DEPARTMENT OF MANAGEMENT STUDIES
23PM6101 DIGITAL TRANSFORMATION IN BUSINESS AND SERVICES
COMMON TO CSE & IT
MODULE
UNIT - I INTRODUCTION

Business process transformation, Product or service digitalization, customer engagement and experience, ecosystem and business model, IT delivery and transformation Digital disruption, Technological developments leading to digital innovation- Artificial Intelligence, Machine Learning, Deep learning, IOT, Block chain, Social computing

1.1 Digital Transformation

Digital transformation is the process of using digital technologies to create new — or modify existing — business processes, culture, and customer experiences to meet changing business and market requirements. This reimagining of business in the digital age is digital transformation.

It transcends traditional roles like sales, marketing, and customer service. Instead, digital transformation begins and ends with how you think about, and engage with, customers. As we move from paper to spreadsheets to smart applications for managing our business, we have the chance to reimagine how we do business — how we engage our customers — with digital technology on our side.

For small businesses just getting started, there's no need to set up your business processes and transform them later. You can future-proof your organisation from the word go. Building a 21st-century business on stickies and handwritten ledgers just isn't sustainable. Thinking, planning, and building digitally sets you up to be agile, flexible, and ready to grow.

As they embark on digital transformation, many companies are taking a step back to ask whether they are really doing the right things. Read on for answers.

1.2 Digitisation is the move from analog to digital.

Not so long ago, businesses kept records on paper. Whether handwritten in ledgers or typed into documents, business data was analog. If you wanted to gather or share information, you dealt with physical documents — papers and binders, xeroxes, and faxes.

Then computers went mainstream, and most businesses started converting all of those ink-on-paper records to digital computer files. This is called digitisation: the process of converting information from analog to digital. Finding and sharing information became much easier once it had been digitised, but the ways in which businesses used their new digital records largely mimicked the old analog methods. Computer operating systems were even designed around icons of file folders to feel familiar and less intimidating to new users. Digital data was exponentially more efficient for businesses than analog had been, but business systems and processes were still largely designed around analog-era ideas about how to find, share, and use information.

1.3 Digitalisation is using digital data to simplify how you work.

The process of using digitised information to make established ways of working simpler and more efficient is called digitalisation. Note the word established in that definition: Digitalisation isn't about changing how you do business, or creating new types of businesses. It's about keeping on keeping on, but faster and better now that your data is instantly accessible and not trapped in a file cabinet somewhere in a dusty archive.

Think of customer service, whether in retail, field ops, or a call center. Digitalisation changed service forever by making customer records easily and quickly retrievable via computer. The basic methodology of customer service didn't change, but the process of fielding an inquiry, looking up the relevant data, and offering a resolution became much more efficient when searching paper ledgers was replaced by entering a few keystrokes on a computer screen or mobile device.

As digital technology evolved, people started generating ideas for using business technology in new ways, and not just to do the old things faster. This is when the idea of digital transformation began to take shape. With new technologies, new things — and new ways of doing them — were suddenly possible.

1.4 Digital transformation adds value to every customer interaction.

Digital transformation is changing the way business gets done and, in some cases, creating entirely new classes of businesses. With digital transformation, companies are taking a step back and revisiting everything they do, from internal systems to customer interactions both online and in person. They're asking big questions like "Can we change our processes in a way that will enable better decision-making, game-changing efficiencies, or a better customer experience with more personalisation?"

Now we're firmly entrenched in the digital age, and businesses of all sorts are creating clever, effective, and disruptive ways of leveraging technology. Netflix is a great example. It started out as a mail order service and disrupted the brick-and-mortar video rental business. Then digital innovations made wide-scale streaming video possible. Today, Netflix takes on traditional broadcast and cable television networks and production studios all at once by offering a growing library of on-demand content at ultracompetitive prices.

Digitisation gave Netflix the ability not only to stream video content directly to customers, but also to gain unprecedented insight into viewing habits and preferences. It uses that data to inform everything from the design of its user experience to the development of first-run shows and movies at in-house studios. That's digital transformation in action: taking advantage of available technologies to inform how a business runs.

1.5 First, understand what's possible with digital transformation.

A key element of digital transformation understands the potential of your technology. Again, that doesn't mean asking "How much faster can we do things the same way?" It means asking "What is our technology really capable of, and how can we adapt our business and processes to make the most of our technology investments?"

Before Netflix, people chose movies to rent by going to stores and combing through shelves of tapes and discs in search of something that looked good. Now, libraries of digital content are served up on personal devices, complete with recommendations and reviews based on user preferences.

Streaming subscription-based content directly to people's TVs, computers, and mobile devices was an obvious disruption to the brick-and-mortar video rental business. Embracing streaming also led to Netflix looking at what else it could do with the available technology. That led to innovations like a content recommendation system driven by artificial intelligence. Talk about making the most out of your IT department!

1.6 Adapt your business to leverage digital transformation.

Similarly, digital transformations have reshaped how companies approach customer service. The old model was to wait for customers to come find you, whether in person or by calling an 800 number. But the rise of social media has changed service much like it's changed advertising, marketing, and even sales and customer service. Progressive companies embrace social media as a chance to extend their service offerings by meeting customers on their platforms of choice.

Making call centers and in-store service desks run more efficiently with digital technology is of course great. But real transformation comes when you look at all available technologies and consider how adapting your business to them can give customers a better experience. Social media wasn't invented to take the place of call centers, but it's become an additional channel (and opportunity) to offer better customer service. Adapting your service offerings to embrace social media is another good example of a digital transformation.

But why stop there? As we mentioned earlier, digital transformation encourages businesses to reconsider everything, including traditional ideas of teams and departments. That doesn't necessarily mean tapping your service reps to run marketing campaigns, but it can mean knocking down walls between departments. Your social media presence can encompass service and marketing, tied together by a digital platform that captures customer information, creates personalised journeys, and routes customer queries to your service agents.

1.7 Business Process Transformation

Business Process Transformation involves radically changing the elements of your processes to meet new business goals. Usually, these new goals are centered around a new digital transformation implementation.

Most companies engage in business process transformation when they need to make a drastic update to existing processes. Using this process transformation methodology, you can modernize your processes, incorporate new technology, save costs, and better integrate your core systems.

Business process transformation is part of the larger concept of business process management (BPM).

1.8 Steps in business process transformation

Business process transformation follows similar steps to business process management but attempts to make bigger and more drastic changes.

- **Identify the goals of the transformation**. Are you primarily trying to upgrade systems? Incorporate new technology? Adapt processes to a new organizational structure? What has caused the need?
- **Establish baseline metrics. Collect the data needed to show that your business process** transformation will be successful. Think through cost, time, number of errors, and other metrics you can measure.
- **Bring in all stakeholders**. Ask all those involved in the process for their feedback on what worked well in the prior process and what they expect out of the new one.
- **Map out the best scenario**. Using a diagramming tool, create the ideal workflow path including human and system tasks that need to take place.
- **Implement in a testing environment**. Use a BPM tool to create a mock process and see how it runs between people and data.

- **Set live and monitor**. Include small teams at first to the new process and closely monitor the progress and any changes that need to happen for the process to succeed.

1.9 Challenges in Business Process Transformation

As with any huge paradigm shift, business process transformation creates a number of challenges that must be resolved in order to succeed.

One is weak sponsorship engagement. Throughout the entire lifecycle, from inception to development and deployment, you'll need strong sponsorship from a person who will not only champion your requirements, but also be patient enough to wait for the results to manifest. Without strong sponsorship, it can be more than a challenge to complete the transformation process.

Change management practices are another challenge for business process transformation. As inefficient as your old process might have been, you will always have people who prefer "the way we used to do it". As a part of implementing a business process transformation, you need to use good change management principles to bring everyone along.

Integration challenges can be significant. If you don't choose the right BPM platform, you may be very limited in what you can integrate with other software. You may realize from the beginning how challenging it will be to link to different platforms.

Finally, missing key objectives is a big challenge. Many business process transformation efforts end up only digitizing a process and have no noticeable effect on the efficiency of the process. Don't settle for a dressed up version of your old process. Make sure your successes are clearly defined.

1.10 Apply Business Process Transformation

You should apply business process transformation in the following cases:

- When an existing process is not meeting the demands of the business
- When you have a significant number of errors in a process
- When you've updated the surrounding technology
- When your existing corporate organization no longer makes sense

How British Airways Soared To New Heights

British Airways has always been one of the top players in the airline industry. But they were facing the crunch when budget airlines started offering seats at dirt cheap price for customers who were mostly concerned about cost.

British Airways found that by transforming their processes to a digital base, they could ease the stress on employees and create less hassle for customers when it came to booking tickets, printing boarding passes, and managing reservations which gave passengers a highly distinguished difference between them and the competition. This ease of use justified the higher fares, since they were offering a greater level of convenience that customers were willing to spend on.

The electronic process transformation resulted in greater self-service models and an extremely simplified process. The transformation actually resulted in eliminating several processes which had unnecessarily complicated the process for customers.

Start Your Transformation with Kissflow

Kissflow can be a big help to make your business process transformation a lot easier. You can map out your new processes and bring digital transformation to processes that are archaic and need upgrade. With easy integrations and automated tasks, it's the perfect platform to automate your processes in a way that transforms the way you work.

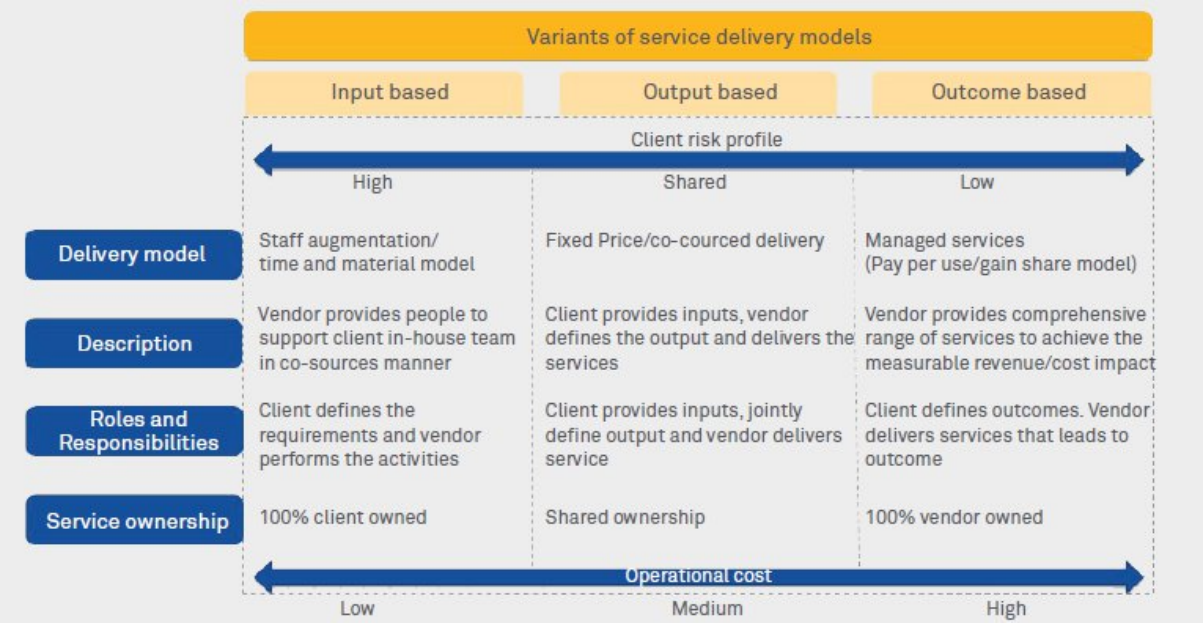
1.11 How to succeed in business process transformation by choosing the right implementation model.

