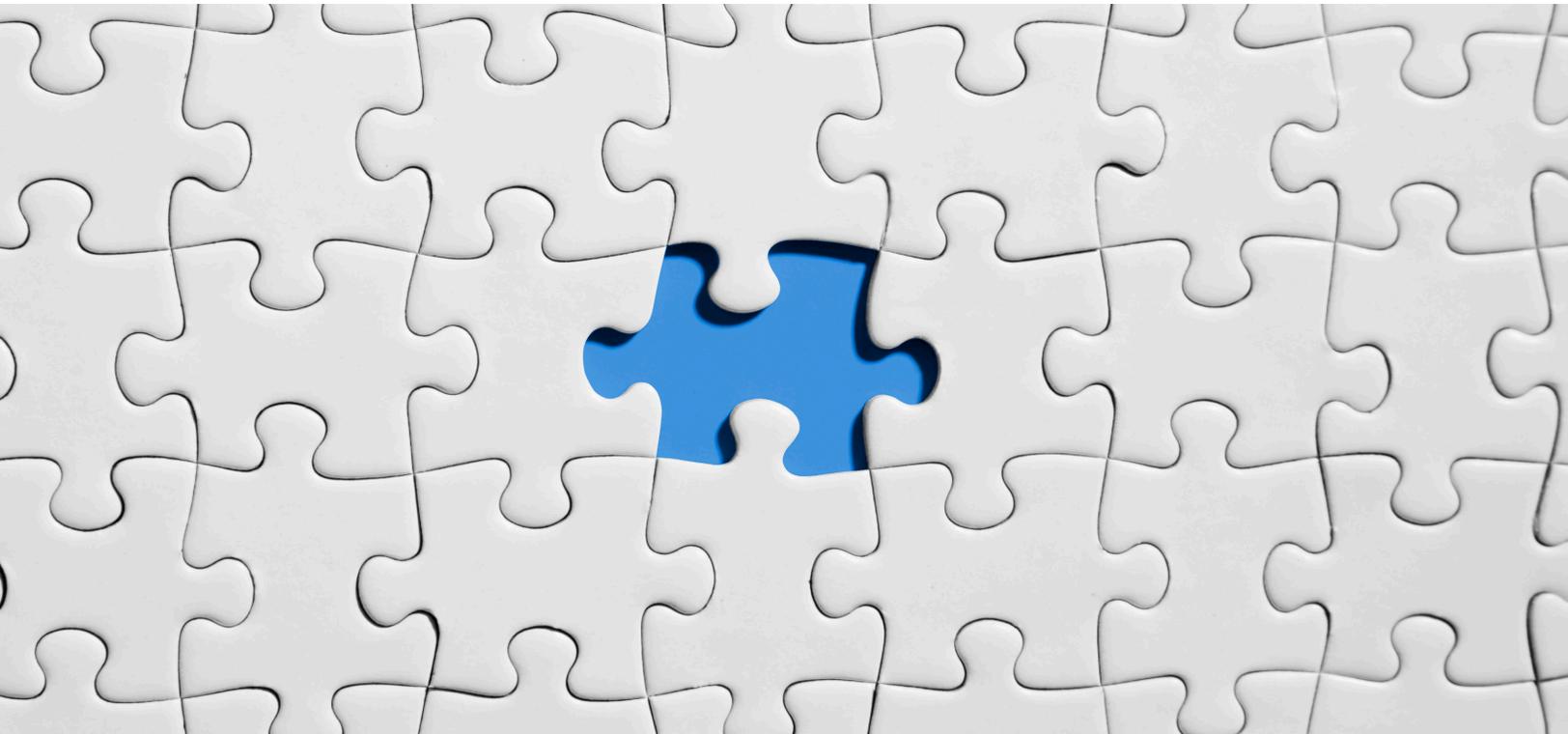


FACTORS INFLUENCING ANATOMY OF DIGITAL FUTURE



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Introduction

When we talk about helping our customers transform the way they do business, through various means, underlying unmissable theme is that we help them progress on the path of digital future. Digital future offers so much for our customers to help them keep innovating and winning. There are varied technology pillars through which we help customers realize their transformational aspirations. However, to distill these facets, we can broadly say that organizations that develop improved capabilities with the below are going to have a definite competitive advantage.

