

# Analytics in Industry 4.0

Digital Transformation & Framework

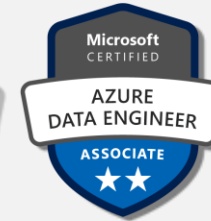


# Presenter



 /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.



Resource Link

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

# Agenda

- Understanding Digital Transformation
- Digital Transformation Framework

# **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.

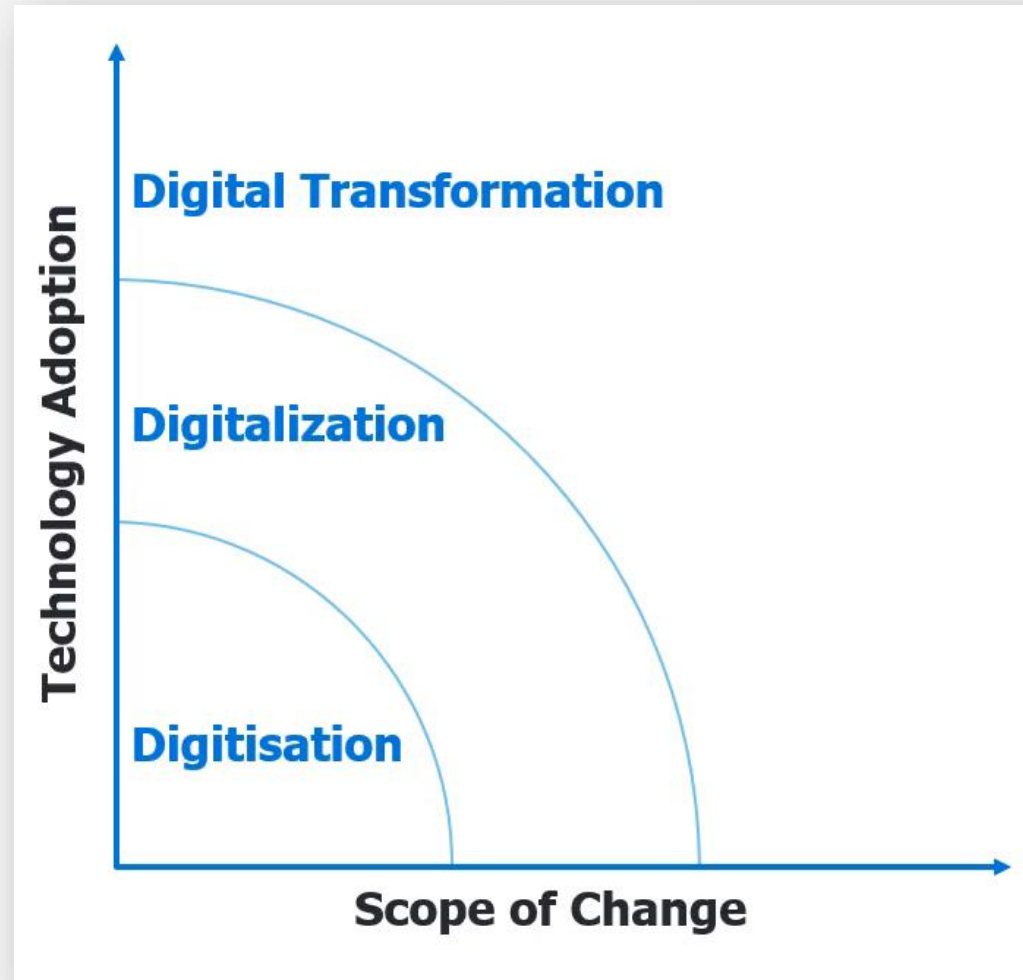
# 3Ds – Digitisation, Digitalization and Digital Transformation

**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



# 3Ds – Digitisation, Digitalization and Digital Transformation

## Digitisation in Banking

Digitisation in banking involves converting analogue information into digital formats.