Business process transformation is the buzzword being discussed in every boardroom. It is aimed at reshaping an organizations outdated processes into a robust business model for long term benefits. According to Gartner, eighty-seven percent[1] of senior business leaders callout process transformation as their company's priority. As per Zinnov market study[2], automation is recognized as the mainstream for transformation with a growth potential from $2.3 Bn in FY 2019 to $11 Bn in 2024, at a CAGR of thirty five to forty percent. Despite the hype around automation transformation trends, organizations recorded that adoption rate is dawdling with two out of three[3] transformational initiatives being unsuccessful or not meeting revenue expectations from digital efforts.

Changing times from input to output to outcome-based services

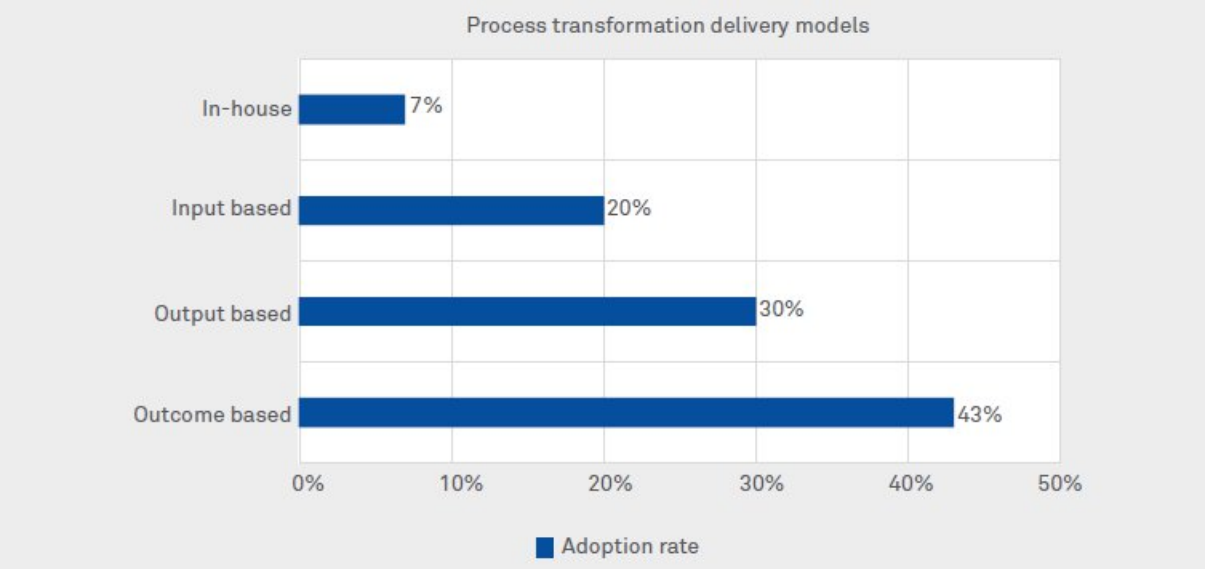
With process transformation as the need of the hour, organizations are taking rapid but staggered implementation approach across the business functions with disparate automation platforms and solutions from multiple vendors. Some organizations have taken a lead to manage this internally by starting from scratch building an in-house team, setting up practices/policies, investing in software/ hardware infrastructure and maintenance. In a complex scenario of implementation with multi-vendor ecosystem, organizations face continuous challenges in measuring outcomes and managing risks that impact the pace and extent of automation adoption. Accounting for multiple challenges, the secret mantra for successful transformation program lies in the realm of augmenting right implementation model for maximized value at lower cost and risk.

Over the past decade[4], outsourcing industry has seen a significant evolution in service delivery models with the value proposition shifted from cost to delivering business outcomes where the perspective of outcome depends on CXO's vantage point. The variants of service delivery models that have evolved and are widespread in the industry are described below (Figure 1).



With emerging service delivery models, in our experience, majority of transformation implementations are supported by third party service provider with approximately forty three percent outcome/managed services, thirty percent fixed price/time and material, twenty percent

people support and remaining seven percent in-house. This is a notable data trend which shows organizations are transitioning from traditional to managed operational model in terms of effort and investment (Figure 2).



Comparison of service delivery models and best fit			
Parameter	**Input based**	**Output based**	**Outcome based**
Cost of Implementation (delivery cost, infra cost, resource cost, maintenance cost, training cost)	High	Medium	Low
Customer risk profile	High	Medium	Low
Time to market	Slow	Medium	Fast
Flexibility in solution/customized solution	Low	Medium	High
Newer technology adoption	Low	Medium	High
Scope of implementation	Small	Medium	Large
Service provider accountability	Low	Medium	High
Visibility and control in business	High	Medium	Low
Scalability	Low	Medium	High
Benefit realization	Slow	Medium	Fast
Focus on core process	Low	Medium	High

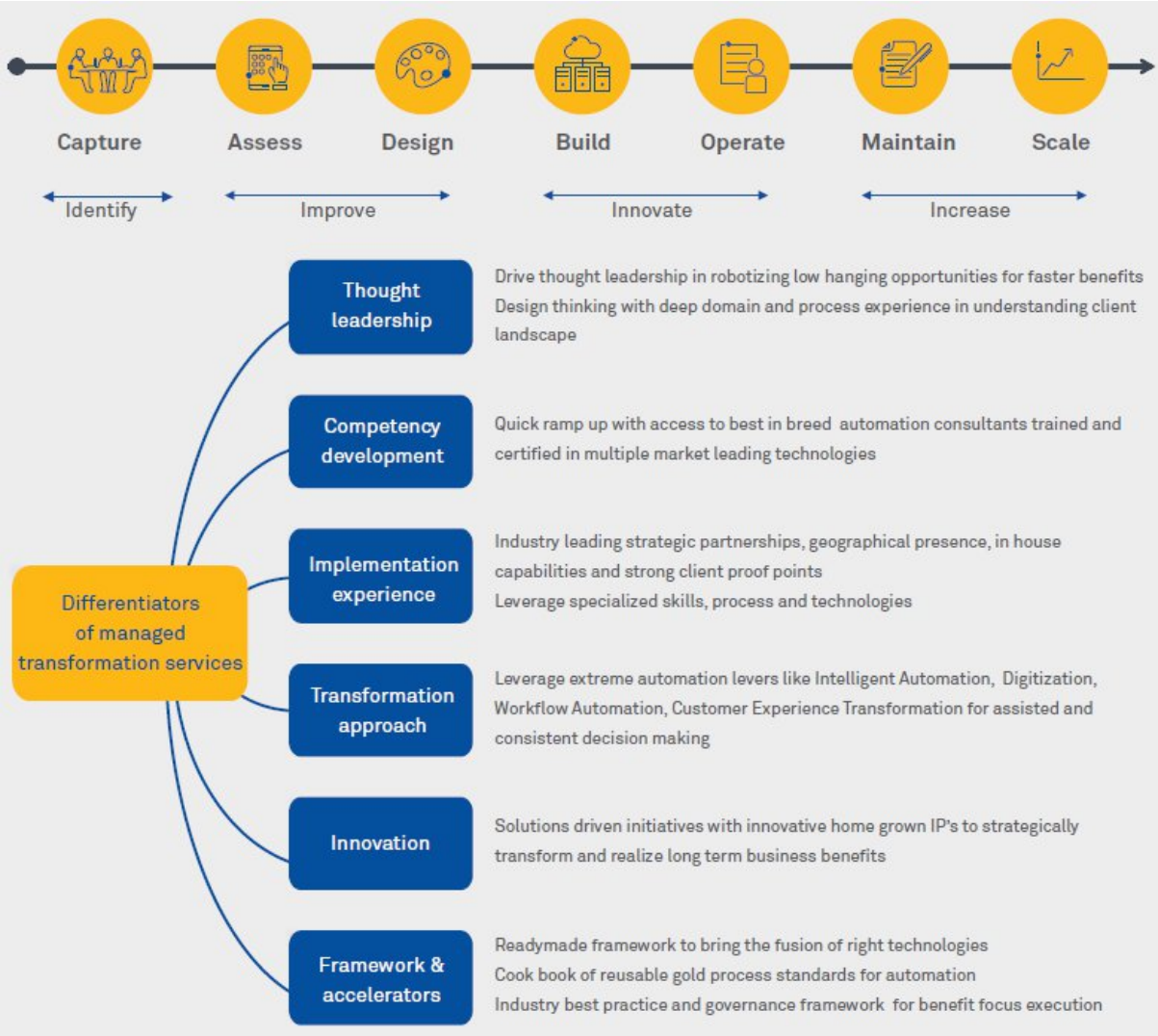
In the process of transition or adoption of delivery models towards managed transformation, organizations should be open to bolder, broader and cohesive enterprise wide initiatives as the benefits of a digital workforce should be evaluated across the whole organization, not just in functional silos. Most companies now seem to be recognizing this.

Approach towards managed transformative services

In the beginning, managed services was created primarily to support infrastructure support. In today's competitive world with the growing need for disruptive technologies, managed service provides end- to-end cutting-edge solutions that help to make a major impact in all areas of the

business, including output and revenue. The key differentiating factor of managed transformation implementation is the unified actionable framework, which leverages multiple technologies and solution levers, such as 'Simplification', 'Automation', 'Intelligence', and 'Immersive Experience' for accelerated time to value and ultimate scalability.

