Project Dissertation Report on

Digital Transformation: Winning in the Digital Age

Submitted By:

Kunal Sethi

(2K20/EMBA/21)

Under the Guidance of:

Mr. Dhiraj Kumar Pal

DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

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Dhiraj Pal
MBA - IIM Bangalore, B.E. Mech. - DCE (DU)
Assistant Professor
Delhi School of Management,
Delhi Technological University, Govt. of NCT of Delhi
Shahbad Daulatpur, Main Bawana Road, Delhi-110042, India
linkedin.com/in/dhirajkumarpal

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DECLARATION

I, **Kunal Sethi**, student of **EMBA 2020-22** of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi - 42, hereby declare that the dissertation report **"Digital Transformation: Winning in the Digital Age"** submitted in partial fulfillment of Degree of Master of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This report is not being submitted to any other University, for award of any other Degree, Diploma or Fellowship.

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Date:

ACKNOWLEDGEMENT

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Kunal Sethi

(2K20/EMBA/21)

ABSTRACT

The purpose of this study to make understanding to digital transformation. Digitalization is important to automate the industry and fetch correct information to analyze. Then collecting such data and structure all the data to apply advance technology.

Below are the following areas where Digital Transformation plays a key role to impact business model and provides benefits to consumer.

1. Digital Banking
2. Digital Transformation in Wealth Management Industry
3. How Digital is disrupting payments
4. Opportunities and Challenges of implementing Digitalization in Telecom Industries
5. Driving Enterprise Product Business in uncertain times
6. Digital in Life Sciences
7. Future of Work / Impact of Business Tools, AI and Cloud in Digital transformation
8. Digital Data Deluge - Boon or Bane
9. Need of Global Delivery Model
10. Transforming the organization to win in the Digital age
11. Building organization culture to succeed in the Digital Age
12. Knowledge management
13. Innovation
14. Implementing Agile
15. Change Management
16. Building Leadership

The study will provide clarity and a helpful framework for Digitalization. It will provide a better approach to analyze data in an organization. Also, it will lead to analyze changing behavior of consumer. With Digital technology, we will be able to enhance the capability of organization structure. Innovation activity will provide different benefits in local eco system. This study will change the organizational mindsets and operating model of an organization. Traditional approaches need to be changed; it will develop an iterative, agile and cross functional approaches and a team model which is relevant in this digital age.

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1. INTRODUCTION

1.1 BACKGROUND AND PROBLEM STATEMENT:

The First Industrial Revolution based on water and steam power to mechanize (Like steam engine) production. Second industrial revolution introduced electric power to create mass production. The Third revolution developed electronics and information technology to automate production. Now the Fourth Industrial Revolution is build having the base of third, the digital revolution that has been occurring since the middle of the last century. It is marked by a fusion of technologies that is demolishing the lines between the physical, digital, and biological spheres. These include these component - Artificial intelligence (AI), robotics, the Internet of Things (IoT), autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing. The technology changes the way we live, work, and relate to one another, it is called technological revolution. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. (Excerpted from an article by **Klaus Schwab**, **World Economic Forum**)

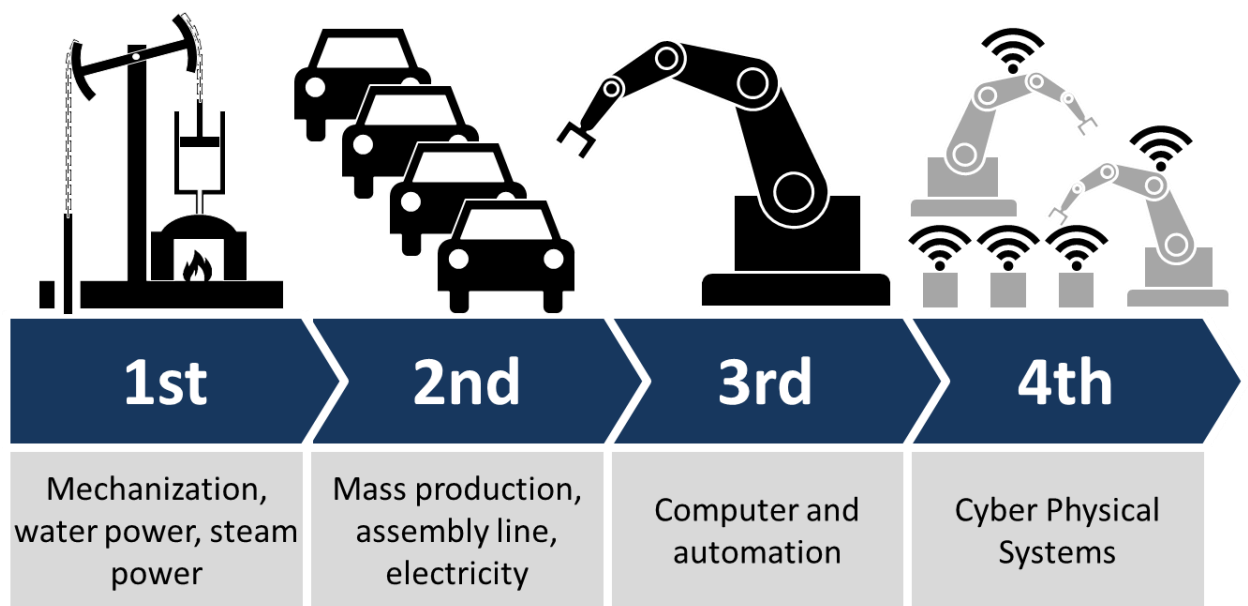| 1st	2nd	3rd	4th
Mechanization, water power, steam power	Mass production, assembly line, electricity	Computer and automation	Cyber Physical Systems

Fig. 1.1 Industrial Revolution (Source-Website "all about lean")

The term Industry 4.0 i.e. Fourth Industrial revolution introduced by German scientists during developing a High tech strategy. Now It becomes one of most discussed topics in manufacturing industry.

In order to achieve High level business perspective, the concept of Industry 4.0 is based on the Digital Transformation, which presents higher operational efficiency and promising business model.

Digital transformation is one of the most important megatrends in our generation, which continues to grow in all aspects. Digital started out as a new inclusive customer channel, creating digital back links and was the center of professional work. Today digital has become all pervasive, and it is not an exaggeration to say that we are living in a digital age. Digital affects every aspect of our lives as consumers, it affects all industries and does not completely change products and processes but business models as a whole. This change is not just a technological change, but something that affects every aspect of business and organization. It redefines the position of the corporate entities in it, which forces the long-held organizational principles and procedures to alter and changes expectations for new leaders and professionals alike.

In 2015 a survey with industry business leaders, 87 % of the respondents claimed that they still did not have clear understanding of neither the business models nor the technologies. Further, in another study, 76 % of the manufacturing companies actually either have launched or are about to launch an initiative in regards of Industry 4.0, but only 15 % are satisfied with the so far progress. The study also confirms that it is not only about defining and understanding the business models and technologies, their study shows that manufacturing companies have difficulties to adopt new technologies without interference with current production system.

In this study we are trying to understand the new technology and strategies:

1. New Rules of Business
2. Digital Transformation across industries
3. Technology Building Blocks of Digital Transformation
4. Leveraging the Global Advantage
5. Transforming the organization to Win in the Digital Age
6. Leadership in the Digital Age

1.2 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.

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 big.
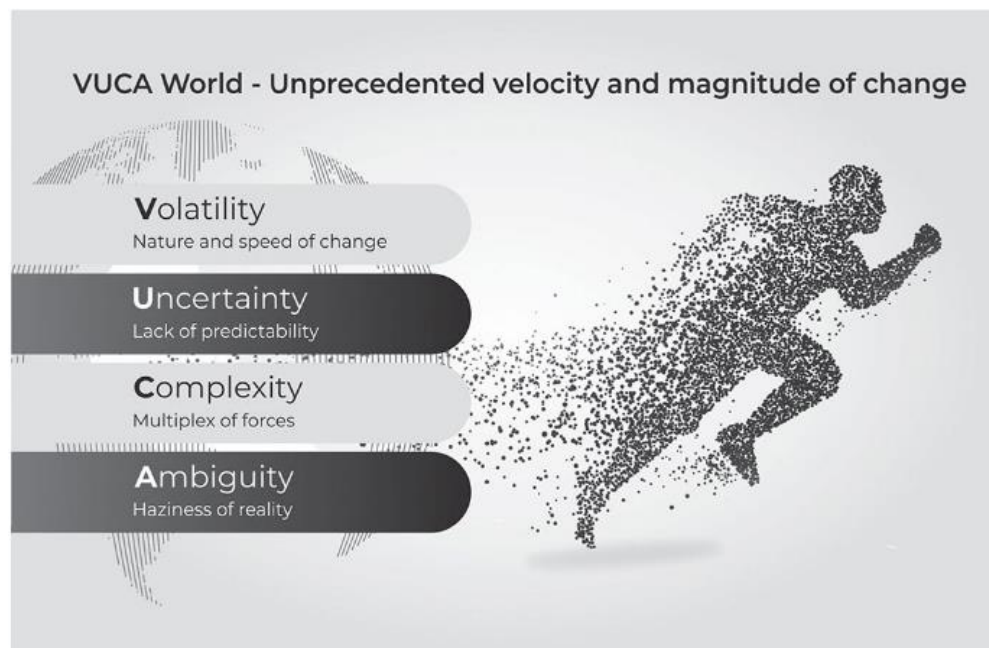

Fig.1.2 VUCA (Source – Book "Winning in the Digital Age")

Winning in the VUCA World: Key Principles and Transformation Priorities for Enterprises:

Five Key Forces of Disruption Leading to Unprecedented Velocity of Change:

1. Technology disruption
2. Changing expectations of customers
3. Shift of Wealth from West to East
4. Geopolitical Uncertainty
5. Shortening product and business cycles
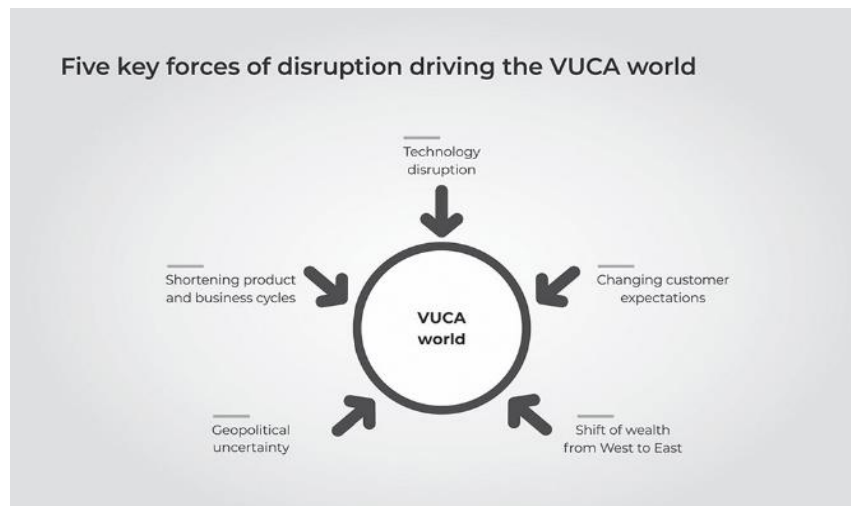
Fig.1.3 Five Key Forces of Disruption Leading to Unprecedented Velocity of Change (Source – Book "Winning in the Digital Age")

Complications of operating in VUCA World:

V: Volatility - High degree and speed of change.

U: Uncertainty - The lack of predictability, the prospect of surprise.

C: Complexity - The multiplex of forces, the confounding nature of issues, absence of cause-and-effect chains and the confusion that generally surrounds the organization today.