- Converting paper bank statements into digital PDF files
- Scanning physical documents like loan applications and identification cards
- Transforming handwritten signatures into digital signatures
- Shifting from physical passbooks to electronic records
- Converting cash transactions into digital payment records
- Moving from physical card imprints to digital transaction data

# 3Ds – Digitisation, Digitalization and Digital Transformation

## Digitalization in Banking

Digitalization refers to adopting digital technologies for business benefits

- Mobile banking apps that allow customers to check balances and make transfers
- ATMs replacing many in-person teller functions
- Online banking portals for account management
- Digital payment systems (credit/debit cards, digital wallets)
- Electronic Know Your Customer (e-KYC) processes
- Automated loan approval workflows
- Digital onboarding for new customers
- Chatbots for customer service inquiries

# 3Ds – Digitisation, Digitalization and Digital Transformation

## Digital Transformation in Banking

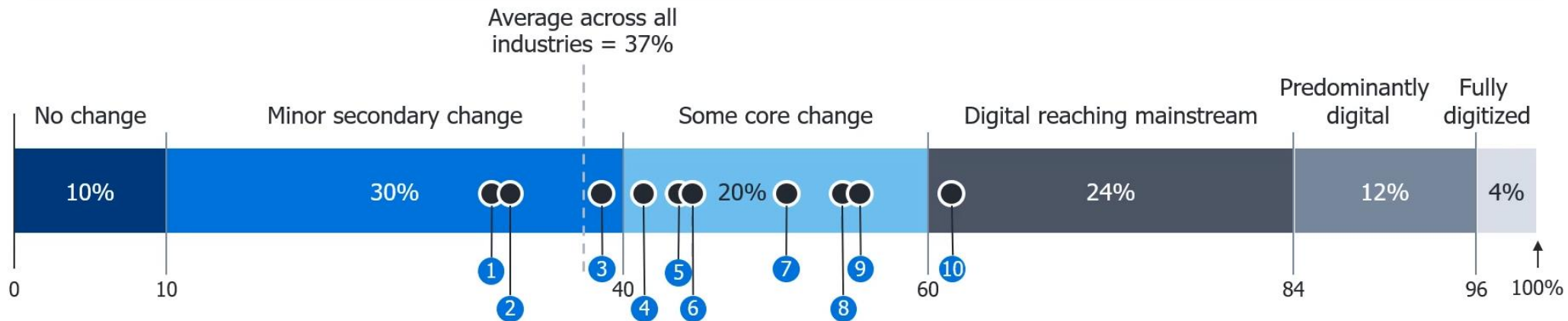
Digital transformation represents comprehensive ecosystem change

- Open Banking platforms allowing third-party developers to build applications and services
- AI-powered personalized financial advice and product recommendations
- Blockchain implementation for secure, transparent transactions
- Cloud migration of core banking systems Data analytics for risk assessment and fraud detection
- Creation of digital-only banking subsidiaries or neobanks
- Agile organizational restructuring to support rapid innovation
- Cross-departmental collaboration enabled by digital tools
- Reskilling workforce for digital competencies
- Customer-centric design thinking approach to product development

