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Digital Transformation in Industry 4.0

¹Ms. Priyal Aggarwal, ²Ms. Simran Kushwaha, ³Ms. Mansi Dhall,
⁴Mr. Ritik Chauhan, ⁵Dr. Seema Chaudhary

^{1,2,3,4}M.B.A Student, Bharati Vidyapeeth (deemed to be university) Institute of Management and Research

⁵Assistant professor, Bharati Vidyapeeth (deemed to be university) institute of management and research

Tatha.seema@gmail.com

Corresponding Author Email ID: priyalaggarwal379@gmail.com

ABSTRACT

*Digital transformation,
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This research paper examines the profound impact of digital transformation on traditional banking and various industries, highlighting imperatives for adaptation and the advantages derived from embracing digitalization. Despite traditional banks' current dominance driven by customer loyalty, digital natives pose a significant threat, necessitating intensified efforts in digital transformation. Three key imperatives are identified: AI-driven engagement, personalized customer experiences, and leveraging technology and data. Furthermore, the paper delves into sectors such as wealth management, payments disruption, direct-to-consumer models, telecom, operations, data management, organizational culture, innovation, change management, leadership, and global delivery systems, analyzing the transformative potential of digitalization. Advantages including enhanced data collection, improved efficiency, increased transparency, revenue growth, and competitive advantage underscore the urgency for enterprises to adapt to the digital age. This comprehensive analysis provides insights for organizations seeking to navigate and thrive in an increasingly digital world.

Research Methodology: Our research design is centered on multiple case studies exploring how established companies in traditional industries develop dynamic capabilities for digital transformation. The second author, actively involved in digital strategy consultancy projects, noted the diverse industry perspectives on "digital transformation," often used as a buzzword for various strategic activities. To comprehend this complexity, we employed both qualitative and quantitative methods, drawing on experiences from diverse digitalization projects across industries.

This section highlights the crucial role of empirical data in addressing research questions, emphasizing how the chosen research method shapes the entire process and influences necessary skills and underlying philosophical assumptions. Qualitative research methods are specifically emphasized for their effectiveness in understanding social and cultural contexts.

The text introduces deductive and inductive reasoning as two key methods. Deductive reasoning tests hypotheses derived from a theory, while

inductive reasoning builds theoretical concepts based on observations. The concept of abduction, a third form of inference, is introduced, known for potentially less precise conclusions compared to deductive reasoning. This is illustrated using the example of inferring the color of all elephants based on a limited sample.

In essence, this section underscores the interplay between research methods, reasoning approaches, and the intricacies of drawing conclusions from empirical data.

Problem: The passage summarizes findings from research papers on organizational digital transformation, highlighting key themes such as the importance of fostering a supportive corporate culture, organizational agility, and a focus on innovation. Challenges include the necessity for swift adaptation, flexibility, and the unique nature of each organization's digital transformation journey. Citing Gobble (2018) and Kane (2019), the text underscores a consensus on the foundational role of corporate culture over a narrow focus on specific technologies. Gobble (2018) stresses the importance



of organizational flexibility in the face of digital changes, advocating for a strategy that spans various organizational layers.

Wade et al. (2017) contribute the metaphor of an orchestra, emphasizing the intricate nature of digital transformation, requiring synchronization and a clear strategic vision. The passage notes Aguiar et al.'s (2019) observation of a lack of consensus in the definition and implementation of digital transformation, often used as a buzzword. The challenges organizations face in effectively navigating digital changes, despite significant investments, are highlighted.

Incorporating Krüger and Teuteberg's (2016) insights on the need for consultants to possess multidisciplinary expertise, the passage emphasizes the uncertain understanding within the Information Systems (IS) field regarding transformative work. Overall, it provides a condensed overview of diverse and complex challenges in digital transformation, emphasizing the ongoing need for a nuanced and multidisciplinary approach.

Purpose: The aim of this research is to delve deeper into the perspectives of consultants leading digitalization and digital transformation projects, exploring both the opportunities and evident, as well as less apparent, challenges they may face. The authors believe that providing an accessible account of consultants' experiences in such assignments would be valuable. The investigation focuses on understanding the perceived problems and possibilities consultants encounter when engaged in projects related to:

- Implementing a digital transformation of some scale in an organization to achieve a predetermined objective.
- Assessing the digital maturity level of an organization to prepare for a digital transformation.

By mapping consultants' perspectives and experiences on these issues, the authors aim to

contribute to the comprehension of the measures organizations may need to take before embarking on the journey toward digital transformation. Another significant contribution is offering insights into the varied approaches of participating consultants, enriching the empirical data presented in this work.

The clarity obtained through this research includes understanding the necessary steps for organizations and valuable insights from consultants' experiences, aiding those yet to embark on such journeys. It can also guide those considering expert assistance but uncertain about expectations. Ultimately, it may foster a more collaborative approach among consultant practitioners in future digitalization or digital transformation projects, potentially enhancing the quality of their work.

In this report we aim to answer the following research questions:

- Q1: What are the major elements of influence in projects regarding digitalization or digital transformation from a consultant perspective?
 Q2: What forms the greatest obstacles for an organization to overcome in order to successfully complete a project related to digitalization?
 Q3: Importance and need of Digital Transformation in the Industry?

Target audience: This report has a wide target audience from many different sectors with sample size of 75 people. Due to the fact of being a master thesis, it is of course written for those with an interest of the academic perspective of the Information Systems (IS) field. Because of the fact that to achieve the following results we collaborated with consultant companies, our goal is that this report will be a rewarding read for that audience as well. By describing the experience of the participants in a neutral way the target audience could also include members of an organization interested in understanding the nature of the work involved. The experiences will describe organizations in both the public sector as well as in the private sector.



Objective and Scope Of Study: Digital transformation is a very broad topic, and it covers a number of different types of initiatives. But what it boils down to is changing how a business interacts with customers using technology, and how its internal processes can be significantly improved by using technology. So, digital transformation in business has two aspects: customer-facing and internal. For customers, it is about providing them a range of technology-based channels for engagement, sales, service, and other interaction needs. Internally, it is typically about digitizing or automating processes that can substantially improve both efficiency and response time. This dual nature of digital makes it truly transformative – it can dramatically improve access and experience for customers while reducing response time and costs of delivery for enterprises.

Digital transformation in consultancy firms, especially in the context of their engagement with government projects:

1. Digital Transformation in Consultancy Firms:

Embracing digital transformation in consultancy firms involves adopting and integrating advanced technologies and digital solutions to enhance efficiency, productivity, and service delivery. This transformation is crucial for staying competitive, meeting client expectations, and adapting to the evolving business landscape.

2. Current Scenario of Big MNCs Serving Government:

In the current scenario, multinational corporations (MNCs) play a significant role in serving government entities. These corporations often bring technological advancements, innovation, and specialized expertise that can address complex challenges faced by government agencies.

3. Handling Government Projects:

Consultancy firms, especially those engaged in

digital transformation, are well-positioned to handle government projects. Governments often grapple with adopting and implementing the latest technologies efficiently. Consultancy firms can bridge this gap by providing expertise, guidance, and hands-on support in navigating the complexities of digital initiatives.

