

DIGITAL TRANSFORMATION

Nice-to-Have to Must-for-Survival

2020 was not just chaotic, but also confusing. It can partly be attributed to the pandemic and partly to companies' ineptness to have a disaster management plan in place. But through the chaos and confusion, advanced technologies, especially digitalisation, found their voice. It shifted its position from a 'nice-to-have' to a 'must-for survival'. The Cover Story, with responses from industry stalwarts, finds out the top trends & technologies in manufacturing, factors to be considered for cost-effective growth & ROI, management enabling digitalisation, the approach to digitalisation during volatile times, the importance of data management & data governance and the pros, cons & reasonable measures to avoid failure during the digital transformation journey.



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“Companies not willing to transform might face existential crisis”



“Getting started on digitalisation will require concrete work of enthused, empowered, capable confluence of cross-functional teams”

Atul Govil,
CTO,
India Glycols

The entire world hasn't seen more disruption cumulatively in the last decade than it did in the last 15 months.

The growing trends of manufacturing

The five core themes that have emerged and will continue to see higher adoption this fiscal and years to come are – remote working and e-collaboration leading to higher adoption of cloud offering, the exponential use of e-commerce (both B2B and B2C), automation of processes using analytics, AI/ML, IoT & robotics, innovative security solutions and countermeasures to properly address & mitigate severe cybersecurity threats and ensure due compliances and Product-as-a-Service, wherein the supplier provisions maintenance, repair & alerts services for the supplied equipment/asset, at agreed SLAs.

Adaptability & resiliency for future digitalisation

To embed digital in the identified processes of an organisation, it is important to carve out a multi-disciplinary team of passionate members, jointly analyse the current state of end-to-end operations across the value stream – with a fresh pair of lenses. Management of change looks great in theory and is the most vital aspect in delivering transformation projects. Over the years, peers and senior leaders build a greater bias towards their gut, intuition against data-driven insights and cross-functional coordination.

Manual, excel-based workflows, processes with high and routine dependence on people is a good candidate to start delivering value with higher ROI. With the volatile macro business environment, there is great value in identifying levers to shorten the overall supply chain cycle time to be more adaptable & resilient to serve customer demand.

Approach to digitalisation

Like stated earlier as well, it's all about people first. It's important to improve the team's (leaders, managers and other personnel) knowledge of technology and its potential implications. Look for active, ongoing collaboration with

academics/government institutions on building skills needed for the future. One should look at how to progressively build trust and employee engagement through open, transparent communication on how the new-age skills and knowledge will give the associated team and the enterprise an edge over others and help individuals regain confidence about their prospects. With digital natives, the millennials, coming into the workforce in significant numbers, legacy system and processes will need to be progressively revamped & digitalised to create an attractive work environment for them to join and be retained.

Data management & data governance

Deploying new systems, applying and building inter-connectivity across disparate but contextual systems can add value and improve performance when effective data management & analytics are applied. Companies on their path of DX have to factor that any analytics, any AI or ML used to create actionable insights, is based on the quality and availability of the underlying data sets. If this data set is incomplete or inaccurate, it will lead to incorrect predictions and misleading reports.

Siloed systems and siloed data sets (both from inside and outside the organisation) need to be connected with the business context to eliminate any blind spots and achieve a firm grasp on aspects that matter for prompt decision support.

Tips for getting started

Getting started on digitalisation will require hard, concrete work of enthused, empowered, capable confluence of cross-functional teams. It's not an isolated IT project. It is not the time to be sitting on the fence, to stay competitive, companies need to proactively adopt new tech to solve current business problems, achieve higher work efficiencies and create new business models. Considering one's business partners, the competitive landscape is changing, changing fast given the pandemic, so one needs to change. Companies that are not willing to transform may end up facing an existential crisis. □

“Cross-functioning teams are essential today for data governance”



“For an impactful transformation, working on the low hanging fruits will be a good point to start with”

Bipin Jirge,
Managing Director,
ifm electronic India

In the last few years, with manufacturing evolving, I feel that ‘predictive maintenance’ and ‘remote maintenance’ of assets will be one of the major application areas in the ‘must for survival’ category. We want assets to have almost 100% uptime, and that calls for minimum downtime. Predictive and remote maintenance will save the time of breakdown as well as optimise manpower requirement for maintenance of especially remotely located assets, which are vital for running the plant, like utility pumps, for example.