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

Digitalization – Enterprise perspective

## Perception of digital penetration by industry<sup>1</sup>, % 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?



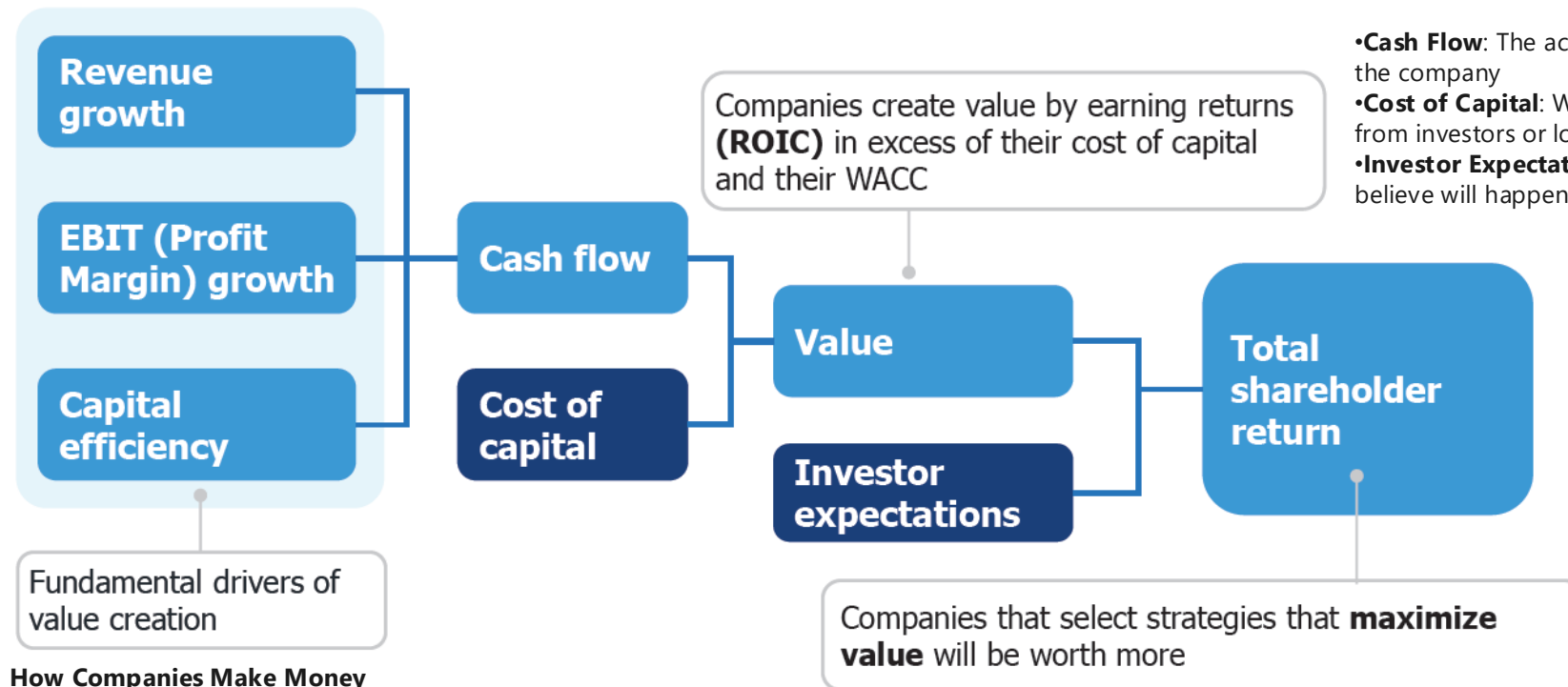
Paid heavy price for the tendency to underestimate the trend

# **Disruption is Not New**

# Digital Transformation – Value Drivers

## Finance 101 – How do companies create shareholder value?

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



### What Matters to Investors

- Cash Flow**: The actual money coming into the company
- Cost of Capital**: What it costs to get money from investors or loans
- Investor Expectations**: What shareholders believe will happen in the future

### How Companies Make Money

- Revenue Growth**: Selling more products or services
- Profit Margin Growth**: Keeping more money from each sale
- Capital Efficiency**: Getting more output from the assets you own

\*ROIC – Return on Invested Capital

\*WACC - Weighted average cost of capital

# Digital Transformation – Value Drivers

## In Everyday Terms

Think of it like a lemonade stand

- ✓ You spend \$20 on supplies (your capital)
- ✓ Your parents charge you \$2 to use this money (cost of capital)
- ✓ You make \$30 selling lemonade (your return)
- ✓ You've created \$8 of value ( $\$30 - \$20 - \$2$ )



