Nitor Infotech's Magic Triangle. With the help of the triangle methodology, Nitor Infotech helped all the interviewed company, understand their current state of Digital Maturity with recommendations to help progress on the digital journey.

Using the Magic Triangle methodology, the research aims at highlighting the best practices followed and some of the common traits of the organizations that are developing into more digitally mature businesses. As observed, data being a valuable asset with all surveyed organizations, the research also helps organizations identify opportunities to derive value by capitalizing on data.

The research was led by **Neha Garg**, a Business Strategist leading the Consulting practice; **Madhu Suthanan**, an enthusiastic Integrated Marketing Strategist with guidance from **Mukul Joshi**, Vice President leading Technology Practice at Nitor Infotech; **Abhay M Pendse**, Convenor, Forum on Operational Excellence & Vice President & Head – Shindewadi works, Godrej and Boyce Mfg. Co and **Rajnikant Behera**, Co-Convenor, Forum on Operational Excellence & Executive Director, RSB Transmissions (I) Ltd. Sincere thanks go to our colleagues at CII Operational Excellence Forum for handling operations and external relations. In addition, this project benefitted immensely from many Nitor Infotech colleagues who shared their expertise and experience for help structure the findings.

This report contributes to Nitor Infotech's vision of helping business and leaders solve complex un-structured business problems by combining technology, data, and software into compelling user experiences that support an organization's business strategy.

This research is independent work, reflecting our own views and has not been commissioned by any business, government or other institution. We welcome your comments on the research at marketing@nitorinfotech.com.

Sanjeev Fadnavis
President, Nitor Infotech

Table of Contents

ABOUT THE STUDY

About the Study

To understand the challenges and opportunities associated with the use of digital technology, Nitor Infotech, in collaboration with Confederation of Indian Industries (henceforth CII), conducted an annual survey of more than 120 business executives, managers, and business excellence professionals from manufacturing organisations in and around Pune, India.

The survey, conducted in 2019, captured insights from more than 120 individuals in 50+ companies and 7 industries, from organisations of various sizes. The sample was drawn from the CII Pune member database and affiliated industry association members. In addition to our survey results, Nitor interviewed business executives to understand the practical issues facing organisations today while strategizing to achieve digital maturity. The interactions with the business executives contributed to a richer understanding of the current state and the challenges faced by the organisations.

The digital maturity of individual companies was measured with the help of Nitor's Digital Maturity Index which grouped companies into one of five categories: Digital Embryonic, Digital Beginner, Digital Intermediate, Digital Progressive, and Digital Leader. Based on the gathered data, we were able to assess what it takes to be a Digital Leader through the lens of seven essential parameters: Organisational Behaviour, KPI Alignment, Agile IT, Data, Process, Interoperability, and Stakeholder Management Experience. The individual companies were provided with recommendations to help overcome challenges and move ahead on the path to being a Digital Leader.

INTRODUCTION

Introduction

In today's digital economy, the pace of change of technology is unrelenting and creates an urgency for companies to transform. Unfortunately, many C-level executives report a high-level of "corporate cholesterol", resulting from rigid business processes and a resistance to change, i.e. a mindset of "If it is working, why change?", There is also a misalignment of digital strategy with business goals. The corporate cholesterol the organisation carries prevents the rapid transformation needed to innovate with regards to business models & processes, and ultimately upskill the workforce.

This research report addresses the need for organisations to initiate a culture of collaboration with cross-functional teams along with increased agility and speed for business model transformation.

Organisations are at different levels of maturity in terms of their digital transformation journey, but the speed of implementation has become a business imperative for all. With the shift toward capital funding, business executives are recognizing digital transformation as a long-term investment with alignment of technology to amplify and augment human capabilities instead of replacing them.

What is Digital Transformation?

As the pace of innovation continues to accelerate, a shrinking product life cycle brings new ideas, products, and services to market faster than ever. It has become essential for technology to be aligned with an organisation's business strategy for providing a delightful stakeholder experience.

Based on our years of study, understanding the purpose of digital solutions across businesses, we see that technology can ultimately help us:

Target developing markets

Build stronger stakeholder relationships

Create new business models

Hence, we can define Digital Transformation as a formal effort of aligning and integrating digital technology into all areas of business, resulting in fundamental changes to how businesses operate and to how they deliver value to their stakeholders (customers, employees, and partners).

This transformation is a continuous and iterative process, which can only be successful if organisations are proactive in disrupting their existing business models along with the implementation of Agile business processes. Also, companies are fundamentally shifting their focus from product and service innovation to driving outcomes that provide value by delighting their stakeholders and the organisation overall.

What Does a Digital Transformation Framework Look Like?

Although digital transformation will vary widely based on an organisation's current state of digital maturity along with specific challenges and demands for business transformation, we have observed a few constants and some common themes based on our interaction with several organisations. We have published a framework that all business and technology leaders should consider while moving towards becoming a Digital Leader.

For instance, the following parameters play a key role and are often cited as common traits across Digital Leaders:

Organisational Behaviour

- An organisational culture aims at striking a balance between two elements – People and Technology, and is centred on re-inventing its existing processes and behaviour.
- Defining and developing an organisational culture banishes hierarchy by promoting active participation from various stakeholders in its decision-making process.

KPI Alignment

- Identification/defining of business KPIs that would aim at aligning the different business units of an organisation with virtual integration across silos for effective digital business execution.
- In an organisation, digital business KPIs are clearly articulated and understood, but the execution of the strategy is not well equated to the agility of digital strategy with changing business scenarios.
- A successful digital business model depends on connecting data and process across disparate parts of the organisation, which is difficult to achieve in an organisation which runs in silos.

Agile IT

- Ensuring and preparing the organisation to scale small digital initiatives to the organisation-wide adoption of the solution, with a measured business impact.
- Digital Transformation represents a fundamental change in the way an organisation operates. It means designing a collaborative framework to make the process transparent, incremental, and available to everyone, which is based on continuous experimentation and adaptation.
- Creating a company with technology at its core; i.e. one that uses the power of today's technologies to create new forms of business and customer value.

