Analytics in Industry 4.0

Digital Transformation & Framework

Presenter

/arifmazumder

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

Mohammed Arif has more than fifteen (15) 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

So an organization is changing 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 more 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.

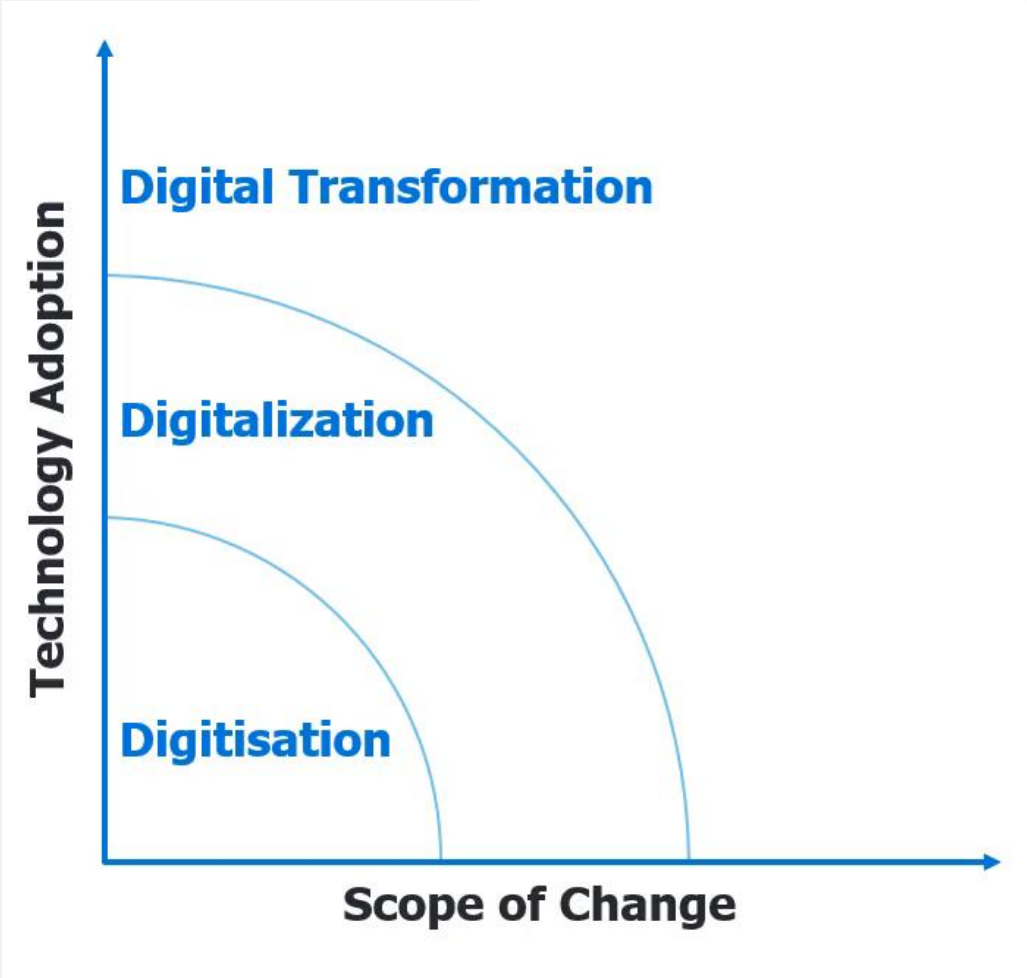
3Ds – Digitisation, Digitalization and Digital Transformation

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 cluture.

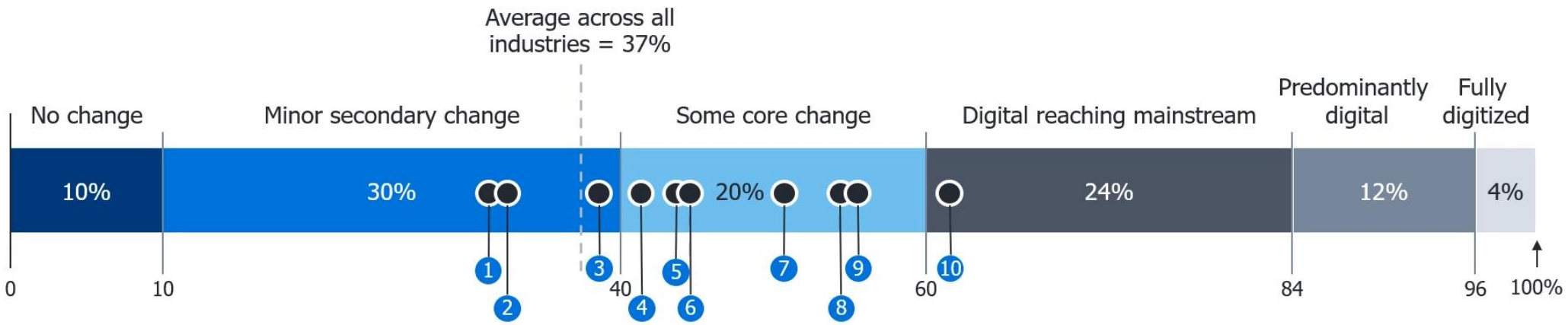
3Ds – Digitisation, Digitalization and Digital Transformation



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

Digitalization – Enterprise perspective

Perception of digital penetration by industry[1], % of respondents



Selected industries

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

Source: World Economic Forum, McKinsey

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?