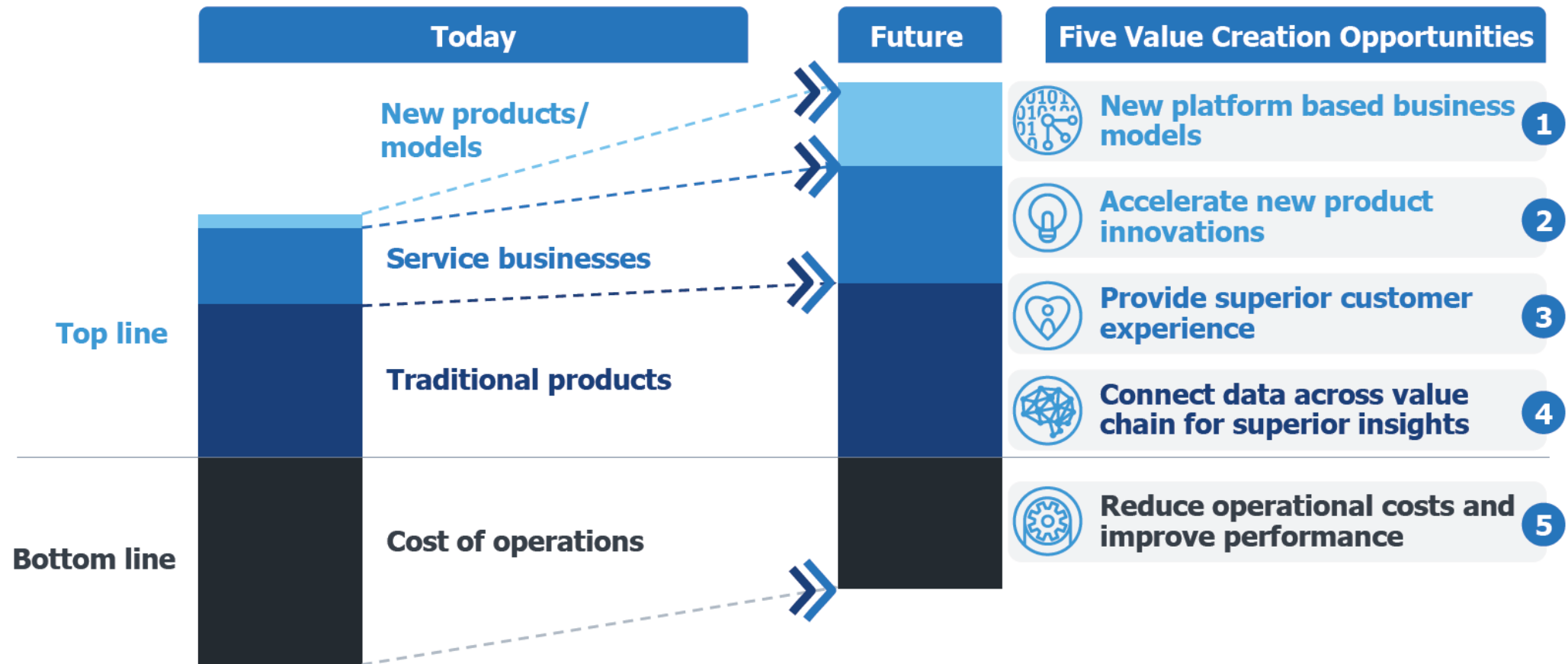
## Digitalization's Role

Digital technologies help companies create more value by:

- ✓ Finding new customers online (revenue growth)
- ✓ Automating processes to reduce expenses (profit margin)
- ✓ Using data to make better decisions with existing resources (capital efficiency)
- ✓ The companies that pick strategies that maximize this value creation process will ultimately be worth more to shareholders.