Making impactful investments for targeted ROI

Digital transformation is for everybody, but it’s not one-size-fits-all. For an impactful transformation, working on the low hanging fruits by using simple to install, to operate and to maintain technologies will be a good point to start with. It is always good to start with the most bottleneck prone machine and then start doing real-time data gathering of the actual operating hours, setting time, as well as few machine condition parameters, like motor temperature, hydraulic pressure. This gives us a good starting point to look at the real-time data in a simple way.

Upgrading and staying ahead

The approach to the digitalisation of technologies in the new normal conditions considering the current SOPs, social

distancing norms, employee safety and most importantly, the volatile business environment should be adapting to simple technologies for automation early on and starting the journey towards using technologies as well as training the manpower to use these technologies in the real world.

Establishing data management and data governance

Data management and data governance are critical in digital transformation. To coordinate between IT and OT, teams/manpower in the company, even in bigger industries, are concerned. Cross-functioning teams are a need of the hour in this data governance.

The pros and cons of digitalisation

Cons:

Investments are needed upfront. This can be managed by adopting very simple forms of IoT in the initial phases, starting to adopt the IT concepts on the shop floor in a more minor way.

Pros:

There would be long-term gains in productivity, cost reduction, compatibility towards customers systems in this new digital world, etc. □



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“Digitalisation is a breakout in the forward direction”



“Many pros can become cons if we adopt digitalisation without proper design and thought”

Vilas Pujari,
CIO,
ACG Worldwide

Manufacturing is the biggest contributor to the production of physical goods after agriculture. With the new generation moving to IT and service, there will be a shortage of blue-collared workers/plant associates. While automation, by design is the best thing to happen, we will be forced to go for digitisation & automation by default, which the pandemic has now hastened.

Top trends of future factories

Digitalisation is a breakout in the forward direction, but the real question is the speed of adoption, viability and identifying the best amongst the available technologies. We see the emergence of technologies in the areas of remote monitoring and remote action. The second clear trend is AI and ML to augment the human brain with innumerable possibilities and look at something hitherto impossible or feasible. A plethora of technologies like IoT, HoloLens, electrical and guided vehicles, AR/VR, etc are making these possible.

Choosing the ideal solution

There are two approaches to this – one is plucking the low hanging fruits. Consider using technologies that make commercial sense to help with it. Another way is to be more strategic, ie, consider available technologies, peep into the future and do a thorough evaluation for adaptability and longevity. The first approach is good when one has various technologies and is not sure about their sustainability. The second approach is for veterans with better management and financial bandwidth.

A process-based approach will help in the sustained adoption of technologies leading to digital transformation. Sporadic technology ‘introductions’, untrained users using technologies and lack of process-based approach will not only impact the strategic initiative of digital transformation but also put the organisation a few years back due to bad experience and wasted resources.

Digitalisation in new normal & silos of transformation

Digitalisation technologies support in effective implementation of SOPs, social distancing norms and employee safety. While there are challenges in the physical implementation of these digitalisation initiatives, this is an opportunity to realise immediate ROI on these initiatives. Adoption is much faster because urgency rather than a top-down implementation drives it. Digital transformation essentially means bringing more process and activities under automation, integrating process and OT/IT networks & databases. With this kind of data volume, we should implement data management and governance as a strategy. It is recommended that CXO level teams own the governance while the actual management can be more tactically done. The real benefits of digital transformation can only come if we can create a single, unified view of enterprise data with ease, irrespective of source, ownership and applications generating data. We tend to use best of breed applications leading to silos of data for better adoption as these applications would have their databases. Creating an enterprise data lake is the answer to these challenges.