4. Technological Advancements of MNCs:

The technological advancements possessed by large MNCs make them valuable partners for government projects. These advancements may include expertise in areas such as artificial intelligence, data analytics, cyber security, and other cutting-edge technologies. Leveraging these advancements can lead to more effective and streamlined government operations.

5. Addressing Government Technological Gaps:

Governments, due to their bureaucratic nature, might lag behind in adopting the latest technologies. Consultancy firms can serve a crucial role in identifying and addressing these technological gaps. They can offer tailored solutions, strategies, and implementation plans to help government agencies modernize their systems and processes.

6. Importance of Digital Transformation for Governments:

Digital transformation is essential for governments to enhance service delivery, increase transparency, and improve overall governance. It can lead to cost savings, operational efficiency, and better citizen experiences. Consultancy firms, by facilitating this transformation, contribute to the overall progress of government agencies. Certainly! Transparency and efficiency are key aspects when consultancy firms engage with government projects and handle public interest. Here are some additional points:

7. Data Transparency and Accountability:

Consultancy firms can play a crucial role in



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promoting data transparency within government projects. This involves ensuring that data is accessible, understandable, and used ethically. Transparency in data management builds trust and accountability, assuring the public that their information is handled responsibly.

8. Open Communication Channels:

Establishing open communication channels between the consultancy firm, government agencies, and the public fosters transparency. Regular updates, public consultations, and feedback mechanisms can enhance understanding and trust in the decision-making processes related to public interest projects.

9. Clear Documentation and Reporting:

Consultancy firms should prioritize clear documentation and reporting of project progress, outcomes, and financial expenditures. Transparent reporting provides insights into how public funds are utilized and the impact of government initiatives. This transparency is crucial for accountability and public trust.

10. Adherence to Regulatory Compliance:

Ensuring that all activities adhere to regulatory compliance standards enhances transparency. Consultancy firms need to be well-versed in local and international regulations, especially when handling government projects, to guarantee that operations are conducted legally and ethically.

11. Digital Platforms for Public Engagement:

Leveraging digital platforms for public engagement enhances transparency by allowing citizens to participate in discussions, provide feedback, and stay informed about government initiatives. Consultancy firms can help design and implement these platforms to facilitate meaningful engagement.

12. Efficient Resource Allocation: Efficiency in handling public interest projects involves optimizing the allocation of resources. Consultancy firms can employ data-driven

strategies to ensure that public funds are utilized effectively, minimizing waste and maximizing the impact of government programs.

13. Performance Metrics and Key Performance Indicators (KPIs):

Establishing clear performance metrics and KPIs for government projects promotes transparency and accountability. Consultancy firms can work with government agencies to define and measure success, making it easier for the public to evaluate the impact of public interest initiatives.

14. Cyber security and Data Protection:

Implementing robust cyber security measures and data protection protocols is essential for maintaining public trust. Consultancy firms must prioritize the security of sensitive information to prevent data breaches and uphold the confidentiality and privacy of individuals.

15. Stakeholder Engagement and Collaboration:

Engaging with a wide range of stakeholders, including civil society organizations and the public, fosters collaboration and ensures that diverse perspectives are considered. This inclusive approach contributes to well-rounded decision-making and increases the transparency of the entire process.

By combining digital transformation with a commitment to transparency and efficiency, consultancy firms can significantly contribute to the effective and responsible handling of public interest projects, ultimately benefiting both the government and the citizens it serves.

Many different forces have come together in what is described as a VUCA (volatile, uncertain, complex, and ambiguous) world. In this VUCA world, it is difficult to predict the winners. But it is precisely for this reason that the VUCA world also presents a huge opportunity for enterprises: those that are able to figure out the new rules of the game and transform themselves stand to win



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big.

Limitations: Our aim with this report is to achieve the best possible outcome, considering constraints on time, resources, and current social factors. Due to these limitations, we've defined a specific scope to enhance the quality of our work and focus on delving deeper into specific problems outlined in sections 1.3 (Problem) and 1.4 (Research questions). We have chosen not to concentrate on how consultants utilize and adapt existing models, frameworks, tools, or procedures in different contexts based on specific clients or goals. The concept of innovation, frequently mentioned during interviews, will also not be covered due to its vast nature requiring more time than available. Additionally, the report will not explore how solutions are managed or maintained after the consultant completes their work. Originally, observatory studies and possibly workshops were considered for a deeper understanding, but due to the current pandemic and adherence to guidelines from the Public Health Authority of Sweden (April 2020), we decided to only conduct planned interviews, which were also shifted to digital means instead of face-to-face.

Introduction:

Steps to Digital transformation:

Step 1: Understanding how industry value chain is changing, who customer is and what are offering to them.

Step 2: Anchoring the digital transformation in Business KPIs (key performance indicators).

Step 3: Recognizing data as the secret sauce of the digital world. Step 4: Understanding the implications for organizational structures.

Step 5: The two-speed strategy: to stay focused on specific use cases within an organization (small-wins).

Digital transformation across industries:

1. Customer expectations are rising for a better experience.
2. Disintermediation in industries as direct

channels to end-customers (D2C)

3. Value chains across industries are also changing as boundaries are blurring.

4. New competitors are emerging.

5. Consumers have wider choice as there is a proliferation of products.

6. Pricing pressures are mounting on businesses as both customers and regulators are asking for more transparency.

In the volatile, uncertain, complex, and ambiguous (VUCA) world, disruptive forces arise from technological shifts, evolving customer expectations, a wealth shift to the East, geopolitical uncertainties, and shortened cycles. Both traditional and modern organizations exhibit fundamental gaps in preparing for this VUCA environment. To thrive, new rules are essential. Strategies involving innovation, agile approaches, the development of a tech-centric culture, and fostering partnerships and an entrepreneurial mindset are crucial in navigating and succeeding in the VUCA world.

Our current era is marked by dynamic change, offering both substantial challenges and significant opportunities, depending on one's perspective. Succeeding in the VUCA world requires a transformative enterprise approach, involving comprehensive changes in organizational and individual principles and priorities. Although this journey may appear formidable, the potential rewards are substantial.

Literature Review: Digital transformation in various sectors:

Digital Banking: Digital natives pose a threat to traditional banks, despite their current dominance due to customer loyalty. While banks have focused on digitizing the front-end and improving engagement, they must intensify efforts to compete in the ongoing digital disruption. Three key imperatives for banks in their digital transformation include rethinking product and service engagement through AI interventions, prioritizing personalized customer experiences with a focus on



individualization, and leveraging technology and data by upgrading legacy systems and adopting

'hybrid' cloud approach, making Enterprise AI a competitive advantage.



Fig. 5.1 Digital banking (Source – Book “Winning in the Digital Age”)

Wealth management: Digital transformation has been a topic of discussion ever since robo-advisors attacked the market. However, little has changed on the ground. Digital transformation has been accelerated by the Covid-19 pandemic, leading to work shifting out of the office space and to less in-person servicing. A key theme for digital is to drive personalization for advisors so they can engage better with clients. AI/ML will see new use cases beyond robo-advisory. Cloud adoption will increase, and cyber security will be augmented. Future

proofing against entry into the industry is necessary

- Improving scale through seamless processing and Omni-channel servicing,
- Redesign processes such that it simplifies processes end-to end and not just incremental point automation,
- Continued investment in data infrastructure as the core anchor to aid transformation initiatives and generate insights leveraging the digital data deluge.