# Digital Transformation – Value Drivers

Digitalization offers **FIVE** unique value creation opportunities



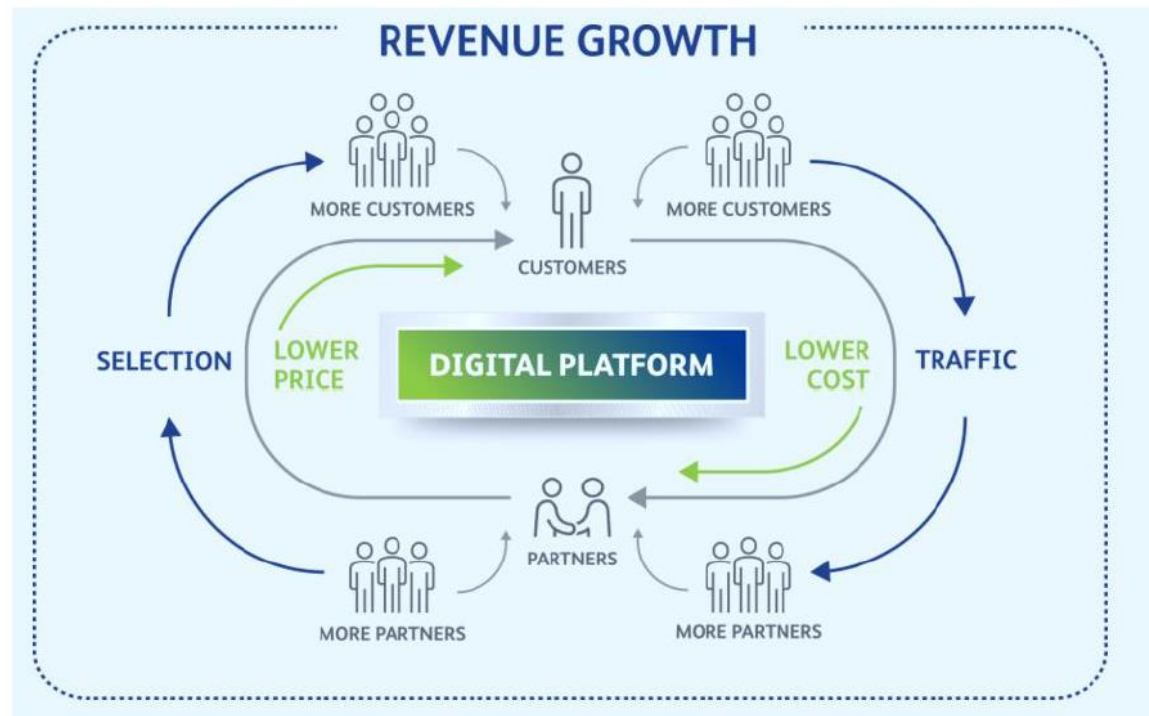
# Digital Transformation – Value Drivers

## 1 New platform based business models

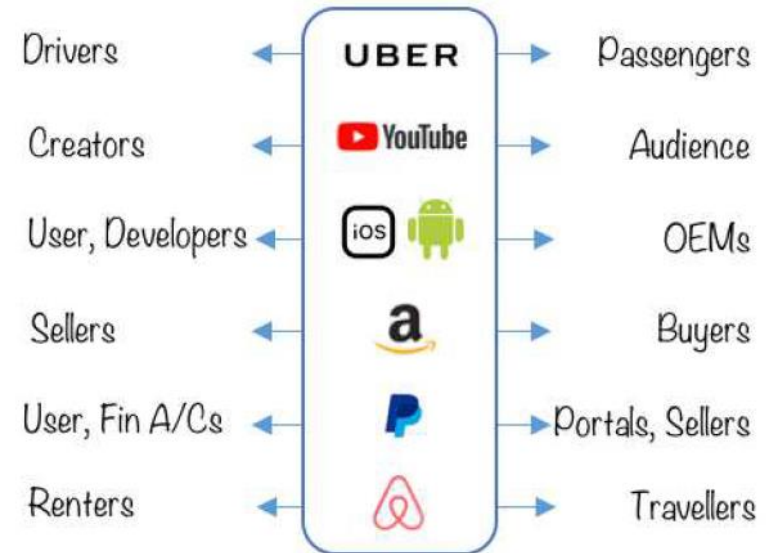
Platform creates value by facilitating exchanges (e.g., between consumers and producers) by building large, scalable networks of users and resources that can be accessed on demand. Platform owners don't own resources they just create the means of connection