- 1) Delivering digital innovation through software.
- 2) Becoming an intelligent organization.
- 3) Keeping pace with changes within and outside industry.

This theme is getting constant in the way our customers are choosing to transform their business and in a general way, where the industry trends are headed. According to IDC, 40% of a projected \$2 trillion will be spent on enabling the digital transformation.

This requires a closer look at what will constitute the digital transformation. Can we standardize the facets and establish markers that confirm that an organization is digitally transformed? If we dig deep into organizations that already have a robust transformation vision, can we see similarities?

What does IDC say?

As part of their [IDC FutureScape: Worldwide Digital Transformation 2020 Predictions](#), IDC made 10 predictions about how organizations are leveraging Digital Transformation to usher in the Digital Future, compete at hyper-scale, navigate business challenges and meet ever-growing customer demands.

Among other things, IDC predicts:

- 1) Artificial intelligence (AI)-powered enterprises will respond to customers, competitors, regulators, and partners 50% faster than their peers.
- 2) Future of Work (FoW) practices will expand functionality and effectiveness of the digital workforce by 35%, fueling an acceleration of productivity and innovation at practicing organizations.
- 3) 60% of companies will have aligned digital KPIs to direct business value measures of revenue and profitability, eliminating today's measurement crisis where DX KPIs are not directly aligned.
- 4) 65% of organizations will aggressively modernize legacy systems with extensive new technology platform investments through 2023.

Considering these predictions and the what we distilled earlier about delivering innovation and being an intelligent organization, there are true parallels. Innovation in the form of AI and modern infrastructure is going to be the foundation on which all future intelligent applications will be built, leading to increased effectiveness of the workforce and better measurement standards.

A study shows that the global digital transformation market is expected to grow at a CAGR of 24.3% from US\$ 445.4B in 2017 to US\$ 2,279.4B by 2025. (<https://prn.to/2SOvIFt>)

As we scrutinize the digital revolution we are undergoing, there are key markers that identify with and are poised to change the anatomy of the digital future. They are the 12 C's that characterize and embody, partially or in full measure the nature of digital transformation.

Connected – Devices, people, networks

Look at how technology is aspiring to drive human progress. In healthcare, a hand-held device can scan a patient and directly send data to an analytics platform, which then gives real time insights to doctors. In education, children in remote areas access articles and study materials through a tablet connected to a centralized repository. All of this is now possible due to connected everything. We have or are in the process of realizing that the opportunities for Internet of Things (IoT) are endless to generate data that can then give insightful analysis about the business. These devices sit at the edge of the network, many times even in the hands of customers. It is not just about the device though; people are getting connected faster than ever. For example, a customer can remotely monitor the status of his car repair with his device and query the garage in real-time through connected networks.

As mentioned, an key ingredient of the digital future is the ability to provide innovative services with intelligence built in. Connected devices, people and network form the bedrock of that engagement that will not only lead to better customer experience but truly transform that experience.

As we move forward, we will see increased efforts on integration and standardizing the IoT platform and a distillation in what and how a business objective is to be achieved by using IoT.

Cognitive Intense – Drive greater value from cognitive insights

Cognitive functions are basically those performed by the human brain, i.e. learning, language processing, logical reasoning. Do we have technology mature enough to support cognitive functions? Not quite. However, though yet to mature, we are seeing rapid progress on this front. This is being achieved through Natural Language Processing (NLP), AI and Deep Learning. Google's newly launched assistant is a great example of an application's cognitive enable it to talk to other human beings and schedule meetings and appointments. It understands the nuances of language which means that the cognitive function goes well beyond treating them as a group of letters. IBM Watson is also a step in this direction. It analyzes millions of data sets to arrive at customized treatment plans for cancer patients

The capabilities of a human brain are endless. Now think about an application having the same ability to not just process the data, but also understand it. With these technologies, we can take massive sets of data generated and run them through cognitive technologies that can give us predictive analysis of failures and give us insights that enable us to make better decisions.