A: Ambiguity - True complexity, the power of illiteracy, mixed interpretations of situations; and the resulting cause and effect.

Steps to Digital transformation:

Step 1: Understanding how your industry value chain is changing, who your customer is and what you 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.

The forces of disruption in the VUCA world are changes in technology and customer expectations, shift of global wealth to the East, geopolitical uncertainty and shortening cycles. Both traditional and new-age organizations have fundamental gaps in their readiness for the VUCA world. With so many fundamental changes happening, new rules are needed to win in this VUCA world. Innovation, an agile strategy, building a tech DNA, and developing partnerships and anentrepreneurial culture are some of the winning rules in the VUCA world.

We are living in very exciting times. Change is a constant. It can be a huge challenge or an enormous opportunity, depending on your approach. Transforming the enterprise to win in the VUCA world entails deep surgery, requiring an extensive change in both organizational and individual principles and priorities. It might seem like a daunting journey, but the rewards are high.

2. LITERATURE REVIEW:

2.1 THEORITICAL BACKGROUND

2.1.1 Industry 4.0

"Industry 4.0" indicates a change in the normal production environment. Also known as the Fourth Industrial Revolution, Industrial 4.0 incorporates three technological trends that drive this change: communication, intelligence and flexible automation.

"Industry 4.0" integrates IT (Information Technology) and OT (Operating Technology), creating a cyber-physical environment.

This merger is due to the emergence of digital solutions and advanced technologies, often associated with Industry 4.0. These include:

Industrial Internet:

- Big Data
- Cloud computing
- "Additive Manufacturing" (AM)
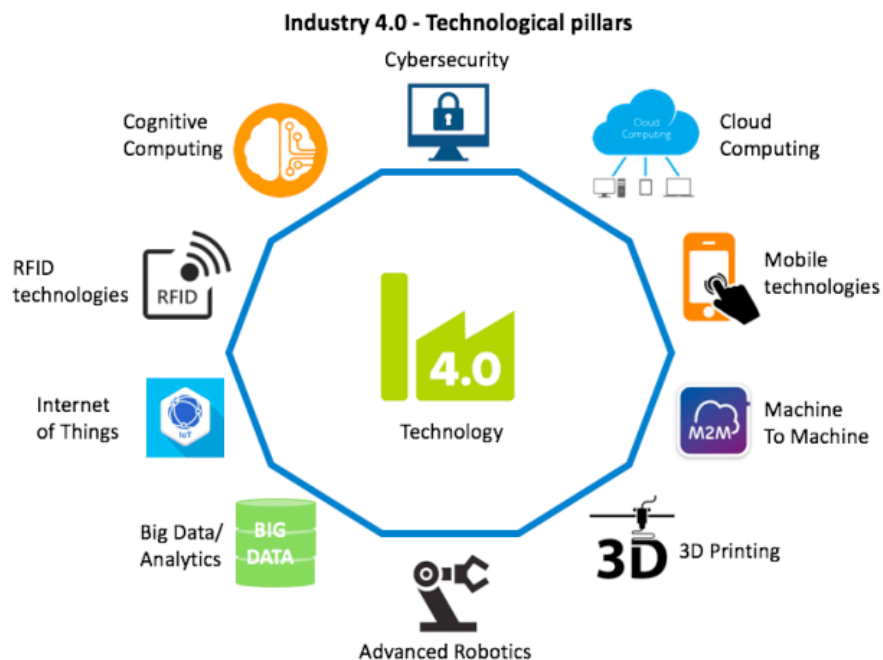- Advanced robots
- Augmented and virtual reality (AR / VR)

Fig.2.1 Industry 4.0 Component (Source - Website "research gate")

These technologies are helping to drive manufacturing's digital transformation through the integration of previously disparate systems and processes through interconnected computer systems across the value and supply chain.

Embracing Industry 4.0, digital manufacturing and the interconnectivity that comes with it opens a myriad of benefits for companies, including greater agility, flexibility and operational performance.

2.1.1. Industrial Internet of Things

IoT is an important function in solutions run by Industry 4.0. IoT is a system of related computers, machine tools and digital, objects and people that are given unique identities and the ability to transmit data over the network without the need for human-to-human communication and a computer. For example, smart watches on the market have transformed our wrists into Smartphone proxies by allowing texting, calls, and more. Devices like Fit bit and Jawbone helped change the world of fitness. With the right connection to the data, IoT can solve traffic congestion problems, reduce noise and pollution.

Industrial IoT is a subset of Internet objects, in which various sensors, Radio Frequency Identification (RFID) tags, software and electronic devices are integrated with industrial equipment and systems to collect real-time data about their status and performance.
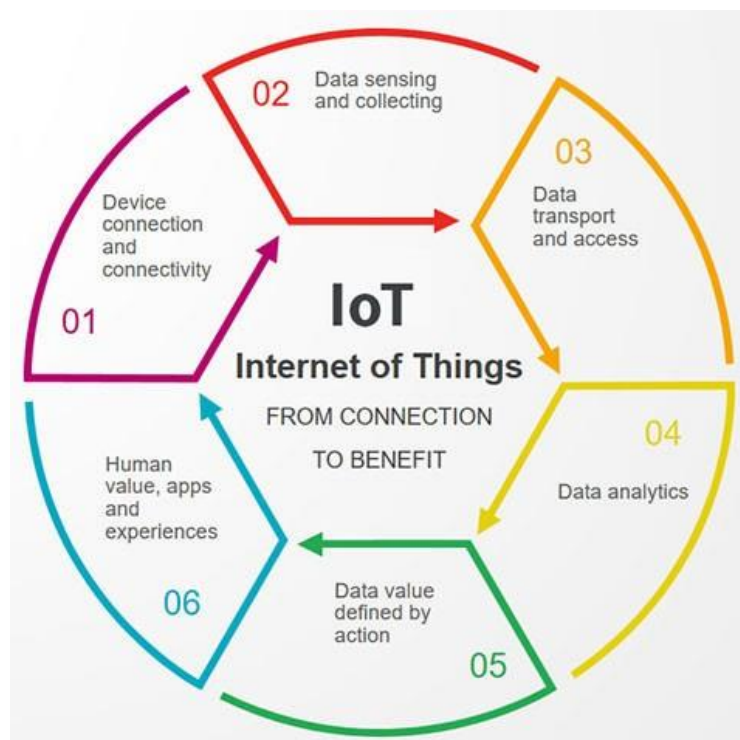

Fig.2.2 IIoT Benefits (Source - Website "deveopsschool")

For example, IIoT can be used to prevent overcrowding or under inventory stock.

One way to achieve this is to use shelf-mounted sensors and measuring devices to transmit inventory information to your asset management system. Placing such a system in place allows warehouse managers to monitor inventory levels, thus gaining real-time visibility and control over inventory.

2.1.2. Big Data and Statistics:

Big Data refers to large and complex data sets produced by IoT devices. This data comes from a variety of cloud and business applications, websites, computers, sensors, cameras and much more - all come in different formats and basic principles.

Fig. 2.3 Big Data Properties (Source - Website "towards data science")

In the manufacturing industry, there are many different types of data to consider, including data from sensory production equipment and information from ERP, CRM and MES systems.

But how can manufacturers turn data collected into tangible business data with tangible benefits?

- With data analysis.

When it comes to data, the use of data analysis is important in converting data into information that can provide useful information.

Machine learning models and data display can aid data analysis processes. Simply put, machine learning strategies use powerful computer algorithms to process large data sets, while data recognition tools enable producers to easily understand the topic of data.

Finally, by taking pre-segmented data sets, collecting and analyzing them, companies are now able to discover new ways to streamline processes that have a significant impact on revenue.

2.1.3. Cloud computing:

For decades manufacturers have been collecting and storing data to improve performance.

However, with the advent of IoT and Industrial 4.0, the fact is that data is produced at an astonishing speed and with high volumes, making it difficult to handle manually. This creates the need for infrastructure that can store and manage this data effectively.
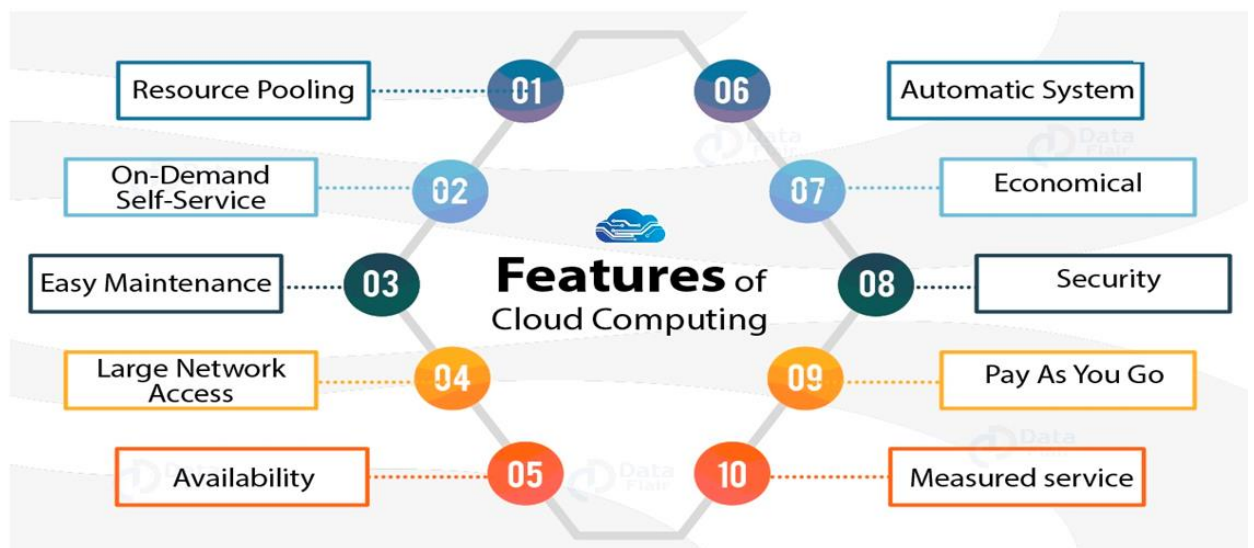

Fig.2.4 Cloud Computing (Source-Website "data flair training")

This is where using cloud computing begins.

Cloud computing provides a platform for users to store and process large amounts of data on remote servers. Allows organizations to use computer resources without upgrading local computer infrastructure.

The term cloud computing refers to information stored in the "cloud", which can be accessed remotely via the Internet. By itself, cloud computing is not the solution itself, but it uses other solutions that once required a lot of computer power.

The ability of cloud computing to provide uncluttered computer services and storage space enables companies to capture and deploy business intelligence through data analysis, to help them integrate and direct business productivity and performance.

2.1.4. Advanced Robotics:

Although robotics has been widely being used for years in manufacturing, "Industry 4.0" has given new lifecycle to this technology.

Fig. 2.5 Advance Robotics (Source -Website "google image")

With the latest technological advances, a new generation of robots, robots are emerging, capable of performing complex and flexible tasks. It is powered by state-of-the-art software and sensors, which are able to detect, analyze, and respond to the information they receive locally, and to interact and learn from people.

One area of robots that receives significant pull-ups are interoperable robots ("cobots"), which are designed to work safely around people, freeing employees from repetitive and dangerous tasks.

2.1.5. "Additive Manufacturing":

Next to robots and intelligent systems, additional production, or 3D printing, the main technology that drives Industry 4.0. Additional production works using 3D digital models to create layers with a 3D printer layer by layer.