Paid heavy price for the tendency to underestimate the trend

Disruption is Not New

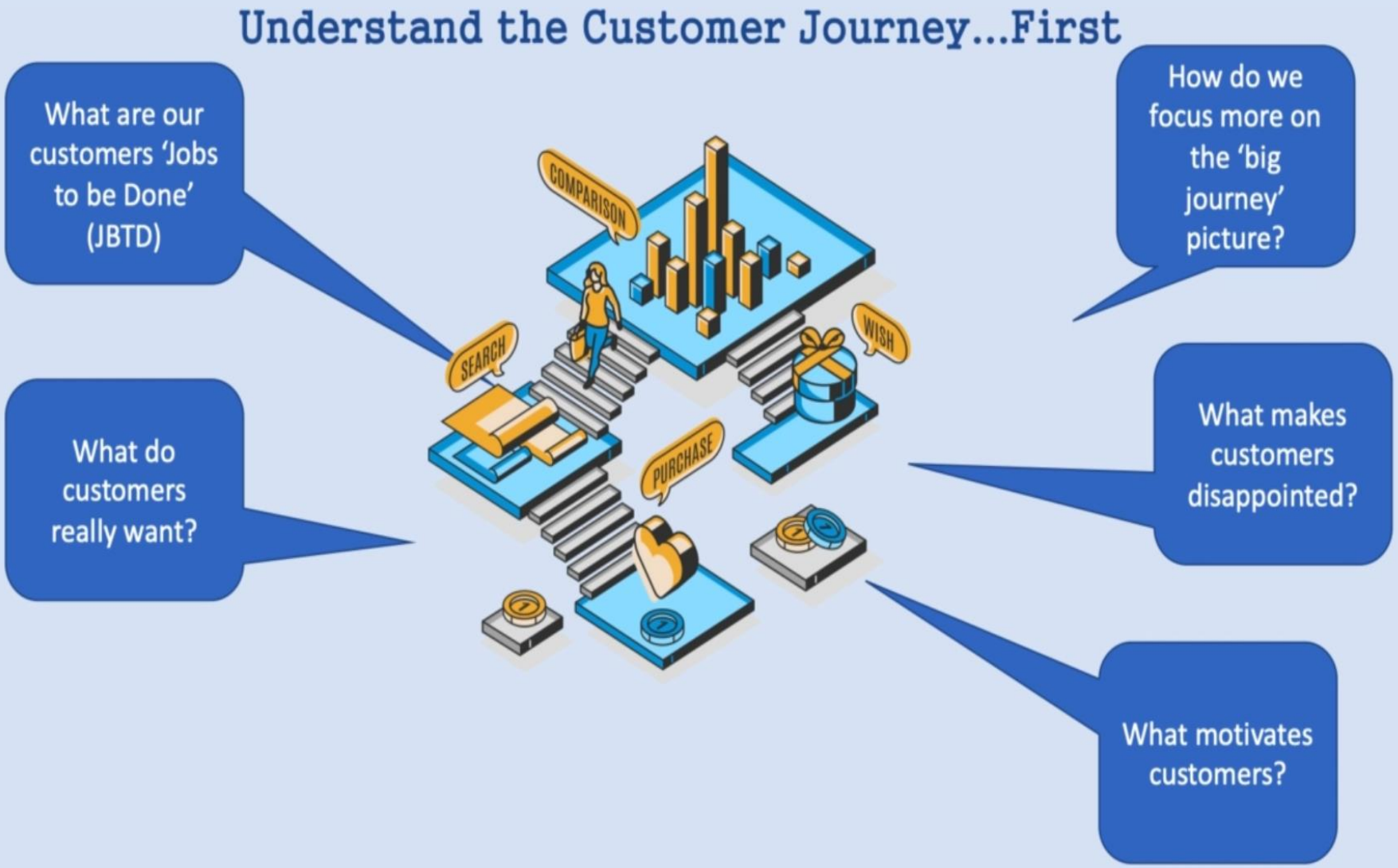
Digital Transformation Trap

Many organizations fall into the trap of thinking is digital transformation should not be technology led. It should be led by customer and employee value.

There are many well intentioned but misguided consulting folks, writers and even some academics who say that digital transformation is about two things technology and culture.

And in particular, they advocate one thing let digital technology drive your transformation.

Digital Transformation Trap – How to resolve?



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

EY Center for Board Matters:

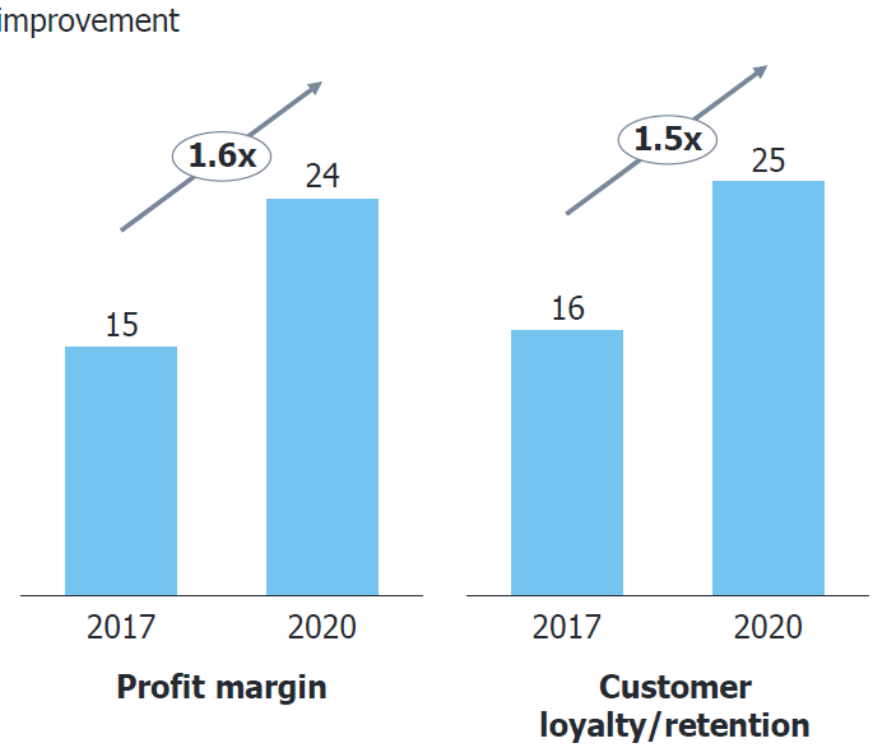
Top priority for CEOs is understanding technology's impact on strategy, business models and cybersecurity