Stakeholder Experience Management

- Today, with the continuous adoption of technology across business processes and functions, it is important to develop an appropriate stakeholder management strategy to effectively engage stakeholders throughout the lifecycle of the project. This should be based on the analysis of their needs, interests, and potential impacts on project success.
- Most digital business initiatives centre on the active participation of stakeholders and involve a high level of focus in working with them in completely new ways, either through new channels or through new (digital) products and services.
- This requires the enterprise to develop a high degree of competence around managing relevant project data, stakeholder interests, This requires the enterprise to develop a high degree of competence around managing relevant project data, stakeholder interests, and dependencies while executing the project.and dependencies while executing the project.

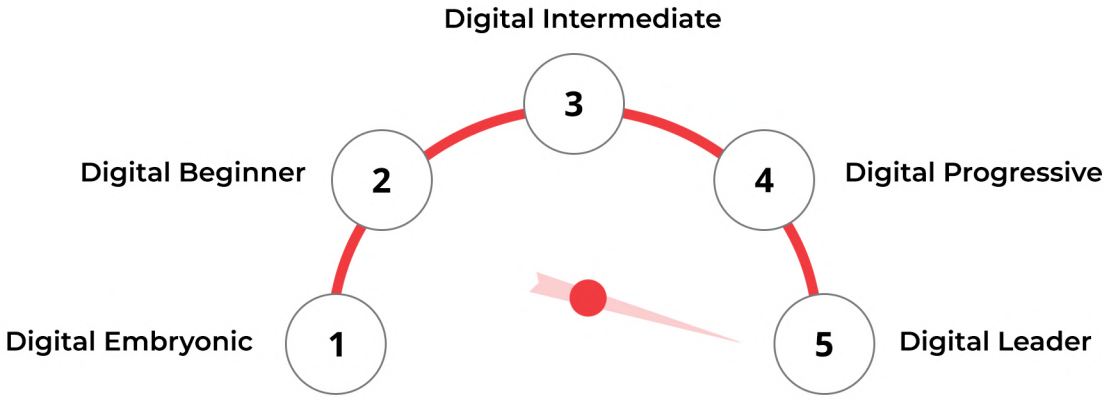
Interoperability

- For an organisation, designing and building a digital ecosystem would enhance customer experience, increase top-line and bottom-line growth, along with increasing productivity growth.
- The shift to digital ecosystem readiness is both an opportunity and a challenge for a CIO. Many will need to shift their organisational strategy from linear-value-chain business, trading with well-known partners, and adding value in steps, to being part of a faster and more multidimensional, multidirectional network.
- This transition will involve preparation in three areas:
  - Organisation's existing IT infrastructure should prioritize interoperability
  - The IT function within the organisation should have an external mindset
  - Business leadership should be more focused on mastering interdependence

Data Integrity by Putting Processes First, and Systems Last

- The traditional approach to compliance of data is based on the qualification of the systems. Typically, these requirements are stated in the User Requirement Specifications (URS). Data associated with individual systems are then defined. With this approach, the overall context is forgotten and data is not properly integrated in the process.
- With the rapidly changing technology and industry landscape, it has become important to first define processes, then define data, and then specify data flows across the IT architecture. This will allow the organisation to focus on processes and ensure that the business function matures in relation to the recorded information.

While this report aims at highlighting the common traits of Digital Leaders, we also describe the digital transformation journey by categorizing the organisations from being Digital (Digitized) to being a Digital Leader.



1. Digital Embryonic

The organisation shows little to no sign or a few scattered signs of digitalization. The organisation-wide focus and adoption of digitalization is non-existent or very low. In this stage, the organisation may also run the risk of putting their competitive position at stake.

2. Digital Beginner

The organisation shows some early signs of digitalization. However, it seems to be poorly orchestrated and executed in most cases. The overall maturity of the organisation's digital strategy is still immature, and requires further efforts to keep up with digital transformation in the marketplace.

3. Digital Intermediate

The organisation has embraced the concept of digitalization in many business functions, and has also gained some experience. There still seems to be a lack of a risk-taking digital culture, however, and the organisation can't be characterized as an early adopter of digital practices.

4. Digital Progressive

The organisation is aware of the competitive impact and the benefits of digitalization. Although there seems to be an enterprise-wide adoption of digitalization within the organisation, there are still a couple of areas to further improve the overall digital maturity of business model and business processes.

5. Digital Leader

There is a very high degree of digitalization within the organisation, which is reflected by mature IT and business strategies, as well as a high degree of digital maturity across different value network activities. The organisation seems to align both technology and the business strategy to become a digital leader in the marketplace.

What Role does Organisational Behaviour and Culture Play in Being a Digital Leader?

Although driven by technology, digital transformation is not just about investing in new age technologies or systems; it is about the accelerated disruption of business models. This requires a mindset shift from problem solving (reactive in nature) to problem finding (proactive in nature).

It is observed that the roles of leaders (C-level executives, business function heads) is to be visionaries; from establishing a culture that encourages ideation, creation, participation, and iteration, to building strategic partnerships with various stakeholders to create new value propositions.

The learnings from the survey uncovered a strong link between digital leaders and a risk taking culture. This type of culture not only understands that exponential rewards come with increased risk, but the use of a fail fast approach provides a powerful learning opportunity.