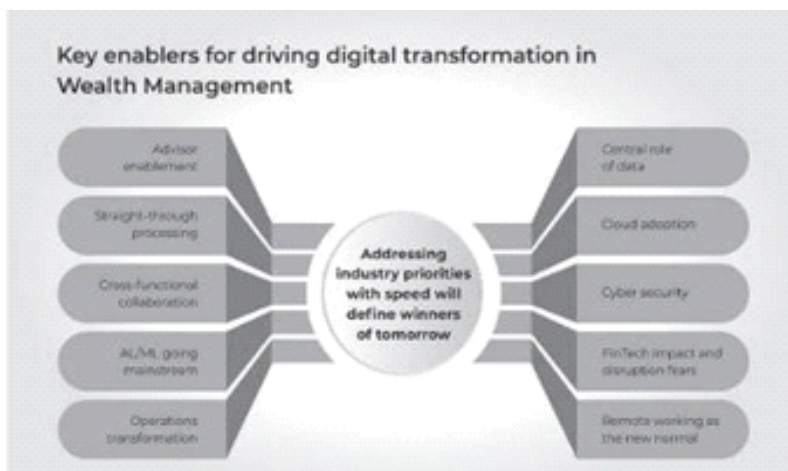


Fig .5.2 Wealth Management (Source – Book “Winning in the Digital Age”)

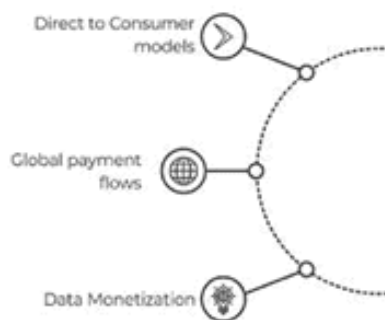
Payments Disruption: Payments have been at the forefront of digital transformation, and already Chinese Big 3 (Alibaba, Baidu and Tencent) have attacked this space. Big moves can be expected in this space. Enterprise payments will go the consumer payments way. Winning moves for enterprises would be: enabling of digital payment channels for corporate clients, payment automation

and analytics, and adoption of open banking standards.

Direct-to-consumer models: As firms across industries move to direct engagement with their customers, it is becoming increasingly necessary to deliver them the same level of digital experiences as the consumer payments industry does.

Payments - Disrupt or get disrupted!

Key Trends shaping Payments Industry



Focus areas to unlock the potential



Fig 5.3 Payment Disrupt (Source – Book “Winning in the Digital Age”)

Global payment flows: Cross-border payments now make up over 10 per cent of all corporate payments, and they are growing. These flows are almost always digital in nature, with the added complexity of regulatory compliance and risk management.

Data monetization: Bank treasury services have had the advantage of managing and servicing fund flows between their corporate clients. And as these fund flows become increasingly digital, they have enabled banks to build a data goldmine. Banks are now actively looking to leverage this data to deepen their service offerings.

Telecom: Telco communication has been investing a lot in digital infrastructure as the industry progressed from 2G to 5G. However, they have not realized the desired impact. Instead, OTTs have won the game of content, leveraging the infrastructure that telecoms invested in over the years. Now, 5G presents opportunities for telecoms to emerge as winners in the market if they take the following steps:

- Embrace the digital-native approach, which encompasses product simplification, Omni-channel strategy, and self-service, Build domain-specific solutions that leverage deep



- insights from customer data,
- Legacy modernization of operational support system (OSS) and business support system (BSS) infrastructure,
- Drive Innovation, leveraging AI, which leads to efficiencies and enhanced customer experience.

Agile Management: Agile Digital Transformation based on continuous innovation, which can change business model and strength of an organization. Agile management has five principles:

1. Transformative Vision
2. Building Digital Customer
3. Secure Digital platform
4. Data Driven Visualize
5. Digital Agility

Inventory management: “Digital transformation” is one of the major trends of our generation, however 70 percent of the transformation initiatives do not deliver the desired impact. Many enterprises are still playing defense with their digital technology investments. Digital adoption is as low as 5-10 percent across industries with no clear plan to increase it substantially. The root causes of failed digital technology investments lie in data infrastructure, IT processes; back-end systems; legacy business processes.

- “Industry 4.0 enables factories smart, products smart, and supply chains smart as well, and makes manufacturing systems and services more agile, flexible and responsive to customers”.
- “Explored the impact of Industry 4.0 on inventory systems and optimization respectively, and new integrative R&D framework for inventory systems and optimization is developed”.
- “With Industry 4.0 implementation and progress, it is anticipated that there will be more and more breakthroughs in approaches and

methods for inventory systems modeling and optimization”.

- “Industry 4.0 technology helps manage and optimize all aspects of manufacturing processes and supply chain. It gives access to real-time data and information need to make wise, quick decisions about business, which can ultimately improve the efficiency and profitability of entire business”.
- “Industry 4.0 brings entirely new capabilities to operations managers, which allows them to respond faster to critical situations and improve on multiple KPIs”.
- “Industry 4.0 will be implemented to upgrade and transform the small and medium-sized enterprises (SMEs) in the future. Some analysis and insights are obtained while performing Research Methodology”.
- “With respect to Kanban, an improved demand assessment, dynamic and more efficient milk-runs as well as shortened cycle times can be expected. As far as JIT/JIS systems are concerned, reduced bullwhip effects, highly transparent and integrated supply chains as well as improvements in production planning are among the potential benefits”.

Data Deluge: Even enterprises that believed they had achieved data management maturity are overwhelmed by the massive amounts of data generated today. The Variety, Volume, and Velocity of data is exploding creating an unprecedented Digital Data Deluge. Current enterprise data ecosystem is facing multiple pressure points:

- Inability to consume, process and integrate high-speed, complex digital data,
- Limitation in crating and differentiating 'signal' from 'noise',
- The 'golden record' is no more sufficient, we need a holistic 360-degree view,
- Growing sophistication of cyber-attacks and data theft have redefined data security demands,
- Poor data governance and quality,
- Real-time and on-demand insights.



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Agility, and not maturity, is the new mantra for enterprise data management. This is recognizing that reality of the VUCA world of Digital Transformation that there is nothing like an 'end state'

- Agile design principles for enterprises: Data stacks don't need to be monolithic; they need to be aligned to data use cases,
- Agile data ingestion and processing capability with rich interface using external data ecosystem
- Data storage should be elastic, and expand cost-effectively,
- Modern master data management requires the ability to work across silos, captivate new sources of data, find concealed relationships, swiftly generate acumens, and carry results in real-time at gauge.
- Enabling of AI/ML and analytics workbench.
- API-driven, real-time, on-demand data and insight dissemination
- Robust data governance and quality management.
- Well defined and rigorously managed data security and regulatory compliance.

