


Analytics in Industry 4.0

Digital Transformation & Framework

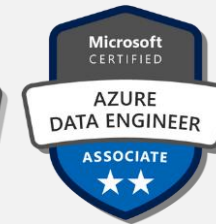


Presenter



 /arifmazumder

Mohammed Arif, PhD
Lead Data Scientist
Big Data | Machine Learning | AI



Mohammed Arif has more than fifteen (17) years of working experience in Information Communication and Technology (ICT) industry. The highlights of his career are more than seven (7) years of holding various senior management and/or C-Level and had five (5) years of international ICT consultancy exposure in various countries (APAC and Australia), specially on Big Data, Data Engineering, Machine Learning and AI arena.

He is also Certified Trainer for Microsoft & Cloudera.



Agenda

- Understanding Digital Transformation
- Digital Transformation Framework

Resource Link

<https://arif.works/uob-series>

What is Transformation?

Transformation is the [process of changing](#).

An example of a transformation is a caterpillar turning into a butterfly. Meaning, change of state.

Business transformation means your organization can survive and thrive as you pursue new innovation-driven opportunities that emerge, as you respond to shifting market demands.

An organization is transforming, because it needs to remain **viable** and **sustainable**.

But what are we really changing?

For example, if I take a process, what do I need to change in this process to really transform it?

- It could be making it **more profitable**.
- It could be making it **quicker**.
- It could be breaking it down into **multiple processes**.

So, transformation is pretty clear.

What is 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.

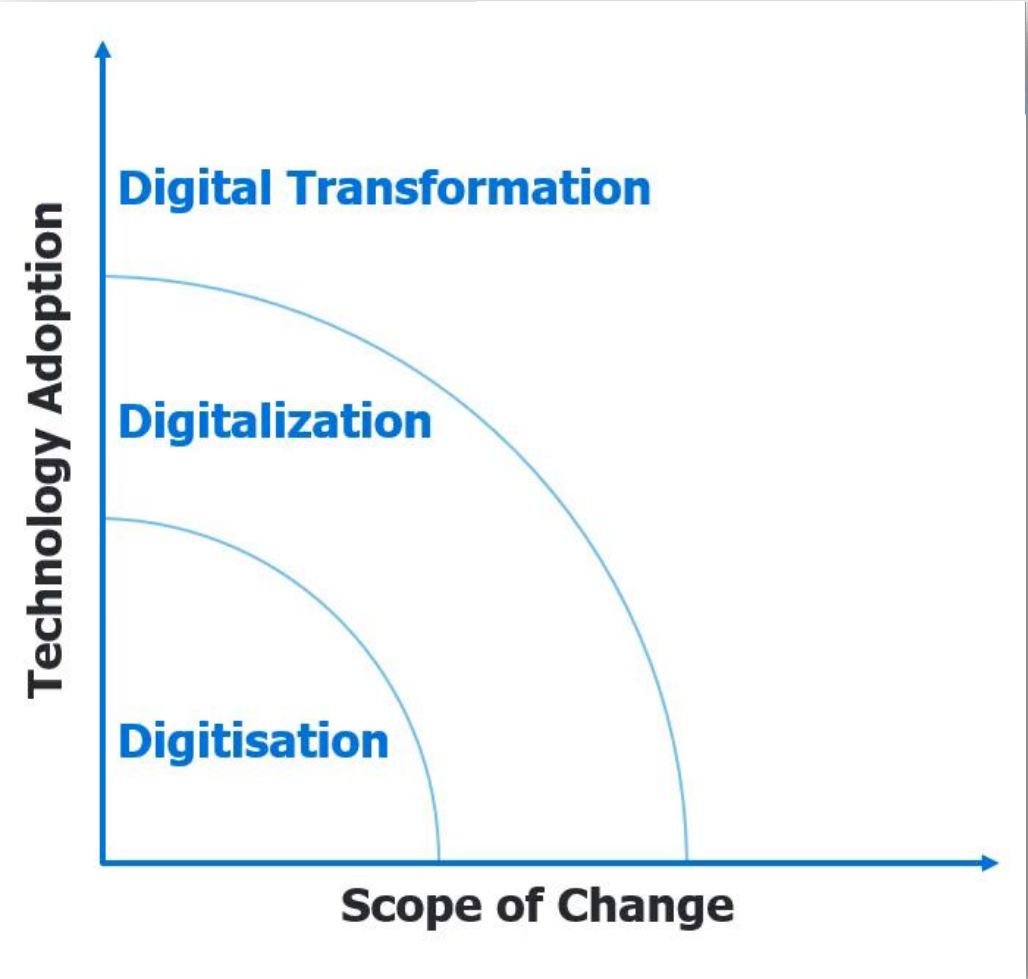
3Ds – Digitisation, Digitalization and Digital Transformation

Digitisation is converting **analog information into digital** so that computers can store, process and transmit it.

Digitalization refers to the **trend of adoption** of digital technology by individuals and companies for perceived benefits. It can help provide new revenue generating or cost reduction opportunities for companies. And influence social interactions or provide convenience for individuals and society.

Digital Transformation is the **sustainable value creation** across the whole **ecosystem of an organization** including employees, customer and partners by adopting **digital technologies at scale** and driving **permanent change** in the organization culture.

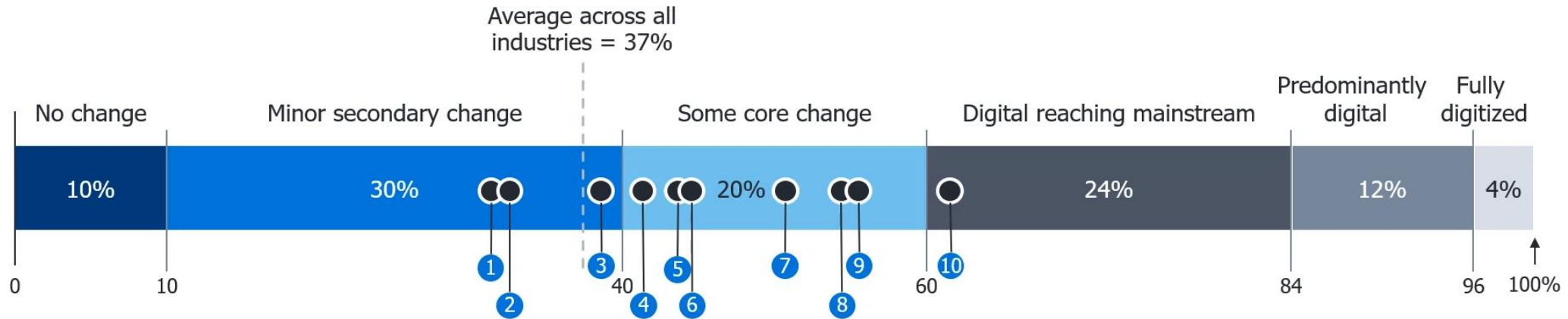
3Ds – Digitisation, Digitalization and Digital Transformation



On an average there is ~40% higher digital penetration over last three years

Digitalization – Enterprise perspective

Perception of digital penetration by industry¹, % of respondents



Selected industries

- | | |
|---------------------------------|--|
| 1 Consumer packaged goods (31%) | 6 Travel, transport, and logistics (44%) |
| 2 Automotive and assembly (32%) | 7 Healthcare systems and services (51%) |
| 3 Financial services (39%) | 8 High tech (54%) |
| 4 Professional services (42%) | 9 Retail (55%) |
| 5 Telecom (44%) | 10 Media and entertainment (62%) |

Why we need Digital Transformation?

In one sentence, it creates more value for customers and employees and importantly makes organizations **sustainable.**

Why we need Digital Transformation?

Kodak

The logo for Kodak, featuring the word "Kodak" in a bold, red, sans-serif font. A thick yellow horizontal line is positioned directly beneath the text.

NOKIA

The logo for Nokia, consisting of the word "NOKIA" in a bold, blue, sans-serif font.

Paid **heavy price** for the tendency to underestimate the trend

**Disruption
is Not New**

The background features a dark blue field on the left and bottom, and a light blue field on the right. A large, irregular light blue shape overlaps the dark blue area on the left. In the bottom right corner, there is a small, solid light blue circle.