### Network effects



### Examples



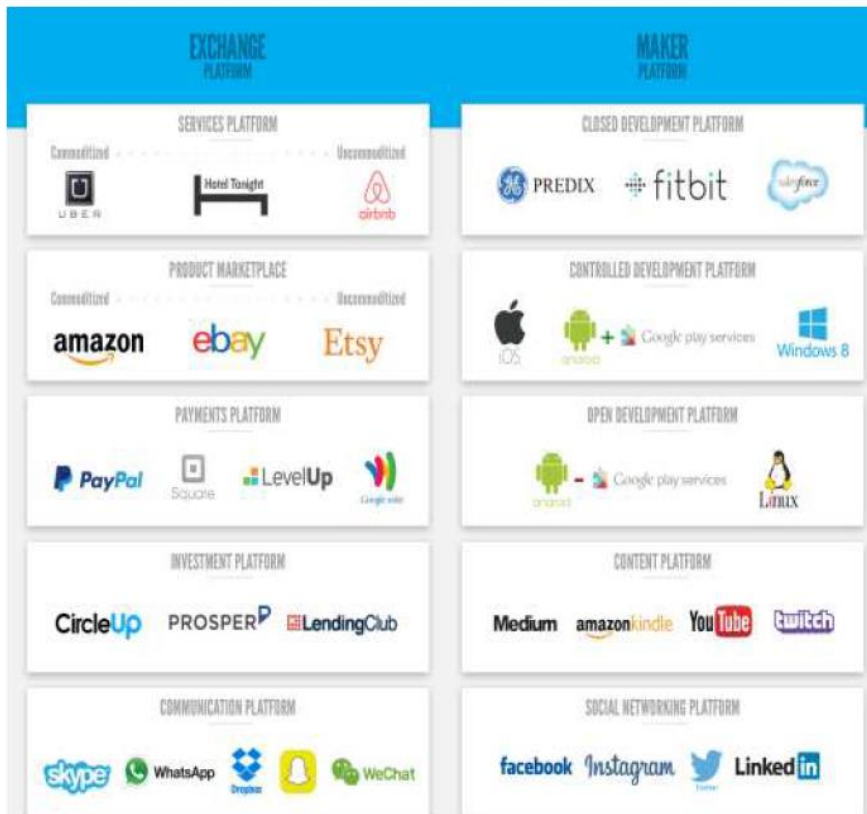
# Digital Transformation – Value Drivers

## 1 New platform based business models

Examples & Applications



### Exmplees of platforms



### 'Super App' Platform

Digital Consumers now expect a lifestyle super app





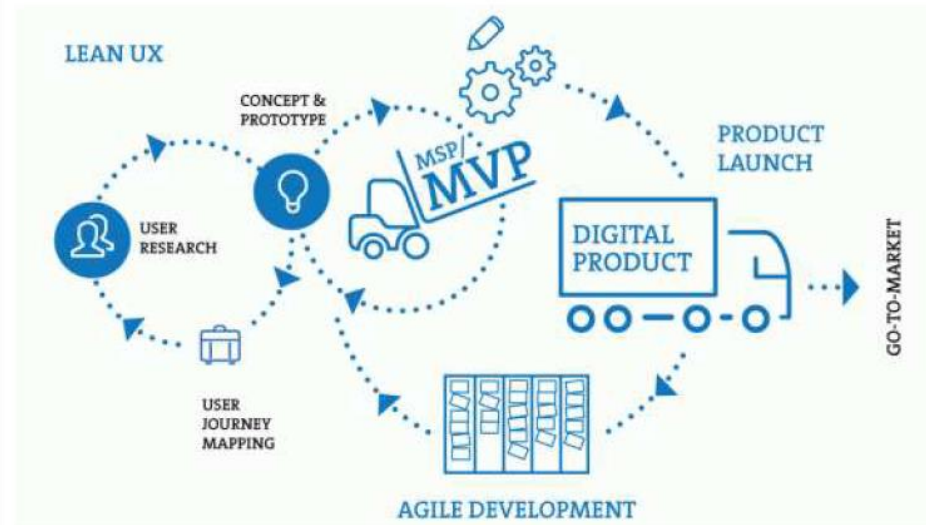
# Digital Transformation – Value Drivers