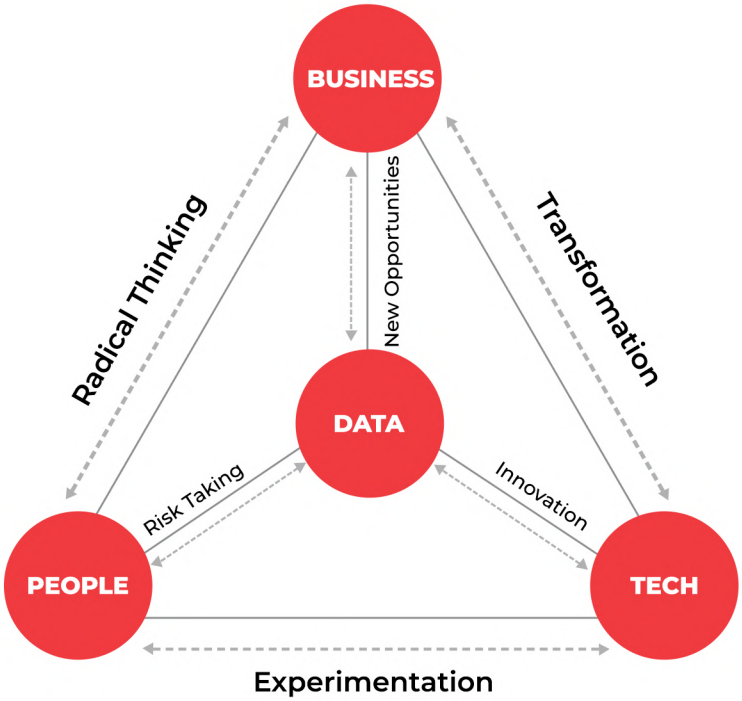
We would like to emphasize that

> **A digital transformation strategy is a business transformation strategy.**

Nitor's Magic Triangle of Digital Transformation underscores the same.

THE MAGIC TRIANGLE OF DIGITAL TRANSFORMATION

Triangle of Digital Transformation



The changing technology landscape encourages organisations to drive dramatic changes in their business ecosystems, making them more collaborate, and participative, and thus more essential to the strategy. Business leaders must collaborate with internal peers and ecosystem partners to design their future business ecosystem and use it to inform their business and technology strategy.

Adapting to the changing technology landscape for taking advantage of digital technologies to improve top-line, bottom-line, and operations are important goals for nearly every business.

Only 23% of the surveyed organisations appear to be making a fundamental change in the way they do business by cultivating a strong business culture that strives for risk taking, agility, collaboration, and continuous learning.

Before an organisation embarks on the journey towards Digitalization, it is important to design a staged approach with a clear roadmap, involving a variety of stakeholders, beyond silos. The roadmap needs to take into account the iterative process of digital transformation (due to an evolving technology landscape). With a proactive lead by CIOs to ensure the optimal communication of the organisation's business ecosystems, they can make the appropriate risk-reward trade-off decisions, and align digital strategy to an organisation's business goal.

The study also reveals:

Organisations that avoid risk-taking behaviour are unlikely to thrive and likely to lose talent, as a majority of the workforce today is in the age group of 25 – 35 years who want to work for businesses committed to digital progress.

Hence, it is important for the businesses to focus on integrating digital technologies such as social, mobile, analytics and cloud, in the service of transforming how their businesses work.

Based on this survey of more than 120 executives and functional leaders, as well as interviews with more than 30 executives and thought leaders, this report illustrates Nitor Infotech's theory of the 'Triangle of Digital Transformation', which further highlights the best practices of organisations that are developing into more digitally mature businesses.

Their approach, which may offer valuable lessons for organisations that want to progress in digital maturity, includes:

Radical Rethinking for Business Innovation

It is important to learn how an organisation uses data, technology, people, and processes to bring in a systemic change in the way of doing business. For example, more than 69% of the respondents aim to enhance organisational performance with the use of digital technologies, i.e. they often have a specific tool in mind to solve existing challenges "Our organisation needs a robotic process automation strategy to automate existing manual customer service process", perhaps. However, only 30% of the respondents aim at creating a strategic digital transformation roadmap guided by the broader business strategy.

Digital Innovation is More than just Experiments

Around 76% of organisations across the digital maturity spectrum (from Digital Embryonic to Digital Leaders) experiment with technology. However, the scope and scale of the experiments don't always yield results with an enterprise-wide impact. But what sets the 15% of the surveyed Digitally Progressive organisations apart is their ability to ramp up digital experiments by promoting businesses to embrace failure by applying the fail fast approach and then rapidly inspecting and adapting to increase the rate of success.

Senior leaders at Digitally Progressive organisations think about the most pressing business problems and what experiments would drive business innovation. For example, a smaller set of experiments, with tolerance for failure and the ability for continuous learning to figure out how innovation can lead to bigger business change.

Organizing for Digital Maturity with Risk-taking Capabilities

Organisational structures based on traditional command and control systems may be impeding the business agility needed to operate in a fast-paced market with mindset to change. Nearly 76% of respondents from Digitally Intermediate organisations highlighted that the rigid management structure and practices, which include decision rights, interfere with their organisation's ability to engage in Agile digital business successfully.

In contrast, 15% of respondents from digitally progressive organisations highlighted that their leaders' risk-taking attitude and experimentation mindset lead the company's ability to mature on the digital roadmap. In addition, Digitally Progressive organisations are far less likely than the rest to rely on a hierarchical management structure. Today, they are working towards breaking down functional silos and focusing on cross-functional collaboration, which is critical for business success.

Building Data Competency for Digital Transformation Success

Based on our learning, data as an asset is still in the early adoption phase, which makes it a competitive differentiator for Digitally Progressive organisations as they focus on digital transformation – over 15% of the surveyed organisations have data as strategic priority to help achieve business transformation, along with supporting in exploring new business models, and as a catalyst for innovation.

Though data is the key accelerant of an organisation's digitization and transformation efforts, it is observed that fewer than 60% of the surveyed organisations' documented business strategies have data as a fundamental component for delivering business value.

Empirical data shows that organisations that fail to think differently about the way of doing business are likely to lose relevance and standing. While there are plenty of wins to be made through cost savings or efficiency gains, organisations that are able to rethink existing business processes, operational models, and the stakeholder experience (refer to Appendix B: The Industry 4.0 Framework and Contributing Digital Technologies for more details) will lead the new economy.

As over 76% of organisations continue to struggle under the weight of traditional business models and analogue business processes , there is a tendency to discount the potential of data and use of analytics for business value. Though the majority recognize the potential of data, they cannot make the necessary cultural shift or commit to the information management and advanced analytics skills and technology investments (such as mobility, Cloud, and RPA) necessary to realise business potential.

Accelerating Globalization, but with a Distinct Local Flavour

The majority of the surveyed manufacturing organisations have their operations across the world, so successful Digital Transformation implementations are not limited to specific countries. They need to be executed across the globe for achieving faster reactions to increasingly variable customer demands, resulting in increased competitiveness in dynamic, volatile markets.