Pros, cons, recommendations

I do not see any cons of implementing a digital transformation strategy. However, many pros can become cons if we adopt digitalisation without proper design and thought. The most common reasons for failure could be – assuming we can do everything on our own, leaving the implementation aspects to IT and lack of user involvement, lack of board/CEO level involvement in the strategy & lack of review at highest management levels, lack of involvement or people and ignoring the ‘people’ aspect in these initiatives, leaving too much to consultants, ignoring security, having too many initiatives at the same time and many more.

We recommend strategies be owned by senior management involving of a reasonably good number of people in the transformation and involving good consultant right from conceptualisation. □

“Digital connectivity of plant & machinery will get priority”



“In the current business scenario, it is advisable to invest in equipment which supports lot-size-one production”

Jitendrakumar Kataria,
Managing Director,
Beckhoff Automation

The challenge is to foresee the upcoming opportunities for entrepreneurs and develop solutions using the latest available technology.

The trends catching up

Edge computing: Edge computing is gaining importance because small, dedicated PCs can pre-process data before the same is pushed to the cloud.

Human control technology: Evolution has decreed that the central nervous system regulates human functions. Therefore, our brain, the powerful controller, acts as a modular central computer that accesses a closed process image of the entire body via our nervous system. Here, the speed of communication matters most.

Similarly, ethernet is the physical high-speed medium, and the EtherCAT fieldbus is a communication protocol that enables the exchange of process images collected to the controller. As our brain simultaneously processes multiple sensory inputs, such as visual, acoustic or tactile, the TwinCAT software runs the system using appropriate algorithms.

Machine Learning: Machine Learning doesn't follow the classic engineering route to design, formulate and deploy a solution for a specific task; rather the desired algorithms are learned from modelled process data instead. Beckhoff offers a high-performance execution module for trained classic machine-learning algorithms using TwinCAT 3 function and trained neural networks.

Digital connectivity of plants and machineries will get priority. Machine Learning, AI, robots, 3D Printing etc, are all the fast-growing trends in manufacturing technology – and have been making rapid inroads in the machines for quite some

time. This journey is certainly not a cakewalk because of legacy systems, and it's a challenge to gather required data from these systems. Products like IoT coupler can be helpful. All the new machines will be available with connectivity features.

Priorities & critical factors of digital transformation

Digital transformation is important, but it needs the right motivation from the top management for implementation. The priority must be to acquire and analyse the data from the shop floor equipment to utilise this information to improve processes, reduce resources, increase efficiencies and increase OEE for visible results of digital transformation. Highly automated energy-efficient machines will be the focus. So, machines should be smart and adequately automated to make the operator task easy, safe and efficient. Also, in the current business scenario, it is advisable to invest in equipment that supports lot-size-one production as the volume and variants that needs to be produced vary dynamically.

Adopting connectivity with real-time data exchange from manufacturing processes using interconnected machines, computerised equipment and networked inventory systems, inter-connected employee health tracking systems and relevant data sharing with customers and vendors will be most beneficial to enterprises. Machine operators and skilled people can be a part of this interconnectivity.

Tips for successful implementation

If digitalisation is implemented only in one section of manufacturing instead of a complete end-to-end process, then the benefits will not be visible. The cost incurred will be looked upon as an expense. Digital transformation is a continuous process, with a full visibility/roadmap of the end results for the complete manufacturing process. □

“Understand what smart factory would mean before investing”



“Consistent, well-thought and practical approach to upgrade to new technologies is essential for any business”

Dr Rishi Mohan Bhatnagar,
President,
Aeris Communications

2020 taught us that technology and innovation are critical to business growth and success. Enterprises were confronted with new challenges in running shop floors, managing labour shortage due to mass migration, reaching out to the customers faster than the competition, managing customer experience, go-to-market and work collaboration.

Trends driving the future

As businesses continue to pursue digital transformation initiatives to address these challenges, specific technological capabilities will be in high demand in 2021. The key trends that will drive technology investments this year will be IoT, 5G and the hybrid cloud market.

Technology in industries like manufacturing, process and healthcare plays a crucial role in sustaining businesses and bouncing back from the prevailing impediment. Convergence of VR-AR-MR and 3D Printing and Intelligent Automation-Artificial Intelligence (IA-AI) convergence via RPA and analytics will be familiar. Data, automation and digitisation are transforming every stage of the manufacturing process.