Building Organizational Culture: To succeed in the Digital Age, enterprises need to adapt their culture to the unique characteristics and expectations of this age. Nine key aspects that enterprises need to build in their culture to succeed:

- Decision making should involve balance of data and intuition thereby cutting mistakes and delivering superior outcomes.
- Speed of Action under Ambiguity - requires a safe space for executives to hone their decision-making skills.
- Audacity and Intelligent Risk Taking - the ability to dream big and execute at scale requires risk taking with intelligence.
- Innovation and Creativity - needs to be embedded in the organization culture and should happen across levels.
- Technology DNA - is a critical competency in the digital age and every enterprise needs to

build this irrespective of industry. For many organizations this is a big change as this is a new competency, they have to build

- Continuous Learning and Humility is critical both at the enterprise and individual levels.
- Inspiring, less managing. Building a culture of 'Aligned Autonomy' through empowerment and inspiring leadership is important for teams to execute and respond to changes quickly.
- Humane, Centered in chaos. The Digital Age is characterized by technology and AI. Human touch becomes even more important in this age of machines. It should involve employees, families, community service and engagement to drive connections and loyalty to the company.
- Resilience and Adaptability. In the current age setbacks at the enterprise and individual levels are expected. Aspects that help build Resilience include – having an equanimous approach, support networks, spirituality and practicing meditation.

To embed the above Nine aspects into the culture, enterprises need to define clear and actionable values, encourage role modeling by leadership and institutionalize through organization processes.

Knowledge management: Proprietary Knowledge is a key differentiator in the digital age. It will not be an exaggeration to say that every company needs to become a knowledge company in the digital age.

Knowledge management involves converting insignificant professional level information into an integrated collection available for use and where it is needed. Knowledge management initiatives are notoriously difficult to get right. They are not a quick fix. ROI is unclear and can take long. Changing the organizational culture is a tough process and designing self-sustaining knowledge cycles is not easy.

Finding the right Knowledge management is an ongoing, long-term effort.. It requires leadership commitment and signaling, building a knowledge-



sharing culture, building supportive organization structure and knowledge processes, and investing in the right knowledge and technology infrastructure.

Innovation management: Innovation is a key driver and imperative for every industry in the digital age. The Indian IT business desires to transform to drive the next stage of progress and stay competitive. In particular, they need to step up on product and business model innovation. Innovation does not happen by chance. It needs to be a structured and sustained effort. Some of the action areas to unlock the innovation potential are methods for capturing and implementing small ideas, committed budget for innovation, collaboration with start-ups and partnership with academia.

Change Management: “Change for organizations” is unavoidable and the rate of change in the business environment is sophisticated than ever earlier in the digital age. Seven best practices in change management include:

- Focusing on the right type and amount of change – Any organization has a limited capacity to captivate change, so it is critical to rank and categorizing the change initiatives.
- Establishing 'why change?', clearly and persistently – See the transformation from a person's perception and how it will impact them to have to persist to establish the case for change till it reaches a tipping point.
- Identifying change agents – Force multipliers are needed to embrace change and evangelize it. Select leaders who have high points of self-confidence and a broad viewpoint.
- Focusing on some early wins - builds credibility for the change agenda; employees respond much better to actions than to words.
- Going slow to go far involves - need to be patient and persistent in the change journey especially when want to achieve substantial change.
- Building a stakeholder coalition – Can provide alternate program a huge lift if can comprehend

the inspirations of the “key stakeholders” and find placement and evident provision from them.

- Communication, communication and communication – To achieve success, need to understand four aspects of communication – simplicity, comprehensiveness of coverage, frequency and consistency, and openness and honesty.

Leadership: Managing Duality in the form of contradictions or seemingly conflicting objectives is the most significant challenge that leaders need to manage in the digital age. Leaders will have to learn to go beyond trade-offs and develop win-win solutions. Some examples of contradictions include - Short-term versus long-term, Execution versus strategy, Growth versus profitability, Customers versus employees, Sales versus delivery, Quality versus speed, Data versus intuition, Man versus machine, Products versus services, Input versus output. Leaders should balance between different leadership skills which include - 'Knowing something' against 'knowing someone', Independence against management, learning versus performance, Innovation against delivery, Intellect versus emotion, Spirituality versus materialism.

Finally, the five steps that will help a leader to resolve conflicts that arise are due to two things, these include:

- Building awareness and understanding of complementary values.
- Getting a range of experiences, which broaden worldview and understanding.
- Bringing diverse talents together in the team to manage duality.
- Having a trusted mentor or colleague who can be a sounding board and help go beyond biases and see the bigger picture.
- Practicing meditation.

Global delivery System: Three key imperatives for enterprises to win today:



- . Address the dual challenge of protecting existing revenue and investing for future growth,
- Drive transformation to be ready for a cloud-first world,
- Continuing cost advantage,
- Availability of skills as younger population that makes it easier to drive cultural change,
- Benefit from Innovation activity in local ecosystems,
- Engage with and build business in a large and growing market. How to address these challenges:
- Reduce existing costs to self-fund new strategic initiatives,
- Increase velocity of transformation and innovation,
- Address skill-gap to build world-class capabilities.

Advantages Of Digital Transformation

Digital transformation offers a multitude of benefits to businesses across various sectors. One crucial advantage lies in enhanced data collection capabilities, enabling organizations to predict future circumstances and tailor offerings to customer needs. Coupled with this is the reinforcement of resource management through digital tools, facilitating more efficient scheduling, budgeting, and planning.

Leveraging data-driven approaches not only enhances decision-making but also provides invaluable customer insights, paving the way for improved experiences. Moreover, digital transformation fosters a collaborative and tech-savvy organizational culture, driving innovation and efficiency. Efficiency indeed sees a boost through the adoption of advanced technologies, translating into increased profitability.

Furthermore, agility becomes a hallmark as organizations adapt swiftly to market shifts, ensuring a competitive edge. Productivity gains are

substantial with the integration of Industry 4.0 technologies, while transparency in operations builds trust and credibility. Cost savings are realized through optimized processes, contributing to revenue growth as digital innovation expands market reach. Flexibility in product design and supply chain management are additional dividends, reinforcing a customer-centric operating model. Ultimately, digital transformation emerges as a cornerstone for improving competitive advantage, propelling organizations towards sustainable success in the ever-evolving digital landscape.

Disadvantage Of Digital Transformation:

Embarking on a journey of digital transformation brings forth several challenges that organizations must navigate to reap its rewards. Firstly, there's a pressing need for an influx of IT skilled personnel and a comprehensive understanding of digital trends to drive the transformation effectively. However, resistance from employees can pose a significant hurdle, as some may be hesitant to adapt to new technologies or processes, fearing job displacement or increased workloads. Moreover, achieving digital transformation often necessitates a shift in organizational culture, which can be met with varying degrees of acceptance and may require extensive efforts to cultivate. Budgetary concerns also loom large, as implementing digital initiatives typically entails high costs and budget constraints, potentially hindering progress. Additionally, the process of digitalization itself may inadvertently alienate certain employees who struggle to keep pace with technological advancements. Cybersecurity issues further compound the challenges, as the increased reliance on digital systems exposes organizations to a myriad of threats, requiring robust protective measures and continuous vigilance. Despite these obstacles, organizations that successfully navigate these challenges stand to unlock immense value and competitiveness in the digital age.