Within the context of Industry 4.0, 3D printing emerges as an important technology for digital production. Once a fast-paced simulation technology, today AM offers great production opportunities ranging from the use of tools to customizing masses in almost every industry.
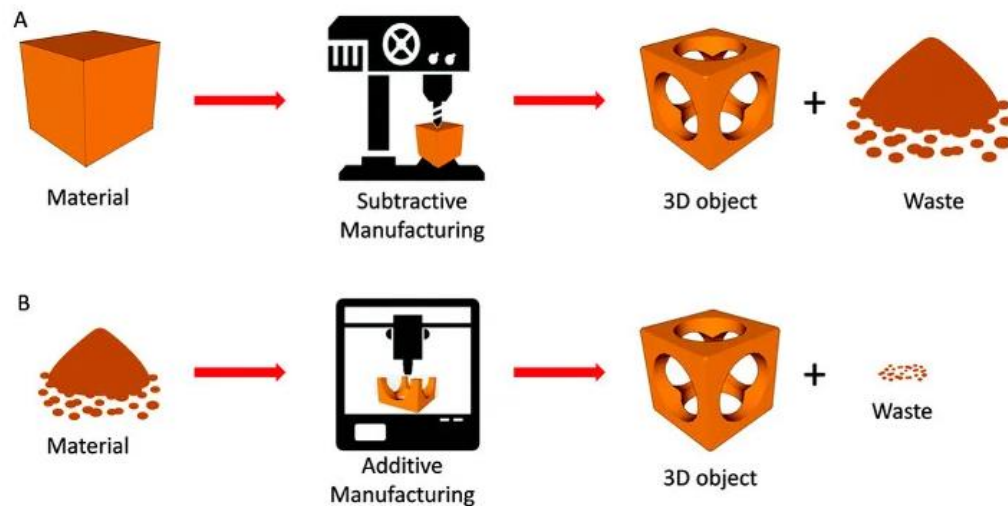
Fig.2.6 Additive Manufacturing (Source - Website "Online library")

It allows parts to be stored as design files in visible inventories, so that they can be produced on demand and close to the point of demand - a model known as distributed production.

Such a method of segregating production areas can reduce transportation distances, thus costing, as well as simplify asset management by storing digital files instead of virtual components.

2.1.6. Digital Twins

The concept of digital twins has a good promise for improving the performance and maintenance of industrial systems. A global research company, Gartner, predicts that by 2021, 50 percent of large industrial companies will be using digital twins to monitor and control their assets and processes.

"Digital Twin" is a digital image of a real-world product, machine, process, or system, which allows companies to better understand, analyze and optimize their processes through real-time simulation.

Moreover, "Digital twins" may be confused with the simulations used in engineering, there is much more to this concept.
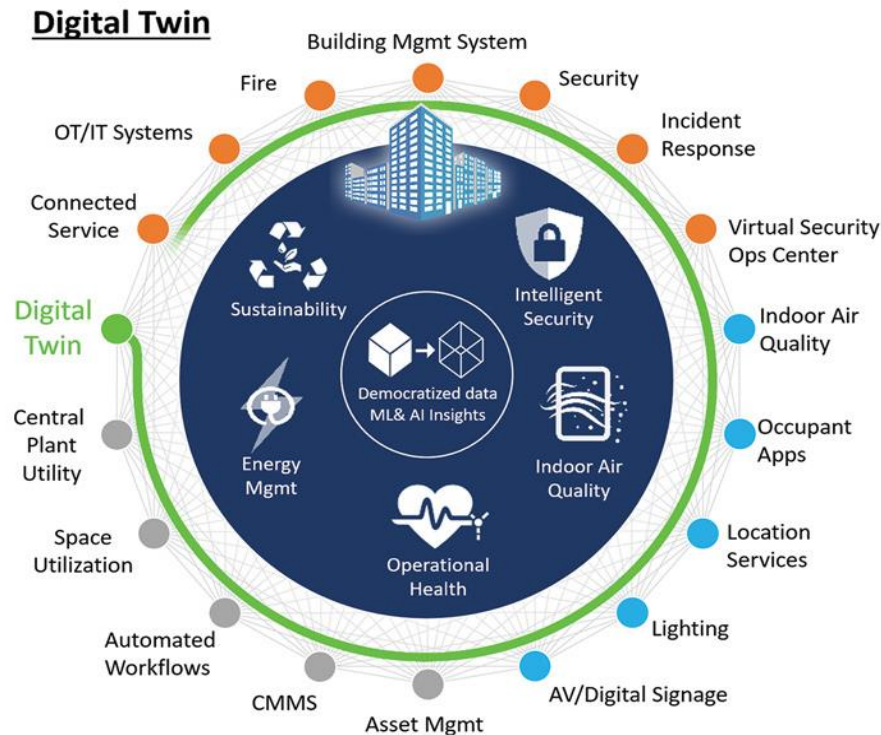
"Fig. 2.7 Digital Twin (Source – website: researchgate)"

Contrasting developer simulations, digital twins perform online simulations, based on data obtained from sensors connected to a machine or device.

As the "IIoT device" sends the data in real time, digital twins are able to collect this data continuously, maintaining reliability and preferences throughout the life of the product or system.

This empowers "digital twins" to predict potential problems so that preventive measures can be taken. For example, operators can use digital twins to identify why a component is not working properly or to predict product life. This continuous imitation helps to develop product designs and ensures the robustness of the equipment.

This use of "digital twins" has long been an important tool in the search for aerospace, heavy equipment and automotive applications. Now, advances in computer technology, machine learning as well as sensors are expanding the concept of digital integration in all around the globe.

2.1.7. Augmented reality

In addition to consuming consumer applications, the manufacturing industry has recently begun to evaluate the benefits of Augmented Reality (AR) technology. However, there are many potential technological advances, ranging from assisting with integration processes to assisting with the production of production equipment.
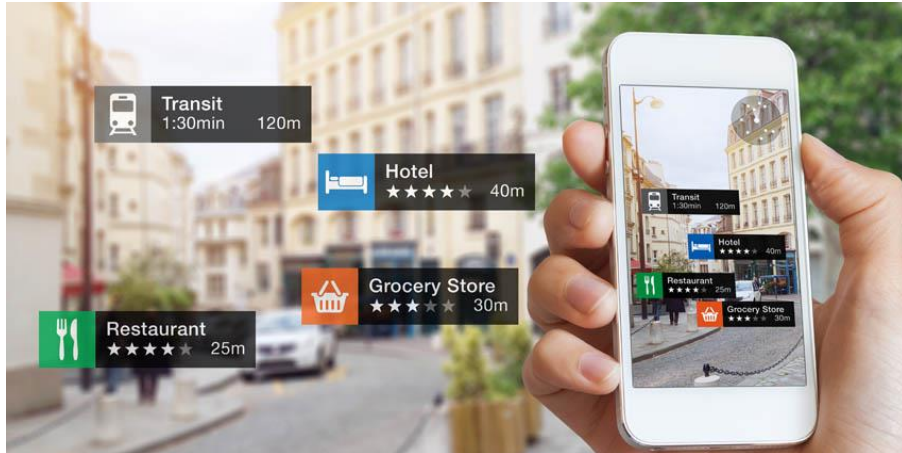

Fig.2.8 Augmented Reality (Source - Website "google search")

The unfortunate reality of taxpayers we see closing the gap between digital and the physical world by placing more than physical images or data on a tangible object. In this case, the technology uses powerful AR devices, such as smart phones, tablets and smart glasses.

Let's take a medicinal example for understanding - a surgeon who uses AR glasses during surgery. Mirrors can cover data from an MRI and CT scan of a patient, such as nerves, large blood vessels and tubes, in a patient, and light up. This helps the surgeon to find the safest way to operate on surgery, reduce the risk of complications, and improve the accuracy of the surgeons.

In a productive environment, AR can enable staff to speed up the integration process and improve decision-making. For example, AR mirrors can be used to generate data, such as properties, integration guidelines, potentially malfunctioning sites, or serial number of components, in real time, to help speed up and simplify work processes.

2.2 Digital Transformation:

Digital conversion is multi-dimensional, complex, and has many components connected. Therefore, it is not easy to devise a strategy and a way to make digital transformation. The resulting confusion and lack of clarity is a barrier to digital transformation. To bring clarity to this important topic, I have designed seven building blocks where managers need to

focus their attention and actions, in order to have a successful digital transformation. As the quote at the beginning of this chapter says, "to accomplish a difficult task, one must first make it easier", similarly, the purpose of this study is to bring clarity to a complex topic such as digital transformation and facilitation for managers. identify actions that will make a big difference and do them confidently.
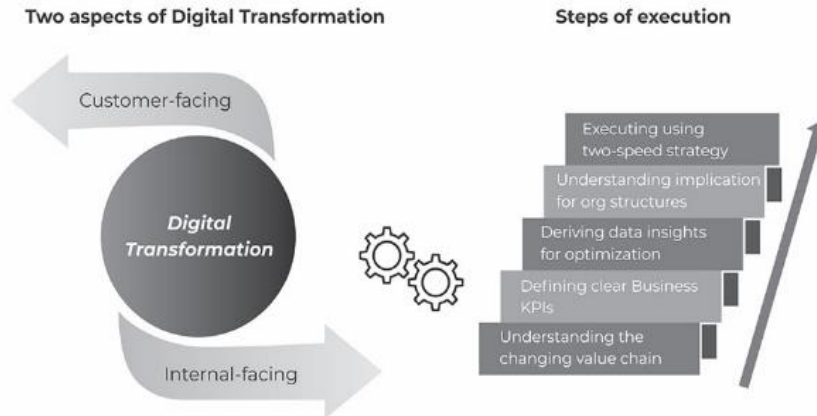
Fig.2.9 Digital Transformation (Source – Book "Winning in the Digital Age")

2.2.1   Five steps to digital transformation:

Step-1

First step is to Understand how your industry value chain is being changed, know about your customer and what you 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, you need to anchor these initiatives by defining clear key performance indicators for your business. Key business performance indicators include:

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

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

Step-3

Embrace your 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, you 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 you organize your business so that you're able to execute on these cross-functional projects? And finally, you 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.

2.2.2. Key priorities for digital strategy in a VUCA world

Digital is much less of an object than a way of doing things. The digital strategy forms the basis for delivering relevant information based on real-time intelligence. There are three influential areas where companies can put together their digital strategy and drive.:

1. Customer experience

2. Acceleration

3. Insight
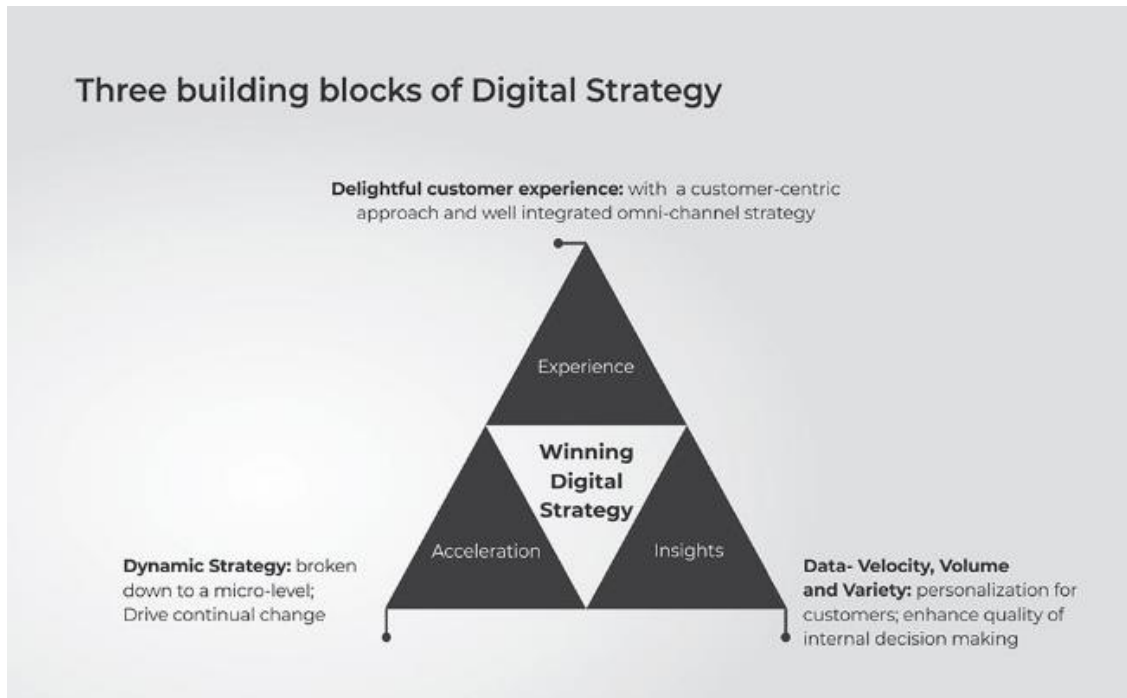
Fig.2.10 Digital strategy (Source - Book "Winning in the Digital Age")