Choosing the right strategy

Companies, irrespective of their size and scale of operations, need to finalise a well-thought strategy and a roadmap that leverages Industry 4.0 interventions to remain competitive. But first and foremost, they need to understand what a smart factory would mean for them before investing. There are three common characteristics associated with smart factories -

1. They are connected, automated and have flexible digital shop floor processes.
2. They define new relationships between operators and machines.
3. They require a change in the structure and scale of the factory.

Technologies, like IoT, AI, advanced robotics, wearables and

3D Printing, are transforming what, where and how products are designed, manufactured, assembled, distributed, consumed, serviced after purchase, discarded and even reused. They affect and alter all end-to-end steps of the production process and, as a result, transform the products that consumers demand, the factory processes & footprints and the management of global supply chains. Most importantly, organisations need to collaborate with a leading IoT service provider with a proven track record of smart factory implementations in green- and brown-field & multiple digital transformation programs, preferably in India and abroad. The team of experts from the IoT service provider needs to be an integral part of the core team responsible from strategy to execution so that key learnings and best practices can be imbibed right from the beginning.

Considerations for successful transformation

Many businesses are afraid of taking an unconventional road, exceptionally when they persuade their company to adopt new technologies. The common questions that swirl through their minds is – Is it essential for running my business? Can I afford it? Can I implement it correctly? What should we do if something goes wrong? A consistent, well-thought and practical approach to upgrade to new technologies is essential for any business. While it is true that the early adopters of the latest technologies enjoy the benefits of quick adoption and stay ahead in the competition, there is no need to rush and become a part of the mad race.

Consider these critical points for your business success before diving into technology adoption – carefully contemplate the ‘why’, ‘how’ and ‘with whom’ you would like to embark on the journey of tech transformation; have a close market watch for technology use cases and successes – what applies to others, may not be true for you; plan to balance your fast change with immediate needs – segregate ‘must have’ from ‘desirable’ and communicate the risk of the legacy system migration across the whole organisation and train everyone to embrace change. □

“Ensure a handshake between data governance & management teams”



“Data governance is building a blueprint for digital transformation whereas data management is executing the strategy”

Jhankar Dutta,
Managing Director,
B&R Industrial Automation

What we do today will eventually ensure a better tomorrow. Today’s situation can be looked at as an opportunity to deliberate on and build concrete strategies for one’s digital transformation journey.

Trends to adopt

During these tough times we witnessed most manufacturing organisations gearing up to adopt emerging trends, such as remote access to machines, lines, factories & processes, cybersecurity, data access & logging, predictive maintenance, business intelligence, energy monitoring, process & line optimisations, digital twin, batch size-one-production and mass customisation. AI, ML and virtualisation are the few trends which have attracted attention from various manufacturing organisations over the past few years even before the onset of the recent pandemic.

Those wanting to embark on their digital transformation journey should follow five basic steps while creating a roadmap. First, they should identify gaps in their existing processes & operations and the areas that could be digitised. Second, evaluate various technologies and understand what each next-generation technology solutions have to offer and the kind of problems it will solve. Third, make feasible studies and map these technologies against identified gaps. Fourth, prioritise technologies for implementation, which will be done with a prerequisite understanding of investment needed and what would be the perceived benefits, ROI and the estimated timelines for achieving returns. Last but not the least, choose a right automation and digitisation partner guaranteeing your success.

Approach to technologies & essentials of transformation

The time required for technology to evolve has come down to a few months or years. Thus, it is impossible for any organisation to keep pace with these technology evolutions.

However, it is essential for any organisation to review their existing processes, identify gaps and try to bridge gaps in existing technologies with support. It is not wise to keep evaluating and not take any action on the implementation front. This will lead to a wider gap between companies and its global competition. It is similar to the situation in the vehicle market where the government took too long a time to move from BS-IV to BS-VI, skipping BS-V, which is evidently taking a toll on the entire ecosystem. Organisations trying to play the wait-and-watch game will be eventually faced with a similar scenario.