The Process of Transformation

There are different approaches to digital transformation and digitalization in practice. Industry 4.0 can be seen as a concrete example of digitalization in practice, but as mentioned it lacks a single definition (Buer, et al. 2018). The process to implementation may take several forms, and needs to take a plethora of factors into account. The digital Lean transformation framework presented below is one of these forms, and organizational culture is an example of a factor of major influence.

The upcoming subchapter will present a framework regarding Lean transformation. The framework is later connected to the concept Industry 4.0. Furthermore, organizational culture and its ramifications on transformative work is discussed.

Digital Lean transformation framework

Romero et al. (2019) emphasize the longevity and trustworthiness of the lean approach, a philosophy centered on continuous improvement through process and cultural focus rather than reliance on modern technologies. The Lean Thinking principles, as outlined by the authors, prioritize customer needs and aim for optimal efficiency to achieve long-term profitability.

The authors propose a framework for digital transformation that integrates lean thinking practices and tools. This framework, when combined with tools like Value Stream Mapping, identifies where customer value is created and pinpoints processes that do not add value. This knowledge is then used to enhance efficiency through the adoption of suitable technologies or processes. Value Stream Mapping, a fundamental tool in lean production, is instrumental in improving processes by reducing abnormalities and eliminating wasteful activities.

The combination of the suggested framework and Value Stream Mapping creates a valuable synergy, allowing companies to identify customer value and

select the most appropriate technologies for their specific situations. Value Stream Mapping, as explained by Busert and Fay (2019), is a systematic procedure for analyzing both production processes and associated logistical processes. It provides a visual representation of the required actions, facilitating the quick identification and improvement of steps that add or do not add value.

Organizational culture

Organizational culture significantly impacts the transformation process, as individual behaviors reflect and are shaped by the surrounding culture. A culture that embraces change and innovation facilitates a smoother transformation.

Organizational culture, defined by Armstrong (2006) as the pattern of values, norms, and beliefs shaping behavior, can also be viewed as a deeper level of shared assumptions and beliefs, according to Schein (2004). Osborne and Brown (2005) provide a comprehensive perspective, describing culture as a unique amalgamation of shared ideas, customs, and values influencing group behavior.

Wallach (1983) challenges the notion of categorizing cultures as inherently good or bad, emphasizing that effectiveness depends on supporting organizational goals. Wade et al. (2017) underscore the critical role of culture in successful digital transformation, often identified as a significant barrier. Understanding aspects like behavior, motivation, and resistance to change becomes crucial within the context of culture.

The road map to transformation

When the initiative to digitalize or digitally transform the organization is in motion, the way to proceed may be uncertain and full of potential pitfalls and mistakes to avoid. The strategic perspective needed to succeed where others have not can be influenced by several aspects and methods. These can include delegation of responsibility to an appointed official, or the necessity to influence



primary stakeholders, to ensure their cooperation. A necessary method could also be the formulation of a strategic approach covering topics ranging from how to incorporate novel use of technology in existing processes, to the creation of new processes with new stakeholders in mind, thus expanding the boundaries of their market. This section will present the various tools and concepts related to transformation, and the way to reach the organization's goals. The topics include aspects such as digital strategy and change management.

Digital strategy and CDO

The planning and responsibility of an implementation could arguably be of utmost importance. As mentioned, methods to succeed when treading the unknown ground of the digital landscape include forming strategies to act as guidelines for future work, which forms the section 3.2.1.1 below, or appointing a responsible party whose mission it is to guide and connect the digital reality with the organizational reality, which is touched on in 3.2.1.2. This subchapter will handle the concept of digital strategy as well a new and upcoming role of Chief Digital Officers.

Five steps to digital transformation:

Step-1: First step is to Understand how industry value chain is being changed, know about customer and what we have to offer them. In the example above, the client is converted from an intermediary, i.e. a consultant, to a direct consumer. What kind of business it is, in this case, the investment management company must observe the consumer firsthand and think about what the consumer needs and what we can offer?

Step-2: Digital transformation should be taken in Business KPIs (key performance indicators). Digitization is ubiquitous, which is both a huge opportunity and a challenge. With the diversity and complexity of these initiatives, it is very easy to get lost in digital transformation. Therefore, need to

anchor these initiatives by defining clear key performance indicators for business. Key business performance indicators include:

- Revenue Growth,
- Increase Customer Engagement,
- Customer Retention,
- Increase Product Sales

Being able to anchor digital journey helps focus. Otherwise, it is easy to lose focus when digital transforming.

Step-3: Embrace data as the secret source of the digital world. Digital channels provide big data and diverse customer needs. This data offers great opportunities for personalization. For each customer, can optimize offers and interactions accordingly. We can identify each client well and we can also identify each client and tailor our offers for each. This is a great opportunity for digital technology and is possible with data. This is the third step. Clearly define the customer problem that needs to be addressed and determine the data needed to solve this problem.

Step-4: Understanding the implications for organizational structures. Digitization tends to be cross- functional; it is not just about IT or marketing, it's about many of these functions coming together. The question is: how do organize business so that person will be able to execute on these cross-functional projects? And finally, execute on digital transformation initiative.

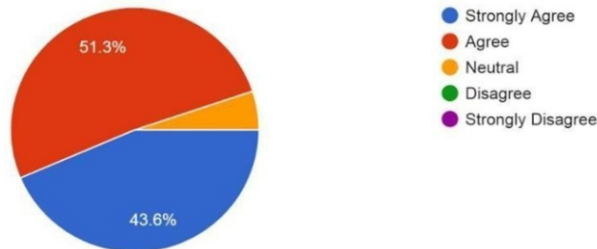
Step-5: The two-speed strategy: While implementing digital projects there are chances of failure. The success rate is not very high. To execute digital projects, we need two-speed strategy, which is to stay focused on specific use cases within an organization. Don't make it all-pervasive. Focus on simple but targeted use cases, leverage these quick wins as a pilot or foundational platform and build on them, as opposed to trying to do it all or launching a project across the whole organization.



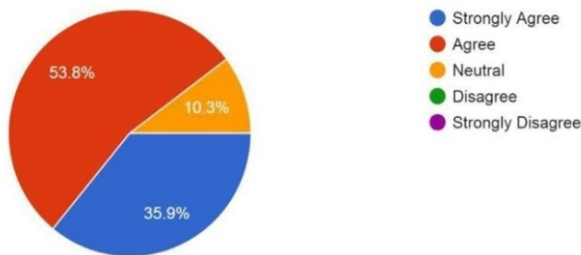
Data Analysis

Data is collected for the academics' purpose only on following aspects:

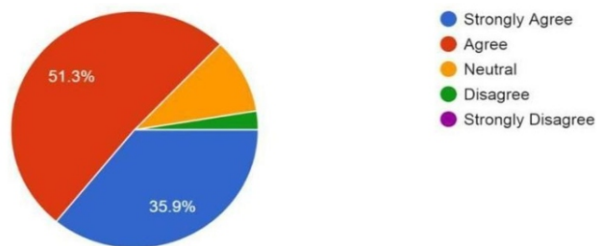
1. Organisation should translate the Digital Vision down at all levels.