Digital Transformation – Value Drivers

Digital Transformation is one of the top priority for almost every company today

CXOs have digitalization as top priority

Gartner CEO and Senior Business Executive Survey:

62% of CEOs have a management initiative or transformation program to make their business more digital



EY Center for Board Matters:

Top priority for CEOs is understanding technology's impact on strategy, business models and cybersecurity

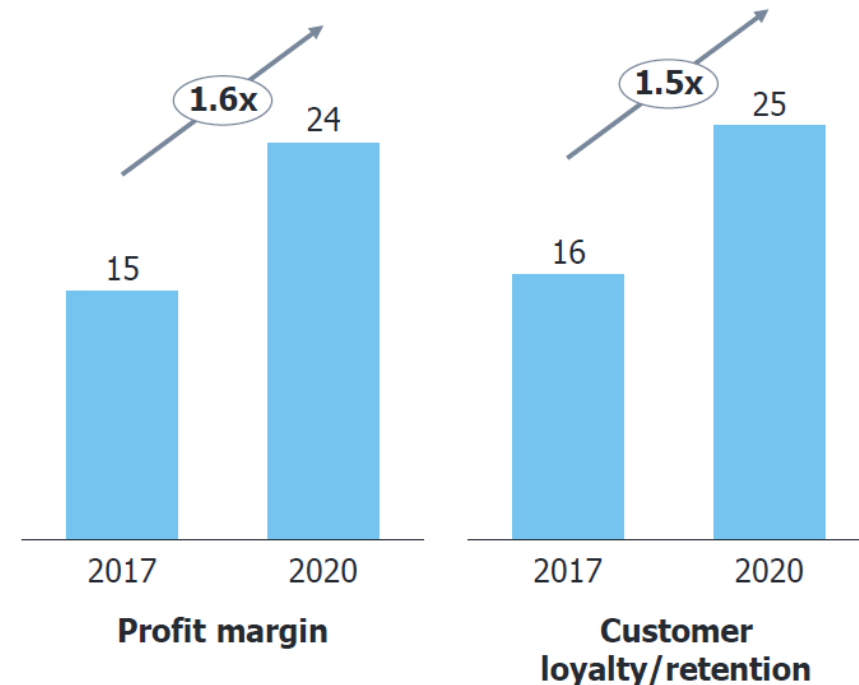


18th Global Annual CEO Survey:

86% of CEOs think it's important that they champion the use of digital technologies themselves

Opportunity to create significant value from digital initiatives

% improvement

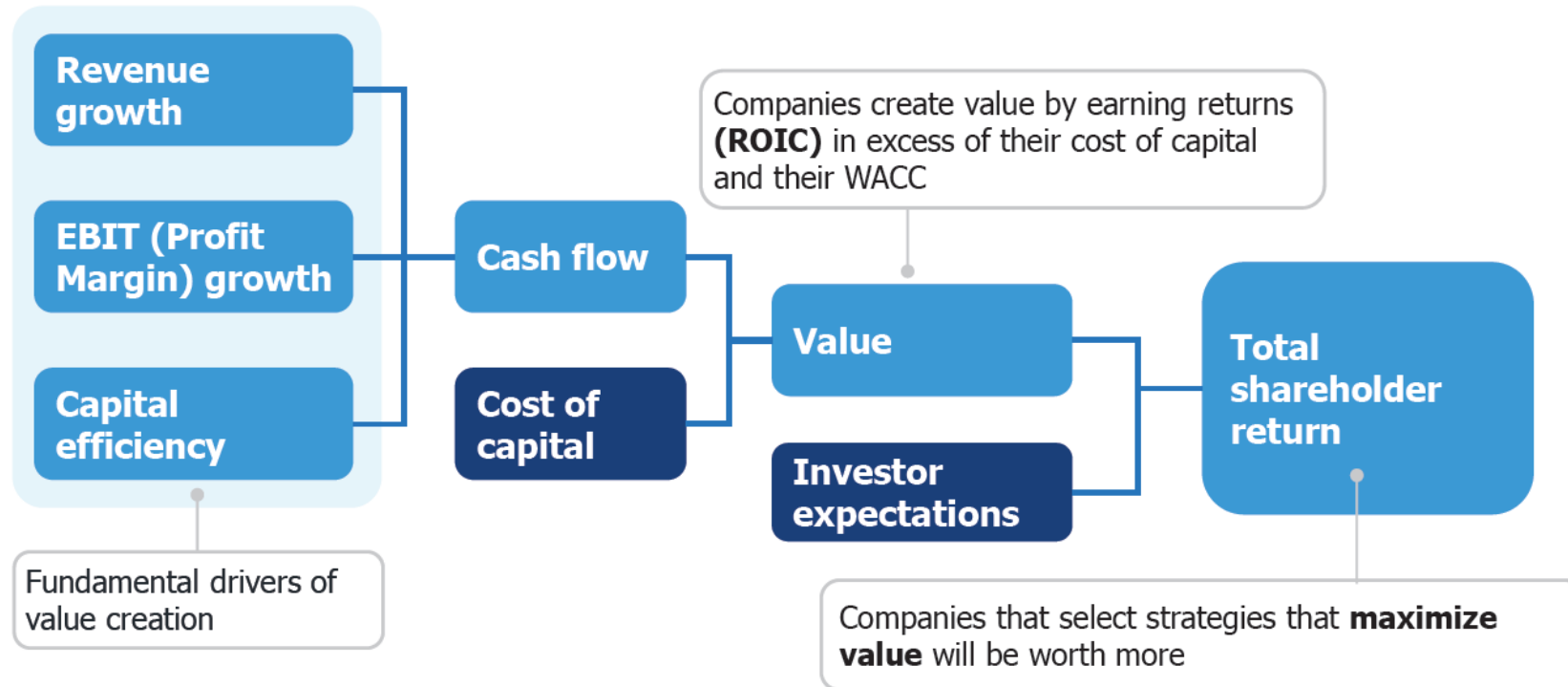


The impact from digital transformations to contribute >1 trillion USD by 2021

Digital Transformation – Value Drivers

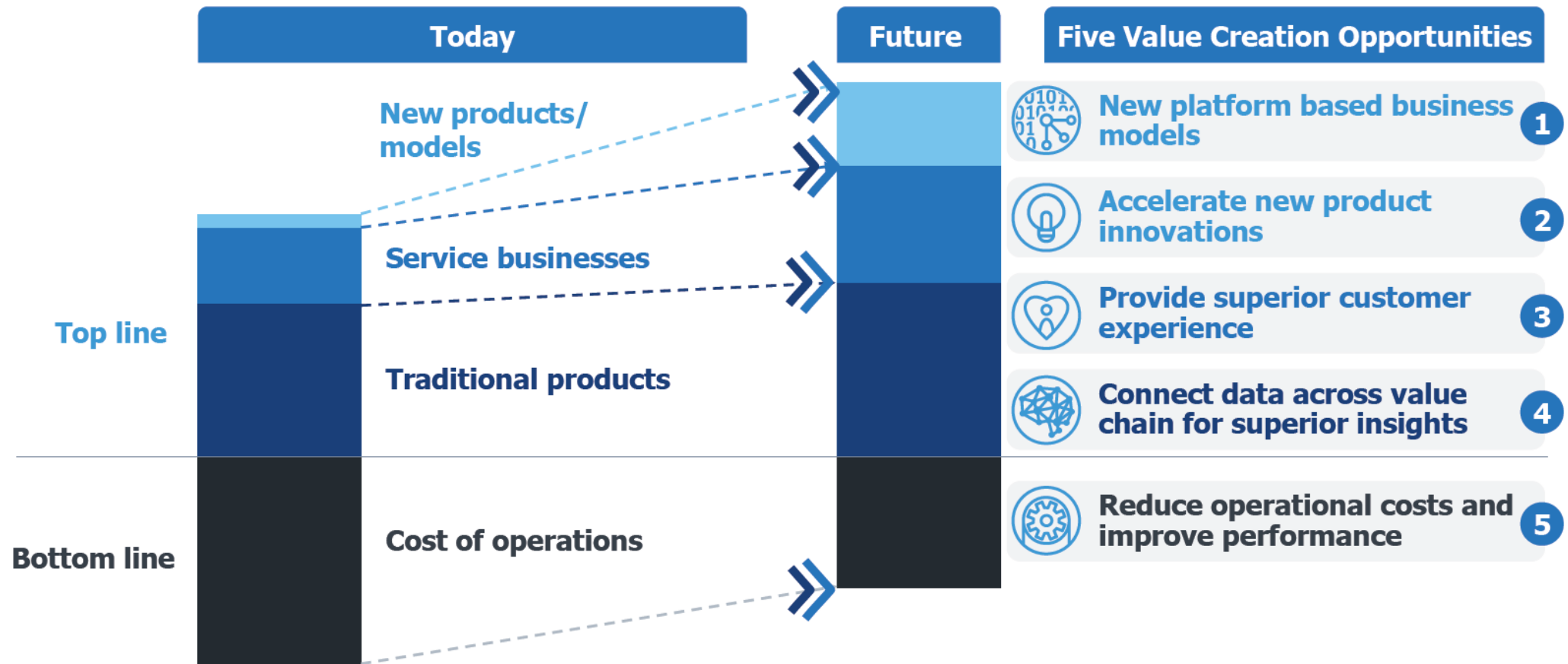
Finance 101 – How do companies create shareholder value?