pwc

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

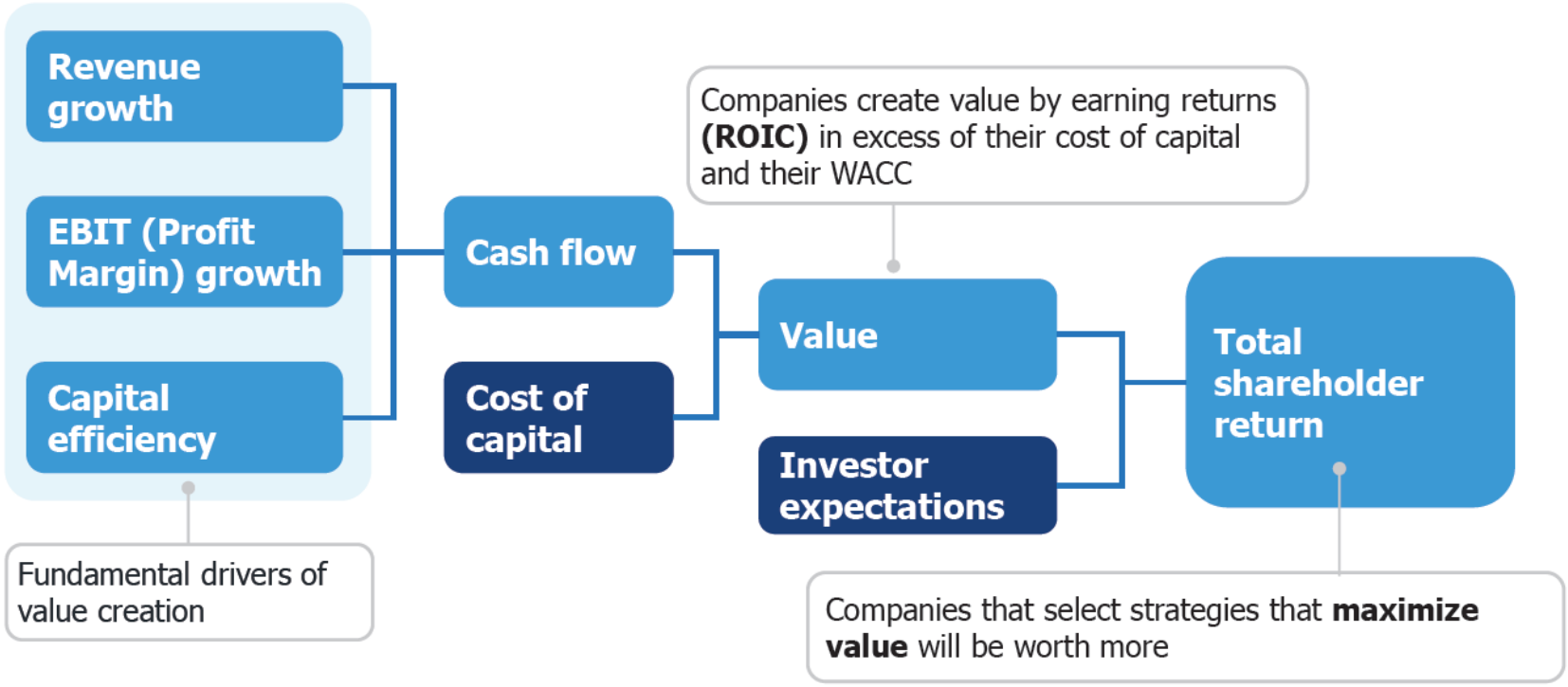


The impact from digital transformations to contribute >1 trillion USD by 2021

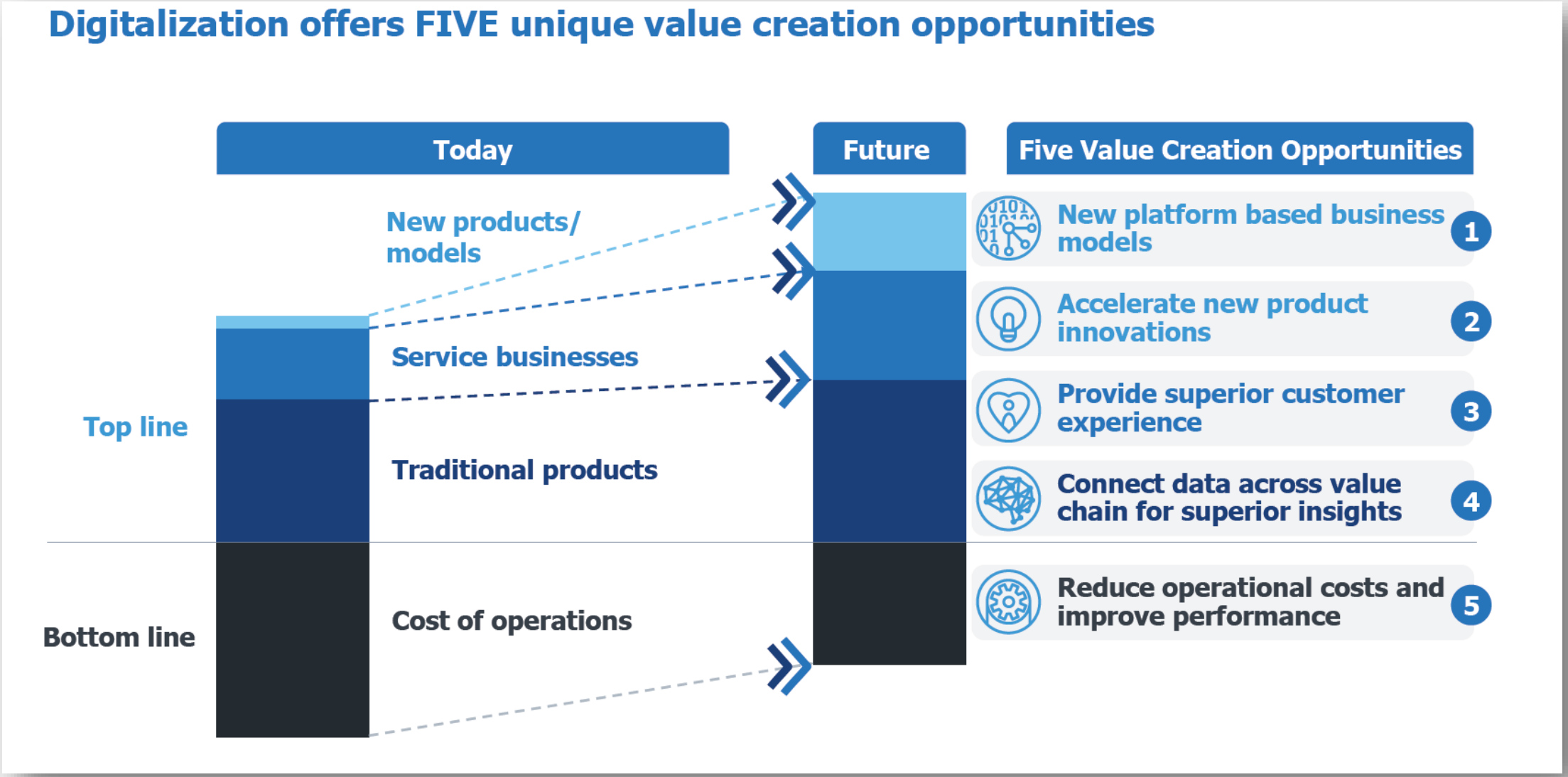
Digital Transformation – Value Drivers

Finance 101 – How do companies create shareholder value?