Managed services framework follows a matured seven step approach methodology (Figure 4), which is derived based on the in-depth experience gained from multitude of process automation & transformation engagements. The approach methodology breaks down the delivery activities into seven dimensions aligning to the core mantra of Identify, Improve, Innovate and Increase. By embracing managed transformation framework, organizations are enabled to operationalize the whole nine yards of implementation attributes that offer the customers measurable and time bound outcomes with better control and transparency.



Experimentation to transformation: A path forward with managed services

Many organizations that had started process transformation by treating it as an experiment are now facing challenges in realizing benefit expectations with a staggered and a piloting approach. Maximizing the impact of automation requires a committed shift in mindset and an approach from experimentation to enterprise wide transformation.

To fully harness the potential of process automation and transformation, organizations are recommended to gauge managed services that will not only deliver straight forward business benefits with high levels of experience driven operational integration and scalability, but also let organizations to focus on their top strategic priorities, such as core business growth, design thinking, and value creations.

1.12 Product Digitization

Technological advancements have disrupted the traditional methods of business operations. Now, artificial intelligence, IoT, robotics are being used to create advanced and more sophisticated machines that are safer and have higher production capacity. Similarly, the digitalization of various business aspects has started happening to reap the maximum benefits of digital technology. One of these aspects is product digitization.

Product Digitization Meaning

Product digitization means adding the digital capabilities to physical products so that product buyers can interact with the product and get information in digital format. It is achieved by putting scannable codes on the product or product packaging. Buyers can scan the code using their smartphones and access the product information on their phone screen. Product digitization converts physical products into digital gateways to convey the right marketing message at the right moment.

Benefits of product Digitization

Digitizing any aspect of business helps you to collect more and more of business data. Similarly, product digitization helps you to collect the data of all the stakeholders involved in the product's journey. And data has become the foundation in taking any business to the path of success.

The increasing number of smartphone users and the capability of scanning the QR codes through the native camera in iOS and many Android phones, has made QR codes very popular. From making payments to checking into events, QR codes are being used everywhere, and millennials prefer to scan these codes to do things faster and error-free. This popularity of QR codes makes placing QR codes on product items, a very efficient and economical way of product digitization.

1.13 Key benefits of product digitization:

- **Generate Trust in Consumer's mind with Product Journey and Story** Brands can show product journey and story on the scan of product code; this helps in increasing customer's trust in the brand.
- **Convey dynamic information to your users** – Product digitization presents an opportunity to show dynamic content to the users without the need for change in the product codes. For example, Brands can display information in regional languages based on the scan location. Brands can also showcase new/related products on the product information page.
- **Collect and access product interaction information in realtime** – With the help of product digitization, brands can collect user data in realtime, and this data can contribute to making crucial business decisions. Product digitization also enables products to participate in marketing automation.
- **Protect your brand against counterfeiting** – Product digitization can protect your products fro counterfeiting if the product codes are clone-proof.

- **Enhance your supply chain visibility and prevent diversion** – The same product codes can also help in supply chain management and preventing the diversion by flagging any anomalies in product code scan geo-location if the backend software platform is equipped with such capabilities.
- **Customer engagement** – Product digitization opens new channels to engage users. Product codes can be used to run loyalty programs and re-engage the users for repeat sales.
- **Good for the environment** – Another very important benefit is that product digitization helps brands to go greener by helping them to save paper on printed media.

1.14 What not to do in product digitization

Brands need to keep in mind that user experience is of utmost importance. Product digitization does not mean just putting a scannable QR code/NFC on your product. If a poorly maintained website opens or users see irrelevant information on product code scan, then product digitization can actually be damaging. So the brands need to be sure that their product digitization backend software is flexible and works smoothly.

Product digitization with NeuroTags

With the help of its AI-backed, foolproof dual-tag technology, NeuroTags is helping consumer brands to digitize their product items. To achieve this, NeuroTags provides algorithmically coupled codes to the brands. Brands need to apply these codes to their product items, in the form of either QR code or NFC.

NeuroTags provides a straightforward platform for brands to manage the content that they want to show on their product code scans. Brands can see the report of all the product scans and important data analytics in NeuroTags dashboards.

1.15 Capabilities of NeuroTags dual-tag technology

- **Anti-Counterfeiting** – Buyers can check the product authenticity before purchase resulting in increased trust in the brand.
- **Integrated Loyalty Engine** – Brands can offer loyalty rewards to product buyers when they scan the post-purchase tag. Loyalty programs increase customer retention.
- **Digital warranty management** – Buyers can register and claim the warranty by scanning the product code. This provides better user experience and better brand image.
- **Supply chain management** – NeuroTags dual tags also help in bringing supply chain visibility and protection of diversion.
- **Marketing automation** – NeuroTags AI-backed platform also helps in marketing automation by collecting customer data through post-purchase tag registration and reaching out to them with the right marketing message at the right time.

Consumer brands should start working towards product digitalization as it provides an effective path to win consumer trust and loyalty. Millennials are the majority of current and future consumers of products and innovation, and they are more approachable and influenced by digital than the traditional.

1.16 Five Steps To Digitizing Your Product

Businesses today are experiencing a significant shift in the way they produce and distribute goods. This new wave is called Industry 4.0 and is characterized by automation and data exchange. These, in turn, are made possible by connecting physical objects and digital assets, implying the need for digitalization.

The blurring of boundaries between the offline and online worlds is part of the digitalization process — and it's changing business models as we know them. No enterprise that produces goods can escape the disruption that Industry 4.0 brings. Different industries need to embrace digitalization, from farming to fashion, to make the most out of technologies like the Internet of Things and big data analysis.

It may be challenging to imagine digitizing a product, though, mainly using traditional or natural production methods. How do you put a digital stamp on organically grown tomatoes? How can you turn a wheel of cheese into a digital asset?

This line of thinking comes with a misconception about digitalization. Digitalization is not just about adding digital information to a physical good. It's about transforming your business model, operations, and supply chain. Gartner defines digitalization as "the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business."

Below, we'll talk about the steps you need to take to digitize your products:

1. Identifying goals for digitalization
2. Physical aspect
3. Embedding
4. Enabling
5. Making use of the data

Why you need to digitize your products

According to PwC, a highly digitalized supply chain and operation can bring companies efficiency gains of 4.1 percent annually and boost revenue by 2.9 percent per year.

A digital supply chain gives you a competitive advantage in many ways. One is that it allows you to track and trace your products as they move from producer to buyer to distributor until it reaches the end consumer.

Armed with such data, enterprises can identify trends and anomalies, improve supply forecasts, and spot inefficiencies and bottlenecks in the manufacturing and distribution processes.

You will know exactly where products are in the supply chain, whether they're making a journey across an ocean or being held up at customs. You can understand where products are purchased or quickly identify batches of defective goods. You can identify warehouse operators that fail to store goods at the correct temperatures or shipping partners that send items to the wrong destination.

Another reason to digitize your products is simply that digitalization is inevitable. That means that it's an expensive risk to wait and see what everyone else is doing as an enterprise. The most strategic step is to adopt digitalization now. As Ernst & Young points out, "it has been established that disruptive technology deployment has been one of the most effective ways of gaining competitive advantage, increasing efficiency, and driving business growth."

How to digitize your product

As we've discussed, digitalization is not just about connecting a physical good to a digital asset, but that is part of the picture.

Different companies may vary in how they implement digitalization, such as the physical tools they use and the choice to integrate blockchain into the process. But there are essential steps to digitizing products.

1. Identifying your goals for digitalization

When identifying goals for digitalization, look beyond supply chain managers. Consider your entire operation and discuss digitalization with different departments. What types of data insights do marketing, category, and brand managers need? How can digitalization help with gathering these data or deploying strategies relevant to these insights?

For example, category managers might be dealing with a surge of counterfeits that ruin their brand reputation. Digitalization can help sellers and consumers identify authentic products by scanning a non-reproducible QR code.

A multinational convenience store chain might not know who is buying their prepared meals. They can integrate digitalization into their existing app. Users of the store's app can scan the packaging of the ready meals to pay online or score points. Because the users are registered on the app, this simple scanning gives marketing managers insights into the types of consumers who are buying their prepared meals in different countries.

2. Physical aspect

The first step is determining the most suitable way to place a digital asset on your physical product. The most obvious answer might be the product packaging, as it offers printable space visible to people working along the supply chain and end consumers.

If it isn't practical or feasible to print directly on the package, the next solution would be to use printed labels or product tags.

3. Embedding

The next step is to add a tamper-proof physical unique identifier on the physical aspect. This usually comes in a barcode, a QR code, a complex sequence of numbers, or a sensor tag — or a combination of two or more of these.

The critical step here is to make sure that the digital ID is not easily replicable so that you can avoid counterfeits and fraud.

One way to do this is through 3D-printed, readable sensor tags. You can also use secured QR codes that lose detail when copied, which means reproductions won't work.

4. Enabling

To do this, you need to register and activate the tamper-proof physical unique identifier digitally. The digital ID should then be connected with the appropriate digital asset by entering it into a database or blockchain. This transforms the physical good into digital data. A shampoo bottle is no longer just a bottle of shampoo; it is a digital record in your system.

Cloud registration creates a record of the identifier and associates it with all the data that belongs to it. On the other hand, registration in a blockchain creates an immutable digital twin. The identifier effectively "lives" in a blockchain and can no longer be modified.

5. Making use of the data

A company may have massive amounts of data but still fail to improve its operations, customer service, and bottom line. That's why the digitalization process is incomplete without data analysis.

To thrive and compete in the era of Industry 4.0, businesses need to track, monitor, and analyze product-related data to optimize supply chain management and improve the customer experience. That means a digitalized supply chain must also come with business intelligence capabilities.

The types of metrics that your business intelligence tool reports would depend on each department and its goals.

For example, you can track:
– Length of time between order placement and delivery
– Number of goods delivered in a day
– Damage rate (and where, within the supply chain, the damage occurred)
– Product freshness (for perishable goods)
– Product return rate in each location
– Number and location of users that scan the product code
– Actions taken by users on a customized app after scanning the product code

Key considerations when digitizing your products

If the steps to digitalization seem straightforward, *how* you implement them is another story. There are plenty of aspects to consider when transforming your supply chain process.

Some are relatively simple questions to answer, while others can make or break your digitalization efforts.

What will you digitize?

Can you digitize every single item, or do you need to focus on batches?

For example, it's impractical to digitize every single coffee bean or every piece of grape. Consider grouping them instead into harvest date, source, and other classifications that make sense for the product.

Or, if you're dealing with beverages, you can classify them by brew batch or bottling date. Non-perishable goods can be classified according to which factory produced them and when they were manufactured.