Digitalization offers new sets of tools to increase revenue and decrease costs



Digital Transformation – Value Drivers

Digitalization offers **FIVE** unique value creation opportunities



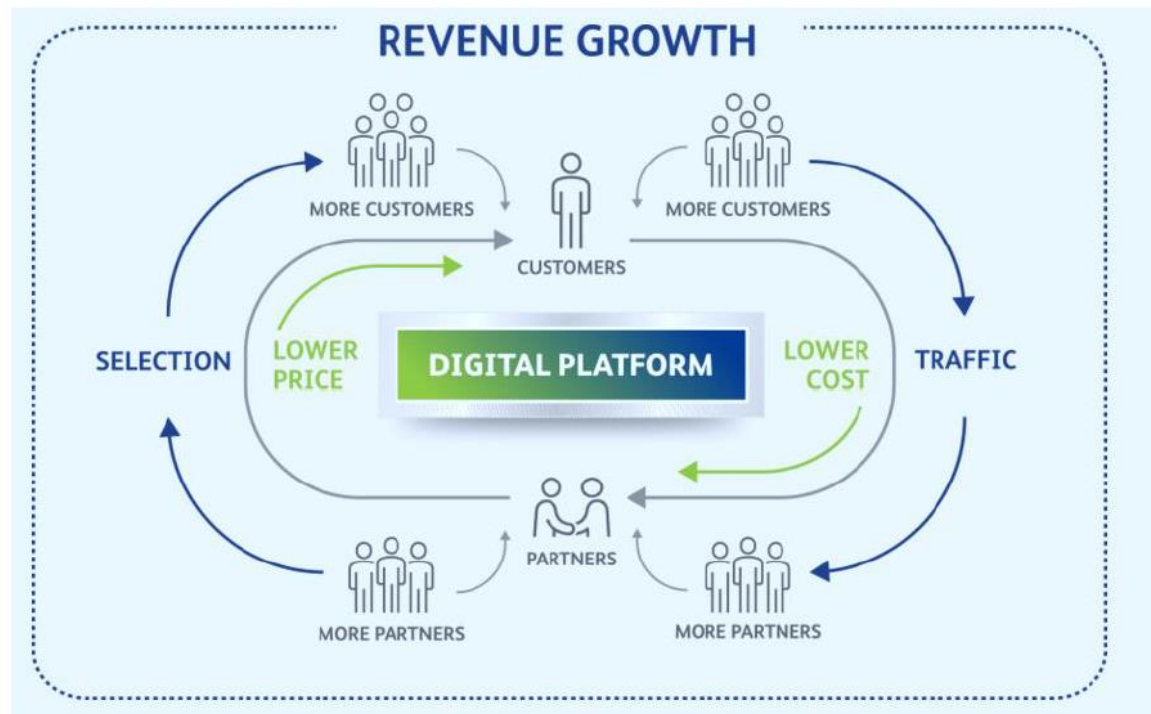
Digital Transformation – Value Drivers

1 New platform based business models

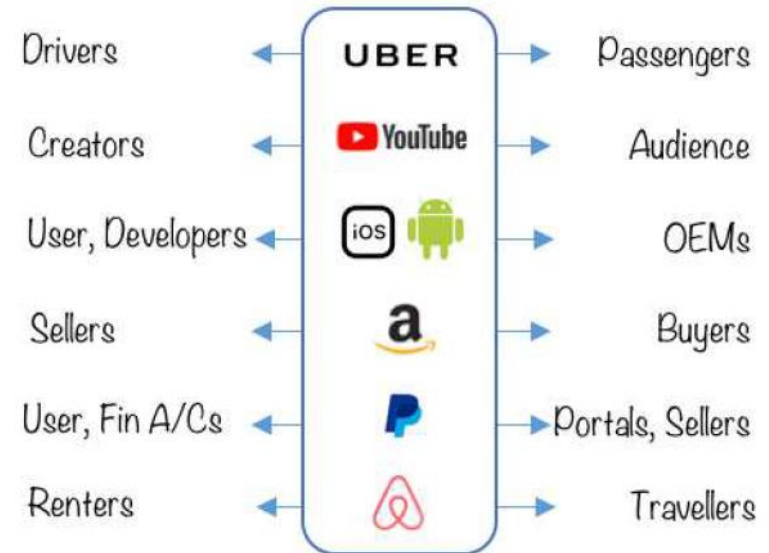


Platform creates value by facilitating exchanges (e.g., between consumers and producers) by building large, scalable networks of users and resources that can be accessed on demand. Platform owners don't own resources they just create the means of connection

Network effects



Examples



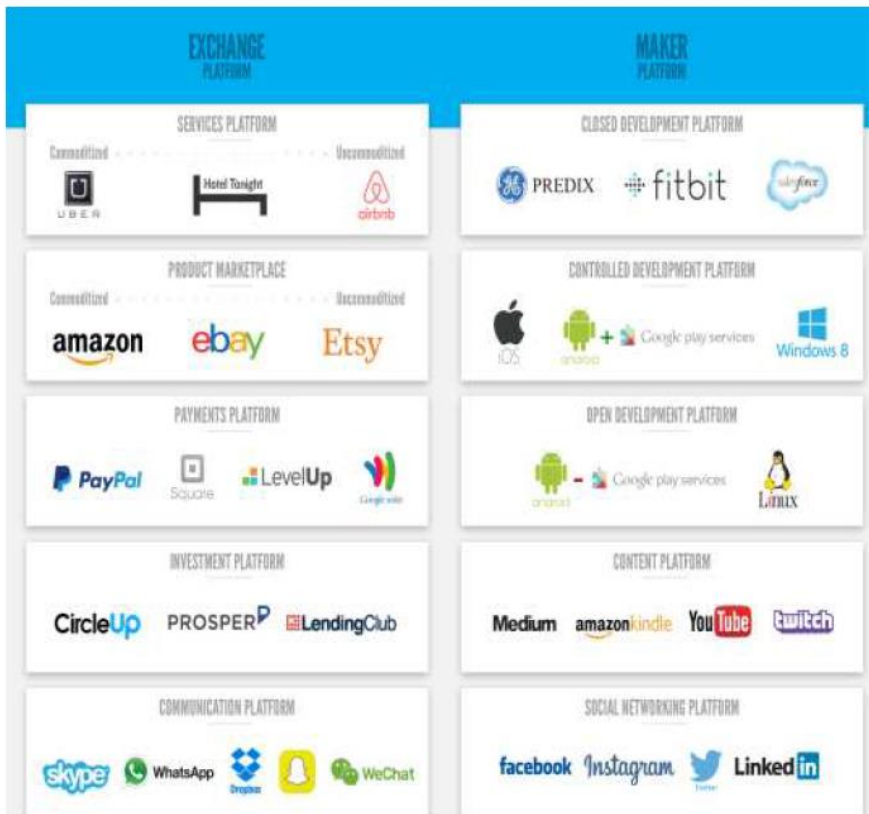
Digital Transformation – Value Drivers

1 New platform based business models

Examples & Applications

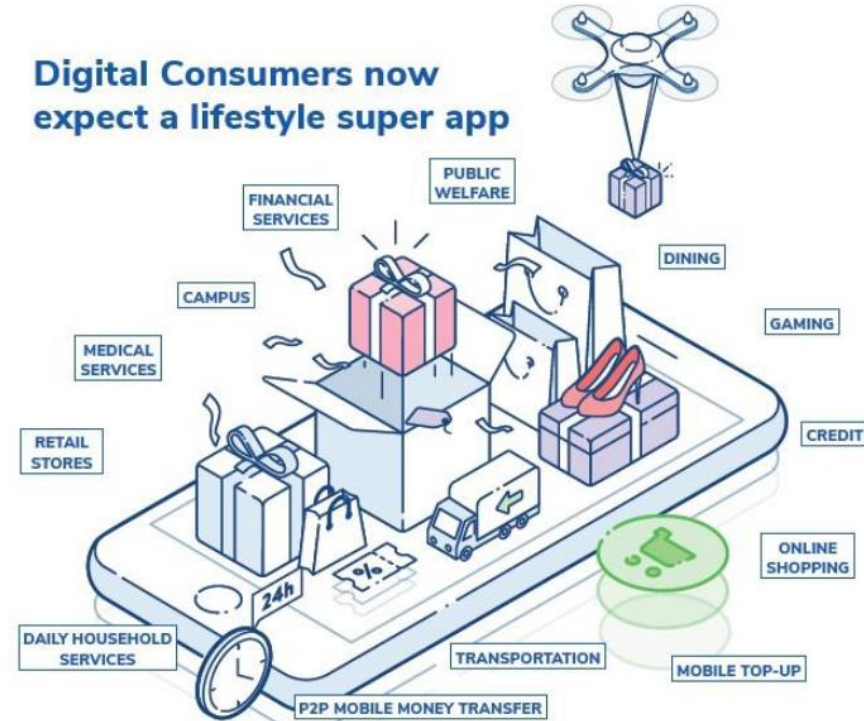


Examples of platforms



'Super App' Platform

Digital Consumers now expect a lifestyle super app



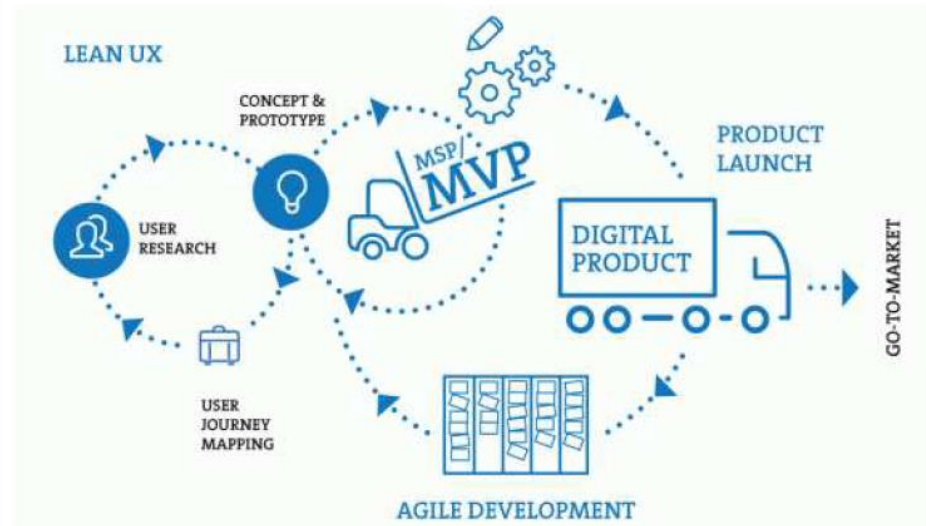
Digital Transformation – Value Drivers

2 Accelerate new product innovations

Digitalization can accelerate new product launch by both accelerating the development process using agile MVP approach and increasing the reach and access to target customers