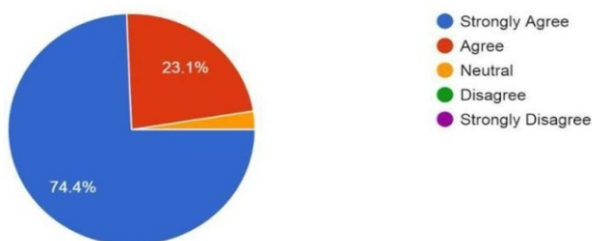
2. Digitalization can scale operations up or down with respect to change in market demand.



3. Digitalization provides the flexibility to customize product as per consumer needs.

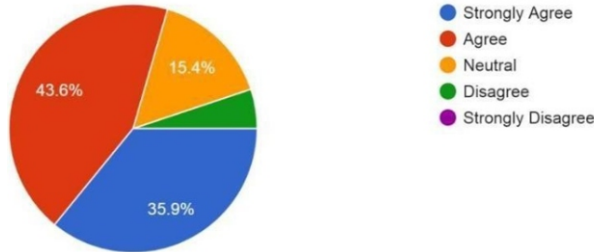


4. With the help of digitalization, banking operation can be more faster (lowering the waiting time).

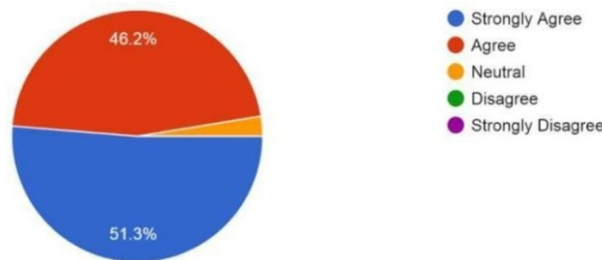




5. Through Digitalization, it is easier to understand transactional and behavioral attributes of customer.



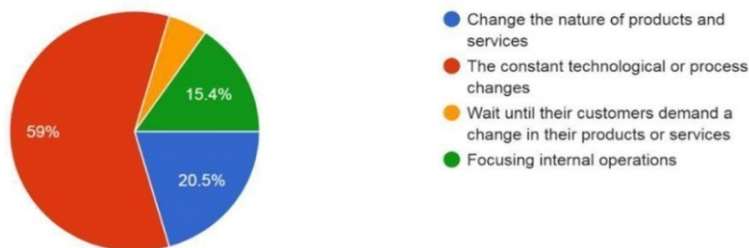
6. Excess data generated by an organization can easily be handled through Digital transformation.



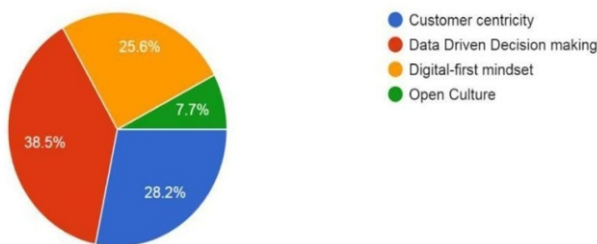
7. Digitalization in wealth management helps with processes like account on boarding and conversion of paper documents to digital form through advanced digitalization tools.



8. Most innovating strategy for Digital transformation

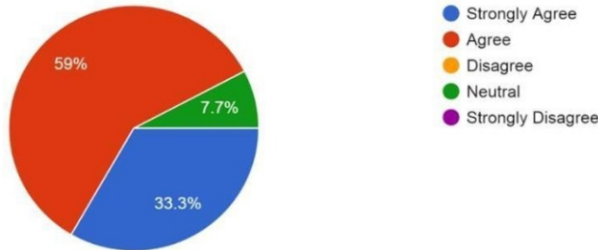


9. Type of organizational culture need to implement Digital transformation

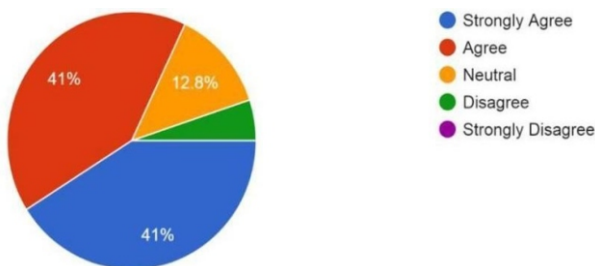




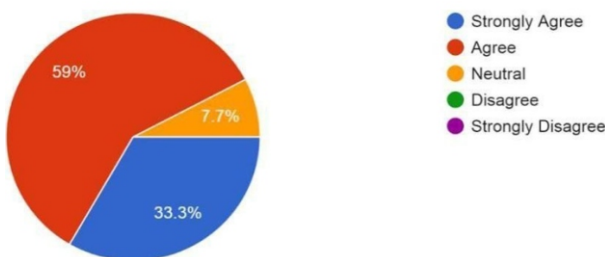
10. In telecom, Digital transformation is gaining access to key data insights to continually measure the pulse of customers and modify not only plans, but also organization long-term business goals and strategies.



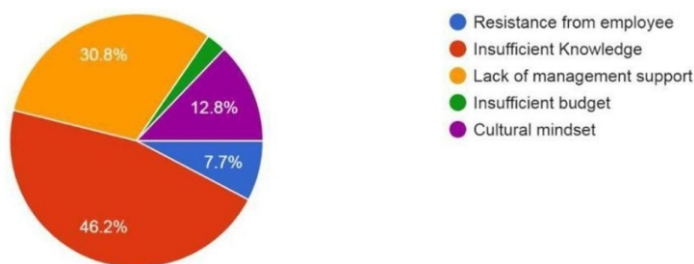
11. Digital transformation can help to overcome down time which might be due to uncertain time like Covid-19 pandemic.



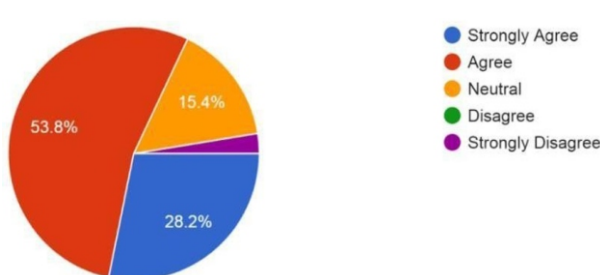
12. In the Digital age, “change for organizations is inevitable and the rate of change in the business environment is higher than ever before.”