How will you keep the data secure?

Data on your products and their movement throughout the supply chain is helpful for your enterprise and end consumers. However, obtaining transparency in your supply chain requires collaboration and data sharing with parties you don't necessarily trust. For this reason, your digitalization process has to come with tight security measures that allow you to share data with other players along the entire supply chain.

One way to achieve this is through the use of blockchain. Blockchain technology can help you establish a secure and shared single source of truth on a product history with all the parties involved in your supply chain, with no party being in complete control of that information. Different parties can have additional permissions concerning what input and information they can add while still guaranteeing that the data cannot be manipulated afterward.

This ensures that the product history an enterprise or consumer accesses can be trusted not to have been altered since its moment of entry. This enables you to increase transparency, trust, and security in the management of your data.

How will you educate consumers on digitalization?

It's important to develop a plan for educating your consumers about digitization. They'll need to know what to look for and how to interact with the product and what benefits they will gain from doing so.

First, you'll need to determine whether this requires your customers to adopt new technologies and behaviors. For example, your digitalization marketing campaign might rely on customers using a customized app to scan a QR code on your product package. This will determine the extent of the educational marketing campaign that you'll need to undertake.

For example, if you're using QR codes, you'll need to consider if people in your target geography have the habit of scanning products and if they even know what QR codes are in the first place. If you rely on a sensor tag that communicates with a smartphone's Near Field Communication (NFC) capability, you'll need to show consumers how to use that feature.

Next, you'll have to assess whether they can use a generic QR code scanner or if they need to use your app. The former works if you want the customer to find out information, such as the vintage, origin, and backstory of a bottle of wine or the ethical sourcing of cacao beans.

However, that won't give you any idea on who's scanning the codes, perhaps apart from where they are located. Having them sign up for a customized app and use that app to scan the code will allow you to find out more about these consumers, as you will own the data inputted into the app.

The question now is if your consumers are willing to change their habits enough to suit your process. Consider how you can catch their attention by making the QR code look like an attractive pattern and displaying it prominently on the product package.

You can even tie in the act of scanning with fun experiences. AMC Theatres, for example, developed an augmented reality feature in their app to encourage moviegoers to scan posters. Once users scan a scannable movie poster, the app would direct them to that film's trailer and a page to purchase tickets.

It also helps offer an incentive, such as a rewards program or the chance to win a free item to scan the code or use your app.

At other times, the incentive may be a practical one. Johnnie Walker, for example, rolled out printed sensor tags for their Blue Label whisky bottles.

Using their smartphones' NFC capability to read the tags, consumers could find out when the bottle was sealed and opened. This is an incentive because it gives them information that could improve their enjoyment of the drink.

Do you have the skills to roll out a digital transformation?

In a global survey of more than 2,000 respondents from nine major industrial sectors, PwC found that people, not technology, are the biggest challenge to digital transformation.

This echoes the findings of Deloitte, which surveyed respondents from logistics and distribution companies. For 63 percent of the respondents, the difficulty of hiring and retaining people with the right skills was deemed as the biggest barrier to transformation.

Business leaders and the people tasked with implementing new technologies and systems need the right digital qualifications. IT staff will need to understand business operations and goals, and operations teams need to have a working knowledge of programs such as data management and business intelligence software. Companies will need experts in big data, the Internet of Things, machine learning, robotics, and automation.

Leaders also need to convince employees to welcome and adopt a change in processes. For example, employees will need to learn to work with automated machines equipped with sensors to gather data. They'll need to adopt new habits, such as regularly checking reports on metrics and KPIs, identifying data patterns and outliers, and following data security protocols.

How will you implement the system across the supply chain?

One major challenge in digitalization is achieving buy-in from the relevant stakeholders. And once you have their cooperation, you'll need to deploy your system and enforce your standards

across the supply chain. This can involve plenty of subsidiaries and third parties in different countries across two or more continents.

As a result, the digitalization process takes a long time to implement. Even the relatively simple task of printing QR codes on product packages or printing and sticking QR code labels can take three to four months to process. You'll need to coordinate with the packaging supplier, printer, and QR code maker, not to mention supply chain and inventory managers, and data engineers.

Once you complete the planning and deployment phases, you will have in place a system that you can use for many years to come. Digitalization, after all, is a long-term play.

Do you have a plan for maintenance and measurement?

To make the most out of this system, implement clear maintenance protocols and regularly update the system in line with technological developments in your industry. Get feedback from different departments—manufacturing, packaging, distribution, marketing, and other relevant teams—to discover gaps between the system's intended usage and its practical application.

The effectiveness of the system is not limited to its practicality, of course. Go back to your goals for digitalization (see step 1) and see whether you are achieving them. These goals will also guide you in measuring the return on investment of digitalization.

For example, if your goal is to protect your brand from counterfeits, has digitalization helped you achieve this? Have sales of counterfeits dropped, complaints from duped customers lessened, and your brand reputation strengthened? Do customers actually scan the tag or code on your product to verify its authenticity? Keep in mind that specific goals are the first step towards understanding your investment returns.

After adding IoT sensors to its compressed air systems, manufacturer Kaeser Kompressoren captured environmental and performance data and used predictive analytics to avoid unexpected outages. This helped reduce unplanned equipment downtimes by 60 percent and contributed to annual savings of around $10 million in break-fix costs.

The future is digitalization

Digitalization expands the capabilities and lives of physical products by giving them a digital identity. Long after a pack of juice is consumed, its data lives on to contribute insights to companies. Weeks after being harvested and shipped out across dozens of cities, heads of lettuce can help you trace E.coli outbreaks and prevent the spread of infection.

Implementation is complex, but enterprises need to see digitalization as a global strategy. Return on investment must be measured in the medium and long terms. After all, businesses that keep up with technological innovations know that digitalization is inevitable. It's now a matter of adopting it strategically and successfully.

1.17 Service Digitalization

New digital technologies change the ways in which health and social services are organized, produced and used. During the transition, the key is to target the development resources for digitalization wisely.

Our digitalization services help service providers to use new technology appropriately and to allocate development resources to targets where they provide the most optimal operational benefit. We help our clients generate permanent benefits in terms of the availability, quality, efficacy and costs of services.

In a typical project, we prepare a digital strategy and a development roadmap for the client. Our expertise lies in the conceptualization and design of technology-aided service production and digital services as well as the definition and the governing in the implementation of information system projects. Understanding digital services' and their impact is intertwined with our entire strategy and development work.

Digital public services are an imperative. The private sector has raised the bar on the customer experience, and people expect governments to keep up. For many people, it is a matter of trust: residents who are satisfied with a public service are nine times more likely to trust the government overall than those who are not.[1] Other benefits are more tangible (Exhibit 1). Unlike physical offices, digital ones are open to the public 24/7—and stay open during public-health crises such as the COVID-19 pandemic. Digital interactions are less time consuming for people and reduce the administrative burden on companies, which can help support business as economies recover from the effects of COVID-19.[2] Moreover, automating case handling significantly boosts productivity, reducing backlogs and freeing up resources for other priorities—another advantage in the wake of COVID-19, when speed and resilience for delivering critical services (such as unemployment or medical benefits) are paramount.[3] Public-sector employees also stand to benefit from digitization; fewer repetitive tasks and happier residents pave the way to higher levels of job satisfaction.

While the advantages of digitization are manifest, making real progress is easier said than done. To create a seamless experience, governments must transform the entire public administration; it's a significant challenge but by no means beyond their capabilities.

Digitization is a whole-of-government challenge

Navigating public services can be bewildering. Information about how to access services is often presented in hard-to-understand bureaucratic language, and users must visit different websites or offices for each service. Applications routinely require hard copies of supporting documents to still be printed and signed, and many online forms are just as complicated to complete as the paper versions. Furthermore, the user experience tends to vary across government websites, and users often require multiple accounts and digital IDs to manage their needs.

All of this stands in stark contrast to expectations. More and more often, people see no reason why public services should be more complicated than shopping online. They want to be able to quickly find the most relevant services. They want information in clear and simple language and expect to complete all transactions via digital channels—ideally, through a single digital journey. For example, new parents could get a birth certificate, apply for child benefits, register for parental leave, and access other relevant services through one easy process instead of interacting with multiple agencies, often in-person, and sharing the same information multiple times.

Governments can provide a seamless user experience by consolidating digital channels. Instead of visiting multiple websites or apps, people could navigate and access information and services based on life or business situations in one place (which also makes web searches easier). Using the same solution for recurring service transactions, such as identification or payment, helps users become familiar with the process and promotes broad adoption of the required devices or apps. Moreover, a coherent look and feel across the public services landscape can increase trust in the government's digital brand (Exhibit 2).

Implementing this vision is a tall order. Private-sector organizations typically manage just a few customer journeys. Governments, by contrast, are responsible for 50 to 100 journeys, which account for thousands of individual services. The ongoing effort to digitize public services in Germany illustrates this point: the government has grouped 5,900 transactions into 575 distinct services from a user perspective, which, in turn, contribute to 55 user journeys.[4]

Government services are owned by different departments, agencies, and geographic units, all of which have strong legal independence. Many individual units have started on their own digitization programs and have expended considerable resources to do so. It is no easy task to motivate these actors to contribute to integrated journeys and provide their services via a common digital channel.

A further challenge is the working culture of government. Civil servants are trained to adhere to formal legal procedures, which are designed to promote fairness and equality. However, that mindset is less helpful when it comes to creating digital products, which requires more informal collaboration within and across public authorities. And since workers with advanced digital skills often choose the private sector over the government, recruiting new talent can be difficult.

Despite these obstacles, a small group of countries has shown that it is possible to rethink public services, and increasing numbers of governments are following their lead (see sidebar, "A global move to digitize public services"). The key to success is a coordinated, whole-of-government approach.

A tried-and-true formula for successful government digitization

Given the challenges, it can take many years to fully digitize public services. However, governments can mitigate complexity if they break implementation down into small steps. Ideally, these will start with quick wins to generate momentum. To secure such wins, governments can begin by focusing on the digital front end. Offering services online and simplifying forms (while providing guidance on how to complete them) can provide a significant boost to user satisfaction. Moreover, implementing these changes is relatively speedy and inexpensive. Automation of the back end, on the other hand, requires more time and resources and is thus better suited to a long-term plan.

Amid COVID-19, taking decisive action becomes an imperative. Against the backdrop of high demand for unemployment and other benefits, governments need to ensure speedy and efficient processes and compressed delivery timelines—particularly to alleviate backlogs that have built up during the pandemic. The resident experience will be improved and, most importantly, people and employees will be able to more easily maintain the physical distance that is so important to controlling the virus.