1. Customer experience:

Digital transformation gives the enterprise the opportunity to move away from creating various siloed customer experiences to a unified, customer-centric approach. With an ever-increasing number of options available as the means to doing this and the accompanying digital clutter, enterprises need to provide frictionless and intuitive customer experience. Otherwise, they risk customer churn. The key factors enterprises need to focus on are delivery of digitally empowered simple solutions, ensuring immediate and real-time resolution, consistent omni-channel experience and continuous reinvention. To do this, a cross-functional approach is necessary, which can ensure speed, efficiency and agility in action. Ensuring a seamless, well-integrated, omni-channel communication strategy is an important dimension of enhancing customer experience. Generally, customer awareness is determined by the way your product communicates with the customer. When customers

make a phone call, e-mail or use a social media platform to communicate with businesses, the company's response system may or may not break these relationships. For example, if a customer first emails a company to a company and then follows it by phone, expecting the company representative to know the history of the negotiations in all digital forums and respond appropriately. This requires collaborative communication across all product lines and businesses.

2. Acceleration:

One of the great opportunities for digital technology and associated business models is resilience. They can let you build and grow a new business quickly. However, for that you need to find product market equity, develop the right business model, make smart technology choices, and use the ecosystem wisely. This is where flexibility, broken down into smaller dimensions, is critical to success. One has to remember that there is no end. It is an ongoing process of change.

3. Insights:

The speed, volume and variety of data that can now present great opportunities, such as personalizing your customers on a single level; and assisting businesses to improve decision-making quality at another level. On top of this there are great opportunities brought by AI and machine learning. Opportunities for data provision have never been seen. Maybe, it's okay to even suggest that a digital strategy is really a data strategy!

Digital is not just about 'what; depending on the 'how'. A digital strategy requires a change of mindset as the organization moves from history to digital. It is a complete strategy, not just a performance-based strategy or specific department. It is a complete movement of the present situation. It works in many ways. Interdisciplinary.

2.2.3 Challenges in implementing Digital Strategy:

Organizations often struggle to meet the challenges of digital disruption in the world of VUCA. There are usually five challenges that businesses face in developing their digital strategies. These challenges are the reason for the huge gap we see between strategies and practices in the business world. How each of these challenges is met will determine the future of the business.

Five challenges in executing Digital Strategy

Fig.2.11 Challenges in Digital Strategy (Source – Book "Winning in the Digital Age")

Architecture:

VUCA requires companies to move from large, monolithic structures to a more micro-services-based agile architecture. Increasingly the way it goes from defining 'final empire building' to working in 'emergency building', a structure that can be integrated and expanded. Architecture is no longer something you completely solve, but something you develop. Cloud, virtualization, and API-based architecture are key elements of a company's dynamic architecture. A customer life cycle view should be the basis for any IT transformation step. Making the IT environment faster, helping and empowering seamless integration of the business IT environment with its partners is another important factor.

Organizational structure:

Traditional organizations often work for silo in the form of business units, activities, locations, and the like. This is a major obstacle to digital transformation, which is naturally ineffective. Digital often requires different units to work together to solve customer problems. Unlimited customer-focused organization brings the best in the organization and

provides the speed and flexibility to deliver to the world of VUCA. That is the need of the hour.

Talent:

Finding talent that can adapt to this dynamic world is a challenge. Creating a small but distinctly upgraded talent pool can be a huge positive multiplier, creating pull for the rest of the talent. However, getting talent in a hot talent market is just the beginning; you still need to plan for their development, adoption into the organization, and their retention. At the same time, digital is also a great opportunity to focus on 'future skills' so you can learn, learn, develop skills, and train skills. Used properly, digital can bring new meaning and purpose to talent and the organization as a whole.

Culture:

Although digital seems to be about technology, the most important roadblock to realizing digital power is not technology (or even strategies) but organizational structure, processes and concepts based on business culture. Culture is the 'way of doing things here' - something that is deeply ingrained in the mind of the organization and that is difficult to change. The pattern for this extends beyond the daily release cycles, which can be a major challenge for older businesses. It is not just about starting a smooth operation, but it is about building the capacity of the organization. This is a great change management plan, and it needs to be aligned with the whole organization.

Leadership:

So, how can you change something as complex as culture? Leadership is the beginning of this change. Digital transformation has completely changed the nature and power of leadership. Companies need a new generation of indigenous technology leaders, with foresight and vision to develop strategies quickly so that business can benefit from technology shifts. But more importantly, they need change agents, corporate builders who are obsessed with customers, and should be able to absorb and learn from the many shocking things that will ever happen in the world of VUCA.

2.3 Highlight of Previous studies:

Origin of refined and detail versions of the manufacturing conversion cost were emphasized during development of first industrial revaluation (Parker and Fleischman, 2017).

At the beginning of the 20th century i.e. **second industrial revolution,** electricity was introduced and it became the primary source of energy (Stearns, 2018). It was very convenient and very cost effective to use electricity in manufacturing rather than water and steam (Rud, 2012).

In The **second industrial revolution** we saw also the introduction of number of management improvements programs that decreased the manufacturing cost by enhancing the manufacturing efficiency and adopting new manufacturing technology. Saving production costs still exists as the second industrial revolution has not yet fully reached 17 percent of the world as nearly 1.3 billion people still lack electricity (Schwab, 2017).

The third industrial revolution introduced new products and new manufacturing industries and reduced the manufacturing cost by revitalizing traditional industries through innovative technologies. The third industrial revolution revolutionized production by introducing new tools, computers, and robots (Greenwood, 1997, Rifkin, 2011, Schwab, 2017).

Using **automated asset management**, programmable logic control equipment (PLC) and equipment it was helpful to improve productivity significantly and organizations decreased production costs. The Robots in manufacturing system took the place and caused biggest reduction in manufacturing cost (Mathew and Kathawala, 1988).

Robots make the job free from dangerous and repetitive tasks, which has affected ergonomic conditions (Wang et al., 2017).

According to **Hoover et al. (2002)**, a production system needs to be efficient in order to achieve cost effective operations. All three past industrial changes in the manufacturing industry, have caused major changes in society (Schuh et al., 2014; Schwab, 2017). The current transformation of the "Industry 4.0" industry is not yet clear in terms of cost-effectiveness and productivity development in context in many Indian organizations. Conventional cost estimates consider costs only in the production phase and do not take into account other costs such as recycling and rejection or other waste costs. These costs contribute significantly to the stability and competitiveness of the business (Schaltegger and Wagner, 2017).

The cost of production processes can be enhanced using the most popular strategies such as **time-based technology (JIT)**, **work-based costs (ABC),** standardized evaluation card, total quality management (TQM) and re-enterprise process (Blocher et al., 2002). According to Patxi (2018), to keep production reduced and to make it more efficient, we must emphasize the flow of things from the beginning of production to completion.

Production conversion costs can be reduced by eliminating potential quality errors during production processes. Quality control tools can be used to improve the process during production (Sharma and Suri, 2017).

Thomas and Barton (2006) focused on cost-effective approach for **Six Sigma project execution** by employing simple tools like Pareto chart (Bajaj et al., 2018) and Cause & Effect diagram for identifying manufacturing process deficiencies (Shainin and Shainin, 1988).

All the manufacturing organizations are working aggressively to reduce manufacturing costs for being more competitive in terms of cost reduction (Brigham and Houston, 2012).

New technologies in production under this industrial revolution make it possible without retrenchment and the use of any drastic measures to reduce costs. Organizations now treat people as corporate assets (Pfeffer and Veiga, 1999).

Organizations consider major changes in the business to maximize profits quickly while ignoring cost savings in operating production costs. Real-time flexibility monitoring of small business costs and quality control tools can help any industry reduce costs in terms of resources, capacity. resources and product rejection (Farooq et al., 2017).

This paper emphasizes that how the manufacturing processes waste and consumables are a big source of cost saving in long run when industries are having mass production (Wang et al., 2017).

Production costs can be reduced by improving process parameters and at the same time improving product size through operation (Haghighi and Li, 2018) in existing production processes. Cost-effectiveness is one of the most important competing measures every organization seeks to regulate at the lowest possible level. Production costs are successfully enhanced in the industry by controlling parameters such as inventory size, stock filling time and cost. These limits can be improved using 5S performance (Randhawa and Ahuja, 2018).

As the assembly store of Iwankowicz and Taraska (2018) is one of the most important production processes, it can have a significant impact on reducing production costs by integrating digital integration. with the integration line of mass production (Yin et al., 2018). Real-time monitoring of the cost of compliance with small business conditions and quality control tools can help any industry in reducing variable costs in terms of resources, energy resources and product rejection. Production costs can be reduced by improving process parameters and at the same time improving product size through operation (Haghighi and Li, 2018) in existing production processes.Production costs are successfully enhanced in the industry by controlling parameters such as inventory size, stock filling time and cost. These limits can be improved through the use of 5S (Randhawa and Ahuja, 2018) .

As the Iwankowicz and Taraska (2018) assembly shop is one of the most important production processes, which can have a significant impact on reducing production costs by

integration. digital integration. with the integration line of mass production (Yin et al., 2018).e.g. Internet of Things (IoTs) (Tao et al., 2014; Jing et al., 2014; , Chen, et al., 2015), wireless sensor networks (Qiu et al., 2006), big data (Chen et al., 2014),

SCADA system (Figueiredo and da Costa, 2012), and SAP system (Lodh and Gaffikin, 2003) can be done to improve manufacturing process efficiency (Parviainen et al., 2017).The Integration of digitization in traditional factories is being done to get cost advantages (Wang et al., 2016; Kusiak, 2018).

"Additive manufacturing" is now a days, being adopted which has the potential to reduce manufacturing cost, material waste, and energy usage (Laureijs et al., 2017). Machinery is one of the major production processes, which can be developed using mathematical techniques to solve the problem of mass production and recycling due to the variability of the manufacturing process (Gijo, 2005).

The power of the mechanical process, process can be tested to reduce refutation and recycling. The step-by-step approach must be adopted using a number of mathematical strategies namely the construction of systematic problem-solving tests (Jung, 2002). New technologies such as dry machines are introduced into practice (Sreejith and Ngoi, 2000). These are more expensive than existing watering systems and can be a major challenge for the two-wheeled car industry in terms of reducing conversion costs. A new way of predicting the wearability of tool wear and tool life on dry machines can be improved by increasing the number of dry machines based on Taylor (Marksberry and Jawahir, 2008).