13. The most important factor for Change management failure in Digital transformation.

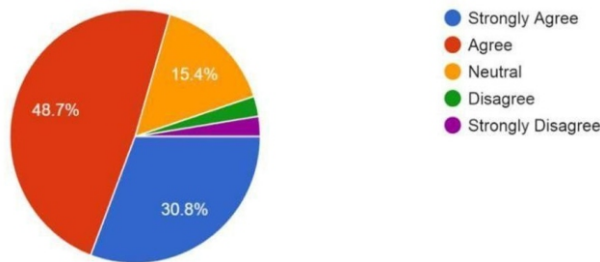


14. Digitalization can build a better leadership approach to achieve business goals.

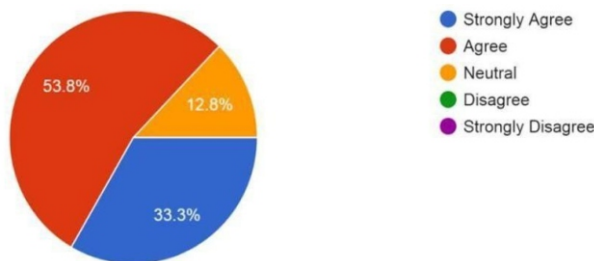




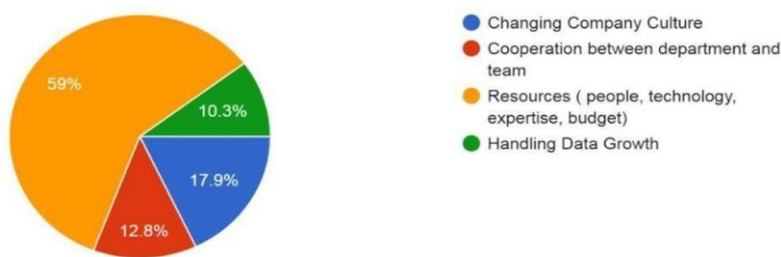
15. Global Delivery Model (Assets & Competencies) have an impact on Digital transformation.



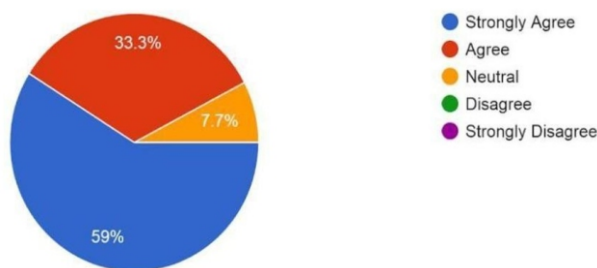
16. Digital transformation is an important factor for implementing Agile.



17. Major Challenge while implementing Digital transformation in Industry.



18. Organization should have a Digital vision to transform because of the new market needs.



(Source of All charts in data analysis are self-illustrated based on data survey)

Findings

1. Majority of population agrees that Organization should translate the Digital Vision down at all levels.
2. Majority of population agrees with the statement that Digitalization can scale operations up or

- down with respect to change in market demand.
3. Majority of population agrees that Digitalization provides the flexibility to customize product as per consumer needs
4. Majority of population agrees that with the help of digitalization, banking operation can be more faster (lowering the waiting time).



5. Majority of population agrees that through Digitalization, it is easier to understand transactional and behavioral attributes of customer.
 6. Majority of population strongly agrees that excess data generated by an organization can easily be handled through Digital transformation.
 7. Majority of population strongly agrees that Digitalization in wealth management helps with processes like account on boarding and conversion do paper documents to digital form through advanced digitalization tools.
 8. Most innovating strategy for Digital transformation is the constant technological or process changes
 9. Type of organizational culture need to implement Digital transformation is Data Driven Decision Making
 10. Majority of population agrees that in telecom, Digital transformation is gaining access to key data insights to continually measure the pulse of customers and modify not only plans, but also organization long-term business goals and strategies.
 11. Majority of population strongly agrees that Digital transformation can help to overcome down time which might to be due to uncertain time like Covid-19 pandemic.
 12. Majority of population strongly agrees that in the Digital age, change for organizations is inevitable and the velocity of change in the business environment is higher than ever before.
 13. The most important factor for Change management failure in Digital transformation insufficient knowledge.
 14. Majority of population strongly agrees that Digitalization can build a better leadership approach to achieve business goals.
 15. Majority of population strongly agrees that Global Delivery Model (Assets & Competencies) have an impact on Digital transformation.
 16. Majority of population strongly agrees that Digital transformation is an important factor for implementing Agile.
 17. Major Challenge while implementing Digital transformation in Industry 4.0 is lack of resources (People, technology, expertise, budget)
 18. Majority of population strongly agrees that Organization should have a Digital vision to transform because of the new market needs.
- Decision making should involve balance of data and intuition thereby cutting mistakes and delivering superior outcomes.
 - Speed of Action under Ambiguity - requires a safe space for executives to hone their decision-making skills
 - Audacity and Intelligent Risk Taking - the ability to dream big and execute at scale requires risk taking with intelligence.
 - Innovation and Creativity - needs to be embedded in the organization culture and should happen across levels.
 - Technology DNA - is a critical competency in the digital age and every enterprise needs to build this irrespective of industry.
 - For many organizations this is a big change as this is a new competency they have to build Continuous Learning and Humility is critical both at the enterprise and individual levels.
 - Inspiring, less managing. Building a culture of 'Aligned Autonomy' through empowerment and inspiring leadership is important for teams to execute and respond to changes quickly.
 - Humane, Centered in chaos. The Digital Age is characterized by technology and AI. Humantouch becomes even more important in this age of machines. It should involve employees, families, community service and engagement to drive connections and loyalty to the company.
 - Resilience and Adaptability. In the current age setbacks at the enterprise and individual levels are expected. Aspects that help build Resilience include - having an equanimous approach, support networks, spirituality and practicing meditation.
 - To embed the above Nine aspects into the culture, enterprises need to define clear and actionable values, encourage role modelling by leadership and institutionalize through organization processes.



5. Majority of population agrees that through Digitalization, it is easier to understand transactional and behavioral attributes of customer.
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16. Majority of population strongly agrees that Digital transformation is an important factor for implementing Agile.
17. Major Challenge while implementing Digital transformation in Industry 4.0 is lack of resources

(People, technology, expertise, budget)

18. Majority of population strongly agrees that Organization should have a Digital vision to transform because of the new market needs.

Recommendation

To succeed in the Digital Age, enterprises need to adapt their culture to the unique characteristics and expectations of this age.

Nine key aspects that enterprises need to build in their culture to succeed and implement Industry 4.0 in Inventory Systems:

- Decision making should involve balance of data and intuition thereby cutting mistakes and delivering superior outcomes.
- Speed of Action under Ambiguity - requires a safe space for executives to hone their decision-making skills
- Audacity and Intelligent Risk Taking - the ability to dream big and execute at scale requires risk taking with intelligence.
- Innovation and Creativity - needs to be embedded in the organization culture and should happen across levels.
- Technology DNA - is a critical competency in the digital age and every enterprise needs to build this irrespective of industry.
- For many organizations this is a big change as this is a new competency they have to build Continuous Learning and Humility is critical both at the enterprise and individual levels.
- Inspiring, less managing. Building a culture of 'Aligned Autonomy' through empowerment and inspiring leadership is important for teams to execute and respond to changes quickly.
- Humane, Centered in chaos. The Digital Age is characterized by technology and AI. Humantouch becomes even more important in this age of machines. It should involve employees, families, community service and engagement to drive connections and loyalty to the company.
- Resilience and Adaptability. In the current age setbacks at the enterprise and individual levels



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are expected. Aspects that help build Resilience include - having an equanimous approach, support networks, spirituality and practicing meditation.

- To embed the above Nine aspects into the culture, enterprises need to define clear and actionable values, encourage role modelling by leadership and institutionalize through organization processes.

On basis of the study, I have following recommendations for implementing Digital transformation:

- Organization should show courage to adopt digital technology
- Organization should give proper knowledge to employee, so that they can be aware of it.
- Employees should have to be more innovative, and organization should support their ideas.
- Leadership is much important as it is different culture.
- Leader should organize a culture which supports digital view.
- Leader should arrange training sessions for IT skills as it plays a good role for digital culture.
- Digital initiative can be riskier, but it will provide a bigger output with respect to traditional culture.