Product development process



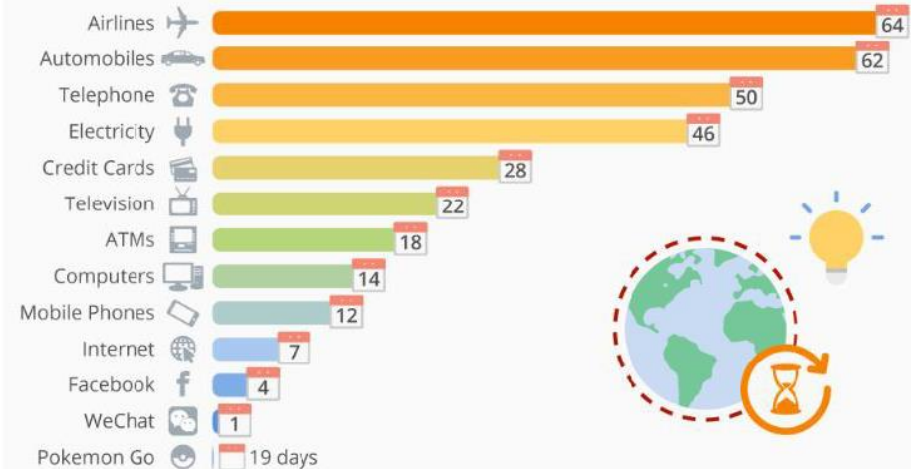
Virtual-reality hackathons help companies reduce R&D costs and time to market by bringing cross-functional teams together to refine virtual prototypes in real time.

Faster and more effective R&D

Application area	Typical impact
Time to market	15% reduction
Value proposition	20% increase
Development cost	15% reduction



Time innovations needed to reach 50 million users (in years)



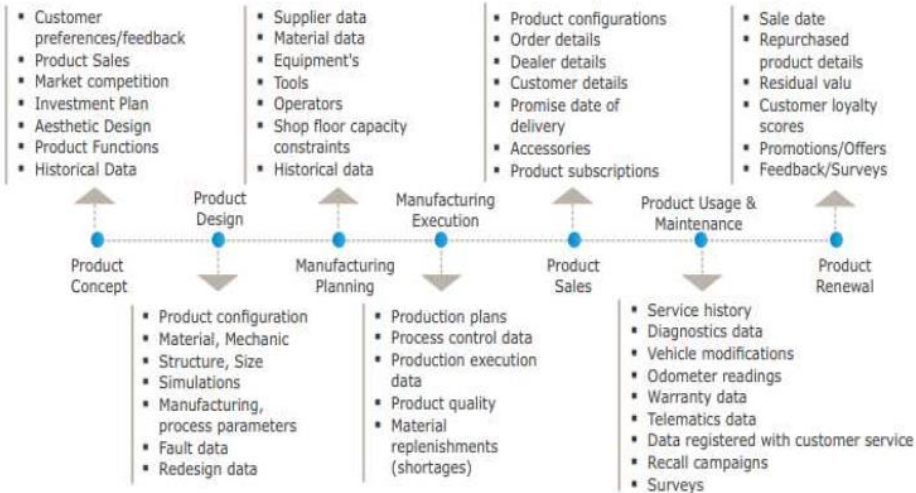
Digital Transformation – Value Drivers

2 Accelerate new product innovations

Example from Automotive Industry



From



To

One automotive company uses 'digital twins' to accelerate the development of new product features and performance boosters.

The manufacturer creates a **digital twin** of each working vehicle to track its condition.

Vehicle lifetime



Digital twin



The car's onboard sensors wirelessly transmit real-time data to its digital twin.

Engineers study the digital twins for this car and others to identify performance problems.

Developers write code to fix performance problems and test it in many digital twins.

Engineers send a corrective software patch to each car via a wireless connection.

Digital Transformation – Value Drivers

3 Provide superior customer experience

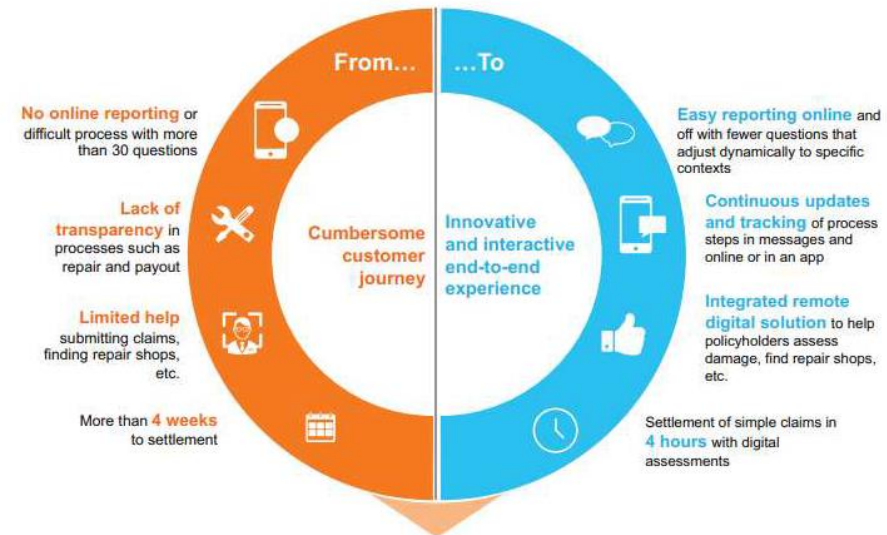
Digitalization can help provide consistently delightful customer experience across multiple channels



Example of Digital Use Cases

Enhancing presales and discovery through digital marketing	Agile digital marketing	Optimize paid search (SEM)	Maximize organic search (SEO)	Next product to buy/personalization
Transforming customer experience	Customer decision journeys	Digital buying/fulfillment	Optimized sales-coverage model	Intelligent lead generation
Optimizing pricing	Dynamic (at-scale) price setting	Dynamic deal scoring	Data-driven performance management	Targeted category margin expansion
Enabling IoT at dealers and retailers	Traffic measurement	Curbside pickup and installation	In-store video and sensor analytics to deliver the DIY customer promise	Intelligent in-store navigation and promotions

Customer Journey in buying Insurance



Efficiency gains of up to 30% with digital self-servicing, straight-through processing and lower call volume

Digital Transformation – Value Drivers

3 Provide superior customer experience



Case Example - Lemonade

Home FAQ Claims Giveback Blog API COVID-19

Lemonade

Inc. FORTUNE THE WALL STREET JOURNAL Forbes FINANCIAL TIMES The Economist VentureBeat TechCrunch NEWYORKPOST

Home and Renters Insurance Built For the 21st Century

Lemonade's amazing coverage protects the stuff you own at home and everywhere else.

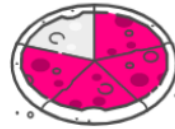


How Lemonade Works

Lemonade reverses the traditional insurance model. We treat the premiums you pay as if it's your money, not ours. With Lemonade, everything becomes simple and transparent. We take a flat fee, pay claims super fast, and **give back** what's left to causes you care about.*



A flat fee to run everything



We pay claims super fast



If there's money leftover, we give it back to causes

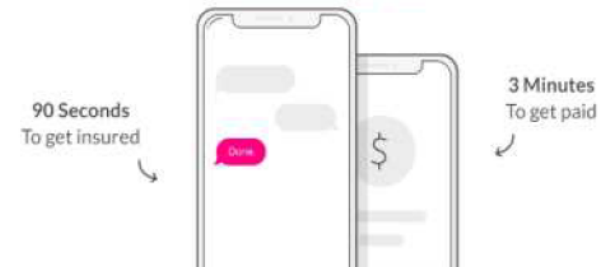
Great Prices, Monthly Subscription

Renters Insurance MONTHLY FROM \$5 GET RENTERS INSURANCE	Homeowners Insurance MONTHLY FROM \$25 GET HOME INSURANCE
--	---

Instant Everything

Maya, our charming artificial intelligence bot, will craft the perfect insurance for you. It couldn't be easier, or faster.