Owing to the growing uncertainty in the market along with the customer's desire for more personalized products/services, organisations are under tremendous pressure to make their production and distribution process more flexible. The beginning of the 21st century saw the third digital revolution (Industry 3.0) which saw the rise of IT systems which aimed at capturing data at various touch points of business processes - this includes systems for the planning, control, and execution of production along with capturing critical customer information. This is followed by large vendor solutions and internally developed solutions.

Furthermore, only 15% of Indian organisations prefer to have open source solutions, whereas their global counterparts are embracing open source technologies due to their lower cost of ownership and access to latest development.

We also found that around 46% of organisations catching up with their counterparts are hosting analytics solutions on Cloud infrastructure where vendors are providing Analytics as a Service.

In order for the majority of manufacturing organisations to transition to the above described state, it is important for the organisations to utilise the current investments in IT systems (especially ERP), and must fulfil a variety of technical and process-related requirements.

Use of Data

- Visualization of captured data to help achieve business goals
- Process automation to ensure reduction of errors and increase in operational efficiency
- Process-based Machine Learning & Artificial Intelligence to significantly impact their bottom line by improving production efficiency, product quality, and employee safety

Data Exchange

- Connection to legacy systems (older version of ERP along with an in-house development application using legacy technology) to achieve integration of data across systems for defined workflows
- Speed of data access to react faster to changes which are on short notice

Data Storage

- Simplification of data models to abandon intermediate results to achieve timeliness of data
- Decentralized data management - dynamic, bi-directional loading of data to control processes flexibly

Lessons Learned

Today, over 92% of the surveyed manufacturing organisations have embarked on the journey of digital transformation over the past two to three years to sustainably reinvent themselves. During our interaction with the organisations, we have also learned that digital change is often more about the people and the business processes involved than it is about the technology (as discussed in Nitor Infotech's Triangle of Digital Transformation).

Based on our observations, as consulting organisations progress in their digital maturity, we have witnessed top characteristics common across digital leaders:

Digital Business Strategy and Execution

> **Only 30% of the surveyed organisations have a clearly articulated digital business strategy, which is well understood and executed across the organisation with a defined timeline and a performance matrix to measure success at regular intervals. This is coupled with a level of virtual integration across silos for digital business execution to be successful.**

However, over 69% of the organisations today are compartmentalized and lack common understanding of the strategy across the enterprise.

Business Model Agility

For Digital Leaders, the business model is constantly being developed at a pace that is ahead of external changes in the marketplace along with traditional and non-traditional competitors.

It is observed that the 15% of the surveyed Digitally Progressive companies have a constantly evolving business model which has proven to be a key differentiator, or even a requirement for survival, in a number of industries.

Innovation Culture

A culture for innovation is the hallmark of enterprise differentiation and core competency which helps them achieve digital business success. Also, it is important to highlight that an innovation culture is not limited to internal innovation alone. For example, 15% of the surveyed organisations today are innovating new business models in collaboration with outside partners to achieve increased customer satisfaction and operational efficiency.

Digital Leadership & Workplace Collaboration

The risk-taking mindset of Digital leaders helps articulate a compelling business ambition as to what the organisation's digital initiatives can be, and to define these digital initiatives as a core component to help achieve their business strategy.

A large percentage of the surveyed Digitally Intermediate organisations are also planning to increase their digital investment compared to their less digitally mature counterparts . This threatens to widen an already large gap in the level of digital success.

Unfortunately, over 69% of the surveyed organisations are siloed, with functional areas and business units struggling to communicate, coordinate, and collaborate in relation to transformation initiatives. Hence, a relatively small portion of a worker's time gets dedicated to their primary duty.

Design Stakeholder Experience from the Outside In

With changing stakeholder (customer, employee, partner, vendor) demands in the new digital age, it is important to effectively engage stakeholders throughout the lifecycle of the project based on the analysis of their needs, interests, and potential impacts on project success.

Based on our observations during interactions with executives, we learned that only 46% of the organisations are using or in the planning phase for a 'Voice of Stakeholder' platform to receive stakeholders' active participation. These initiatives involve a high level of focus in working with the stakeholder's in completely new ways, either through new channels or through new (digital) products and services.

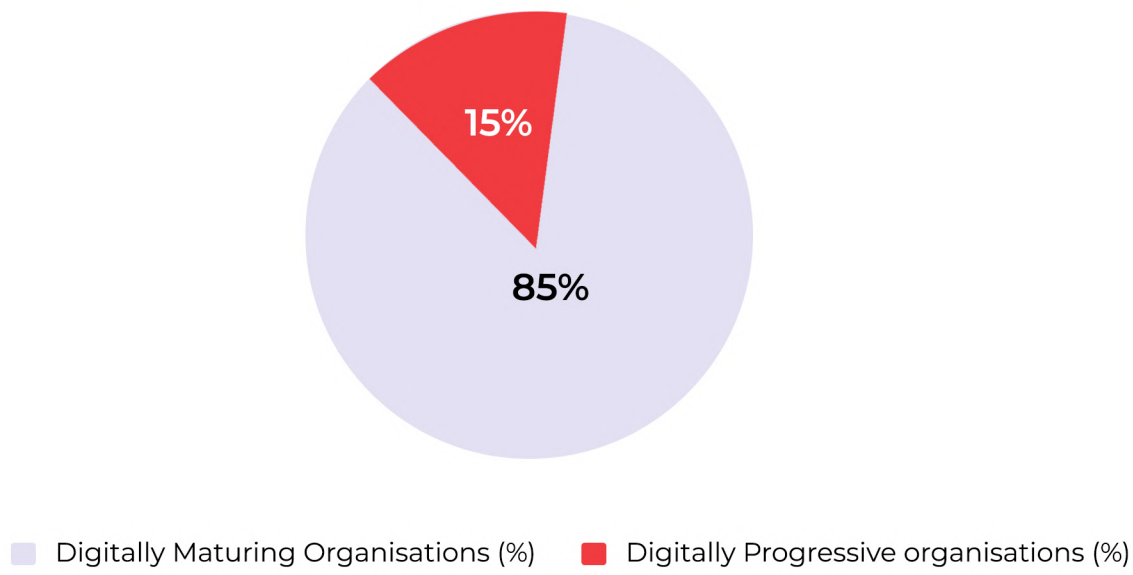
Data Integrity: Putting Processes First, and Systems Last

The traditional approach to compliance, followed by over 92% of the surveyed organisations, is still based on the qualification of systems. Typically, these requirements are stated in the user requirement specification (URS), and the data associated with the individual systems are then defined. Unfortunately, with this approach the overall context is forgotten and data is not properly integrated into the process.