In order to improve the existing mechanization process in relation to the cost of equipment, the manufacturing process needs to be improved in terms of high removal rate, good workmanship and lower tool wear. These mechanical objectives can be achieved by reducing the aging of the tools by using the appropriate cooling system of the tool during the machine (Mia et al., 2018).

Tools can be modified to drain liquid nitrogen as a water cooler through a drain made in the tool so that liquid nitrogen is applied directly to the machine area during the machine (Khan and Ahmed, 2008). Tortorella et al. (2018) discussed the use of lean in production to reduce costs and waste. Prashar (2018) found that Small and Medium Enterprises can save costs by eliminating the damage caused by using quality tools; failure mode and outcome analysis; rely on six sigma etc. Chhabra et al. (2017) noted that automotive organizations can compete by exploring sustainable processes for the production and use of consumer goods such as carbon packaging. Proper batch size is one way to reduce variability in production process to reduce production system costs (Tayyab and Sarkar, 2016)

Product waste can be reduced by improving product quality through new process and product materials (Jaumandreu and Mairesse, 2017). Seven basic quality tools namely cause-effect diagram, test sheet, control charts, histogram, pareto chart, scatter diagram and

stratification are very effective in reducing process deficiencies (Tague, 2004). For example, it is not possible to maintain a clean production system by lack of investigation and without the use of known tools such as quality control (QC) tools in the production process (Silva et al., 2013). Most researchers are focusing on major technological changes or the adoption of new technologies such as the production of Additive (AM) in order to maximize the cost of production (Bartodziej, 2017; Costabile et al., 2017). Many manufacturing strategies focus on traditional concepts of rooted production skills such as quality, cost, reliability, flexibility, and innovation (Corbett and Claridge, 2002). The Paper gives the overview in order to change the things without investing too much organization.

Either of the manufacturing there are various sector where Digital Transformation plays an important role:

The digital transformation of the banking sector is an ongoing process that affects the external and internal environment by redesigning existing processes and internal mechanisms. There are many reasons why digital transformation has taken place, such as working in remote areas without real branches, separating competitors or reducing operating costs. In any case, there are many doubts about the adoption of digital technology. Therefore, this article examines the level of acceptance of digital transformation in the banking sector.

The most important result of research is banking training. Awareness of digital transformation and cybercrime awareness. (Fotis and ioannis 2021)

Asset management firms respond to these changes with their business model revisions and rethink their long-term, effective strategies. See useful technical forums such as social media and social media platforms to improve service skills that enhance communication with HNWI. That is also good for investing in advanced client knowledge across all online forums keeping existing customers and attracting new ones. In addition, remote firms and traditional client reporting tools to better-developed tools allow advisors.

Submitting personal customer reports has become a divisive issue for wealth management firms. It helps them attract more customers while keeping them there. firms provide quick and detailed reports on their portfolio performance and capture. In addition to customer focus, firms should also pay attention to the tools and support mechanisms that serve as mentors' resources. It is therefore necessary for firms to re-evaluate the new tools they are designing to ensure that they are in line with the principles of long-term operational strategies. Professional service firms can assist asset management firms by providing automated customer reporting solutions so that workflows require fewer manual interventions and data is retrieved and processed efficiently and accurately across a variety of systems. (Mahesh bhattad 2012).

The telecommunications industry is also the same. For telecommunications service providers, this change began in the past with the emergence of so-called over-the-top (OTT) services such as WhatsApp and Skype. However, despite these ongoing changes, there is a lack of frameworks and tools to help telecommunications service providers cope with such a drastic change. This article presents the findings of a research project to develop such a framework: a digital growth model for telecommunications service providers. The resulting model is intended as a tool to measure digital maturity over time and to help develop a vision and road map for digital transformation. It is recommended that experts use the model as the central part of the digital conversion toolbox. although the model was designed for telecommunications service providers, the framework may be of interest to other industries, especially those that are helpful. Therefore, industry-specific familiarity is advised to make the model suitable for a particular industry. (Omare 2016)

The need for new digital transformation in the construction industry is beyond doubt. However, it is full of many challenges, which require the development of appropriate methods based on holistic science and effective work ethic. Based on the process of deciphering digital industry data, analyzing the achieved level of digital development, learning of existing experiences and institutional styles, the authors set the stage for transforming managers as one of the key thinking strategies for effective planning and digital transformation management in the construction industry (Andrey P., Inessa L., Irina and Vladimir B 2021)

Organizational culture is critical to transforming any industry, research is based on the nature of the organization's values. The findings of the study indicate that organizational culture should be youthful and naturally accepted in order to address this issue.

3. RESEARCH METHOLOGY AND DATA ANALYSIS :

The aim of this study is to find out the impact of digital transformation in various sectors, to be competitive in the market . In order to achieve that objective, the research methodology used is descriptive research and quantitative primary data collected through survey in which **18** structured questions designed and sent via electronic medium. A total of **117** responses were received.

The demographic profile of population (based upon the type of industry they are working in) is presented in below table:
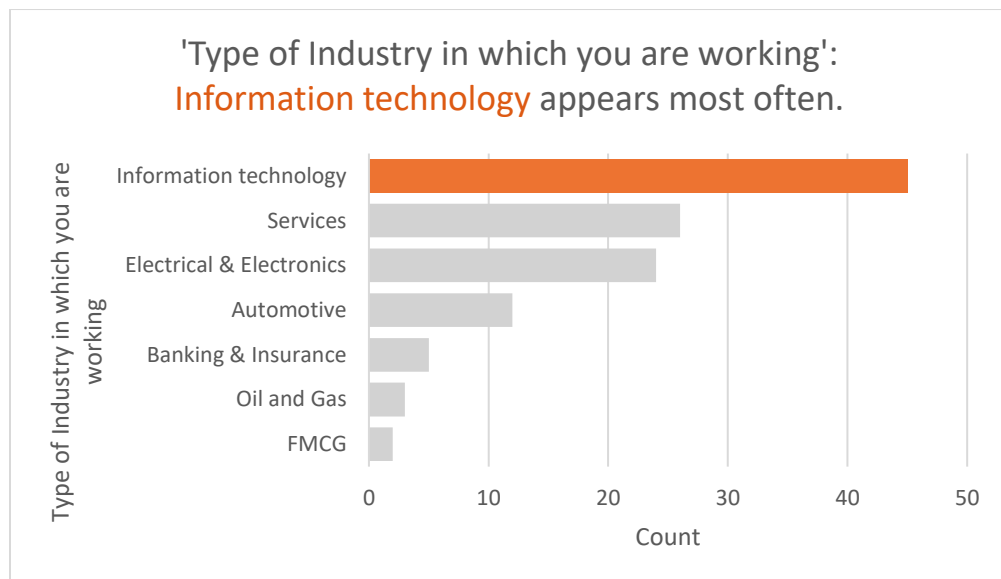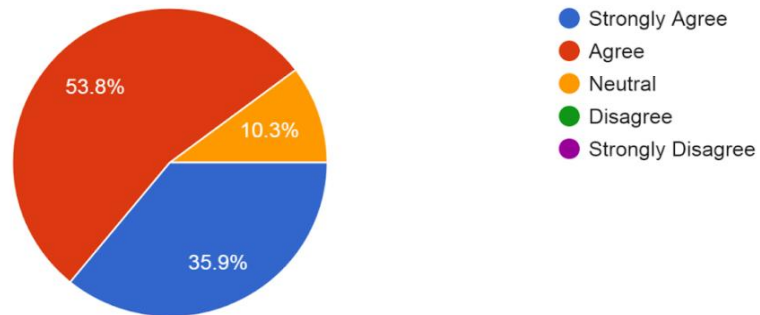

Data is collected for the academics' purpose only on following aspects:

1. Organisation should translate the Digital Vision down at all levels.
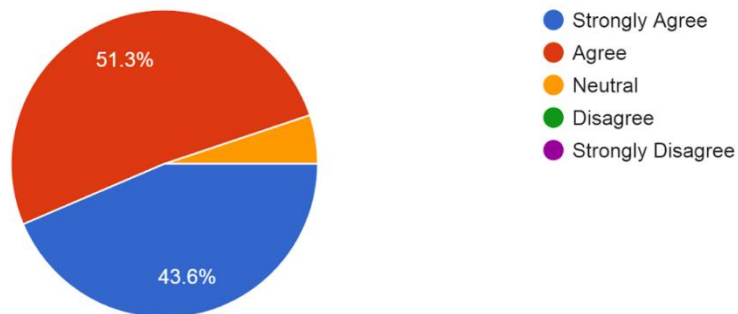
2. Digitalization can scale operations up or down with respect to change in market demand.

Legend:
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

53.8%
10.3%
35.9%

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

Legend:
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

51.3%
35.9%

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

Legend:
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

23.1%
74.4%

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

Legend:
- Strongly Agree (blue)
- Agree (red)
- Neutral (orange)
- Disagree (green)
- Strongly Disagree (purple)

43.6%
15.4%
35.9%

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

Legend:
- Strongly Agree (blue)
- Agree (red)
- Neutral (orange)
- Disagree (green)
- Strongly Disagree (purple)

46.2%
51.3%
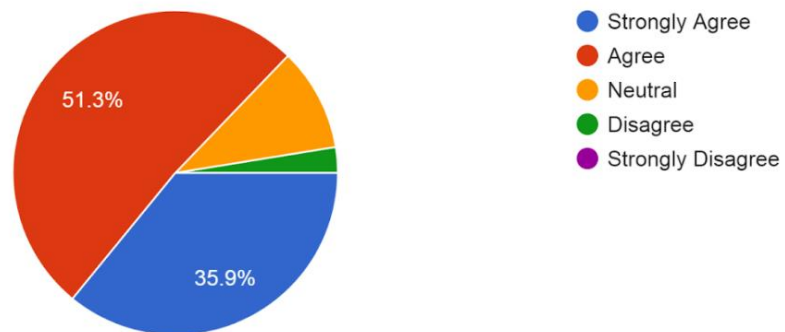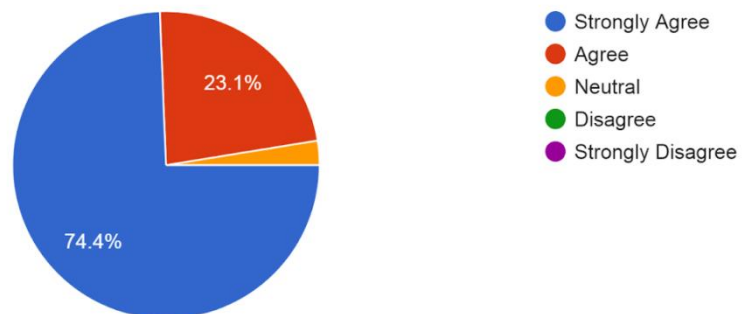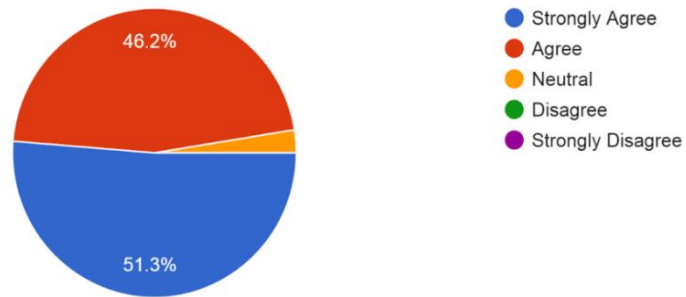
7. Digitalization in wealth management helps with processes like account on boarding and conversion of paper documents to digital form through advanced digitalization tools.
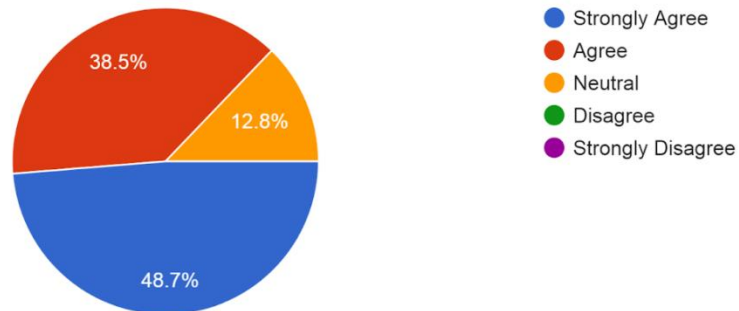
Legend:
- Strongly Agree (blue)
- Agree (red)
- Neutral (orange)
- Disagree (green)
- Strongly Disagree (purple)