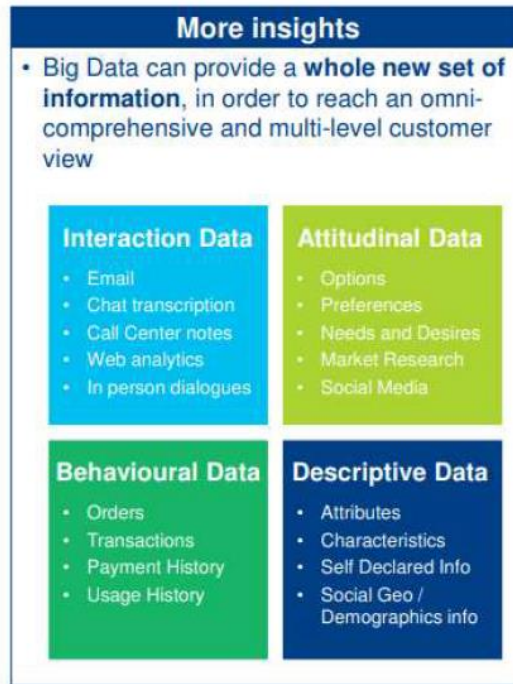
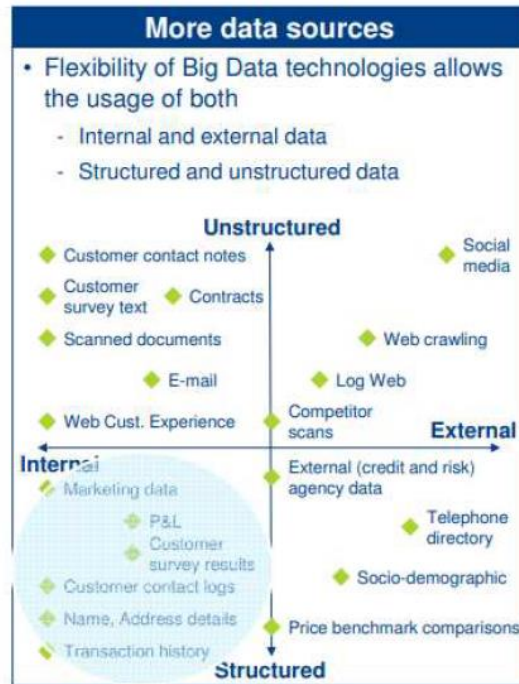
See the Lemonade App in action



Digital Transformation – Value Drivers

4 Connect data across value chain for superior insights

Digitalization can help provide consistently delightful customer experience across multiple channels



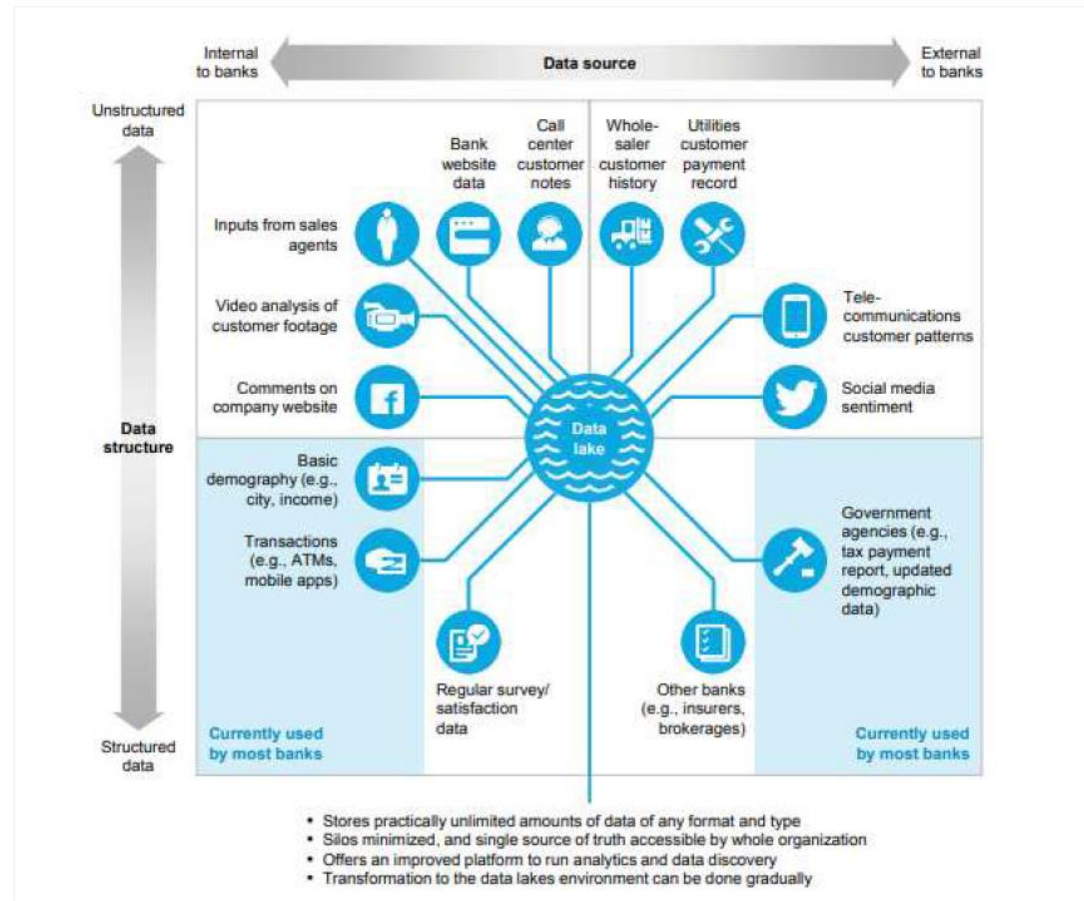
Analytics will enable individually tailored products and services in these industries

Health care	Tailoring interventions leads to precision wellness
Education	Individualized learning experiences based on existing skills, learning style, and interests
Labor market	Identifying an individual's skills and career goals to aid job matching and training
Travel and leisure	Customized travel experiences and recommendations
Media	Tailored and curated content
Retail	Shoppers directed to the right products for them at the right moment
Advertising	Ads targeted by time, location, and person to maximize potential sales

Digital Transformation – Value Drivers

4 Connect data across value chain for superior insights

Example Banks can utilize data from multiple sources to provide a personalized omnichannel experience



Illustrative use cases for data driven insights



Cost of Acquisition ↓

Life Time Value ↑

FCCR ↓

Marketing ROI ↑

Digital Transformation – Value Drivers

5 Reduce operational costs and improve performance

Example from Industrial Manufacturing



+5% Utilization



- **Data analytics** predict asset failures to optimize maintenance scheduling
- **IIoT sensor data** provide insights to allow routine minor fixes, reducing unplanned down time

-10% Back Office Costs



- **RPA** reduces cycle time and free staff for more value-adding tasks

+10% Throughput



- **IIoT devices** and **analytics** enable better utilization of equipment
- **Real-time analytics** and **virtual simulations** identify and suggest solutions to bottlenecks

-5% Energy Demand



- **Advanced machineries** with energy usage optimization to lower cost
- **Data analytics** of energy consumption alert users to surges, pointing towards malfunctioning

-10% FTE



- **AR/VR devices** help enhance training effectiveness
- **Cloud collaboration** reduces travel time, whilst increasing efficiency of knowledge sharing and data management

+5% Yield

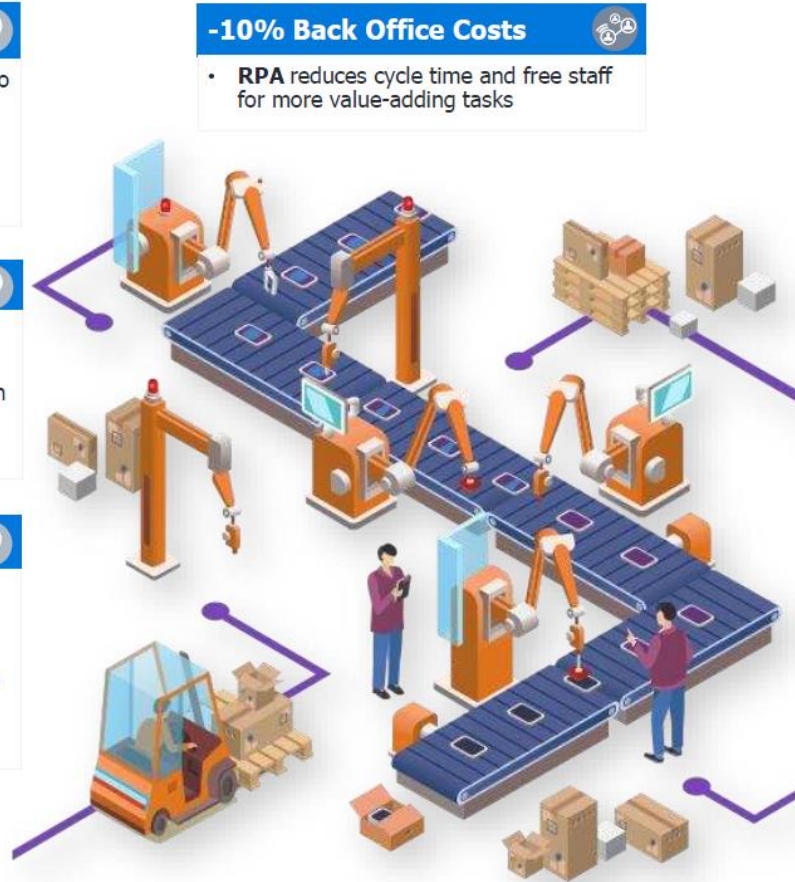


- **Machine learning optimization** maximizes recovery and specification adherence
- **Automated production line** reduces wastage with increased accuracy