Governments must do three things well to get services online fast and build engines for continued and sustainable change. First, they must reimagine service journeys, together with the relevant public authorities and users (agile labs). In parallel, they should enable rapid deployment and simplify integration with back-end systems (scalable IT architecture). Finally, they should empower a central coordination unit to bring together public authorities, shape incentives to reward outcomes for users, and drive communication (smart program management).

'Agile labs' to manage stakeholder complexity

For most public services, digital reimagination can significantly enhance the user experience. Forms, for example, can require less data and pull information directly from government databases. Texts or push notifications can use simpler language. Users can upload documents as scans. In addition, agencies can link touchpoints within a single user journey and offer digital status notifications. Implementing all of these changes is no trivial matter and requires numerous actors to collaborate. Several public authorities are usually involved, each of which owns different touchpoints on the user journey. The number of actors increases exponentially when local governments are responsible for service delivery. Often, legal frameworks must be amended to permit digitization, meaning that the relevant regulator needs to be involved.

Yet when governments use established waterfall approaches to project management (in which each step depends on the results of the previous step), digitization can take a long time and the results often fall short. In many cases, long and expensive projects have delivered solutions that users have failed to adopt.

1.18 Defining customer experience and customer engagement

Technology is fueling seismic changes in customer expectations. Research shows that customer expectations continue to rise year over year, while businesses continue to struggle to meet these ever-changing expectations. In response, many businesses are transforming how they understand and value the customer over every channel across the entire customer life cycle.

Customer experience and customer engagement are significant to a company's overall success. But creating a positive customer experience and increasing customer engagement can seem like moving targets. Plus, confusion can arise as these terms are often used interchangeably. Understanding the difference is key to achieving both.

Customer experience (also known as CX) is how customers perceive their interactions with your company. The first half of the definition focuses on perception, where the experience is positive, useful, and enjoyable. The second half focuses on the exchange, the two-way interaction with the brand. CX is the customer's emotional, physical, and psychological connection with your brand, stemming from a product, system, service and/or channel interactions. CX considers the context and empirical aspects of the interaction and the customer's perceptions. Simply put, customer experience is about a moment in time and the memory of that moment.

Customer experience is one of the primary differentiators that businesses can exert control. By 2020, some analysts predict customer experience will overtake price and product as a key brand differentiator. It's not easy, but CX should be measured against customer expectations across all touch points. Was the customer satisfied, frustrated, angered, or delighted? Did the interaction meet the customer's expectations? When customers navigate to your website, contact your call center, visit a retail location, make a purchase, use your product, and reply to your emails, they're making judgments about whether or not you satisfy their needs, are easy to do business with, and whether their experience is positive.

For the customer experience to be great, every interaction along the customer journey must be exceptional, which doesn't start and end within one department. The entire organization needs to work together to deliver a positive customer experience. When marketing, sales, operations, finance, and customer service departments operate independently, and are measured by

different key performance indicators (KPIs), delivering a consistent positive customer experience can be a significant challenge.

Customer engagement

Customer engagement differs from customer experience. Customer engagement is the ongoing, value-driven, emotional relationship between the customer and the business. It's not the memory of one moment, but the sum of all moments—the customer's overall emotional connection arising from the totality of experiences with the company. This includes direct, indirect, offline, and online interactions, as well as the actions that the customer might take—posting, emailing, tweeting, liking, recommending, buying and so on.

If you provide a positive customer experience, your customer should become more engaged. Highly engaged customers buy more and are advocates of your brand. They refer friends, write positive reviews, and are more loyal. However, all it takes is one negative experience to damage the memory of the entire customer experience and the association with a brand. This can ultimately lead to a disengaged customer, who can act on their dissatisfaction by purchasing from competitors and letting others know.

Understanding the difference between the customer experience and customer engagement is critical. Customer engagement goes beyond managing individual experiences from each touch point to include all of the ways companies motivate customers to invest in an ongoing relationship with a brand or product. More and more customer interactions spanning across more and more touch points are shaping the amount of engagement a customer has with your company. Knitting together each experience and focusing on the customer journey will generate greater engagement and a positive ROI.

Measuring customer experience

It's clear that the customer experience is integral to customer engagement, as a better customer experience generates better customer engagement. But how does a company measure the customer experience to identify gaps? What are the areas that need improvement?

Get customer feedback. An overwhelming 90 percent of customers want to provide feedback about their experience with you and your product, while only 37 percent are occasionally given the opportunity to share. This frustration can be easily fixed through an automated email survey. Surveys can provide a wealth of information. However, surveys won't help if you fail to analyze the responses.

Understand churn. Churn is natural in business, but understanding when churn happens can help you prevent churn in the future. Regularly analyze your churned customers so you know whether your churn rate is increasing or decreasing, and what action you can take in the future to prevent a similar customer from moving on.

Solicit ideas from comments on products and features. This is similar to customer feedback, but in a community forum where your customers can request new features, share new ideas about products or share problems they're trying to resolve. Give customers the opportunity to proactively offer suggestions and actively monitor the forum and participate. If there are recurring topics, it may be a sign you may need to do additional research into product development.

Analyze support ticket trends. Review your customer or field service support tickets for recurring issues that are causing customer angst and/or are taking significant agent time to

resolve. The solution could be as simple as an edit to a product manual, a new quick start guide or an update to an online FAQ.

Get the right tools. It can be daunting to create positive customer experiences across all channels and touchpoints when customer data is fragmented into silos within a confusing landscape of independent applications and disparate departments. Most companies struggle to measure performance over time and across channels, and are unable to identify areas for growth and remove barriers to improving productivity. Without measurable insights into your customer experience, a lot of time and budget can be wasted pursuing unicorns. Instead get the right tool to unify and measure your data so you can easily glean valuable insights and take informed action to improve the customer experience, boost engagement, and strengthen loyalty.

Microsoft Dynamics 365 Customer Insights is an easy to implement and use application to help you personalize the customer experience by unifying data, presenting a 360-degree view of the customer, and helping you discover insights to further drive a positive customer experience. Using historical customer data and machine learning models, organizations can derive insights that empower employees across all lines of business to deliver the best message or service for every customer scenario. From marketing advertisements based on customer search histories to next-best-offer sales suggestions based on past purchases or interests, and proactive customer service support leveraging predictive analytics and anomaly detection. Dynamics 365 Customer Insights enables cross-department alignment on every interaction a customer has with your organization—from sales and marketing to finance and operations, and customer service—creating a seamless customer experience across the organization.

Remember, building positive customer experiences that increase customer engagement isn't magic. It's hard work, but it's work that pays off with strengthened customer loyalty and increased revenue. Don't forget that acquiring a new customer is anywhere from five to 25 times more expensive than retaining an existing customer. Focusing on the customer experience and deepening customer engagement is not only critical, it's the most cost-effective strategy for long term success of your business. Companies that create positive customer experiences, and design and execute an effective customer engagement strategy will fast track forward, leaving the competition behind.

1.19 Business Model of the Netflix Ecosystem

All companies, without exception, create value from their relationships with other business actors in their environment. Together with their competitors and with regulators who set the rules of the game, they form an ecosystem of economic actors that depend on each other to survive and thrive. In the online economy, ecosystems have become vast and can be the source of enormous profits . How does this work?

To understand how you can benefit from your ecosystem, you need ecosystem business model. What does such a model look like? A business model of your ecosystem should make a map of the actors and relationships in your ecosystem and explain how you make a profit out of these relationships.

Current business modeling techniques focus on single companies and we need new techniques for designing and analyzing ecosystem business models. The techniques should clarify how the ecosystem creates value and what your strategic options for surviving and thriving in the ecosystem are. In this blog I describe such an approach.

To make things concrete I use Netflix as an example. Afterwards, I will summarize the takeaways by listing the strategic questions about ecosystems that we have encountered. A white paper with a more detailed analysis is available free of charge.

What is an ecosystem business model?

Business ecosystems exist because they allow their participants to survive and thrive. For example, actors in the Netflix ecosystem are studios, consumers, investors, Netflix itself, platforms used by Netflix, and competitors of Netflix. They participate in the ecosystem because this contributes to their survival and well-being. Correspondingly, we define an ecosystem business model as

a conceptual model of how actors in an ecosystem create, deliver and capture value for each other.

Note the difference with the standard definition of a business model, which talks about only one actor that delivers value for a customer. In an ecosystem business model, we show how all actors create value for each other, including the customer.

The structure of an ecosystem business model

There are four keywords in the definition: create, deliver, capture, value. Correspondingly, our ecosystem business models have four parts. Because the value proposition is core, I put it first. Because the expected of each actor follow from their role in the ecosystem I put that last. The four components are then:

1. Value propositions of the actors in the business ecosystem.
2. The actor network in which value is delivered.
3. The profit model by which the ecosystem actors capture value.
4. The capabilities by which the ecosystem actors create value.

Example: the Netflix ecosystem

(1) Value propositions of the Netflix ecosystem.

A value proposition is a description of the value that customers can expect from a product. But which value proposition do we mean here? The Netflix ecosystem contains movie studios, cable TV, movie theatres and many other players. Each player has its own value proposition. Writing down all of these makes a very long list.

Perhaps we can save ourselves time by writing down the value proposition of the ecosystem as a whole? The Netflix ecosystem as a whole delivers entertainment content to consumers. That is its value proposition. But we do not have hierarchical control over the ecosystem and all its members. We want to focus on one or perhaps a few actors and understand how they create value from the ecosystem.

In this example we focus on Netflix. Here is the Netflix value proposition.

Netflix value proposition

Product:

- On-demand video streaming (international)
- DVD rental (U.S.A. only).
- Distinguishing features are personalized recommendations and a large content library, which includes content local to cultural areas and original content produced by Netflix.

Customers & contexts:

- Individuals in the age range 17-60, watching from home.
- Households with income levels of $30 000 and more.
- Three customer segments:
- people who are too busy to go out and shop for movies,
- people who are frequent renters and movie buffs, and
- people who want to get the most value for their money.
- Customers are divided into over 2000 taste communities.

Alternatives & differentiators:

- Other streaming providers.
- Differentiators: Netflix is the oldest VoD brand, has the largest repertoire of movies, has prize-winning content, supports a wide range of devices including mobile, provides high-quality connection, and has a simple subscription scheme.
- Movie theatres.
- Differentiators: Netflix offers the comfort of home and has different from movie theatres, including Netflix originals.
- Cable TV.
- Differentiators: Netflix offers on-demand movie watching, shows no ads, and allows binge-watching.