8% of the Digitally Progressive organizations adopt an approach of defining business processes first, then defining data, followed by specifying data flows across the IT architecture, allowing the IT system to mature in relation to recorded information.

A Digital Lens on Business Strategy

Strategy as a Differentiator: Organisations With Strong Digital Transformation Strategies.



Our studies have consistently helped us learn that **strategy is the strongest differentiator of digitally maturing companies, which are more than five times as likely to have a clear and coherent digital strategy in place as compared to digitally novice organisations** – 85% of digitally maturing organisations versus 15% of organisations at early stages of development.

Digitally maturing organisations also take a longer view on the digital strategy, i.e. they develop these strategies with time horizon of three or more years measured with a performance matrix to measure success at regular intervals.

However, creating an effective strategy and linking it to overall business objectives remains one of the biggest challenges standing in the way of increasing a company's digital maturity.

To move forward with Digital Transformation, digital capabilities are important. These take time and concentration, with a step-by-step approach designed as a blueprint to digital success (explained in detail in Appendix C: A Blueprint for Digital Success). However, it is important to move with deliberate speed, so that an organisation does not lose the first mover advantage to its competitors.

APPENDIX

Appendix A: Digital Innovation: More than Just an Experiment

A vast majority of organisations across the digital maturity spectrum experiment with technology to solve specific business challenges.

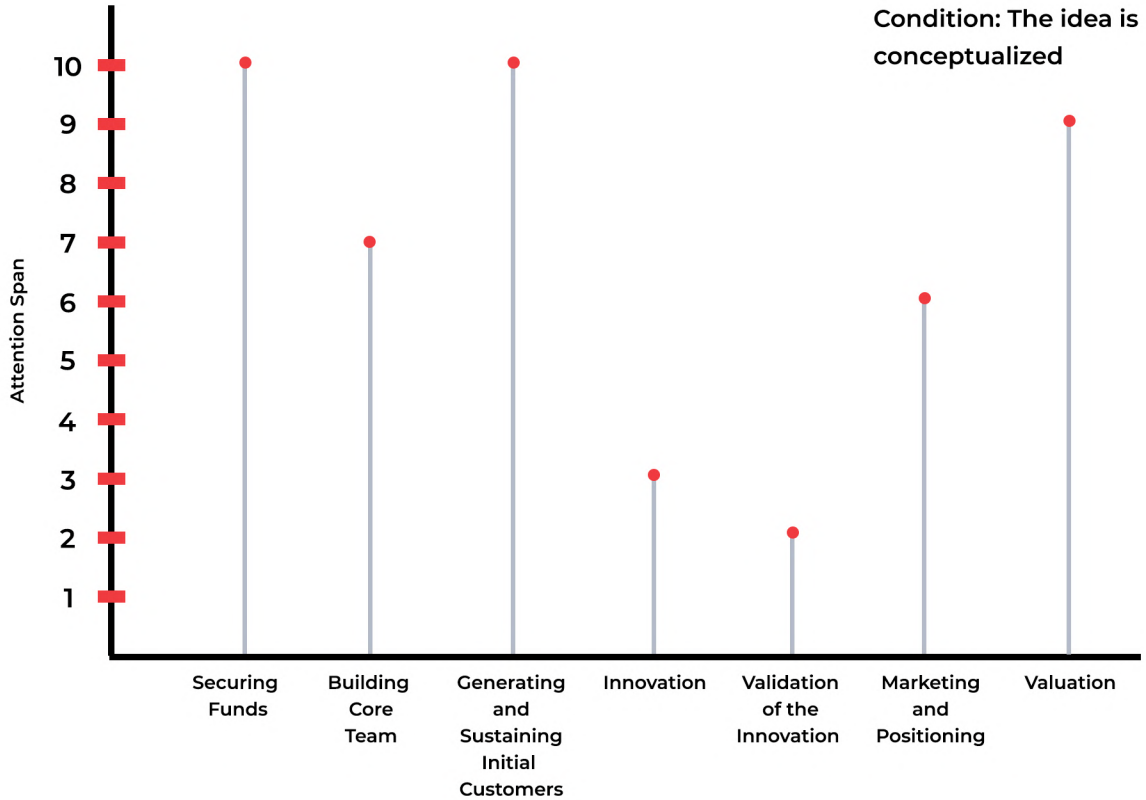
For example, a leading insurance company in Europe embraced lean and agile approaches to add vigour to its experimentation process. “We conducted week-long sprints and design workshops with customer, at their location to define the scope of innovation,” says Sanjeev Fadnavis, President at Nitor Infotech. While much of the project is made of the mantra to “fail-fast”, deciding what to do when experiments succeed can be a much bigger challenge.

It is observed that the majority of organisations have an innovation or digital transformation lab within their organization, which are highlighted as the evidence that the organization is embracing technology creatively. But most are just outposts and have very little impact on the core business. A tolerance for failures and the ability to learn from them underpins the ability to ramp-up experiments to organisation-wide digital initiatives, observed as a common trait amongst digitally progressive organisations.

It is also important for organisations to gear up the digitalization initiative with a tailored approach to fit the organisation’s evolving business strategy. An ecosystem where products, services, and even people surroundings are customized, and where businesses cater to the individual in every aspect of their lives, shaping the very realities they work in, is the order of the future.

Funding Innovation

A key challenge observed in playing the long digital transformation game is finding resources (preferably resources from within the organisation) to move digital initiatives forward, while tending to the existing business.