Some more points that can give a hard base to new business model:

- Think big and take risks.
- Persist in search of excellence.
- Build lasting relationships
- Be proactive and take responsibility
- Focus on giving, not getting
- Stay humble and true to values
- Keep balance and pursue interests beyond work

Conclusion

With the Study we can conclude that in the digital age it is necessary to make changes to adapt and

survive in the digital age. Old rules, methods and mindsets will not work. There is no option but to rouse to make fundamental changes.

If the change is unavoidable, may also be able to set priorities. Play to win, not just to survive. Any change will involve some pain. When have to go through the pain, make it count and aim to get the best out of it.

Across the study we have discussed Industry 4.0 and its technical pillars and their impacts.

We also discussed about Digital Transformation in various sectors. The multi-dimensional nature of digital disruption and the challenges and opportunities it presents at various levels of overall business, technology, organization.

Digital is a great equalizer; legacy and past history do not count for much. It delivers a side by side playing area for innovative ideas, creativity, drive and persistence. The digital age is an opportune time for those wishing to be entrepreneurs to build new businesses, for visionaries to leapfrog the traditional stages of growth in their markets, for managers to step up as leaders and be change agents, and professionals across levels to realize their full potential in business and in life. So, with the study we have come to point that the Digital Transformation is too much important as it brings clarity, and it makes easy to be in digital age.

We have to focus on following principles to have Digital transformation:

- Innovative business
- Business maturity curves
- “Digital Technology”
- Global Distribution Model
- Structural Transformation
- Business leadership
- New Talent



1. *Innovative business*: Every business needs to understand how the foundations of their business change and based on what defines their 'new business rules' in order to apply them to both strategies and operations to drive a successful digital transformation. In section one, elaborated on the above challenges and share my perspectives on the 'new rules' at below levels:

- The universal level of VUCA world and overall implications for business
- The digital transformation levels
- The explicit technology level essentials of digitalization

2. *Business maturity curves*: Digital transformation is causing great changes in all industries. Customer expectations of experience are rising, there is disintermediation, direct channels are becoming more important, new competitors are emerging, and boundaries across industries are blurring. Such a drastic change is dangerous and an opportunity. For enterprises to emerge as winners in the digital age, it is critical that they form a forward-looking picture of how their industry is likely to evolve so they can anchor their business and technology strategies accordingly. This anchoring of digital transformation programs in outside-in industry changes is extremely critical to realizing the full potential of digital.

3. *“Digital Technology”*: Technology continues to be the backbone of any digital transformation project. There are seven key technologies that play a key role in digital transformation - customer design, data analytics, automation, operations transformation, artificial intelligence (AI), data structure, block chain, and clouds. The most important feature of this “digital technology” is that it is self-governing but inter-related.

4. *Global Distribution Model*: Every business in the digital age should be a global business. And most importantly, it needs to have an effective global service delivery model to advance to the technology and operational demand agenda, many firms often

have in the digital age. Businesses can improve this global track record by partnering with service companies or by establishing their own dedicated technology centers and emerging economic performance.

5. *Structural Transformation*: Changes in organizational culture are probably the most important factor in digital transformation, which allows a business to go beyond individual plans and have a wide change in its organizational DNA.

6. *Business Leadership*: This digital era and the world of VUCA is a great test for leaders. In an era of unprecedented uncertainty and change, traditional management tools such as structure, strategy, planning, and policies not only lose their effectiveness but can also be a roadblock. In addition, vision, inspiration, intuition, cooperation, and the ability to constantly adapt. This requires a change in expectations from managers from being successful managers to being business leaders. 'Managers to Leaders' is a recurring term in management. It has become completely compulsory in the digital age.

7. *New Talent*: Unprecedented disruption in the digital age requires a significant step from talent in the organization as a whole. This change offers amazing opportunities for young professionals. This technology-based disruption is an excellent measure. Pre-knowledge and successful track records are less important than ever because it is time to remove old ones and learn new rules of the game. In fact, the new perspective that new professionals bring to the business is beneficial to them. They are 'indigenous people of digital', who can reasonably understand new technologies in which new businesses can be created using digital technology.

So, how should a young professional prepare to win in the digital age? Many of the desirable skills and ideas of business and leaders we mentioned earlier are also important for young professionals.



Therefore, while developing action plan for digital transformation, we need to consider and execute on both short and long period objectives at same time. The 'two-speed implementation' approach is the way to manage the complex and often contradictory objectives that abound in the digital age. The two speeds are:

Speed 1: This involves short-term actions, where solve specific problems and can get quick wins. Any change is difficult; need to break the hold of inertia and lack of conviction. Therefore, quick wins are essential. They provide the positivity and the momentum to trigger a positive cycle of change.

Speed 2: Speed 1 actions are the necessary starting point of change journey, but they are not enough. Opportunities in the digital age are very significant and will not realize them by taking just incremental steps. In parallel to speed 1 action, also need to work on speed 2 actions – which are bigger, more strategic, and longer-term steps. Moreover, speed 1 (short-term, focused)actions and speed 2 (longer-term, bigger picture) actions need to connect with and reinforce each other.

The structure and the clarity that the seven building blocks provide combined with the discipline of two-speed implementation will help successfully realize the amazing potential of digital transformation.

Questionnaire

1. Should organization translate the Digital Vision down at all levels?

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

2. Can digitalization scale operations up or down

with respect to change in market demand?

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

3. Do digitalization provides the flexibility to customize product as per consumer needs?

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

4. With the help of digitalization, banking operation can be more faster (lowering the waiting time).

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

5. Through Digitalization, it is easier to understand transactional and behavioral attributes of customer.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

6. Excess data generated by an organisation can easily be handled through Digital



transformation.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

8. Digitalization in wealth management helps with processes like account on boarding and conversion of paper documents to digital form through advanced digitalization tools.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

9. Most innovating strategy for Digital transformation.

- a) Change the nature of products and services
- b) The constant technological or process changes
- c) Wait until their customers demand a change in their products or services
- d) Focusing on internal operations

10. Type of organizational culture need to implement Digital transformation

- a) Customer Centric
- b) Data driven Decision making
- c) Digital first mindset
- d) Open culture

11. Digital transformation is gaining access to key data insights to continually measure the pulse of

customers and modify not only plans, but also organisation long-term business goals and strategies.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

12. Digital transformation can help to overcome down time which might to be due to uncertain time like Covid-19 pandemic.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

13. In the Digital age, “change for organizations is inevitable and the rate of change in the business environment is higher than ever before.”

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

14. The most important factor for Change management failure in Digital transformation

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree



15. Digitalization can build a better leadership approach to achieve business goals.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

16. Global Delivery Model (Assets & Competencies) have an impact on Digital transformation.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

17. Digital transformation is an important factor for implementing Agile.

- a) Strongly Agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly Disagree

18. Major Challenge while implementing Digital transformation in Industry.

- a) Changing company culture
- b) Cooperation between department and team
- c) Resources
- d) Handling data growth

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