-12% Inventory Costs



- **Automated warehouses** outfitted with **IIoT devices** optimize planning and lower inventory mgmt. cost
- **3D printing** enhances spares management, and allows for easy customization



Connectivity & Computing Power



Human-Machine Interface



Analytics & Intelligence



Digital-Physical Transformation

Digital Transformation – Value Drivers

Bringing it all together – Five sources of value creation

Example of Digitalization in Banking Industry

1 New platform based business models

- Banks are increasingly trying to be a single Platform for multi products beyond financial services (e.g, mobile app integrates house searches, booking viewings, budgeting, transactions, and setting up a new home)



2 Accelerate new product innovations

- Most of the Banks have Corporate Ventures to invest in FinTech Startups for new products/solutions
- Product development teams regularly organize hackathons to prototype new products with 24-48 hours



3 Provide superior customer experience

- >75% consumers use digital banking at least once a month and expect interactions to be simple, intuitive and seamlessly connected across physical and digital touchpoints
- Highly satisfied customers are 2.5x more likely to open new accounts/products



4 Connect data across value chain for superior insights

- Reshaping branch network - optimize network based on customer data (digital propensity, willingness to travel, needs and branch usage, and format of branches)
- Digital sales – Personalization by translating data from multiple sources into products/offers






5 Reduce operational costs and improve performance

- Automation of top 15-20 processes can lead upto 30-40% efficiency gains across banking operations
- Autonomous operations (e.g, bots) can radically automate and run at fractions of original costs while increasing regulatory compliance and risk management for banks



Digital Transformation – Value Drivers

Companies can choose to focus from digitization to digitalization to fully scale transformation

	Digitization	Digitalization	Digital Transformation
 Core belief	<ul style="list-style-type: none">• Small Scale Improvements• React to bare necessities	<ul style="list-style-type: none">• Large Scale Adoption• Use digitalization to enable business strategies	<ul style="list-style-type: none">• Transformation• Become digitalization champion in our industries
 Focus	<ul style="list-style-type: none">• (Late) follower strategies• Clear business case logic	<ul style="list-style-type: none">• Lighthouses, pilots & scale• Benefit case logic	<ul style="list-style-type: none">• 'Right of way' for digital• Re-create organization
 Value Creation Opportunity	<ul style="list-style-type: none">• Mainly Operational Cost Reduction	<ul style="list-style-type: none">• Portfolio of Initiatives across Operations, Products and Data driven services	<ul style="list-style-type: none">• New business models with focus on all 5 opportunity areas

Digital Transformation – Value Drivers

However, digital transformation is not easy for most of the companies

Only 5%

of digital transformations are fully successful



Achieved or exceeded expectations



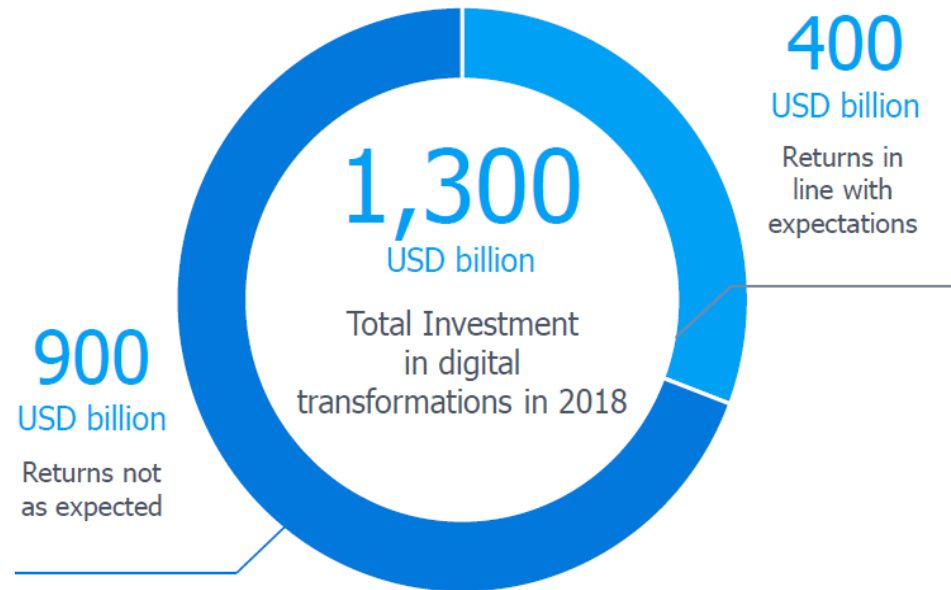
Failed to deliver, producing less than 50% of the expected results



Settled for dilution of value and mediocre performance

Only ~30%

investments deliver expected returns



Digital Transformation – How to Implement

DigiCo Internal Experts have shared with you five elements important for Digital Transformation programs

1. Awareness

Building a common understanding of digitalization within the company



3. Focus

Defining clear vision and priorities for digitalization transformation



2. Engagement

Mobilizing the organization and generating digital use cases



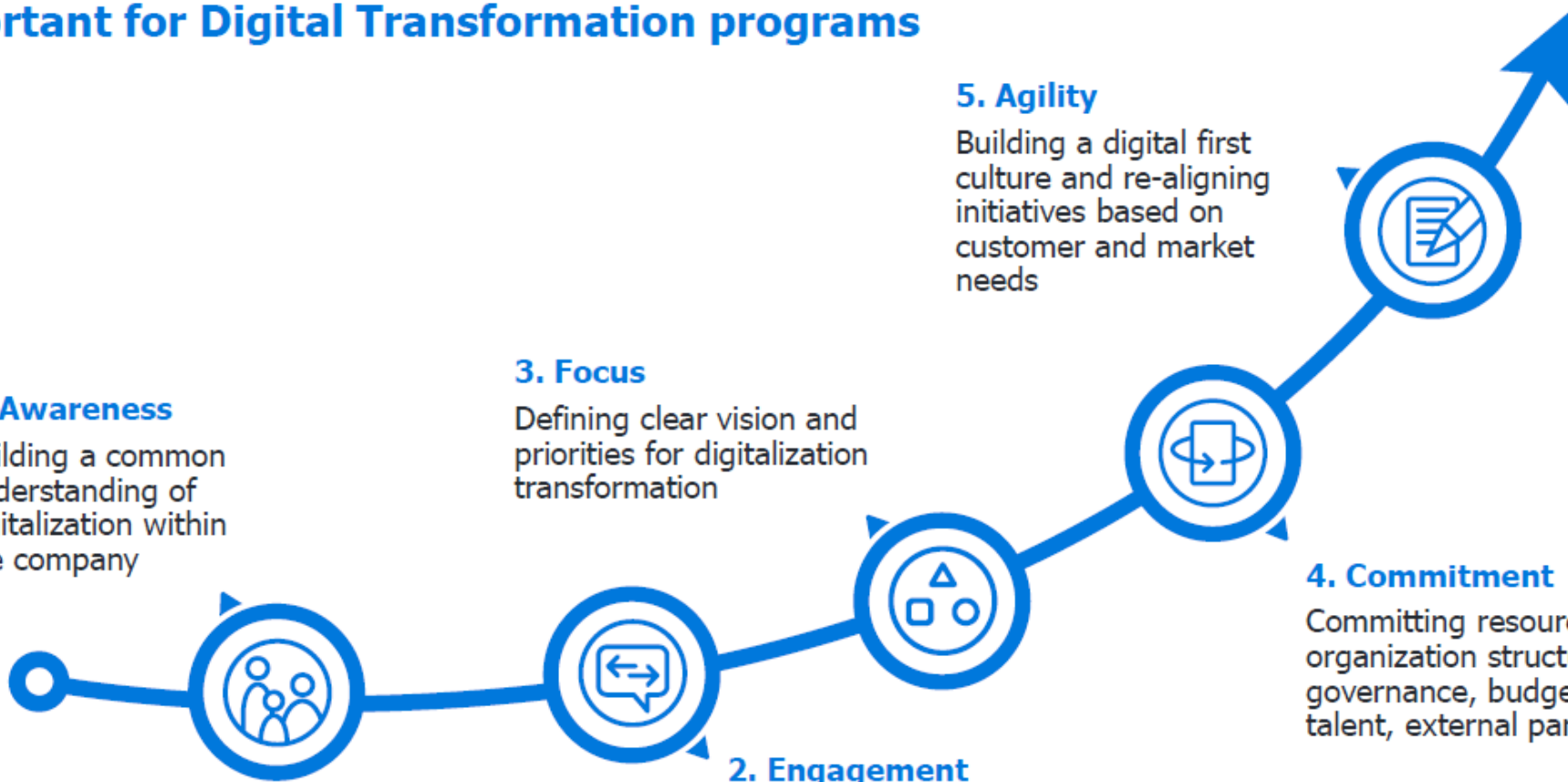
5. Agility

Building a digital first culture and re-aligning initiatives based on customer and market needs



4. Commitment

Committing resources – organization structure, governance, budgets, talent, external partners



Digital Transformation – How to Implement

1. Awareness

Building a common understanding of digitalization within the company



Challenges @ Legacy Books



- Fuzzy definitions, lack of common understanding within organization, hundreds of jargons and frameworks available
- Different level of awareness, fears and insecurities on digitalization potential
- Board members are key sponsors are not fully aware of latest technologies and the their potential impact on the company and its value chain

Exercise: Take few minutes and write down few ways we can solve this for Legacy Books?