Data management and governance cannot simply sustain without the other, thus if organisations are working in silos, then they will have serious gaps in various implementation strategies. It is extremely important to ensure a handshake between data governance and management teams. If we take an analogy, data governance is building a blueprint or planning a roadmap for digital transformation whereas data management is executing the strategy. Thus, to get the real value of data it is essential for a seamless alignment between data management and data governance teams.

Recommendations to avoid failure

The key challenge that remains for all is the right strategy, investment and resources needed for such a digital transformation journey. A long-term goal is no doubt important and needed but short-term goals and milestones too are equally important. It is important to celebrate each milestone. This not only gives a change to savour success and keep motivation high but also to look back & learn from mistakes, tweak strategy and move forward. In addition, it is necessary to overcome a conventional mindset and know that investments made will take some time to provide returns and be effective. □

“Every crisis is a catalyst for innovation”



“Many digital initiatives fail because ‘change’ is assumed; ‘change’ has to be planned for and facilitated”

Venugopal G,
Head - Digital Advisory & Industry 4.0,
Robert Bosch Engineering and Business Solutions

Industry 4.0 is the future of manufacturing. Digital connectedness, both vertical and horizontal, is the way forward.

Core trends of manufacturing

Automation, including industrial robots, Industrial Internet of Things, cloud computing and Artificial Intelligence (AI) with seamless Operations Tech & Information Tech (OT-IT) integration, form the core of the digital manufacturing landscape. There is a huge scope for evolving/niche technologies, such as 5G, 3D Printing, AR/VR, digital twin, drones and image analytics, in manufacturing. For distributed manufacturing, authenticity requirements & circular economy and blockchain are evolving as compelling propositions.

Key factors for impactful transformation

Digital transformation needs to be contextualised for each organisation. The leadership commitment, tech & digital maturity, business priorities, surrounding ecosystem, risk appetite and cultural dimensions determine the path of each journey.

The big-bang approach can be risky, especially if it has many exploratory threads. A balanced approach with a quick proof-of-concept is strongly recommended with a ‘fail fast-scale fast’ mindset. Focus on digitalisation of what (domain or function) one is good at, especially if one does something that is not time-tested. Many digital initiatives fail because ‘change’ is assumed; ‘change’ must be planned for and facilitated. Celebrate not only the successes but also the failures to create an atmosphere of digital entrepreneurship in the organisation.

Scaling during volatile times

Every crisis is a catalyst for innovation. Digital investments in safety & sustainability will occupy a significant wallet-share of the CEO’s/CDO’s budget allocation. Organisations need to invest in technologies to reduce reliance on human power wherever possible. ‘Light-out factories’ will become strategic to tackle future situations like this.

Strengthen investments in communication & collaboration

disproportionately and be creative in people-related processes. Any organisation’s future skill requirements will have a strong bias towards cognitive competencies. The fact is that you cannot hire these skillsets from outside. One needs to invest in their people to fill the gap and utilise the time now and be ahead of the curve. Data is the backbone of any digital transformation. Companies need ‘data experts’ at different levels – technical, domain, governance, security, architecture, etc. Identifying the ‘data value chain’ from its origin to consumption and often beyond is very critical. Many a time, non-availability of good/clean/useful data is an issue. It calls for a data strategy – it will include understanding the purpose & use of data, identifying the use cases, designing seamless data processes to avoid redundancy & duplication, designing the architecture for scalability & security and establishing governance (a data board for example) for data policy & review for continual improvement.

Positives and recommendations

The pros of digital transformation in manufacturing are well evidenced, from cost reduction, productivity improvement, flexibility and throughput increase to enhancement in safety and sustainability that influence the intangibles about people & brand. Unfortunately, only about 5% of digital initiatives have been termed truly successful. Only half of the technology initiatives have fetched the targeted results. The main reason narrows down to people and digital adoption, from leadership to the operating team. A human-centric digital strategy is crucial for success. The fuzzy definition of digital will create confusion. Companies need to carve out their digital journey and play to their strengths. Digital often has an exploratory angle, and it demands a super-agile delivery model against classical technology programs. Lastly, one cannot do everything by themselves; it is important to build partnerships and tap into the larger ecosystem for complementarity and to share the transformational load, the risk and of course, the returns. □