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



Digital Transformation – Value Drivers

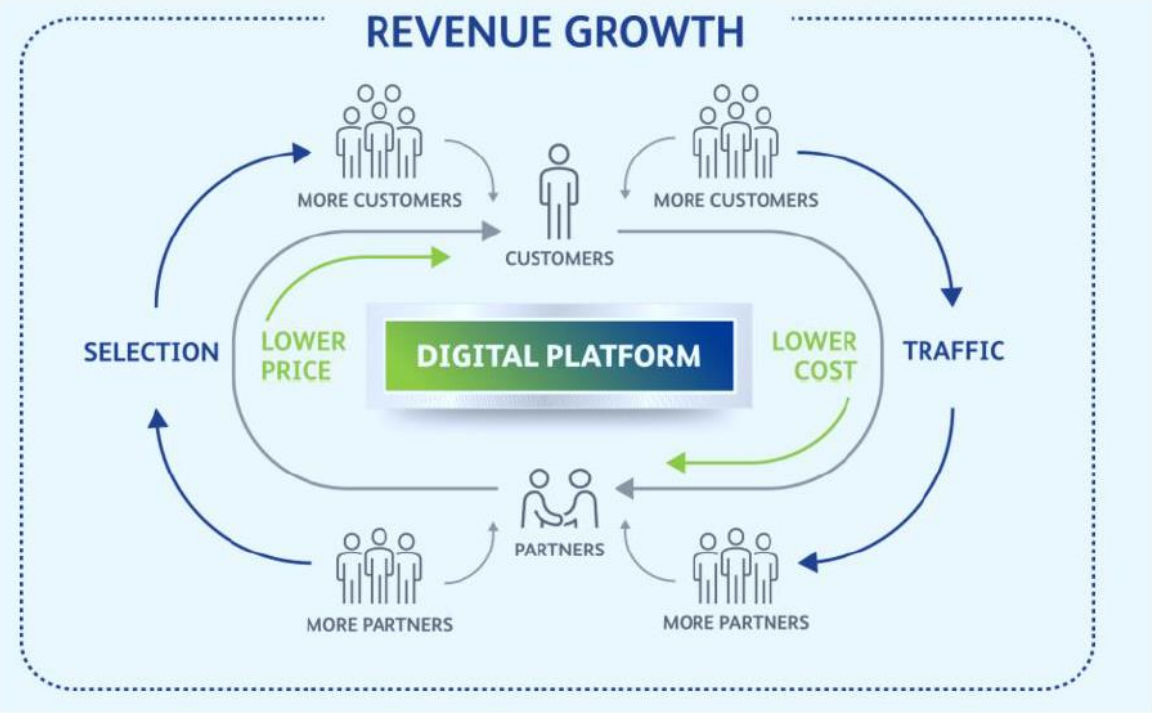


Digital Transformation – Value Drivers

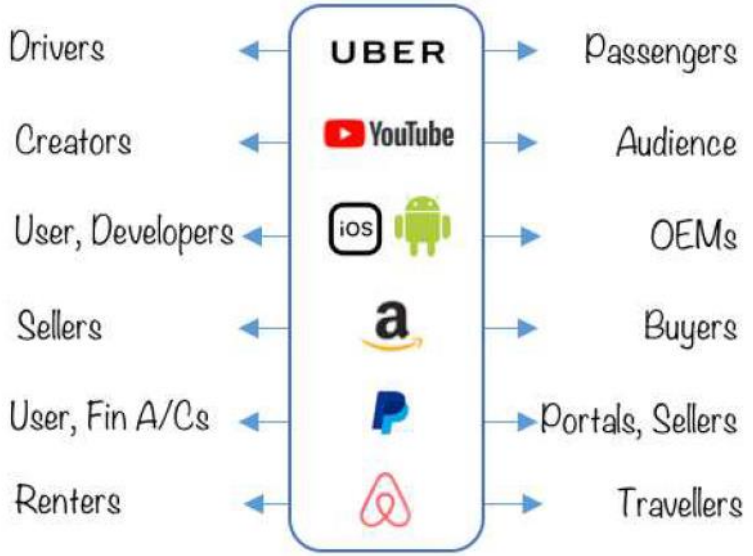
1 New platform based business models

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

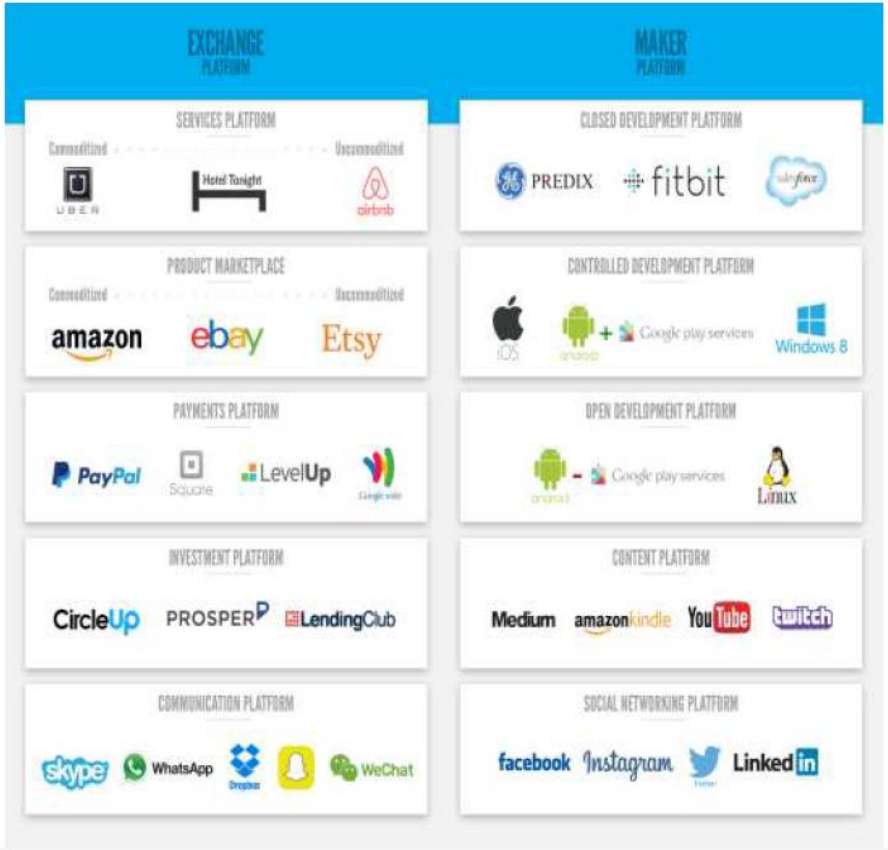


Digital Transformation – Value Drivers

1 New platform based business models

Examples & Applications

Exmples of platforms



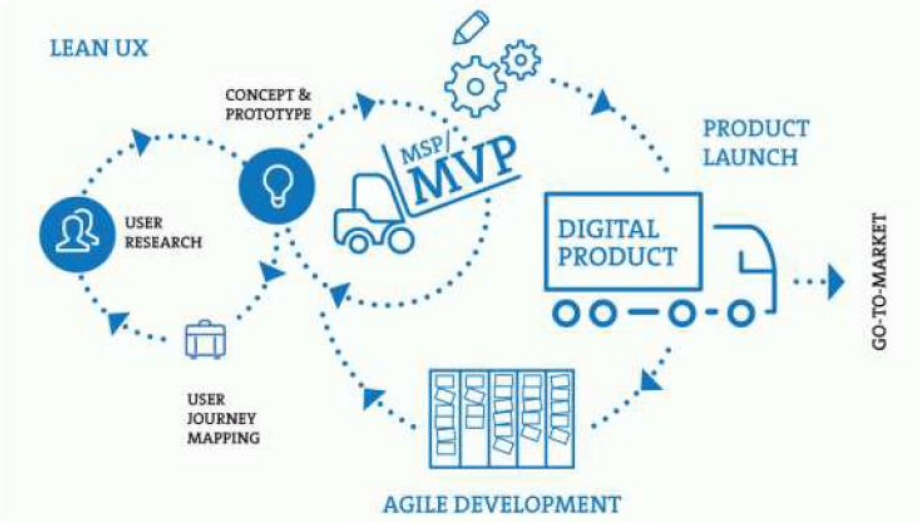
'Super App' Platform

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

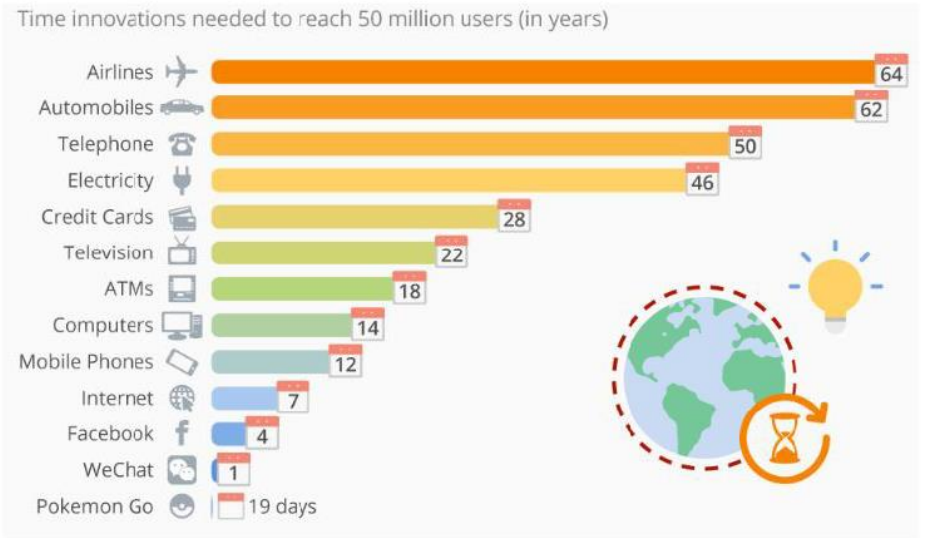
Product development process



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

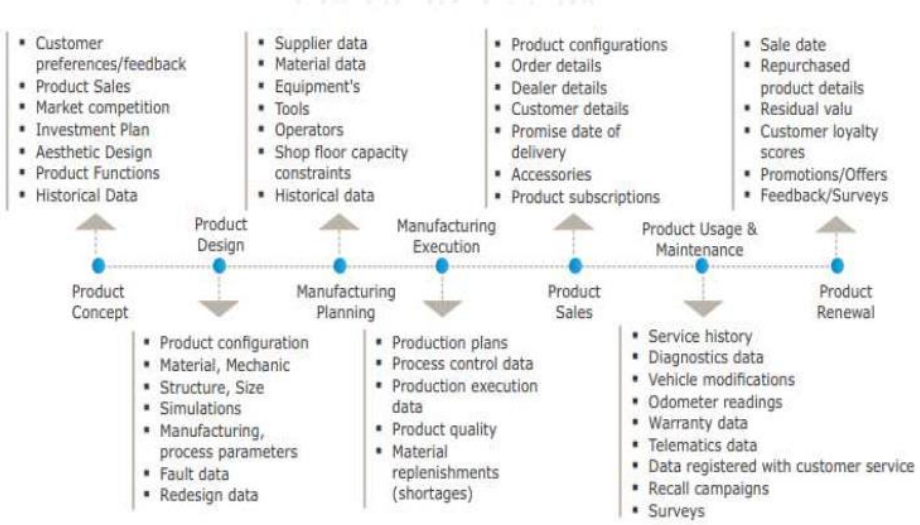


Digital Transformation – Value Drivers