38.5%
12.8%
48.7%

8. Most innovating strategy for Digital transformation.

Legend:
- ● Change the nature of products and services
- ● The constant technological or process changes
- ● Wait until their customers demand a change in their products or services
- ● Focusing internal operations

Pie chart values: 59%, 15.4%, 20.5%

9. Type of organizational culture need to implement Digital transformation

Legend:
- ● Customer centricity
- ● Data Driven Decision making
- ● Digital-first mindset
- ● Open Culture

Pie chart values: 25.6%, 7.7%, 38.5%, 28.2%

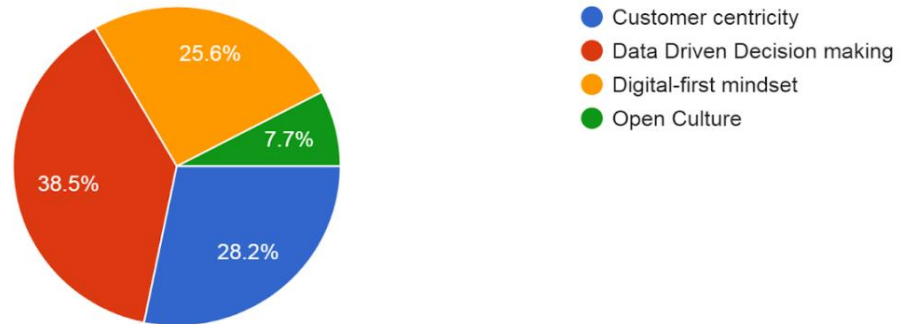10. In telecom, Digital transformation is gaining acess to key data insights to continally measure the pulse of customers and modify not only plans, but also organisation long-term business goals and strategies.

Legend:
- ● Strongly Agree
- ● Agree
- ● Disagree
- ● Neutral
- ● Strongly Disagree

Pie chart values: 59%, 7.7%, 33.3%
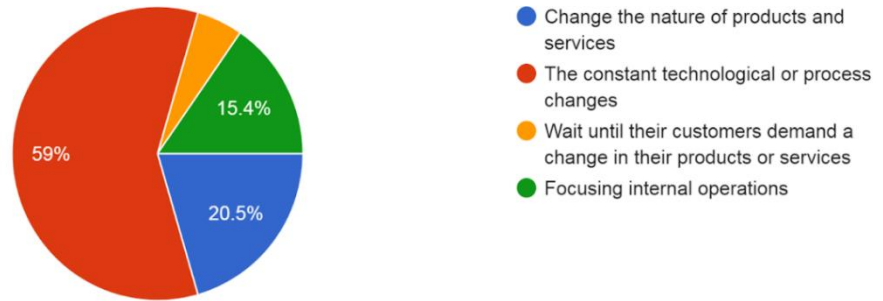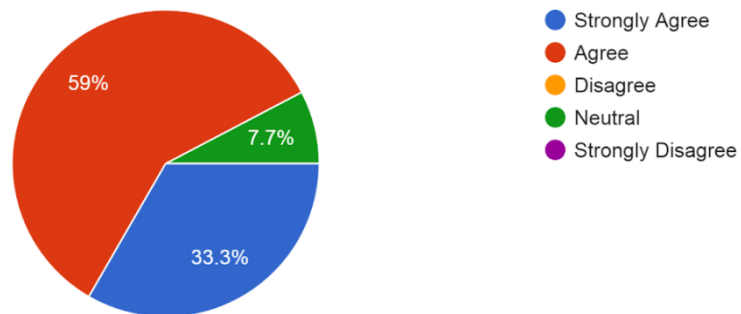
11. Digital transformation can help to overcome down time which might to be due to uncertain time like Covid-19 pandemic.
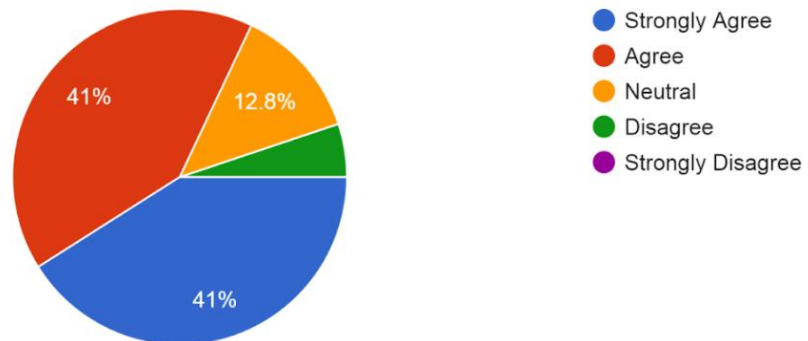
12. In the Digital age, "change for organizations is inevitable and the rate of change in the business environment is higher than ever before."
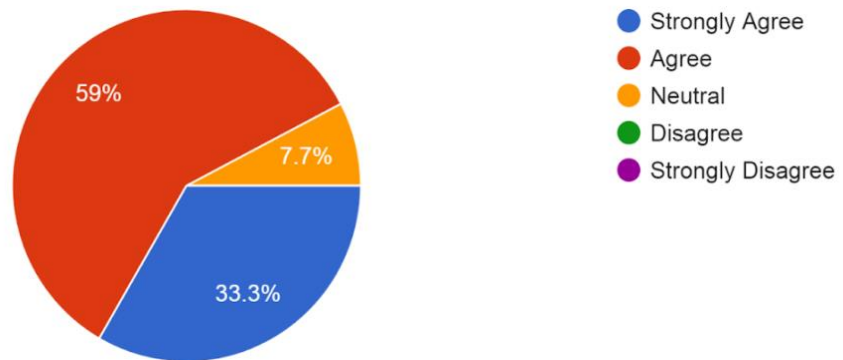
13. The most important factor for Change management failure in Digital transformation.
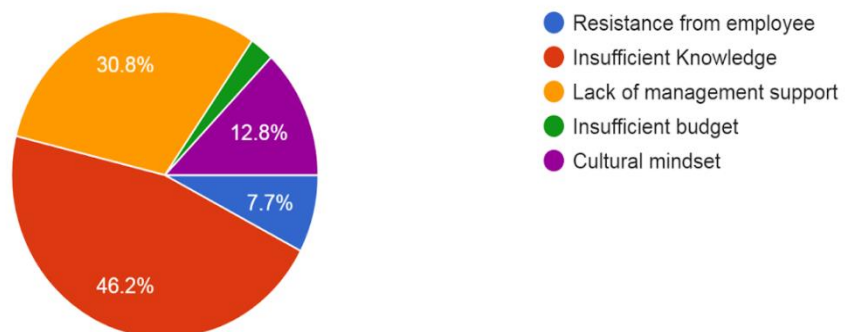
14. Digitalization can build a better leadership approach to achieve business goals.
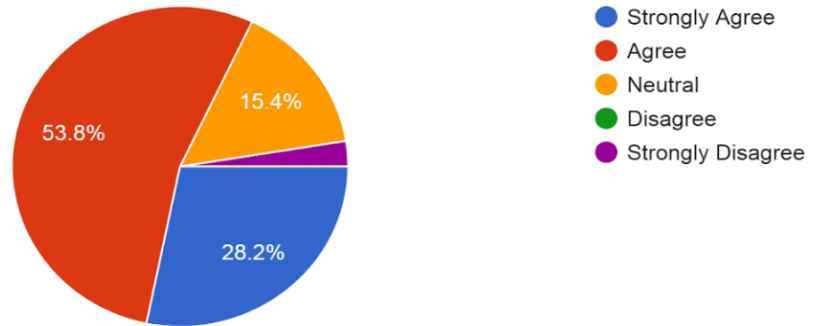
15. Global Delivery Model (Assets & Competencies) have an impact on Digital transformation.
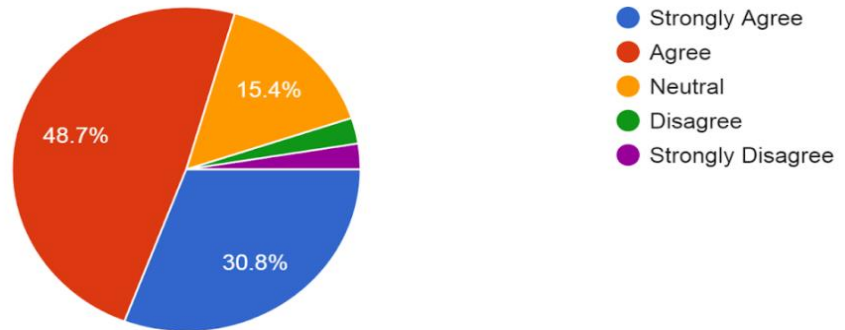
16. Digital tranformation is an important factor for implementing Agile.
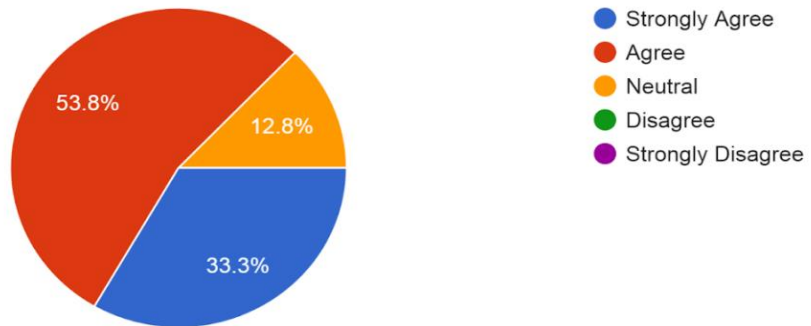
17. Major Challenge while implementing Digital transformation in Industry 4.0
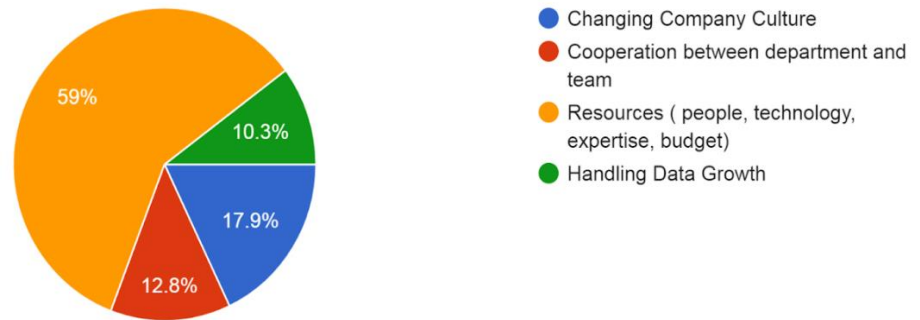
18. Organization should have a Digital vision to tranform because of the new market needs.
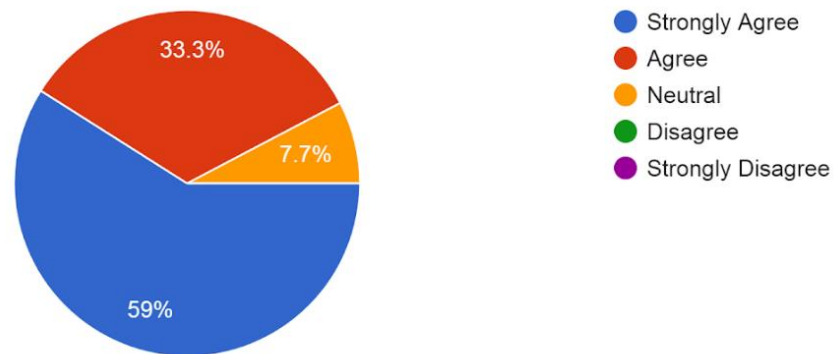
(Source of All charts in data analysis are self-illustrated based on data survey)

4. RESULT AND INFERENCE:

I did the Reliability test (Cronbach's Alpha Equation in Excel) using Anova: Two-Factor Without Replication

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

(Source – Website : statisticshowto)

"α is also sensitive to the number of items in a test."