“Understanding of requirements is key to digital success”



“Implementation of digital initiatives require proper understanding and clarity in terms of requirements and expected outcomes”

Manish Walia,
Business Head (India) –
Industrial Automation Solutions,
Delta Electronics India

Technology trends moving into future

More and more manufacturing & process companies are adopting digitalisation with an aim to maximise profitability and flexibility. Going ahead, simulation in designs and operations is expected to gain momentum. Currently, top technologies are remote access and cloud connectivity — these play a vital role in the collection and analysis of plant data in real-time.

Understanding the need for impactful investment

Today, digital technology is infused in every part of life, starting from online classes to enabling work from home. The manufacturing and process industry is no different and is heavily relying on digital technologies to streamline processes, increase productivity and ensure business continuity. When we talk about the OEM segment, the biggest ROI is coming from gathering the data from the machine and analysing it for machine diagnostics & troubleshooting purpose. For the manufacturing and process industry, digital technologies prove to be extremely helpful in reducing power and energy usage.

From the management’s perspective, one should look at the different simulations and the data of libraries for making the system/process more efficient. They should identify from these simulations & libraries the major actionable items for making their systems greener, smarter and as per the requirement, also making them more profitable.

Approach to digitalisation

Necessity is the mother of invention. In the current scenario, the necessity is social distancing, which can be achieved with digitisation, as it empowers us to access the

data remotely. So, digitalisation is the need of the hour, and everything is moving towards it. Looking ahead, automation products and IoT will play a very important role in digital initiatives. At Delta, we offer automation products that start from the very basic level for factory automation, machine automation and process automation. The data can then be pulled by using gateways, cloud connecting devices and be then taken across the software. This ensures security and further transition.

Data governance & security

With data access and availability becoming easier, ensuring their data remains, their property is emerging as a top priority for organisations. For governance, robust software and multiple level security is a must. For instance, we have software to calculate OEE, EMS for effective data governance. These software also help in addressing the issue of silos. Considering the automation segment, wherein machines, processes and controlling devices come into the picture, Delta software offers powerful security with a multiple password level protection.

Pros & cons and recommendations

Everything comes with some pros and cons. However, with digitalisation, benefits far outweigh the risks. Digitalisation is advantageous for monitoring or reporting, which makes troubleshooting and diagnosis easier. The major reason for failure is not having proper understanding and clarity in terms of requirements and expected outcomes from digital initiatives. Because what we understand is what we implement. □

“Modernisation of manufacturing is a must for increased productivity”



“The uniting of supremacy and productivity of modern factories, with the data and adaptability of software, is helping the manufacturing industry innovate”

Sangram Kadam,
Vice President and Head (APAC & META),
Birlasoft

Today, India is at an inflexion point where technology redefines business models, and manufacturing is no exception. Many new digital technologies will pioneer the manufacturing industry backed by the digital-first approaches.

Trends of the future

As the manufacturing industry reinforces its path towards digitalisation, trends like the adoption of digital twins, 3D Printing, AI, Machine Learning, IoT and AR/VR are witnessing faster acceptance and implementation than ever before. A transformational vision towards Industry 4.0 and smart factories among the Indian manufacturing ecosystem will stimulate growth required for this industry and provide the impetus to stand the test of times.

As a result of the pandemic, many manufacturers needed to shift to a contactless, digital model and engage with their end customers digitally. Manufacturers needed to install business solutions that create superior digital experiences for their customers and ecosystem.

With a sudden change post the lockdown, the companies now needed to invest in a new set-up that addresses the present challenges. They will need to pivot and adapt to market turbulence, downturns and unpredictability.

The uniting of supremacy and productivity of modern factories with the data and adaptability of software is helping the manufacturing industry become a platform for innovation. Software applications, like Manufacturing Executive Systems (MES)/smart manufacturing, provide manufacturers with agenda, planning, tracking, analysing and capabilities to control the manufacturing operations, thereby giving real-time updates on the shop floor and speeding up the issue of redressal mechanisms.