2 Accelerate new product innovations

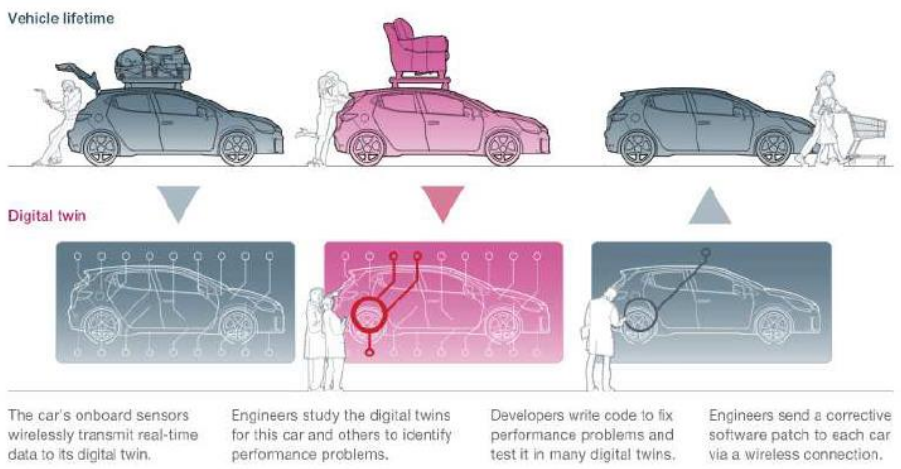
Example from Automotive Industry

From



To

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



Digital Transformation – Value Drivers

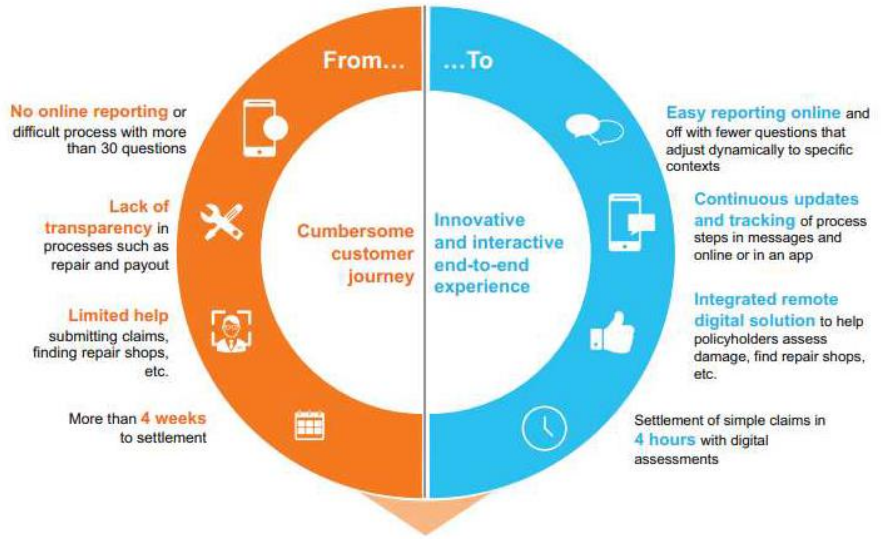
3 Provide superior customer experience

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

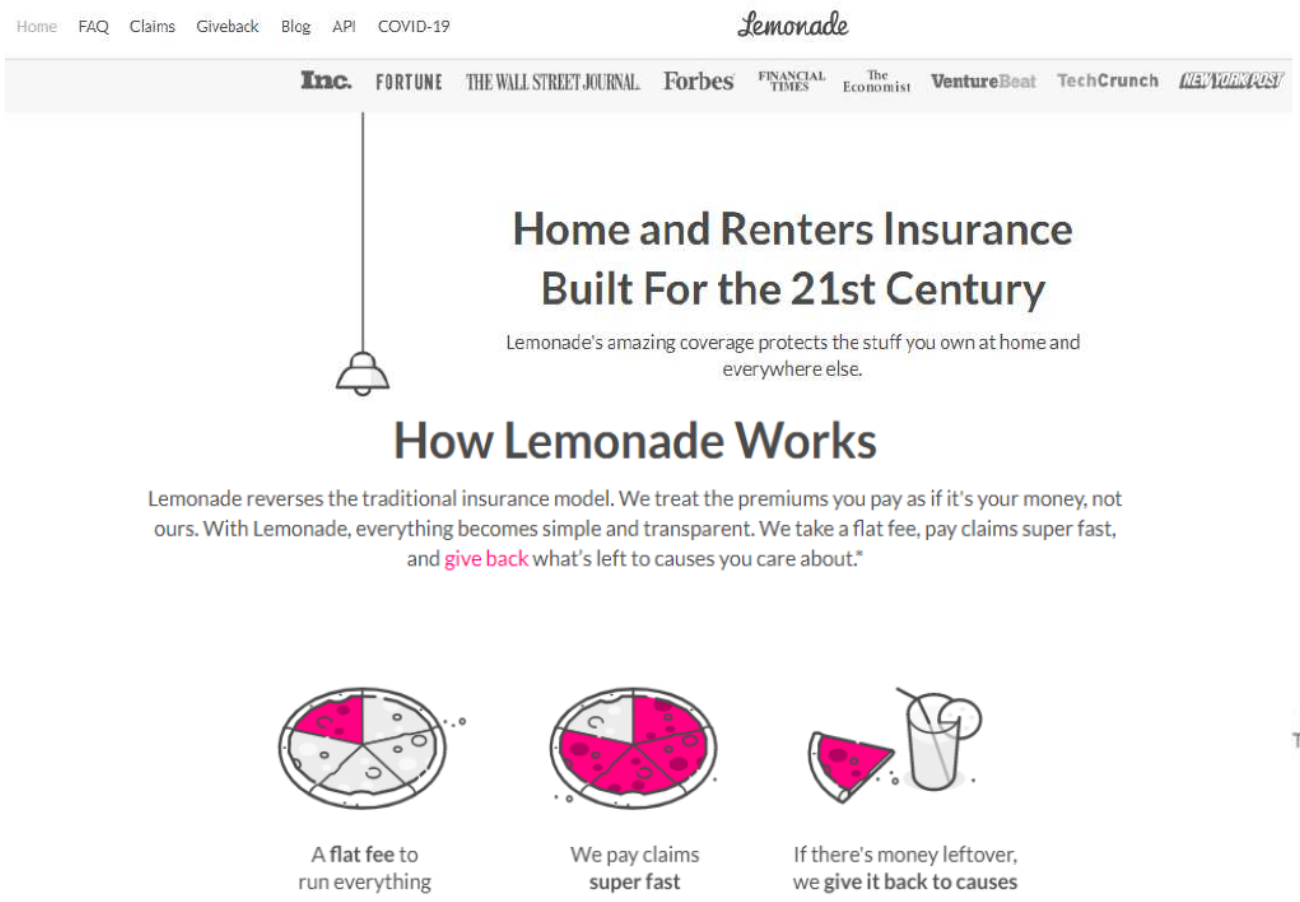


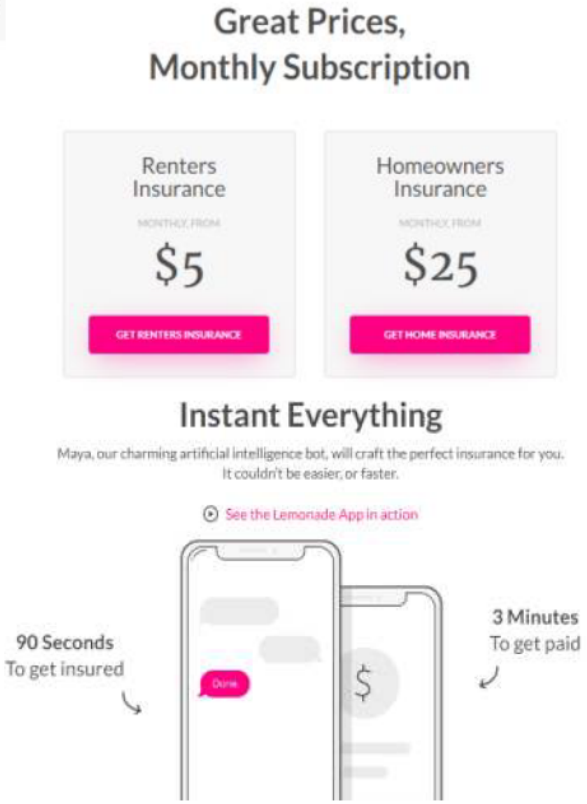
Efficiency gains of up to 30% with digital self-servicing, straight-through processing and lower call volume

Digital Transformation – Value Drivers

3 Provide superior customer experience

Case Example - Lemonade





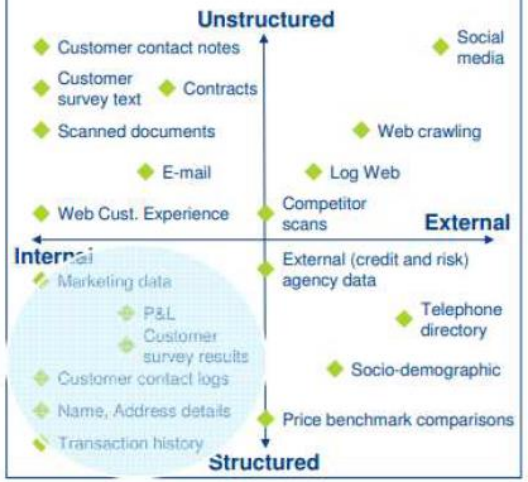
Digital Transformation – Value Drivers

4 Connect data across value chain for superior insights

Digitalization can help provide consistently delightful customer experience across multiple channels

More data sources

- Flexibility of Big Data technologies allows the usage of both
  - Internal and external data
  - Structured and unstructured data



More insights

- Big Data can provide a **whole new set of information**, in order to reach an omni-comprehensive and multi-level customer view

Interaction Data
- Email
- Chat transcription
- Call Center notes
- Web analytics
- In person dialogues

Attitudinal Data
- Options
- Preferences
- Needs and Desires
- Market Research
- Social Media

Behavioural Data
- Orders
- Transactions
- Payment History
- Usage History

Descriptive Data
- Attributes
- Characteristics
- Self Declared Info
- Social Geo / Demographics info