"A **low value for alpha** may mean that there aren't enough questions on the test"

Analysis done for the 5-pointer Likert Scale Survey Questionarrie (for **117** respondents and **14** questionairres) on Digital transformation strategies and application. Details of the statistical data is as follows :

Satisfactory Parameter	Rating
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	1

Anova: Two-Factor Without Replication

SUMMARY	Count	Sum	Average	Variance
Que1	117	529	4.521368	0.406867
Que2	117	514	4.393162	0.344091
Que3	117	497	4.247863	0.394931
Que4	117	494	4.222222	0.536398
Que5	117	553	4.726496	0.252137
Que6	117	473	4.042735	0.817123
Que7	117	524	4.478632	0.303419
Que8	117	514	4.393162	0.482022
Que9	117	498	4.25641	0.330239
Que10	117	488	4.17094	0.711907
Que11	117	500	4.273504	0.355585
Que12	117	477	4.076923	0.692308
Que13	117	471	4.025641	0.801061
Que14	117	490	4.188034	0.412614

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Rows	336.7118	116	2.902688	9.58223	2.1381E-114	1.236631
Columns	59.61905	13	4.586081	15.13937	1.1882E-32	1.726642
Error	456.8095	1508	0.302924			
Total	853.1404	1637				

Alpha   **0.8956**

The Cronbach's Alpha value comes out to be **0.8956**, that indicates the Data reliability / Internal consistency is **Good to Excellent.**

Inference:

1. Majority of population agrees that Organisation 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 flexiblity 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 organisation 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 od 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 acess to key data insights to continally measure the pulse of customers and modify not only plans, but also organisation 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 tranformation 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 tranform because of the new market needs.

5. Digital transformation in various sectors:

5.1 Digital Banking:
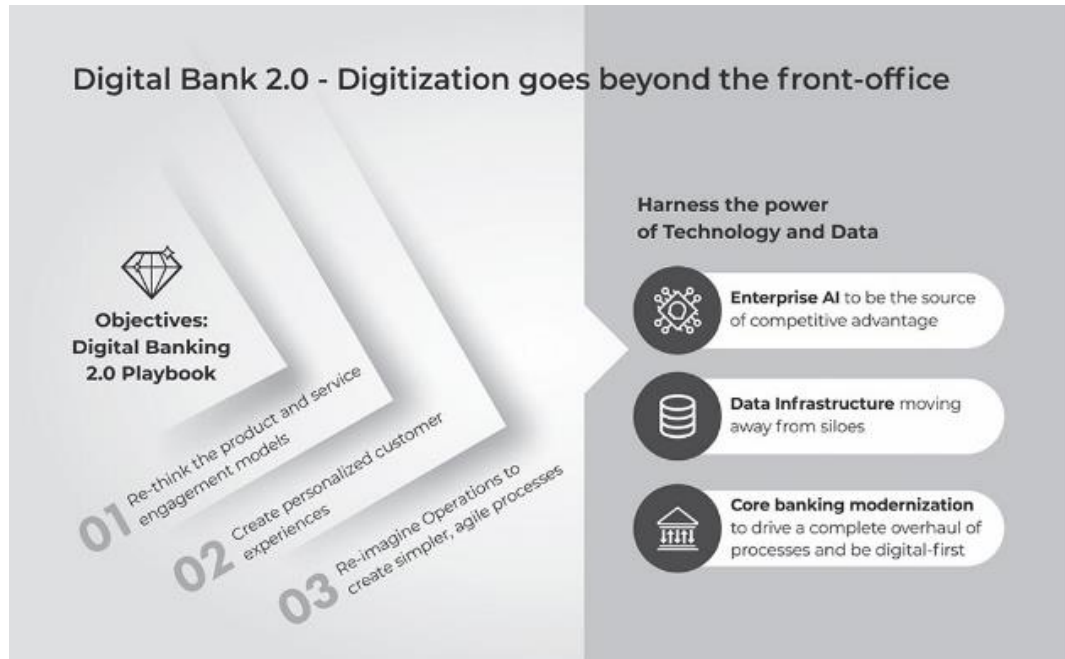
Fig. 5.1 Digital banking (Source – Book "Winning in the Digital Age")

Banks have been under threat by digital natives, however, they still command high market share driven by customers' stickiness. While banks have centred efforts around digitizing the front-end and developing a better system of engagement, they will need to significantly step up their efforts to compete in the digital disruption happening in the industry. Three key imperatives for banks in their digital transformation journey are

- Rethink product and service engagement models by leveraging AI-based interventions for customers' and stepping outside traditional product mindsets.
- Create personalized customer experience - Think about the 'Segment of 1' and the 'next best action' to maximize impact,
- Reimaging operations - Deploy 'self-service', RPA+AI+ Cognitive, Redefine processes.

They must harness the power of technology and data, upgrade their legacy systems and move away from siloed data infrastructure. Banks must consider prudently leveraging 'hybrid' cloud while Enterprise AI becomes the source of competitive advantage.

5.2 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 personalisation for advisors so they can engage better with clients.AI/ML will see new use cases beyond robo-advisory.
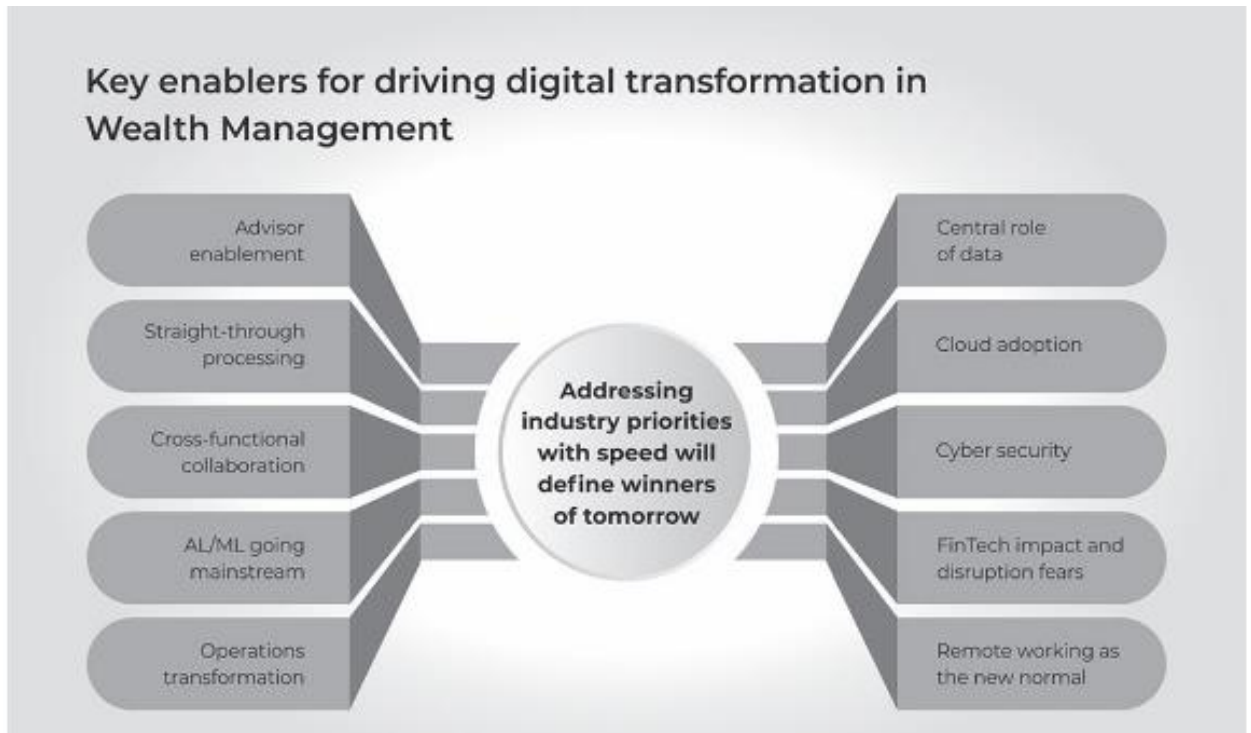
Fig .5.2 Wealth Management (Source – Book "Winning in the Digital Age")

Cloud adoption will increase, and cybersecurity will be augmented. Future proofing against entry of FAANGs 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.

5.3 Payments Disruption:

Payments have been at the forefront of digital transformation, and already FAANGs, 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.
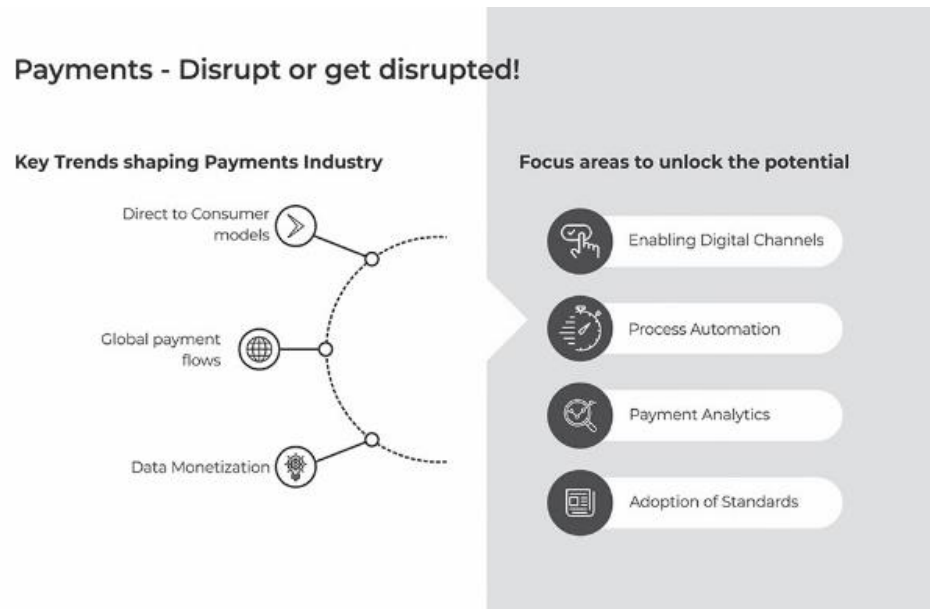
Fig 5.3 Payment Disrupt (Source – Book "Winning in the Digital Age")

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.

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.

5.4 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 telcos invested in over the years. Now, 5G presents opportunities for telcos 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.