The value network of the Netflix ecosystem

The actors in an ecosystem perform value-adding activities and offer the result of these activities to each other. This is what makes it valuable to be in the ecosystem. In the value network created this way. business actors provide products (goods or services) to each other. The value network of the Netflix ecosystem looks as follows.

There are more actors in the ecosystem than shown in the diagram and this only serves as an example. Groups of business actors playing the same role are boxed by a rectangle.

1.20 Discovering the seven ecosystem business model types

Through our client interactions and research, we've observed, identified and utilized seven distinct ecosystem business models, each with distinct go-to-market, risk sharing and commercial characteristics. These models are explored below.

The symbiotic ecosystem business model

We refer to the ecosystem business model employed by most technology platform companies as the "symbiotic" model. We call this model symbiotic because the technology platform company is dominant as the orchestrator, all of the value creation is shaped around their core platform(s) and the majority of the ecosystem participant go-to-market motions tend to align to the technology platform company's primary motions.

Let's take a company like SAP, a very successful provider of enterprise software platforms. Their annual revenues exceed $30b, but they have orchestrated a mature ecosystem that generates $150b for the participants. Microsoft, which is about five time the size of SAP, orchestrates an ecosystem that probably generates more than $1t in revenue for its participants. We know that technology platform companies benefit from orchestrating a large ecosystem in 3 primary ways:

We know that technology platform companies benefit from orchestrating a large ecosystem in three primary ways:

- Platform enhancement through the availability of additional functions and capabilities (e.g. from ISVs and professional services firms) that would be too expensive to maintain in the core platform
- Expansion of surface area to market through the introduction of more "sellers" provided by the ecosystem participants
- Increased likelihood of successful platform deployment and business goal achievement – known as "customer success" in the industry

  There are other examples of symbiotic models, but in today's world, almost all of them revolve around a "platform" in some form, with the sales motions of the platform company the dominant aligning force around which the ecosystem participants organize.

The marketplace ecosystem business model

This is the "original" ecosystem business model. Marketplaces go back thousands of years. The marketplace operator is the orchestrator and the coordinating brand, and the members pay the operator a fee to participate in the marketplace. All brands are present, and the common customers get a more convenient shopping experience as a result of the marketplace's aggregation of supply.

Amazon, Apple and Google are modern day examples of marketplace operators. Uber is an example of a marketplace operator who created a supply of vendors (e.g. people with cars, available time, and a desire to earn money) that wouldn't have the ability to be vendors if it weren't for the platform and the marketplace Uber created.

These are examples of the real power of platform and ecosystem in action.

The scaling ecosystem business model

Generally, the participants in a scaling ecosystem are all in the same business and technically could be considered competitors, but the benefits of working together to create scale and abiding by agreed upon rules of risk and reward sharing outweigh the competitive concerns. Typically, the members of a scaling ecosystem model will jointly orchestrate, often setting up a collectively funded entity to perform the orchestration functions.

These models also go back thousands of years and are often associated with multiple countries banding together to form a defensive alliance to act as a deterrent to external aggression (e.g. NATO after World War II). A business example would be the alliances the airlines have formed to create global scale, giving their customers the convenience of booking global travel through any of the members of the alliance and getting some measure of "status" recognition across the network.

The accretive ecosystem business model

This model is typically an arrangement between two, or just a few, entities, where all parties have a portion of an overall customer value proposition that combined is worth substantially more than the sum of its parts. In the accretive model, the members generally don't compete with each other. The example we most often see is companies that have developed some sort of distinct and valuable IP and/or substantial aggregation of valuable data as a result of their primary business activities. There is a realization that those assets present a monetization opportunity, but there is no appetite to invest internally to form a new business unit to create the platform and the channels to market. By selecting the right partner(s), these assets can quickly become revenue-generating without the deployment of significant capital.

The EY-P&G Alliance demonstrates the potential value of this model. P&G is on a decades-long continuous journey of purposeful improvements to its way of working, business processes and technology innovation. In a world where sustainability has become so important, running over one hundred manufacturing facilities at 85% OEE or better (vs. the less than 60% OEE many manufacturers achieve) shows the value P&G's IP could represent.

Via an accretive business model between P&G and EY, the IP was used to build software to help other companies begin their own transformation and innovation journeys to higher OEE, zero-touch manufacturing and hyper-efficient supply network operations. In this model, EY acts as the channel to market and P&G acts as the subject matter advisor. Both participants in this model realize ecosystem value to provide an enhanced proposition for clients that want to transform their manufacturing and supply chain operations.

The coopetive ecosystem business model

Ray Noorda, the former CEO of Novell, coined the term “coopetition,” a model where competitors cooperate to create higher customer value, to describe the relationship between Novell and Microsoft in the early 1990s (though using our model definitions, the relationship would be characterized as Novell functioning as an ISV participant in the Microsoft Windows symbiotic ecosystem).

An example of a true coopetive relationship can be found in the relationship between P&G and Clorox. P&G owns the Febreze product line, the category leader in odor elimination, and Clorox owns the Glad trash bag product line, a category leader as well. Though the two compete across multiple product categories, they agreed that the innovation of embedding Febreze in Glad trash bags would create a more compelling product for consumers, and thus signed a coopetive agreement to jointly deliver that to the market. The product line has been a resounding success. P&G and Clorox are both the orchestrators and the participants in this ecosystem of two mega-brands.

The difference between the coopetive model and the scaling model is that scaling takes the existing value proposition and scales it for efficiency and convenience. The coopetive model takes two or more separate value propositions and combines them for an entirely new value proposition. In effect, the coopetive model is similar to the accretive model, but the members are competitors, not complimentary. That last distinction is important because it changes the nature of the relationship, the commercials, and the likelihood of entering into such arrangements to begin with.

The value chain ecosystem business model

There are many examples of value chains world-wide. Value chains sit between original suppliers and end consumers of goods and services and are characterized by many participants across many different role types. The participants in the value chain all manage their pieces, but without an orchestrator at the center of a value chain, the overall efficiency of the collective participants is not optimizable. In effect, the orchestrator of this model takes a naturally occurring group of related parties and creates a business ecosystem in which the ultimate end customers get better value from the collection of participants, and the participants themselves can be more effective while better managing risks.

In an example of this model, EY acts as an orchestrator in a blockchain-enabled global trading platform driven by multiple ecosystem partners and insurance industry leaders. The platform is designed to enable surety in moving shipping containers from port of origin to port of destination, providing secure access to a single version of the truth to all participants in specialty insurance. The network of players (including ports, customs and border patrols, insurance carriers, trade finance providers and shipping companies) existed before this platform was created, but the addition of an orchestrating participant sitting at the center marked the transition to an ecosystem business model.

The integrator ecosystem business model

An orchestrator, referred to here as the "ecosystem integrator," brings together a bespoke set of ecosystem participants to create a fully integrated end-to-end solution for customers. This model differs from others in that the ecosystem integrator offers full commercial responsibility for the workings of the solution delivered to the client. The ecosystem integrator rapidly assembles and integrates the solution, creating a quasi-bespoke value proposition combined with a contract of convenience. The participants all have their brands present in the value

proposition, but the end customer can choose to contract just with the ecosystem integrator (the orchestrator) or to contract with the ecosystem integrator and a subset of the participants.

This model effectively replaces solutions that were historically delivered as systems Integration projects. For example, the EY Nexus for Insurance platform started as a means by which to elevate and accelerate the roll-out of GuideWire-based insurance solutions to small subsidiaries of EY's largest insurance customers. The pace, cost and time of doing traditional systems integration work in each market would have been prohibitive. Over time, the solution evolved to add in the capabilities of certain InsureTechs and business processors, extending the capabilities resident in the platform and EY's ability to deliver in a consumption model.

In this, EY is now a platform company, and the model is drifting closer to symbiotic, but with the key difference that EY curates the ecosystem participants.

The journey towards ecosystem value

At EY, we understand how ecosystem relationships drive value and are seeing a consensus emerging among business leaders that that ecosystems must be a core component of business strategy. We are also seeing increased outreach from clients who are just beginning the path to creating customer value from ecosystem business models. Non-technology businesses are exploring platform-enabled business models and in the process realizing they cannot succeed on that journey absent the build of an ecosystem around them.

As organizations begin this journey and evolve their thinking around ecosystems, they must become more proficient on several fronts:

- Identifying the correct ecosystem business model to consider for each desired business outcome – as explored in this article
- Determining which of those selected ecosystems they should orchestrate and which they should simply participate in
- Creating effective commercial arrangements that appropriately manage and share risks and rewards in each ecosystem business model
- Enabling each of the business model types, from compliance and risk management through go-to-market support
- Defining ways to measure ROI for each model
- Delivering market leading growth by integrating ecosystem business models into the broader operating model and culture of their company

We know that this is not an easy task - many organizations are in the early stages of managing their own ecosystem relationships and realizing the challenges of ecosystem integration and operating models. One thing is clear, the future will belong to those companies that complete this journey and weave ecosystem relationships into the fabric of how they create value.

Business Environment – Moving into the Digital Era

The digital revolution is already upon us. Traditional business models are no longer useful and CIOs from all sectors of the industry are looking for the best way to capitalize on the revolution so that they can deliver agile IT to their business. They are also under the pressure of ever shrinking budgets as organizations are increasingly looking to get more value from their IT investments.

Technologies such as Software Defined Infrastructure, Internet of Things, Cognitive Platformsand so on, are rapidly thinning the boundary betweenthe physical and virtual worlds. Businesses fullyrecognize the perils of ignoring the role of technologyto deliver competitive

advantage. Many companiestoday even define themselves as a technologycompany irrespective of the sector they belong to.

Changing Role of the Service Provider Today's Service Providers are not just providers of ITServices, but also act as stakeholders in theircustomer's business. Today, customers depend onthem more than ever to fulfil the demand for flexible,and scalable IT without compromising on costeffectiveness. In the age of rapid demand fulfilment,they have to utilize emerging technologies and newbusiness models to deliver state of the art solutions.

Service Providers have to enable their customers onthe journey to next generation IT, while at the sametime manage the traditional systems. In order to meetthis seemingly contradictory expectation, there is aneed for a drastic shift in the Service Deliveryapproach. Traditional delivery approaches will nolonger support the innovation and discipline requiredfor success.