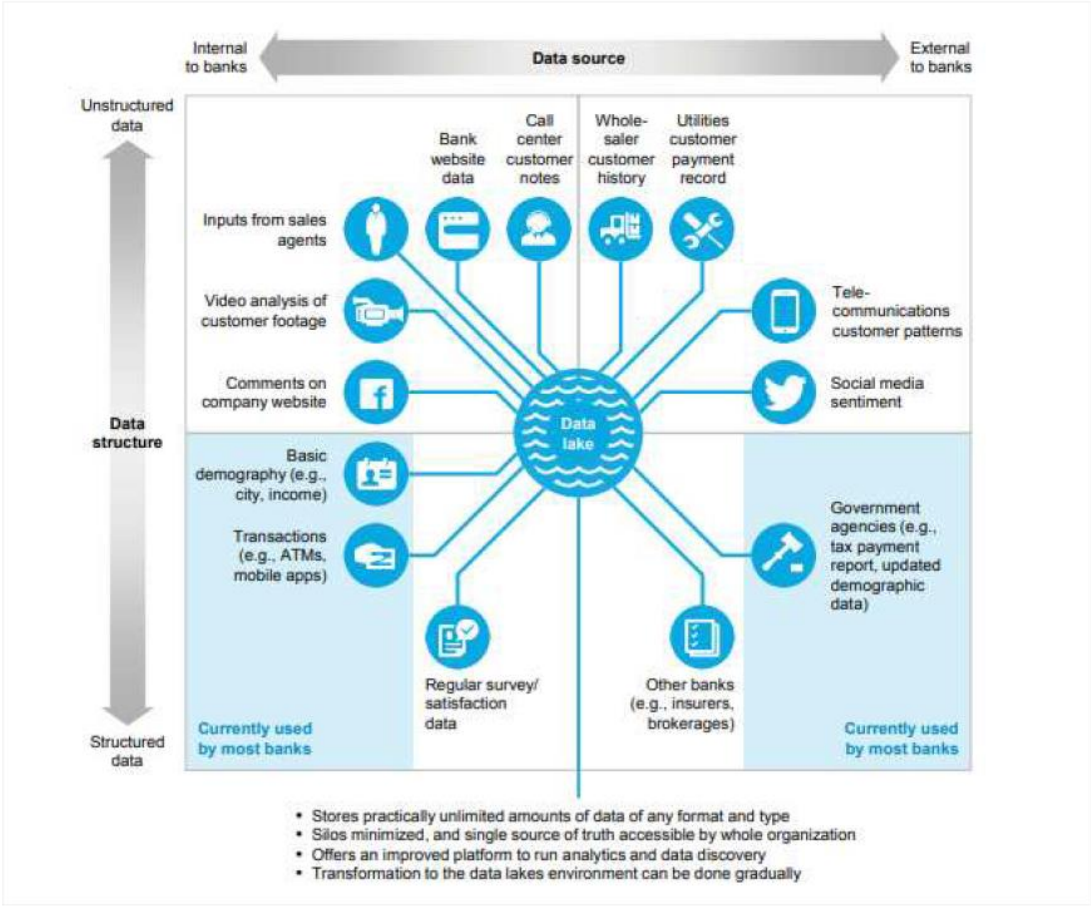
Analytics will enable individually tailored products and services in these industries

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

-5% Energy Demand

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

+5% Yield

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

-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

-10% FTE

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

-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	• Small Scale Improvements • React to bare necessities	• Large Scale Adoption • Use digitalization to enable business strategies	• Transformation • Become digitalization champion in our industries
Focus	• (Late) follower strategies • Clear business case logic	• Lighthouses, pilots & scale • Benefit case logic	• 'Right of way' for digital • Re-create organization
Value Creation Opportunity	• Mainly Operational Cost Reduction	• Portfolio of Initiatives across Operations, Products and Data driven services	• 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

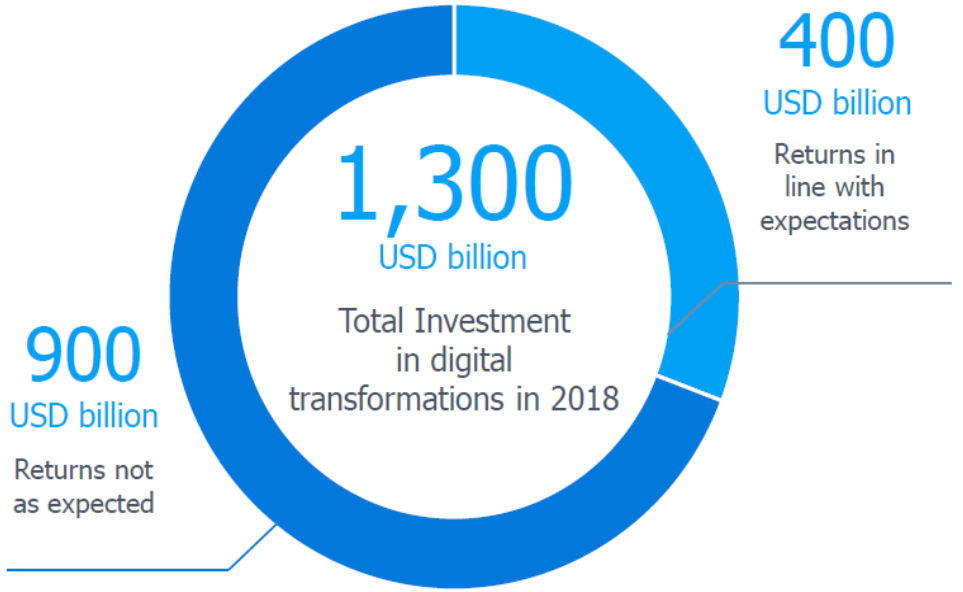
Only 5%
of digital transformations are fully successful