Reinventing to stay ahead

Manufacturing companies need to realise the role of

digital transformation to reduce cost, increase productivity and efficiency of employees in this era. They need to speed up the adoption of technology on the shop floor and help create India as a global manufacturing hub. As we overcome the global pandemic, it is crucial to make India a nation and its key industries self-reliant. The modernisation of manufacturing and infrastructure sectors is a must to speed up productivity. Technology investments across them must also accompany this.

It is time to reinvent the country as a destination for innovative solutions that support engineering design and create hubs supporting local innovations at different levels. Governments are also supporting the industry by bringing in initiatives like Make in India, Digital India and Aatmanirbhar Bharat.

Recommendation for successful transformation

Today, companies across sectors are rushing towards adopting digital technologies. Instead of racing to adopt the latest technology, companies primarily need to look at the business model first and then acquire the capabilities, skill sets and employees needed to create that change.

Although most companies and executives know how important it is to evolve with technology and create digital processes and solutions, implementing it in the entire ecosystem is a different story. Many businesses have faltered in correctly adopting their digital transformation goals.

Firstly, companies should implement these technologies on a smaller scale before going the full mile. Secondly, for a successful digital transformation, the intent and ideology need to be deeply integrated into the company's fabric. Lastly, businesses should invest in training their employees to learn and use these digital technologies effectively to reach business goals primarily.

Overall, technology is rapidly changing, so companies need to be agile enough to adapt new-age technologies into their processes to usher in a truly digital era. □

“Start with business objectives and look for incremental benefits”



“The key is, be consistent, build incrementally and execute limited scope with speed”

Anand Parameswaran,
SVP & Global Business Head,
Cyient Digital

Digitalisation’s true value lies in our ability to reimagine how to solve critical business problems across functions, systems and processes. And while every domain will have its nuances around product, platforms and applications, digital technology itself is sector-agnostic.

The trends envisioned

We foresee continued evolution of the following trends driving adoption of Industry 4.0 -

- **Digital twins:** A virtual replication of equipment and processes created with the help of AI/ML, simulation and modelling, digital twins can be used to monitor assets remotely. It improves asset management, enables predictive maintenance and optimises operations & utilisation.
- **Smart manufacturing:** Powered by sensor technology, the convergence of IoT and 5G will turn connected machines into smart factories. This will pave the way for smart manufacturing that could improve operational efficiencies and enable new functionalities.
- **Intelligent supply chain:** Integrating supply chain with factory, including warehouses and material 'on the move', provides better visibility and traceability of inventory. This enables the use of methods like inter-modal logistics, which add incremental value at different points in the product lifecycle.

Staying ahead in the technology race

The key is to start with problems/opportunities for business transformation for those starting on their digital journey. Ask yourself, “what disruption in the industry/company’s value chain will provide a significant advantage or differentiation over

the rest?” or something as basic as, “what are the three things in my business that I want to improve?” and then identify how digitalisation can help you get there.

The other thing to remember is that digital technologies are evolving at a breakneck speed; what seemed futuristic in 2019 is either a commonplace or obsolete. So, companies need to acknowledge that some of their investment will become outdated & will need a constant refresh, and a few others may not yield the desired result. However, consistency and discipline in technology investment are important because the risk of inaction is far higher than the risk of making some mistakes.

Suggestions to win at digital transformation

It is advisable to always start with business objectives and look for incremental benefits or improvements. And as powerful as technology is, it is also unpredictable because, with the proliferation and democratisation of technology, one never knows what new technology is around the corner. Take inspiration from the 8th law of Peter Senge – ‘Small changes can produce big results – but the areas of highest leverage are often the least obvious’. The key is, be consistent, build incrementally and execute limited scope with speed. It is far more effective to iterate after three months of adopting a solution, as against spending three months on visioning, discovery and roadmap exercises to launch a ‘perfect’ solution.

Another thing is to have realistic expectations and anticipated outcomes. For example, out of 10 investments, three or four will yield moderate results, one or two will yield significant benefits, and the rest may not be as effective. What matters at the end of the day is to learn consciously to increase the overall success rate. □