Scaling successful initiatives can be accomplished in a number of different ways:

Research as a Service (RaaS)

In today's age of increasing flexibility and scalability in adoption of technology, Research as a Service as a concept is gaining traction. While undertaking the RaaS approach, organisations need to ensure culmination of business strategy and investment. This can be achieved by considering numerous parameters of the culture of innovation.

- **Value Addition**

  Leverage design thinking processes to develop a deep understanding of what value entails for an organisation's stakeholders and the sources where such value is created within your organisation. It is also important for an organisation to define metrics that will help them measure value creation and develop a plan/system to track these metrics.

  As business leaders, it is important to approach transformation as a series of iterations with each iteration prioritizing tasks that will have the desired business impact while simultaneously focusing on continuous improvement to ensure sufficient digital transformation momentum.

- **Agile**

  Though discussions and planning around Digital Transformation often revolve around emerging technologies and utilizing technology for an improved top-line, bottom-line, and stakeholder experience, the reality is that any successful Digital Transformation is going to be a function of people, processes, and technology. It means that people would need to quickly unlearn, relearn, and master new skills.

  Organisations are also recommended to consider replacing the traditional waterfall development processes with Agile development methodologies which are the backbone for lean digital transformation.

The Need for Cross-Functional Collaboration

Breaking down functional silos and focusing on cross-functional collaboration is considered crucial to success in a digital environment. It is observed that Digital Leaders are using cross-functional teams to organize work and charging them with implementing digital business priorities compared to the digital beginners.

With the changing business models supported by digital technologies, it has become difficult to look at any business process in isolation because the processes are becoming integrated. This helps organisations drive greater effectiveness and efficiency.

Cross-functional teams encourage employees to think differently by expecting them to focus on business capability delivery that is not just limited to their particular segment of the business, but to develop an understanding of the entire life cycle to help achieve the desired goals.

Digital Culture – Risk Tolerance

The transition from siloed operations to cross-functional teamwork has helped organisations assign shared goals and incentives to make cross-functional collaboration effective. Promoting new mindsets and working styles helps to strengthen an organisation's culture and boost agility.

During our study of understanding and learning the key traits of Digital Leaders, it is observed that overcoming risk is perhaps the most important characteristic. These leaders have conquered this cultural barrier by encouraging the employees to experiment and to accept the risk of failure.

Appendix B: The Industry 4.0 Framework and Contributing Digital Technologies

Digital techniques are transforming the way the manufacturing industry functions. The advent of Industry 4.0 has introduced business systems that help streamline business processes. Since every manufacturing company has its own unique set of challenges and opportunities, it is important that the organisation devises its own Industry 4.0 strategy. This strategy will help the organisation formulate a framework that will identify process gaps, analyse and map the process gaps to digital solutions, as well as frame opportunities by defining the plan of action. It is also important for organisations to set evaluation metrics and constantly monitor their investments in Industry 4.0. This metric will then need to be evaluated against global digitalization trends to check the health of the Industry 4.0 framework.

Based on our research, we have broadly classified the Industry 4.0 framework into three major categories, namely Digitization, Interoperability, and Digital Transformation.

Digitization

At a fundamental level, this is having all data emanating from process, infrastructure, and people in binary form. So is it just data that needs to be digitized? Not always.

- **Data**

  One of the most important attributes of digitization. When data is generated from disparate sources within & outside an organisation, it becomes imperative to deploy digital solutions to harness this data. Post initial stages of capturing and collating the data, the organisation will need to formulate methods and tactics to understand data's role, identify patterns, and decode its underlying logic. Data digitization is a prerequisite for organizations who want to make operational and business changes to their current modus operandi. For instance, the data generated from connected equipment can help manufacturing companies gain tremendous operational visibility across units, which would help them plan their maintenance schedules. Digitized data can also be used to introduce innovative vendor and customer engagement. For example, the insights from data generated from the Customer Interaction Logs can help the customer facing teams devise a holistic CSAT strategy to increase the top-line of the company.

- **Process**

  The next major attribute of digitization. Most manufacturing organisations have investments made in core digital applications (ERP, CRM, HRMS, etc.) to automate business processes as part of Industry 3.0. In basic essence, process digitization is the automation of existing manual & paper-based processes, enabled by the digitization of information, from analogue to a digital format.

Interoperability

Is the state of all the digital systems and solutions seamlessly exchanging information with one another in a coordinated manner. One important observation from our research is that an increase in paperwork & bureaucracy in the systems is the root of the problem. Our study also highlights that for over 76% of the managers within the manufacturing organisations, time is spent on paperwork and ERP/CRM/other system data entry.

Organisations across the ecosystem are increasingly turning to modern technologies to address stakeholder dissatisfaction, market disruption, and operational inefficiencies. While most organisations invest in integrating their internal systems, ensuring horizontal integration, they tend to ignore integrating systems from external sources & creating a digital ecosystem as part of vertical integration.

It is important for an organisation to design processes in line with business goals and design systems to ensure seamless flow of data for real-time insights for data-driven decision making.

Digital Transformation

This is an iterative process helping companies transform into digital business. Digitalization or Digital Transformation refers to enabling, improving and/or transforming business operations and/or business functions/processes, by leveraging digital technologies along with a broader use of digitized data, turned into actionable insights for business value.

With an accelerating pace of innovation along with new products, ideas, and services brought to market faster than ever, along with a shrinking product lifecycle and demand for product simplicity, it is worth mentioning that the real purpose of technology is to augment and amplify human capabilities, and not to replace them.

Organisations are looking to use digital capabilities/solutions to transform their businesses by:

- **Rethinking Operational Models**

  Organisations today want to be more Agile and effective with the ability to react to problems faster. They also want to deliver great stakeholder experiences, take advantage of new technologies to optimize costs, improve quality & transparency, and build value. The problem is that while organisations are trying to get better by achieving all of the above, the results tend to fall short: the inability to scale experiments/initiatives in separate units to organisation-wide initiatives; adoption of a fail-fast approach for Agile development; and programs that provide short term gains with misalignment with long-term business goals.