Digital Transformation – How to Implement

1. Awareness



Challenges

- Fuzzy definitions, lack of common understanding within organization, hundreds of jargons and frameworks available
- Different level of awareness, fears and insecurities on digitalization potential
- Board members are key sponsors are not fully aware of latest technologies and the their potential impact on the company and its value chain



Best Practices

- [Events/forums/resources](#) focused on building digital quotient of employees (e.g., Hackathons, Go & See, War Gaming)
- [Digital Academy](#) to build common language for understanding digitalization in company's context
- Set-up a [Sounding or Advisory Board](#) of external Digital Experts for the company

“Lacking a clear definition, companies struggle to connect digital strategy with day to day business”

Digital Transformation – How to Implement

2. Engagement

Mobilizing the organization and generating digital use cases



Challenges @ Legacy Books



- Frontline not involved, even though it's a critical source of idea generation and use case identification
- Siloed approach across departments and regions across the company
- Need to generate relevant ideas and use cases for digital transformation
- Need to inspire and identify digital talent for the project

Exercise: Take few minutes and write down few ways we can solve this for Legacy Books?

Digital Transformation – How to Implement

2. Engagement



Challenges

- Frontline not involved, even though it's a critical source of idea generation and use case identification
- Siloed approach across departments and regions across the company
- Need to generate relevant ideas and use cases for digital transformation
- Need to inspire and identify digital talent for the project



Best Practices

- Start with **pain points** to build a strong pipeline of ideas/initiatives
- Think about **key customer journeys** and generate ideas linked to the gaps in experience
- Define '**what's in it for me**' across levels to secure employee commitment
- Tap not only into internal but **also external** ecosystem

"Changing mindsets is the single biggest obstacle for digital transformation"

Digital Transformation – How to Implement

3. Focus

Defining clear vision and priorities for digitalization transformation



Challenges @ Legacy Books



- Choose between – digitizing processes or and creating new products & business models
- Lot of sub scale, fragmented or overlapping ideas and potential initiatives
- Significant investments required with low near term pay-offs
- Change fatigue, limited resources

Exercise: Take few minutes and write down few ways we can solve this for Legacy Books?

Digital Transformation – How to Implement

3. Focus



Challenges

- Choose between – digitizing processes or and creating new products & business models
- Lot of sub scale, fragmented or overlapping ideas and potential initiatives
- Significant investments required with low near term pay-offs
- Change fatigue, limited resources



Best Practices

- Clear **vision and strategic intent** – Digitisation, Digitalization or Digital Transformation
- Digital strategy integrated with overall strategy and clear articulation of **'where to play', 'how to play' and 'how to win'**
- Asses **use cases/ideas** against business needs/pain points rather than technologies
- Sequence **initiatives to promote quick wins**, consider Lighthouse based approach combining multiple use cases for scale-up

“Strategy is all about defining what NOT to do”

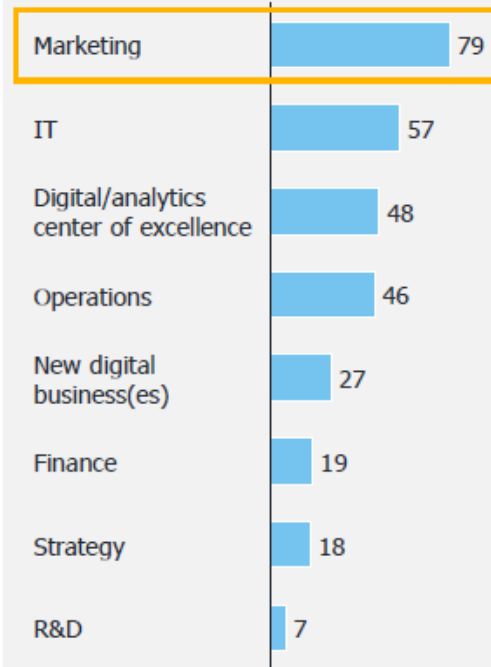
Digital Transformation – How to Implement

3. Focus

Example – Retailers tend to prioritize customer focus revenue boosting initiatives

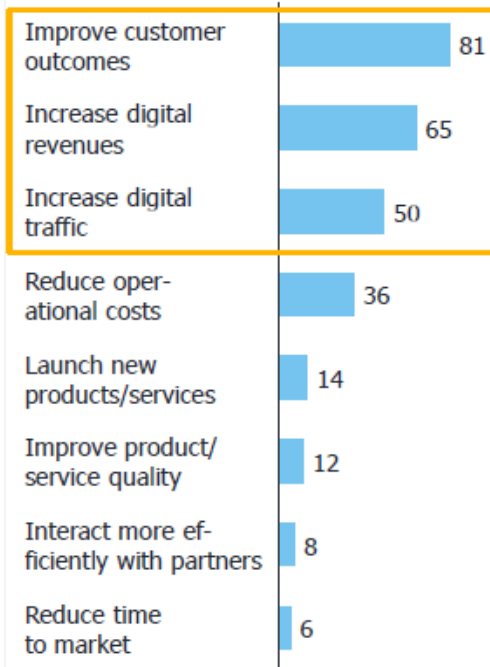


In which areas has your org. developed new digital/ capabilities (%)?



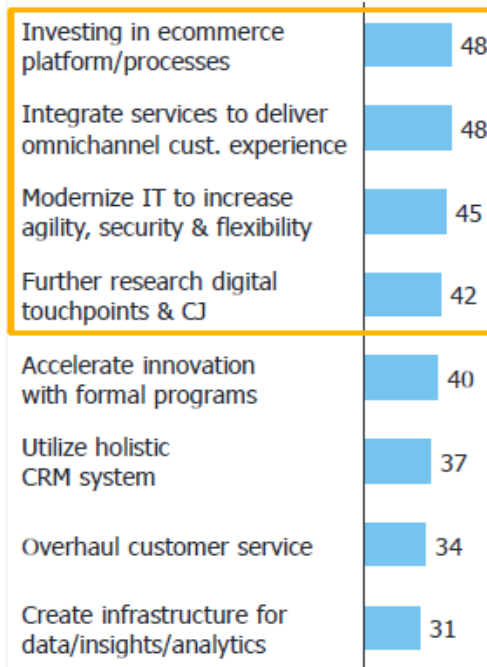
Cost cut or revenue boost?

What is your main objective of the digital transformation (%)?



Short-term or long-term initiatives ?

Which of these DT initiatives are on your short term roadmap (%)?



Focus on revenue boosting initiatives

Digital Transformation – How to Implement

4. Commitment

Committing resources – organization structure, governance, budgets, talent, external partners



Challenges @ Legacy Books



- A** Operating Model – Who should lead or own the digital transformation project?
- B** Digital Talent – How to attract develop and retain digital talent?
- C** External Partnerships – How to work with external partners and startups to accelerate?
- D** IT Infra – How to modernize legacy IT to support digital transformation?
- E** Funding – How to measure success of digital initiatives and decide on funding?

Exercise: Take few minutes and write down few ways we can solve this for Legacy Books?

Digital Transformation – How to Implement

4. Commitment



Challenges	Best Practices
<p>A Operating Model – Who should lead or own the digital transformation project?</p> <p>B Digital Talent – How to attract develop and retain digital talent?</p> <p>C External Partnerships – How to work with external partners and startups to accelerate?</p> <p>D IT Infra – How to modernize legacy IT to support digital transformation?</p> <p>E Funding – How to measure success of digital initiatives and decide on funding?</p>	<p>• Operating Model – Fix accountability and incentives in cross functional teams reporting regularly to Board</p> <p>• Digital Talent – investment in newer capabilities (e.g., Data Scientists)</p> <p>• External Partnerships – explore variety of models based on initiatives</p> <p>• IT Infra – Modernize technology stack using Cloud and data governance</p> <p>• Funding – Tranche based funding linked to progress milestones and adoption metrics. De-fund underperforming</p>

“Its not about one single idea, but solving 1000 small problems together”

Digital Transformation – How to Implement

5. Agility

Building a digital first culture and re-aligning initiatives based on customer and market needs



Challenges @ Legacy Books



- Not all initiatives deliver desired results along with rapidly changing technology landscape
- Need to focus on faster time to market rather than perfect solutions
- Need to build a culture of innovation and agility to sustain efforts

Exercise: Take few minutes and write down few ways we can solve this for Legacy Books?