Collaborative – Vendors, technologies, industries

We live in an open everything world. If you want to succeed and fast, you cannot spend time to build the infrastructure as it is a fairly time consuming process. You collaborate across vendors, effectively creating a partnership that furthers the goals of digital transformation for both organizations. Next generation technology adoption is based on openness and the ability to collaborate and integrate with third party vendors.

Take an example of a bank that asked the customer for Know Your Customer (KYC) as part of Customer Due Diligence (CDD). Everyone agrees that if the process is streamlined, it will be a much better customer experience. Can we look at collaborating with Government agencies that already have the data and use that data instead (within the law, of course)? Considering how data has become the lifeblood and most critical asset for an organization, can the bank in question afford to not share the data across functions and business lines and instead ask the customers for the same data again? The ability to combine and organize all of the customer's data in a single cohesive view that gives actionable insights is the need of the hour.

The above example illustrates the fact that collaborative attitude, technology and acumen across business lines, functions or even industries are critical to providing differentiated service to customers and become a true champion of transformation. Most mature organizations that achieve the goal of a digital future will have what Jason Meserve of BMC called the 'secret sauce to collaboration*' (<https://www.bmc.com/blogs/digital-transformations-secret-sauce-collaboration/>)

Confidence Designed in – Engineered, Designed and Supported as one

Organizations are looking to consolidate the existing spheres in which they operate and expand or transform their business operating structure with innovative services that customers demand. Legacy infrastructure will not be able to cope with this. Organizations will need agile infrastructure that gives them IT as a Service (ITaaS), flexibility to plan their business and an infrastructure that is not a bottleneck, but rather a partner in helping them achieve business objectives.

Imagine a scenario where you are managing a legacy 3 tier infrastructure and are required to reach out to multiple vendors if something goes wrong. That takes essential time, resources and efforts when it could have been better used in productive activities.

The infrastructure of the future will have confidence built in, i.e. performance guarantees that come from a simple architecture, flexible and rich data services that come from an enriched software stack and integrated everything, from cloud to data protection.

All the essential components of a data center are being made logically smaller to enable a Data Center as a Service (DCaaS) offering that greatly enhances flexibility and productivity and the ability to respond to changes.

Continuous – Data and Connections

The transformation that we see today may look like it has an end point. But understand this, when internet first arrived and many organizations created websites, it was a transformation for them. However, that technology changed to enable more business drivers such as online applications and payments.

It changed even more with mobile computing. The truth is, a digitally transformed company cannot have an end point in their transformation journey. Sure, you may see ebb and flow, phases of being conservative followed by being aggressive with the plans, but they continuously transform. In fact, as we grow, the transformation cycles are going to be more frequent with less time in between them.

So, having a digital strategy that continuously changes to reflect the current changes in technology landscape will be the hallmark of the digital future.

Cloudy – Some Form of Cloud Consumption

Most IT organizations and their current infrastructure are designed to support the most mission-critical workload. For a Bank, it can be a mainframe application, for a Database company OLTP transactions. The point is, all organizations adopt an infrastructure approach that underpins their business-critical needs. Cloud as platform has become a mature technology, not just to support newer formats of application development, but to leverage the power of virtualization. Cloud is a very broad concept, with different architectures, components, administration and chargeback models. The same set of hardware that used to support 10 business-critical functions can now support 25 such applications as resources are dynamically allocated on-demand. It offers a level of scale and speed not possible before, the primary use case being moving from a CapEx model to an OpEx model. This leads to the most definitive transformation where the customer consumes resources but does not really have to bother about maintaining or supporting the underlying hardware.

With maturity, integration and consolidation, major players are offering multiple cloud consumption models based on customer-specific workloads and application requirements. Public Cloud, Private Cloud or a combination of both (Hybrid), increasing adoption of clouds for data protection and as a secondary disaster recovery destination have all driven the value of cloud away from the traditional CapEx/OpEx argument to something that delivers real business value.

For the digital future, it is undisputable that most organizations will have a robust cloud strategy.