Achieved or exceeded expectations

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

Settled for dilution of value and mediocre performance

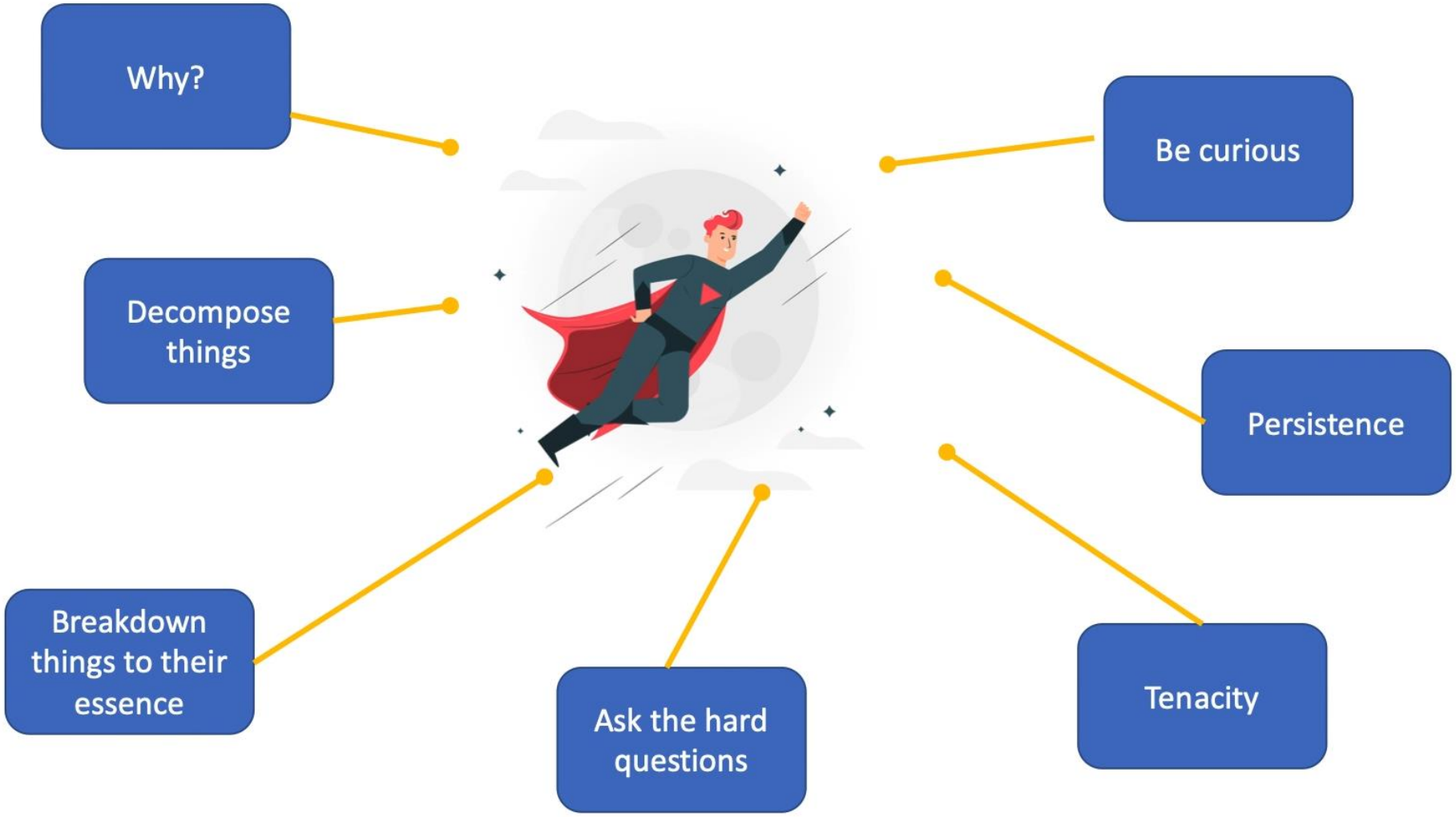
Only ~30%
investments deliver expected returns



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.

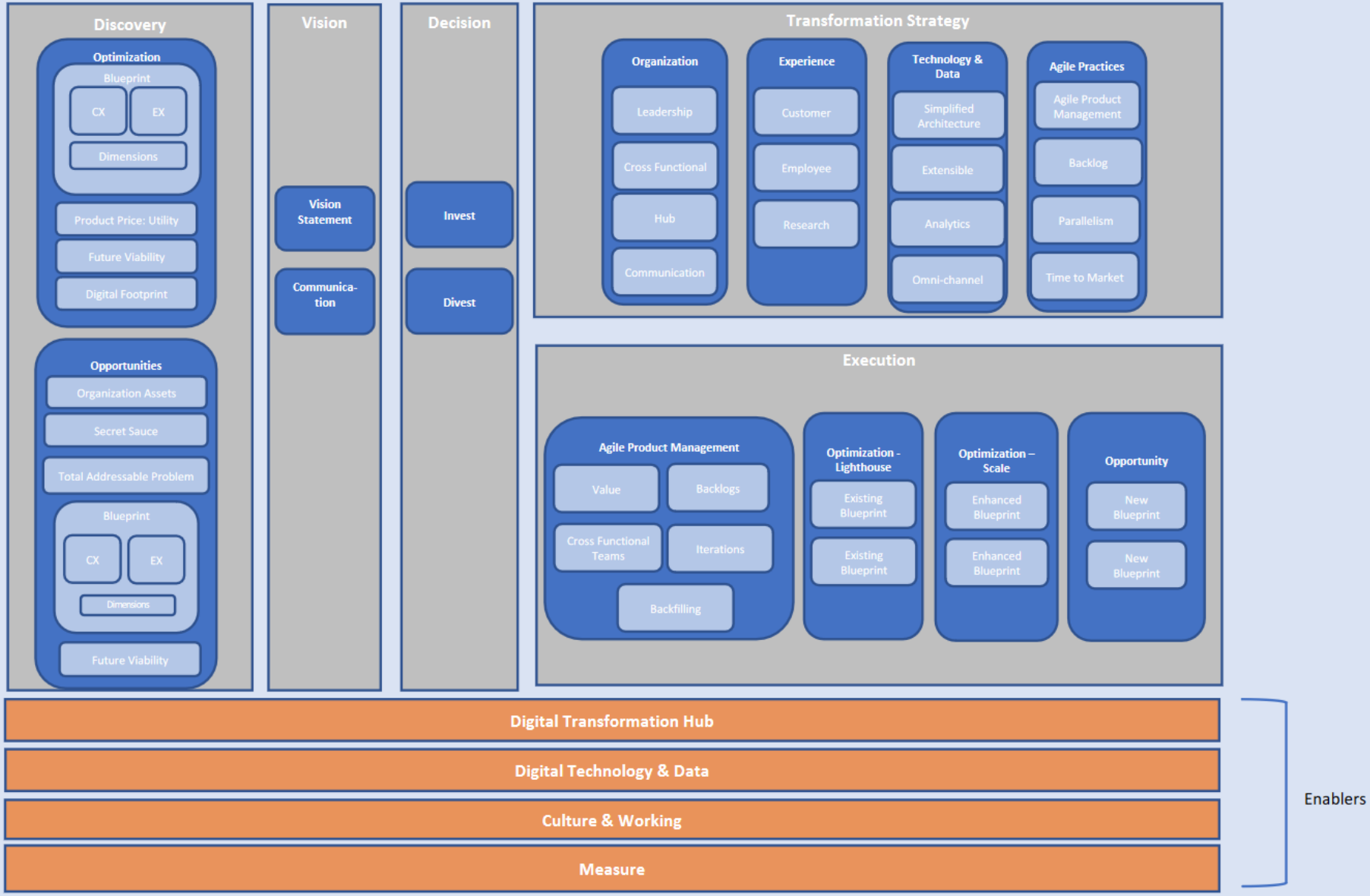
SMB Bank is nervous about disruption happening at the moment in their industry and within their targeted segments.

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



Digital Transformation Framework

There are 5 phases in the digital transformation framework :

- Discovery
- Vision
- Decision
- Strategy
- Execution

Digital Transformation Framework

There are then 4 enablers

- Digital Transformation Hub (or the ‘Hub’ for short)
- Digital Technology & Data
- Culture & Ways of Working (or Culture & Working)
- Measure

Digitalization in Bank (Digital Banking)

Digitalization in Bank (Types of Digital Banking)

Digitalization in Bank (Framework of Digital Banking)

PDF PDF