Digital Transformation – How to Implement

5. Agility



Challenges	Best Practices
<ul style="list-style-type: none">• Not all initiatives deliver desired results along with rapidly changing technology landscape• Need to focus on faster time to market rather than perfect solutions• Need to attract & retain best talent• Need to build a culture of innovation and agility to sustain efforts	<ul style="list-style-type: none">• Regular review of digitalization priorities with balanced portfolio of initiatives• Feedback mechanism in place to truly evaluate success with 'Test and learn mindset' to accelerate time to market• Build a digital first culture for future of work

“In the new world, its no more about big fish eating small fish – but the fast fish eating the slow fish”

Digital Transformation – How to Implement

5. Agility

Building digital first culture for future of work



Work force



- Attracts and retain **digital natives** (GenZ, millennials) in the company
- **Co-working environment** for workforce to collaborate and manage intelligent machines both virtual (e.g, RPA, Bots) and physical (e.g., sensors, robots)
- Engages **freelancers**, gig workers

Work space



- Mix of **physical and virtual** co-working spaces
- **Organized for agile teams** and activity based working with hot desks, huddle rooms, social areas, quiet zones
- Utilizes **interactive technology** (e.g., IoT, AR/VR) to deliver personalized and engaging content for productivity enhancement, training & visualization

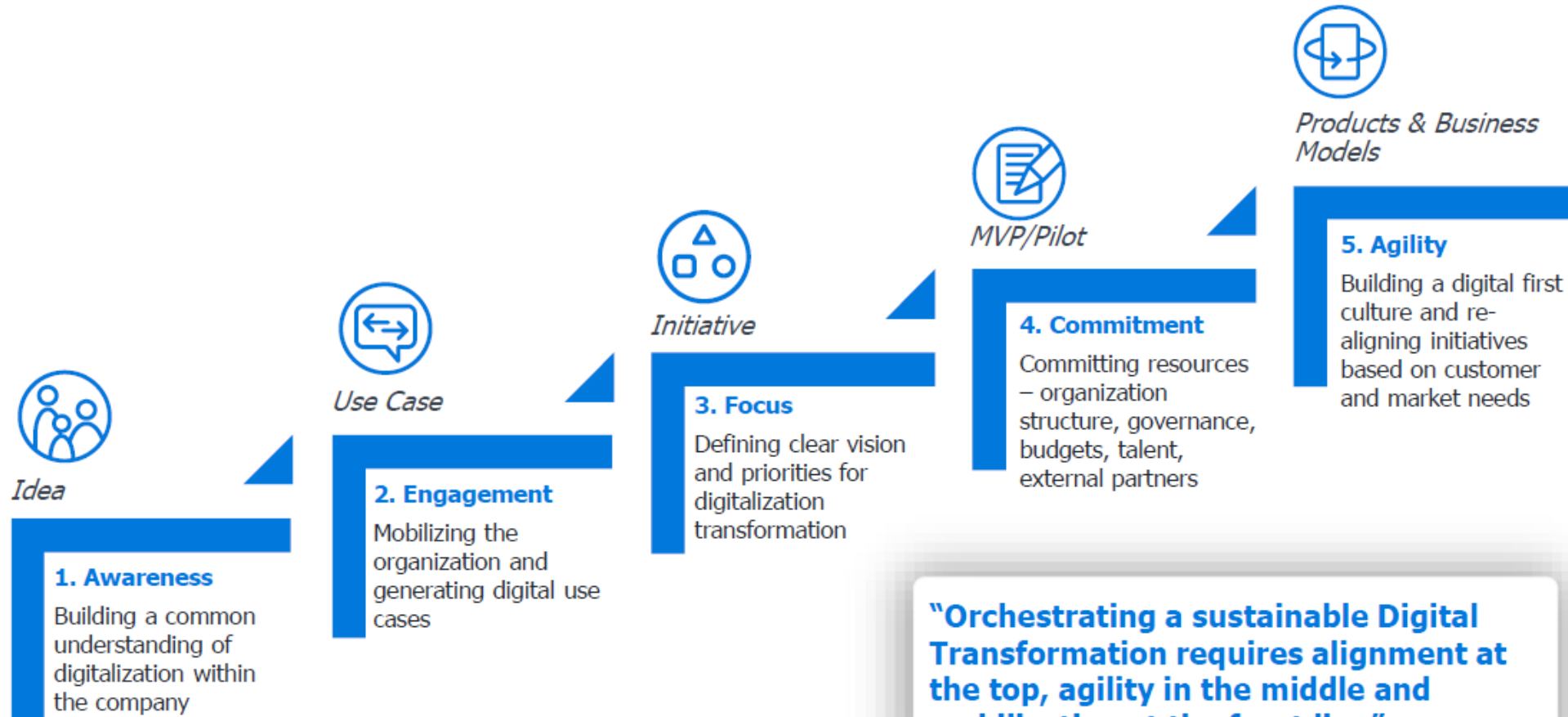
Work culture



- Borderless, **collaborative and innovation** focused
- **Flexible and outcome** driven by providing cloud based secure access to tools & data for flexible & remote working for both full time & gig employees
- Fosters 'life long learning' by making learning accessible, affordable and omnipresent

Digital Transformation – How to Implement

Recap – Five elements for a successful digital transformation



“Orchestrating a sustainable Digital Transformation requires alignment at the top, agility in the middle and mobilization at the front line”

First Step towards Digital Transformation

“ First Principles Thinking ”

First principles Thinking



First principles Thinking



Discussion Session

SMB Bank - Disruption and Value Opportunities

SMB Bank is a leading Financial Institution, with branches located across 20 states in the USA. They target an increasingly SME markets and Generation Y market or Expats. Both markets are very wealth conscious.

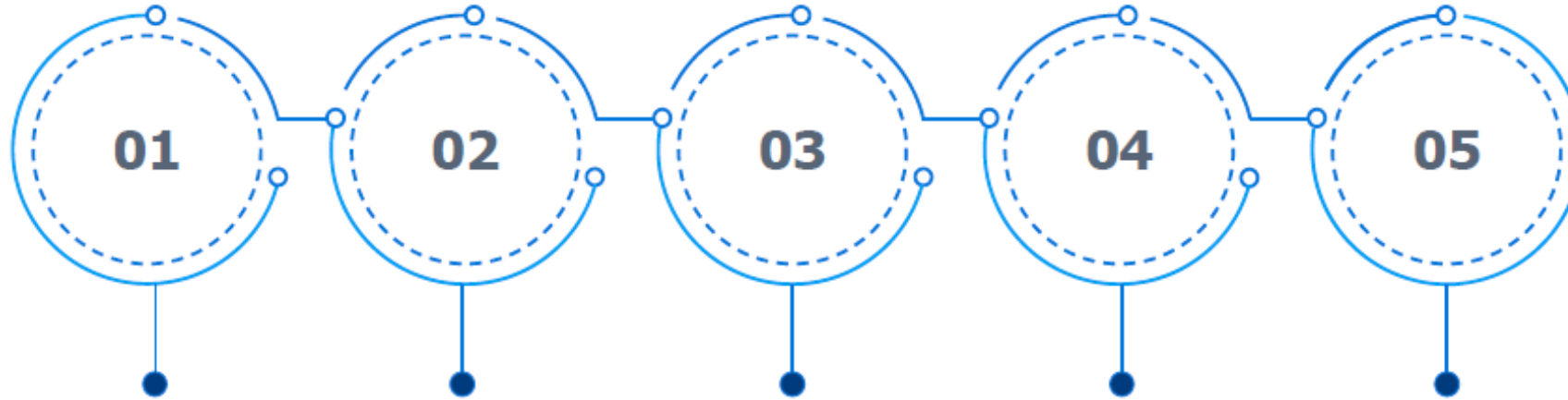
One of the situation they want to mitigate for their customer for opening a bank account as an individual or a businessman. With rules, legalities, and formalities one has to spend days and weeks to open a bank account. Also SMB bank offer loans and credit options but only to select few – who are backed by corporates or have an asset to show or even a guarantor, mainly with their rule based credit scoring model. Apart from these, currently they want to reduce their operational and capital expenditure.

SMB Bank is nervous about disruption happening at the moment in their industry and within their targeted segments.

You have been hired by SMB Bank as an expert in Digital Transformation – and they want you to provide answers to key concerns they have.

- Define 3 key areas that you think would cause disruption for SMB Bank . Provide details for each disruptor and the impact it could have on SMB Bank 's current business models.
- Identify, based on SMB Bank 's current business models, ideas for SMB Bank to mitigate this disruption by creating value for its clients.

Digital Transformation Framework



Technology will continue to strongly influence the way we live, work and play in our lifetimes. Its no more about big fish eating the small but fast eating the slow

Digitalization is not about just technology adoption but a fundamental shift in how you can find newer ways to create value for a company & its customers using data

Success of Digital Transformation program goes back to the basics of change management defining 'what's in it for me?' for everyone

AI will never really replace Humans, but Humans who can work with AI will replace Humans who cannot

Cultivating a mindset of life long learning and having resilience through change is the best way you prepare for a successful career in a digital future

Digitalization in Bank (Digital Banking)



Digitalization in Bank (Types of Digital Banking)