Service Delivery – A New Approach There are many aspects to be taken care of in orderto ensure that Service Delivery is flawless. Here aresome of the areas that need razor sharp focus fromService Providers:

IT Asset Lifecycle Management All IT assets, irrespective of their age, have intrinsicvalue. From recyclable parts, to reusablecomponents, old IT assets can be used to optimizethe IT infrastructure estate of enterprises. Due to alack of long term strategic vision in IT, manyenterprises are today saddled with a large number ofIT assets that do not adequately support thebusiness. The lack of vision also causesorganizations to try and squeeze out maximum valuefrom their assets that have long since passed theiruseful life.

Service Providers can help their customers implementan IT Lifecycle Management (ITLM) that can harnessthe advantages of having better forecast models,make informed IT asset purchasing decisions, and beproactive in phasing out end-of-life assets. This will help improve the IT service quality and enhance the organizational productivity.

A robust ITLM approach will also help customerstransition their IT infrastructure from a traditionalhardware driven model to a modern software definedmodel that is agile, scalable, and derives nextgeneration performance from their existinginvestments.

Dedicated Team for Technology Support Service Providers will require a dedicated team thatwill be focused on Future-driven service deliveryframeworks that are resilient, flexible, cost efficient,and aligned to business objectives. The team willneed to have expertise that encompasses TechnologyLandscape management, Skills management, andIncident Management. They will also carry outproactive assessments across various Technologies& Cross functional domains, identify key improvementareas, provide recommendations to mitigate risks andplay an active role in managing major incidents thatimpact the customer's business.

People Management Although the role of technology is increasing in thedelivery of IT Services, the importance of effectivepeople management cannot be underestimated. Asautomation and cognitive systems take over many ofthe manual tasks in Delivery, IT professionals willneed to be moved into roles that require a higher levelof skillset. The Service Provider will be able toallocate more resources into projects focused oninnovation for the customer. Delivery professionalswill be trained on multiple domains because theyhave to be prepared for dynamic customer requeststhat will have to be fulfilled faster.

Problem & Change Management All Service Providers require implementation ofstandardized practices in problem and changemanagement focused on process, people and

tools.This Problem and Change management team willhelp them drive high process maturity andconsistency in their delivery. The team will enablebenchmarking of operational parameters and ensurepredictable delivery through a range of risk mitigationmeasures.

An effective problem and change management teamwill also minimize the negative impact caused byrecurring incidents, failed changes, and known errors, through the implementation and adherence of robust processes.

New Governance Models The effective implementation of increasing IT projectsthat utilize emerging technologies, have made manyof the established best project governance practicesobsolete. New governance frameworks will have to bedeveloped that helps customers effectively align theirIT requirements with business. These frameworks willalso ensure that legal and regulatory compliancerequirements are no longer a headache to deal with.

Customer Connect Customer expectations today are highly demandingand their loyalty cannot be taken for granted. In therush to deliver technologically innovative solutions,Service Providers must not forget the importance ofcustomer centricity. Having a good connect with thecustomer will ensure that their requirements areclearly understood and the scope is unambiguouslydefined. Understanding the customer's businessprocesses will also ensure that the solutions deliveredare highly customized for the requirements andenhanced value will be delivered.

Digital Disruption

Digital disruption is a transformation that is caused by emerging digital technologies and business models. These innovative new technologies and models can impact the value of existing products and services offered in the industry. This is why the term 'disruption' is used, as the emergence of these new digital products/services/businesses disrupts the current market and causes the need for re-evaluation.

An Example of Digital Disruption: Kodak Cameras Fail To Capture Future Markets

Kodak were one of the first to introduce cameras to the mainstream market. They monopolised the markets for the majority of the 20th century, but unfortunately failed to keep up with the changing identities of their customers and the changing needs and expectations that came along with them.

Digital cameras made the move from being a just piece of photographic equipment to being a much more life-friendly, fun gadget. And where as Kodak originally had their target consumer pegged as female, the male digital camera market opened up thanks to the 'gadget' culture. Some clever marketing from other digital technology brands led to changes in consumer perceptions and created a new 'need' for photographic gadgets.

This allowed brands such as Sony and Canon to swoop in and steal the hearts of the consumers with their new technologies and approaches, while Kodak stuck to their guns and fought the change for as long as they could. Despite rapidly losing market share, they refused to succumb to the inevitable force of digital disruption and in 2012 they eventually declared bankruptcy.

Digital Disruption Impact Businesses

The lesson we can learn from Kodak is that digital disruption is an unstoppable force and to try and fight it is futile.

But what businesses can do is embrace digital disruption, even plan for it. Keeping an eye on the ball and knowing the signs of digital disruption emerging in your industry means you can get ahead of the game and work with the flow rather than against it. Not only does this prevent

the wave of digital disruption from washing away your success, it can also lead to further growth and new opportunities for the business.

Digital disruption typically marks changes in consumer needs and therefore working with the tide allows you to fulfil these emerging needs, keeping existing customers happy and opening up opportunities for new customers to find what they need from your brand.

The below video by James McQuivey goes into more detail about how digital disruption impacts brands and how they can work with it to create a stronger, more successful future.

Digital Disruption a Good Thing

Digital disruption, though it has the potential of being a challenging and painful process, offers three solid business benefits:

1. It increases customer satisfaction. Customers today want more variety, more innovation, more choices, and all of it delivered yesterday. Thanks to mass media, itself a beneficiary of digital disruption, customers today are savvier, more informed, and more discerning. Digital disruption spurs businesses to rise to the challenge of today's consumers by staying ahead of the tech curve and incorporating the latest changes faster. Also, digital disruption gave us big data and analytics, which businesses can leverage into more outstanding sales by gaining insights into customer buying habits. Digital disruption makes marketing more manageable, resulting in a healthier company overall.
2. It helps a company grow. Some species of sharks must keep swimming or they die. A company at rest is a company falling behind the competition. Digital disruption brings about radical change, pulling companies out of their comfort zone and moving them forward. A company that refuses to adapt and change, especially if its competition is doing so, is a company doomed to fail.
3. It evolves and improves the workplace. Digital disruption brings innovations and new technology to the workplace. Look at the new workflow management tools, collaboration software, mobile devices, and cloud technology that have driven digital disruption. If you need a timelier and more relevant example, look at how revolutions in work-from-home technology have helped companies remain functional during the global pandemic.

Elements of Digital Disruption

Digital disruption breaks down into four distinct elements, each with the potential to change businesses' ways.

- Technology: Includes things like invention, usage, design, etc.
- Business: Covers marketing, development, delivery pricing, etc.
- Industry: Involves customers, methods, processes, standards, etc.
- Society: Encompasses movements, culture, habits, and so on.

Companies that want to grow and succeed in the face of digital disruption must adopt the following five elements:

- Develop a consistent, company-wide digital culture. The company must move as one, embracing new technology. This adoption is essential for companies that haven't "gone digital" yet and includes training employees in new digital-based skills.
- Create new customer experiences and produce unique outcomes. Disruptive technologies bring new ways of serving customers and exciting new results.
- Shift from time-based decisions to data-driven decisions. Timeliness is important, but there's little benefit in being the first company in the pack to make an ill-informed,

destructive decision. There's tons of valuable, actionable data out there, thanks to processes relating to digital disruption. Innovative companies will take advantage of this.

- Incorporate new technology and business models into existing services and products. Companies that want to stay ahead of the pack and increase their market share will embrace the new and put away the old. Or, at least, modify the old with better procedures and tech.
- Work with partners to create and innovate new procedures and policies. Teamwork is key. Companies should take advantage of their existing partnerships' experiences and skills to collaborate on better business practices. Everyone wins; your company, your partners, and your customers.

Examples of Digital Disruption

We touched upon a few examples of disruption earlier on, but let's look at five past examples of disruption as they apply to the digital world.

Video Streaming/Web-Based Video

Netflix disrupted Blockbuster Video by focusing on DVDs instead of VHS tapes. Today, Netflix keeps on disrupting the status quo as a major player in the video streaming business. On-demand viewing has turned traditional broadcasting and cable services on their collective heads. Not only are the conventional carriers jumping on board the video stream train, but a host of other online tv platforms has also sprung up, such as Hulu and Sling TV.

Smartphones

When you talk about disruptive technology, smartphones should not only be part of the conversation but probably at the top of the list. Smartphones are everywhere today and have all but killed landlines and payphones.

Email

While the sight of the postal person dropping mail off in your mailbox isn't going away anytime soon, it's abundantly clear that the invention of email has put a deep dent in the post office. Why undertake all the hassle of writing a letter, mailing it, and waiting several days for the recipient to get it when you can fire off an email in a fraction of the time?

Online References and Encyclopedia

Does anyone even buy bound sets of encyclopedias anymore? Why would anyone want to sink $1000 into buying these bulky volumes that will end up being obsolete within five years when you can just log on to Wikipedia or other online reference sites and get current information cheaper and faster?

Personal Computers and Hand-Held Devices

Hey, remember those bulky desktop computers that proliferated households and workplaces in the '80s and '90s? Miniaturization, increased processing power, and the advent of wireless technology have made desktops almost obsolete. Granted, they do still exist in great numbers, but their era of dominance is over. Laptops, pads, and tablets offer everything a desktop computer can, but with the added advantage of mobility and convenience.

The Top Five Potentially Disruptive Technologies of 2021

We've listed five technologies that have disrupted industries in the past. Now let's look at five technologies that are most likely to have a more significant disruptive effect in the next year.

Online Learning

Crises breed innovation, and there's nothing like a worldwide pandemic and its ensuing lockdown to help inspire people to design better ways to learn online. Online education offers students a cheaper, more convenient way of getting a degree or certification, circumventing the expensive university system. While this industry is still evolving, online learning is poised to threaten the traditional college learning model.

3D Printing

3D printing looks like something out of a science fiction movie or tv show, but it's here right now and gaining traction. Currently, 3D printing mainly supports established manufacturing processes, but if the technology becomes better developed and cheaper, could we see households having their 3D printers creating items instead of ordering them through retailers? 3D printers are becoming increasingly sophisticated, and 2021 could be the year we see their stock rise.

Cryptocurrency

Many of us have heard talk of Bitcoin and blockchain technology, but it hasn't yet dominated everyday commerce. Note the use of the word "yet." Cryptocurrency offers greater security levels, something that both consumers and businesses highly value in these days of rising cybercrime and data breaches. Digital wallets could potentially disrupt traditional banking and even online payment services, the latter of which has already disrupted traditional bill-paying methods!

P2P Commerce

P2P commerce involves two individuals interacting directly without a go-between, selling and buying goods and services to each other. Think of Airbnb, for example. Although P2P isn't anywhere close to crippling the hotel and hospitality industry yet, there are ominous warnings.