  We observed that Digital Leaders are overcoming the above problems by committing to a next-generation operating model. This operating model is a new way of running the organisation that combines digital technologies and operations capabilities in an integrated, well sequenced way to achieve step-change improvements in revenue, stakeholder experience, and cost.

- **Rethinking Stakeholder Experience**

  Digital is reshaping the stakeholder experience in almost every sector and across business processes. Organisations today are disrupting the way they interact with the stakeholder at various touch-points of the product/service life cycle by setting a high bar for simplicity, personalization, and interactivity.

  This begins with bringing in data and analytics-based insights about what really matters to stakeholders. Some organisations have failed to capture the full benefits of their improvement efforts because they end up concentrating on optimizing individual touch points rather than tackling the stakeholder experience as stakeholders experience it.

  Digital Leaders have successfully improved their stakeholder experience efforts by not only taking an existing portfolio and digitizing it completely, but also by radically simplifying both the stakeholder experience and the product or service at its core.

- **Rethinking Business Processes**

  As discussed, there are many elements to an organisation's transformation, from end-to-end journey redesign and embedding analytics into processes, to developing new technology platforms/applications. To do the above stated, an organisation requires myriad capabilities, from artificial intelligence and Agile operations to data lakes, Cloud-based infrastructure, as well as the need for new talent. What is often missing, however, is a comprehensive view of how an organisation sets the right business goals, architects the right business elements for the transformation, and then how systematically and holistically undertakes the business process change.

In the introduction of reinventing business processes, we highlighted the use of new age technologies that come with a big investment and bigger yields. Our research highlighted the key areas of technology investments that helped organisations progress as Digital Leaders, including:

AI-ML

It plays a key role in transforming the way manufacturing companies function. Even minor investments in AI for enhancing the customer experience or checking product quality yields a high ROI. A steel plate manufacturer implemented a Deep Learning based quality inspection solution to automate the finished goods inspection and minimize human intervention. The solution predicts product faults with 80% accuracy and this is higher than human-level accuracy. This solution has not only reduced the bottom-line of the manufacturer but also increased the production efficiency.

IoT

It is a manufacturer's boon. With reduced prices of components that support connectivity, IoT might not necessarily mean investing in high-priced equipment. For example, an air conditioner (AC) manufacturing company invested in embedding sensors in their ACs and integrated these with a mobile app. The mobile application was then used by their customers to remotely access their ACs. This helped improve customer engagement and satisfaction, thus allowing the organisation maintain their market position with increased top-line growth.

Cloud Computing

It is the future of optimizing operational costs. With the advent of technology concepts like Big Data, it becomes necessary for organisations to store and extract humongous data in real-time. Cloud storage can provide the benefits of: greater accessibility and reliability; strong protection for data backup, archival and disaster recovery purposes; and lower overall storage costs because of not having to purchase, manage, and maintain expensive hardware. Today, most organisations face issues of creating data backups and scheduling the backup in such a manner that daily operations aren't hindered. Cloud storage changes this scenario, as the lacklustre task of data backups is simplified through automation.

Advanced Human-Machine Interfaces (HMI)

These are solutions that enable a machine to communicate with humans. The interfaces could be touch, voice, or gesture. For most manufacturers, HMI is mostly used for performance monitoring, and to maintain production schedules. Digital Leaders deploy HMI as a part of HRMS to track attendance-based productivity of employees. The introduction of IoT-enabled HMI are forever changing shop floor practices. Nowadays, the future factory has an HMI solution that integrates the equipment with Cloud to store data. This data can be accessed by the operators in real-time to understand the health of the equipment.

Mobility

It is revolutionizing the manufacturing industry. Digitalization initiatives in the manufacturing industry through mobility increase operational efficiency, optimize processes, and remove manual intervention. In the ideal scenario of a future factory, mobility will be deployed to integrate logistical networks to track consignment movements, followed by connecting the shop floor equipment by ensuring data availability on the mobile app, and finally connecting the organisation to customer and partner ecosystems. Mobility is one of the few technologies that are low on investment and yield high returns.

Appendix C: A Blueprint for Digital Success

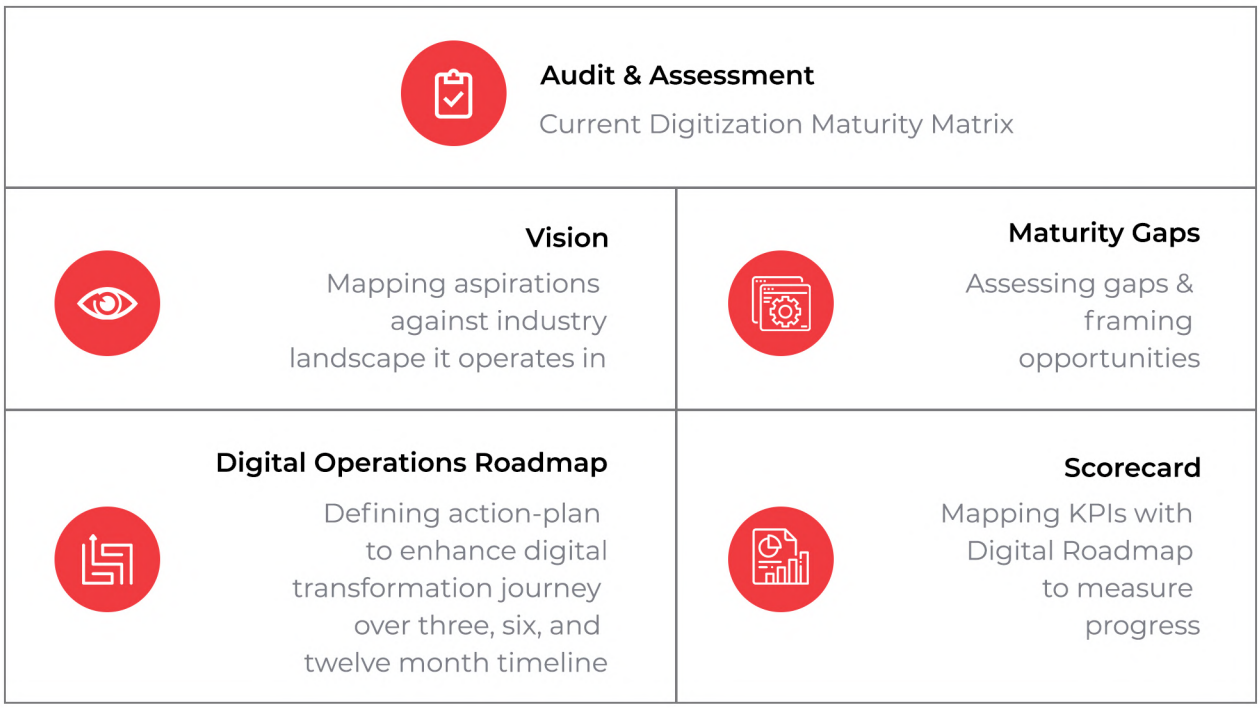
Digital Success is a widely used term signifying Digital Leaders who adopt best practices supported with new-age technologies and redefine the way of doing business. Business success is a fairly easy proposition when compared to Digital Success because of the multitude of critical digital drivers that play a role in determining the success of the digital initiative. To begin with, it is important for organisations seeking digital success to adopt digital technologies that support ongoing process innovation and evolution. Secondly, organisations need to embed the digital strategy with core business strategy aligning KPIs with a performance matrix to measure ROI from the digital investments.