Contained Based – Modular engineered components connected through microservices

A recent study says that 15% of all new enterprise IT applications are cloud-native, a figure set to grow to 32% by 2020 (<https://bit.ly/2NO9ZH4>). Containerization basically means an OS-level virtualization method to deploy and run distributed applications without having to provision entire VM for the application. This allows multiple applications to run separate and independent of each other while accessing the host's OS kernel at the same time. There are various technologies to develop containerized applications, i.e. Docker, where the brains of the system lie in the container – orchestration methods. As we look more and more towards developing applications in cloud (cloud native) completely making the underlying hardware and the application disconnected from each other, containerized applications and Kubernetes will be an integral part of the application development strategy.

Transforming legacy applications to run in the cloud with a microservice architecture, stateless applications and serverless application development are the areas that will drive adoption of containerized applications.

Business is changing fast and an agile organization operating in digital times will have to adapt their software development cycles to keep pace with the changes.

Cloud Native – Design, Deploy and Support in Cloud

The existing legacy software are highly interdependent on its component functions, causing major disruptions and application shutdowns even for minor changes. That is not the way the software is to be developed if they are to run in the ultra-fast and ultra-agile business models. Cloud native technology transforms the legacy highly coupled monolithic architectures to loosely coupled systems that are less interdependent enabling rapid scalability and upgrades. As per VMWare (<https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/products/cloudnative/vmware-accelerate-digital-transformation-through-cloud-native-application.pdf>), below characterizes a cloud native application:

- 1) Composed of Microservices.
- 2) Packaged in Containers.
- 3) Rapidly (Re)Deployable in a continuous delivery model.

For organizations of the future, the cloud native applications will form the bedrock of automating routine tasks, minimizing downtime while patching and essentially free up IT to be able to focus on driving innovative goals that support the business outcomes.

This will move the concept of relying on infrastructure availability to ensure application uptime to the application itself ensuring that it is always up, decoupling it from the underlying hardware.

Comprehensive – Spans the entire enterprise decision tree

Organizations of the future will not rely only on transforming their infrastructure. To achieve holistic Digital Transformation and to see how the future will look from a transformation perspective, we need to look at transforming the entire Enterprise Decision Tree.

Organizations are finding synergy with the strategy of Dell Technologies to transform their infrastructure which includes:

- 1) IT Transformation.
- 2) Application Transformation.
- 3) Security Transformation.
- 4) Workforce Transformation.

This is a holistic approach to transformation in the sense that it is very comprehensive. Organizations of the future will not have siloed transformations in some areas while continuing to push transformation in the others. The great thing about this will be that it will be all-encompassing and will affect every vertical of the Enterprise Decision Tree.

Colossal scale – Supports big data, and performance with scale

Forbes's Daniel Newman writes " Big data allows companies to make meaningful, strategic adjustments that minimize costs and maximize results. If you know what consumers and employees are doing currently, you can create projections for what they will do in the future and start implementing changes to address their needs and your goals. A digital transformation isn't complete unless a business adopts big data."

More and more organizations of the future will leverage data, and lots of it to drive business-critical decisions. The infrastructure of the future will support analysis and processing of huge amounts of data generated from all over the ecosystem to give insights that drive change to or adoption of a new policy.

Leveraging data to gain meaningful insights should be taken as a long-term goal and be treated as such. The higher the velocity and variety of data, the more insights it can provide. It has the potential to drive changes in strategy, minimize costs, enhance employee productivity and come with policies to retain customers.

Complexity Reduced – Automate and reduce cost

This brings us to basically calling out the benefits the previously discussed points will lead us to but will remain important markers for a transformed organization operating in digital space. With Cloud Native, Containerized applications will lead to automation of many routine tasks and reduction in costs as intelligent systems will take care of the work that had been done manually or semi-manually before. Adoption of Cloud as a business strategy is finding resonance with customers and has unlocked the tremendous power of virtualization further driving down CapEx.

Change Adept – Flexible and Effective

All the above will enable the organization to respond to change and view it as an opportunity and not a challenge. The infrastructure, Users, Applications and the overall security is transformed to enable the organization to be effective and create a distinct competitive advantage.

Conclusion

If you look at a cross-section of the organizations that have already matured in their digital transformation journey, you will find similarities in what we discussed and what they are implementing. For an organization to succeed in the digital future, they may adopt a variety of measures depending on the industry verticals and their type of customers, but when all of them are distilled, you will find them falling under any one of the above buckets as we discussed. These constitute the basic tenets of what the digital future will look like and work on.

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