Ride-Sharing and Car-Sharing

While we will always need taxis, companies such as ZipCar, Lyft, and Uber have thrown the cab industry for a loop. These services end up cheaper, more convenient, and don't even require cash to change hands (another innovation!). These services are only going to continue rising in popularity. If tech companies ever get all of the kinks out of driverless car technology, it will only add to the overall disruptive effect.

What is Digital Innovation?

At its core, digital innovation is the application of new technologies to existing business problems and practices in a process that takes place in phases.

Each phase is marked by advancements in technology and innovation.

The first phase was driven by access to high speed internet and smart mobile devices, and now the internet of things (IoT), Artificial Intelligence (AI), Blockchain, and Quantum Computing (to name but a few emerging technologies) are all catapulting this trend forward in 2019 and beyond!

Pretty exciting stuff!

Where to Find Digital Innovation

Digitization is no longer restricted to technology or digitally native companies now that the customer journey starts digitally. And with digital innovation processes touching every industry throughout the world, it's not a case of if but when digital innovation will position innovators as the new champions.

In fact, Gartner predicts that by 2025, all industries, particularly Retail, will have been transformed by the capabilities of digital technologies.

Digital innovation relentlessly rewrites the rulebook for business, and even organizations that are considered well established are facing new threats at an unprecedented rate from competitors never encountered before.

Here are three of the biggest trends shaping digital innovation today and how enterprises are reacting to remain competitive.

3 Biggest Trends in Digital Innovation

1. Securing the Unsecurable

While digital innovation trends are creating an increasingly connected world through expanded partner ecosystems, it's also exposing businesses to an increased security risk.

This, along with changing data protection laws and increased privacy concerns, is set to drive more progressive and distributed security processes.

New technologies and digital innovation ideas always seem to be one step ahead of the security designed to protect them, so high profile and often devastating hacks, attacks, and security vulnerabilities are inevitable.

Thankfully, new cyber security solutions are emerging all the time and top IT security professionals will be following these trends this year:

AI-Boosted, Predictive Cyber Protection Is to Become the New Norm

Analytics has become an important part of most companies' technology infrastructure. Advances in predictive analytics and AI mean that companies are now much better at diagnosing and understanding their security in real-time.

For example, in the financial services industry, fraud prevention is vital and AI is helping companies determine which transactions are likely fraudulent in real-time in an automatic and efficient way.

Self-Protecting Apps

AI and machine learning will continue to play an important role in helping applications protect themselves.

It's not easy to detect small vulnerabilities in massive networks, and this leaves some areas exposed and without proper protection. Automation is already a major trend in tech, but its combination with AI has given it new wings to expand into different areas.

One of the biggest new movements set to take place in the upcoming year will be the rise of runtime application self-protection (RASP): A technology that will be able to detect problems without human intervention.

Gartner predicts that nearly 40 percent of enterprise-level businesses will be using RASPs by 2020.

Secure Alternatives to Passwords

Even though the volume of data we are storing online is growing exponentially, the security tools that are used to keep that data safe remains highly outdated.

Passwords are useful for identification purposes, but they are also poor tools when it comes to guaranteeing data security.

Just recently biometric verification, among other technologies, has started replacing passwords, but this year will see further innovation in this space, including Identity-as-a-service (IDaaS).

Fast Identity Online (FIDO), for example, uses biometric or vocal recognition to provide a more secure alternative to passwords.

However, if, in the meantime, you're looking for reliable and trusted password managers, you can check out this list of the 10 Best Password Managers of 2020.

2. The Machine Workforce

Exponential digital innovation is giving rise to an entirely new competitive and intelligent workforce, namely the Machine Workforce, which is also referred to as the Connected Industrial Workforce as cited by Accenture. The human workforce, and much of its old skill set, is rapidly declining in value.

The emerging AI-driven automation is changing the way we think about the workforce and forces us to begin a broader discussion on the changing nature of work, workplaces, skills, and human capabilities. So, what forces of automation are defining the future workforce?

The emerging Machine Workforce is not just fighting for routine tasks or small jobs

The Machine Workforce is competing for jobs even the most intelligent among the human workforce cannot do. Machines are discovering patterns on their own and they are learning things themselves.

So, when we have intelligent tools that can find new solutions to the complex challenges facing humanity, we have a whole new world of machine workforce for which the human workforce is not prepared.

The way jobs are being designed and how people work is changing rapidly

The traditional 9 to 5 position is dying out because more and more employees are working remotely and team structures are evolving as a result. This is giving rise to *a* digitally-enabled independent human workforce.

Independent work for humans is nothing new, but the digital enablement of it is a significant change, because the amount of independent work that is now done on digital platforms is increasing rapidly.

Digital platforms are helping the human workforce to scale and become more efficient. From outsourcing work to ad-hoc teams, from a distributed work model to a platform model, from microwork to macro work, and much more, each of these will be difficult transitions for the human workforce to undergo.

3. Revolutionary Capabilities of Blockchain, AI, and 5G Cellular

Blockchain

Blockchain technology was originally used to support digital payments in Bitcoin. Today, it's making an appearance in a wide range of commercial applications and industries.

For example, Gartner predicts that by 2025, 20% of the top 10 global grocers by revenue will be using blockchain for food safety and traceability to create visibility to production, quality, and freshness.

But, what kind of trends can we expect moving forward with this technology? Here are some key trends to look out for:

- Enterprises will start to participate in multiple blockchain networks, such as food safety or global container shipment, thereby creating a 'network of networks' – which is something that will allow them to simultaneously interact with multiple blockchain ecosystems.
- Blockchain performance will become more important, where real-time performance and linkage with other data sources matter. Examples of performance-sensitive blockchain

applications include track & trace (supply chain) or machine-to-machine (IoT) communication/exchange, to name a couple.

- Integration will become a big challenge as enterprises combine their legacy applications with multiple blockchain networks, which will necessitate the deployment of exchange points for blockchains to connect and collaborate directly.

Artificial Intelligence

Customer experience leaders must develop a deeper understanding of AI and its impact on customer acquisition and retention. In the post-digital era, a differentiated digital experience will be dependent on the delivery of AI-powered products, services, and new business models.

Companies are already investing in AI to improve customer experience and enhance digital innovation with up to 50% of all customer inquiries now being completely resolved through automated channels, according to a report by MIT Technology Review and Genesys.

But, what's next for AI?

Enterprises will enter the booming world of Distributed Artificial Intelligence (DAI) architectures, which basically lets customers decide which data they give to the cloud and which they prefer to keep in-house.

Many enterprises are expecting to achieve profitable growth. Siemens, for example, has just launched a new Digital Industries business as part of a company-wide restructuring effort focused on Edge Computing and artificial intelligence with a view to achieve double-digit growth in all industries.

Edge Computing is the latest buzz word and Siemens has played a major part in the implementation of this cloud-computing trend in industrial settings.

MindSphere, the IoT operating system that connects physical cloud environments to the IT-world, was launched together with MindConnect, the gateway that connects industrial equipment, worldwide fleets, and entire plants to the IoT.

This has opened the door for cloud-based analytics and better decision making in the industry.

To explain briefly, Edge Computing locally processes data collected from sensors fitted into industrial machinery, increasing speed and saving costs by eliminating the need to send the data to the cloud.

Machine and Deep Learning algorithms are being developed to enable training and inferencing directly on devices like cameras, drones, local edge servers, routers etc. Companies like Siemens are doing this for the following reasons;

1. So that AI model building will take place at the local edge, which is physically closer to the source of the data.
2. So that companies can access more external data sources for more accurate predictions by turning to secure data transaction marketplaces.
3. So that companies can leverage AI innovation in multiple public clouds without vendor lock-in, which will decentralize AI architecture even more.

5G Cellular

5G is the next big thing in the journey of digital transformation, and with the explosion of connected devices, like mobile phones, televisions, security systems, and speakers, this technology innovation is only going to intensify.

Leading telecommunications companies like Vodafone are betting on 5G and the endless possibilities of digital transformation it opens up, especially in an IoT and AI-connected world. But before we go any further, let's define what 5G actually is.

5G is the 5th generation of mobile networks following 2G, 3G and 4G, and it is set to be much faster and more reliable. It's often called the 'network of networks because it's not defined by one single standard or technology, and it's expected to open up a whole new set of use cases.

Leading telecommunications companies will start selling commercial 5G services this year and next.

2019 will see 5G services launched, increased investments being made in revamping existing cellular building infrastructure, and the building of new edge infrastructure together with innovation in hardware and virtual wireless networking to optimize performance and costs.

5G is expected to have a huge impact on our daily lives, but what role can we expect it to play?

Transforming Healthcare.

Some interesting examples: Via a video link, paramedics would be able to stay in constant and real-time contact with the emergency room they're heading to. A doctor could treat a person suffering from chronic pain from the comfort of his or her own home. Some companies, like Verizon, are currently experimenting with virtual physical therapy. These scenarios may seem unrealistic, but 5G has the potential to make this a reality.

A Smarter Home.

Imagine a smart home where everything is connected. Digital innovation today makes this possible, and it won't be long before your fridge and cupboards are ordering food for you (deliverable by drone, of course), or a boiler has told you that it is about to fail and has searched the internet and recommended a plumber for you to call. The possibilities are certainly endless, but are organizations ready? The reality is that very few businesses can actually benefit from 5G today, but companies can prepare for 5G now by doing the following:

Learning about 5G capabilities and limitations.

Work and build your business towards it even if you don't have access yet. In a relatively short time frame, 5G will roll out worldwide, and those companies that are not preparing now won't be able to keep up with smarter products. The most innovative companies are figuring out how to prepare their business and systems so that they're ready to sync with this transformative technology.

Thinking about what your products or services will look like on 5G.

Start building use cases to understand how you can uniquely apply this technology to your business. Be smart and start working on developing products based on this technology that is sure to transform each and every business.

Digital Innovation: The Future of Customer Experience

Increasing competitive pressures and evolving customer behaviors are driving rapid change in every industry, as each and every company is applying new technologies to existing business models to deliver innovative solutions.

Customers have the power and want exceptional customer experiences from the brands they trust. This will, without a doubt, shape the world of customer experience in 2019 and beyond.

Organizations that proactively embrace digital innovation will lead the way, engaging modern, highly mobile, and informed customers. The rest will simply falter.

Interested in learning more about how you can embrace these exciting digital trends in the era of digital transformation? Download our ebook, How to Introduce Software in the Era of Digital Transformation for facts and statistics on the latest in digital innovation.

Are you frustrated with the low adoption rate of your complex software amongst your customers and employees?

Would you like to find out more about the power of in-app interactive training? Let's start a conversation and fight for simplicity together!