There is a plethora of other parameters that will need to be factored in while aiming for digital success. How should one start?

Nitor Infotech's Digital Readiness Maturity Assessment

It is significant for organisations to determine its stage of digitalization before chalking out a plan to attain digital success. In order to do so, organisations will need to undertake a digital readiness maturity assessment to identify areas of improvement, process gaps, and an opportunity roadmap based on changing market dynamics and the rapidly evolving technology landscape. So what parameters would need to be assessed to initiate the digital success journey?

Nitor Infotech's Digital Readiness Maturity Assessment can help organisations determine their current digital maturity i.e. an organisation's "as-is" state, and help identify the priority areas for investments while designing the blueprint for digital success. Designing a digital roadmap to achieve digital transformation is an iterative process and needs to be constantly evaluated to ensure the organisation stays ahead of the curve.



The figure above details the approach to identify and assess the parameters to digital success.

Audit & Assessment

The first step in identifying the level of digital maturity is to undertake an assessment of the existing IT investments, applied best practices, and business processes to ascertain the level of digitalization. In the course of our research, we have identified seven such parameters that need to be assessed for digital competency.

- **Organisational Behaviour**

  In an era of continuous change, a proactive and adaptive culture is a critical asset and leadership will play a key role in establishing the right mindsets and practices. The assessment of the right partnership/collaboration between various business functions with support in terms of availability of the tools, technology, processes, people, and culture can shed light on how IT can make technology and Agile process design decisions that foster the intention of the desired organisational culture.

- **KPI Alignment**

  Traditional Key Performance Indicators (KPIs) used to be more aligned to provide revenue-based feedback, though that's not the whole story with Digital Transformation today. Identification/defining of business KPIs that would aim at aligning different business units of an enterprise with virtual integration across silos for digital business execution needs to be effective. Ideally, digital business KPIs are clearly articulated and understood across the organisation and the execution path is equally well understood with an Agile IT strategy. With basic measurement pillars defined, organisations can strategize to connect data and processes across disparate parts of the enterprise.

- **Data Digitization**

  Data and the associated analytics-driven insights are at the heart of digital business success. Evolving this capability into the ability to successfully monetize data and analytics is key in digital business. This requires the ability to develop and optimize applications, information products, and digital solutions in the context of information assets to factor in the 'economics of information'.

- **Process Digitization**

  Once the data is digitized, the advancement in the journey depends upon how much process digitization an organisation adopts. The assessment of business processes (e.g. Procurement, Inventory planning, Production Planning, Sales Order Management, etc.) that are managed digitally by software applications is to be accounted for and audited.

- **Digital Optimization**

  Organisations will need to shift their enterprise strategy from linear-value-chain business, trading with well-known partners, and adding value in steps, to being part of a faster and more multidimensional, multidirectional network. A detailed assessment of both vertical and horizontal interoperability would be necessary to establish the digital maturity of the enterprise. There is also a need to assess the enterprises' digital customer readiness to increase top-line growth.

- **Digital Transformation**

  Assessment of the success of digital initiatives within the organisation with a specific focus on investments in need-based emerging technologies.

Vision

An organisation's business is ever-evolving, based on changing market trends and a rapidly evolving technology landscape. The vision of the company to grow and thrive also works on the basis of business evolution. Therefore, it is important to map the current state of an organisation's digital maturity with the vision/business aspiration stated by the leaders.

In some instances, organisations invest in digital initiatives without understanding their alignment with the business value to be generated. When found not aligned, they have led to underutilization of the digital investment. Any digital investment must be evaluated alongside the business vision of the leadership and organisation.

Maturity Gaps

The strategic aspirations of the organization should be mapped against the industry landscape it operates in. A thorough gap analysis on the business processes, digital maturity and digitization maturity has to be carried out. Opportunities through digital investments should be framed to fill in those gaps. The idea is to reduce the size of digital investments by implementing small solutions with the ability to scale to enterprise-wide initiative that could potentially fill in those gaps.

Digital Operations Roadmap

Chalking out a well-defined operational roadmap would detail the action plan to enhance the digital transformation journey over a period of time. All digital initiatives must be time-bound (quarterly, half-yearly or yearly), and should be evaluated based on outcome of the initiatives with the time invested. This roadmap should elucidate all the people responsible, the cost of investments and the ROI. It is important to align technology investment with opportunities and threats.

Scorecard

The parameters of digital success are always iterative in nature. Digital success a decade ago is not the same as digital success in the current scenario. Hence, the best practices entail creating a scorecard to measure progress. Organisations must define data-driven KPIs for measurement and performance on the Digital Transformation journey. This scorecard should be used for continuous improvement of the digital transformation journey. The scorecard should also be evaluated on a periodical basis to keep investments in check.