5.5 Agile Management:

Agile Digital Transformation based on continuous innovation, which can change business model and strength of an organisation.
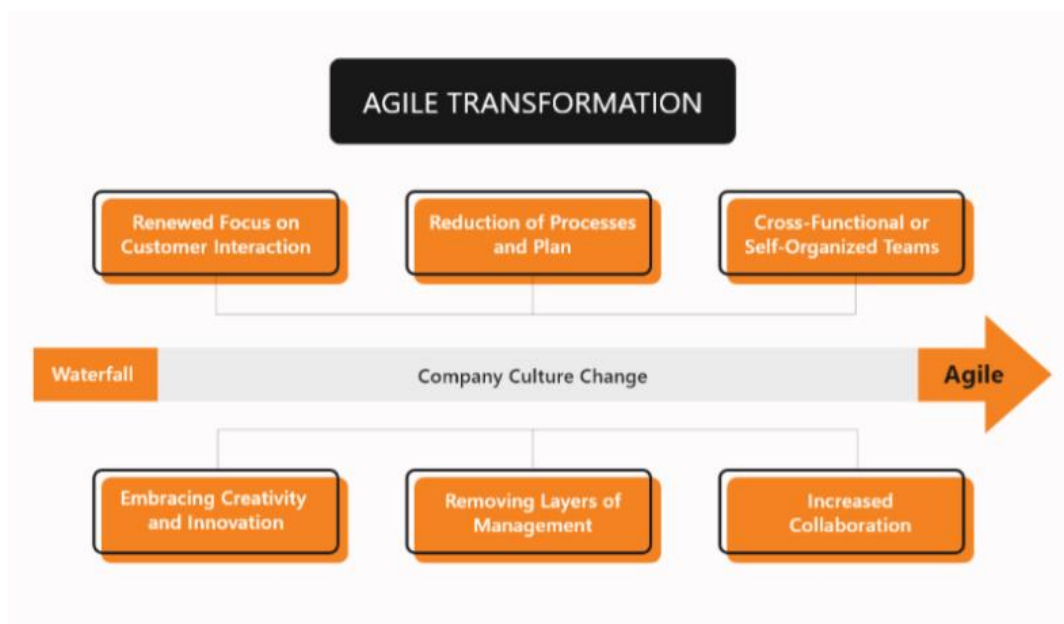

Fig 5.4 Agile (Source - Website "Customer think")

Agile management has five principles:

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

5.6 Operations:

"Industry 4.0" results in making production processes and corresponding services more agile, robust and responsive to clients by creating system smart w.r.t. "factories, products, and supply chain."

Most organisations face challenges and difficulties for managing inventories "efficiently and effectively". Since long there are concerns w.r.t. industrial practise, and there is no proper solution as such which can be implied to organisations. Most probably due to the limits of "traditional approaches" and methods for "inventory management system modelling & optimization", or may be deficiency on understanding about vendors and clients. Having "Industry 4.0s" implementation and progress, we can say that innovative ideas and methodologies for "inventory system modelling and optimization" will emerge.

For succeeding 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 modelling by leadership and institutionalize through organization processes.

5.7 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 defence 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.
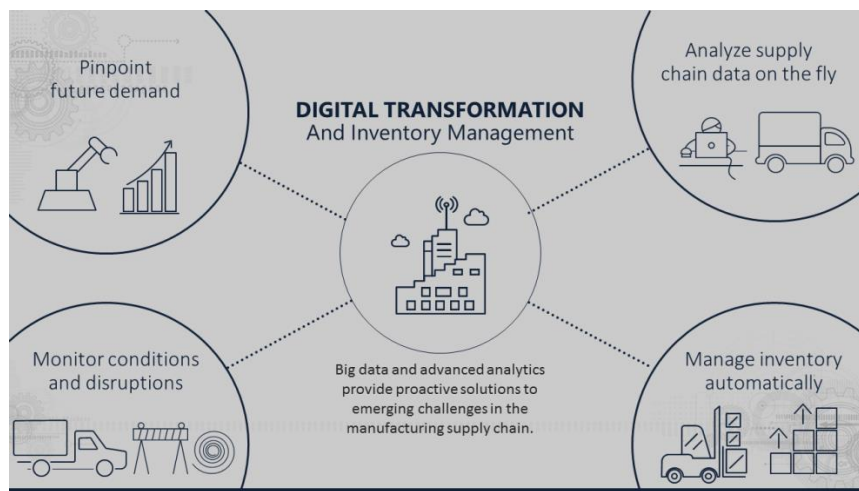
Fig. 5.5 Inventory Management (Source-Website "Microsoft")

- "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 modelling and optimization".

- "Industry 4.0 technology helps you manage and optimize all aspects of your manufacturing processes and supply chain. It gives you access to real-time data and information you need to make wise, quick decisions about your business, which can ultimately improve the efficiency and profitability of your 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".

5.8 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 curating 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.

Agility, and not maturity, is the new mantra for enterprise data management. This is recognising 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,
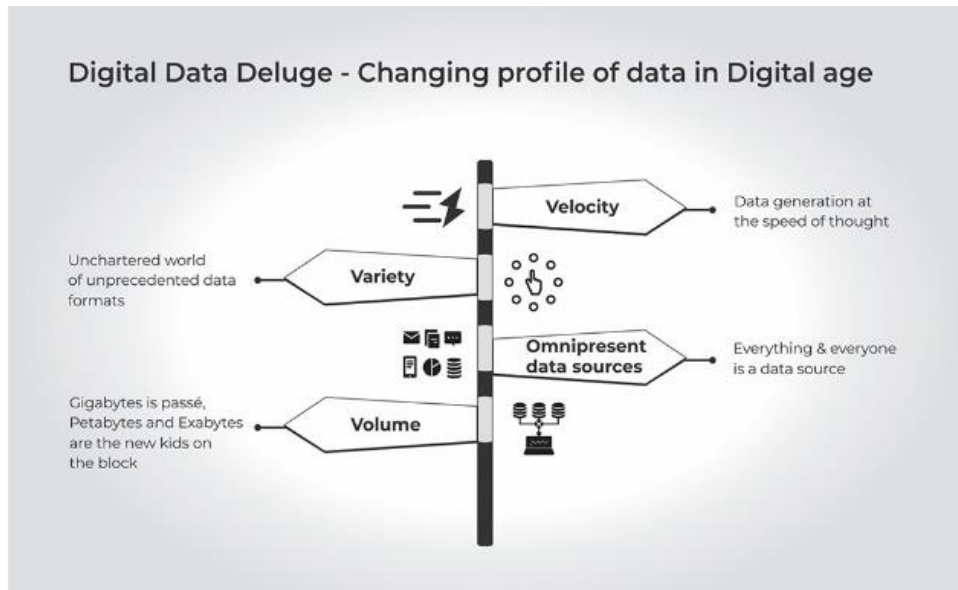
Fig.5.6 Data Deluge (Source - Book "Winning in the Digital Age")

- 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.

5.9 Building Organisational 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.

Fig. 5.7 Organisational Culture (Source – Book "Winning in the Digital Age")

- **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 modelling by leadership and institutionalize through organization processes.

5.10 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.

Fig.5.8 Knowledge Management (Source – Book "Winning 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 signalling, building a knowledge-sharing culture, building supportive organization structure and knowledge processes, and investing in the right knowledge and technology infrastructure.

5.11 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.

Fig.5.9 Innovation (Source – Book "Winning in the Digital Age")

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**.**

5.12 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.

Fig. 5.10 Change management (Source – Book "Winning 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. You 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** - You need to be patient and persistent in the change journey especially when you want to achieve substantial change.

- **Building a stakeholder coalition** – Can provide alternate programme a huge lift if you can comprehend the inspirations of the "key stakeholders" and find placement and evident provision from them.
- **Communication, communication and communication** – To achieve success, you need to understand four aspects of communication – simplicity, comprehensiveness of coverage, frequency and consistency, and openness and honesty.

5.13 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.

Five ways to address the duality and handle conflicting objectives

01 Build awareness and understanding of the complimentary values

02 Get a range of experiences

03 Bring diverse talent together in the team

04 Having a Sounding Board

05 Practice of Meditation is an excellent way to center yourself

Fig. 5.11 Leadership (Source – Book "Winning in the Digital Age")

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 you go beyond biases and see the bigger picture.
- Practising meditation to centre yourself

5.14 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,
- Thrive against new-age competitors.

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.

Global delivery model emerging economies in various countries and others is the solution to address these challenges:

- Continuing cost advantage,
- Availability of skills,
- 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.

6. ADVANTAGES AND DISADVANTAGE OF DIGITAL TRANSFORMATION

6.1 Advantages:

- **Enhanced data collection.**
  Data is so important to predict future business circumstance, in order to give benefits to customer.

- **Stronger resource management.**
  Digital Transformation provides strong resource management for scheduling budgeting and planning.

- **Data-driven customer insights.**
  Data Driven Approach give an enhanced decision-making capability to get customer insight.

- **A better customer experience.**
  Digital Transformation provides better customer need understandings.

- **Encourages digital culture (with improved collaboration)**
  Culture of an Organisation plays a key role for business model and Digital Transformation creates an organised culture.

- **Improved Efficiency**
  Digital transformation can increase efficiency on an industry with advanced technology.

- **Increased profits.**
  Higher Efficiency with advanced tech can earn more profit for an organisation.

- **Increased agility.**
  Agility Transformation makes organization versatile in the competitive worlds

- **Improved productivity.**
  With New Technologies of Industry 4.0 an organisation can increase productivity.

- **Increased Transparency**

  It Increases the transparency of organisation technological, policy and activities in order to build trust.

- **Cost Savings**

  With the help of digital transformation an organisation can focus on the key factors, which can be much cost effective.

- **Revenue Growth**

  It will increase the revenue.

- **Flexibility**

  It will provide flexibility in future product design.

- **Better Supply Chain Management**

  It accelerates production and reduce time to market.

- **Better Operating Model**

  It focuses on the customer keeping it in the core to build a better operating model.

- **Improving Competitive Advantage**

  It helps to be competitive in the market.

6.2 Disadvantage:

1. The Digital Transformation needs more IT skilled people and understandings of digital trends.
2. Resistance from employee.
3. Organizational Cultural change.
4. It takes high budget concerns and constraints.
5. Digitalization may push back employee.
6. Cyber Security Issues

7. 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 you to make fundamental changes.

If the change is unavoidable, you may also be able to set priorities. Play to win, not just to survive. Any change will involve some pain. When you 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:

1. Innovative business
2. Business maturity curves
3. "Digital Technology"
4. Global Distribution Model
5. Structural Transformation
6. Business leadership
7. 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, blockchain, 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 you solve specific problems and can get quick wins. Any change is difficult; you 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 your change journey, but they are not enough. Opportunities in the digital age are very significant and you will not realize them by taking just incremental steps. In parallel to speed 1 action, you also need to work on speed 2 actions – which are bigger, more strategic, and longer-term steps. Moreover, your 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 you successfully realize the amazing potential of digital transformation.

8. 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:

1. Decision making should involve balance of data and intuition thereby cutting mistakes and delivering superior outcomes.

2. Speed of Action under Ambiguity - requires a safe space for executives to hone their decision-making skills

3. Audacity and Intelligent Risk Taking - the ability to dream big and execute at scale requires risk taking with intelligence.

4. Innovation and Creativity - needs to be embedded in the organization culture and should happen across levels.

5. Technology DNA - is a critical competency in the digital age and every enterprise needs to build this irrespective of industry.

6. 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.

7. 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.

8. Humane, Centred 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.

9. 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.

On basis of 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:

1. Think big and take risks.
2. Persist in search of excellence.
3. Build lasting relationships
4. Be proactive and take responsibility
5. Focus on giving, not getting
6. Stay humble and true to your values
7. Keep your balance and pursue interests beyond work

9. LIMITATIONS:

- The study was carried out during a 6-week period.
- The study sample size is 117 (not that large)
- The study was based on survey data. Like - "Selective memory, telescoping, attribution, exaggeration".
- The study was not centered on only single type of industry, so it cannot give an elaborated data for specific type of industry.

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