## 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

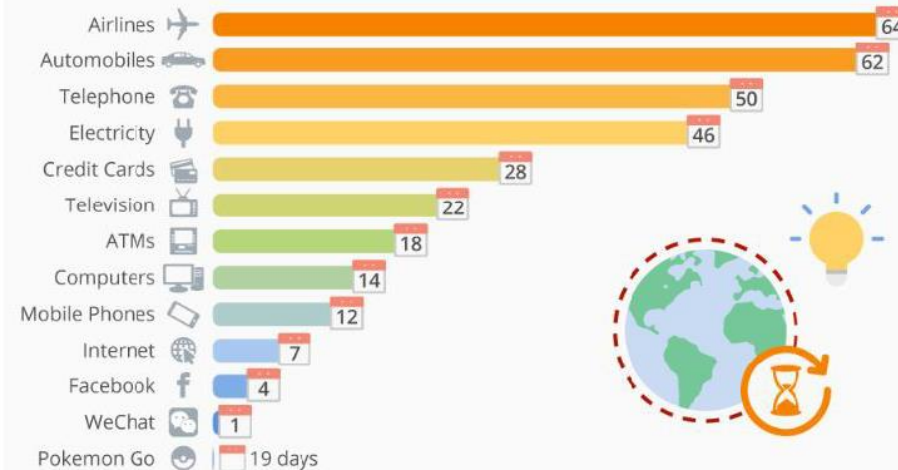


Virtual-reality hackathons help companies reduce R&D costs and time to market by bringing cross-functional teams together to refine virtual prototypes in real time.

#### Faster and more effective R&D

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

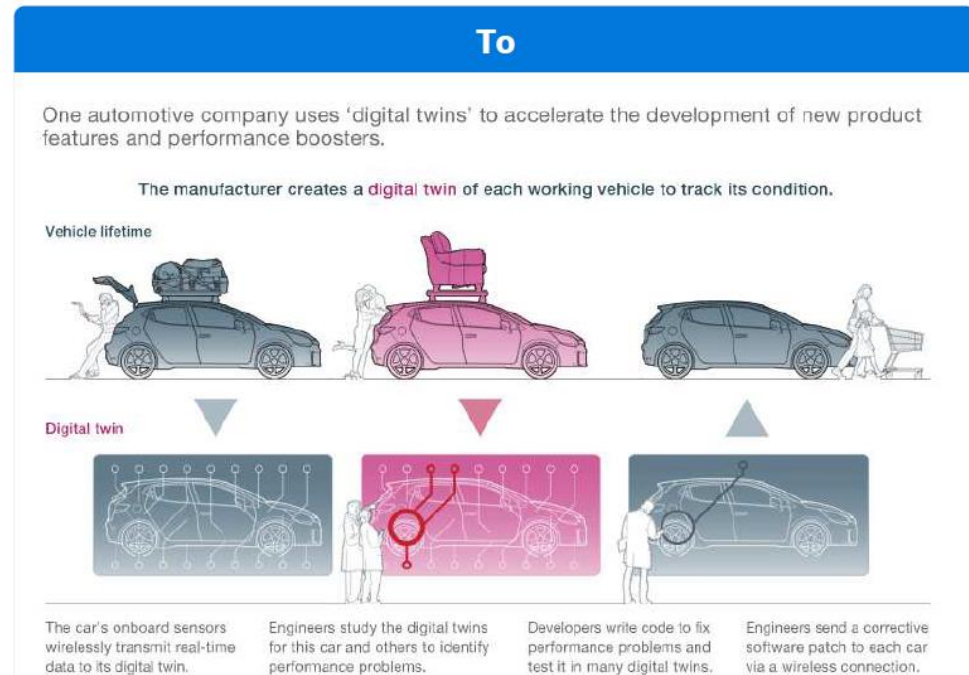
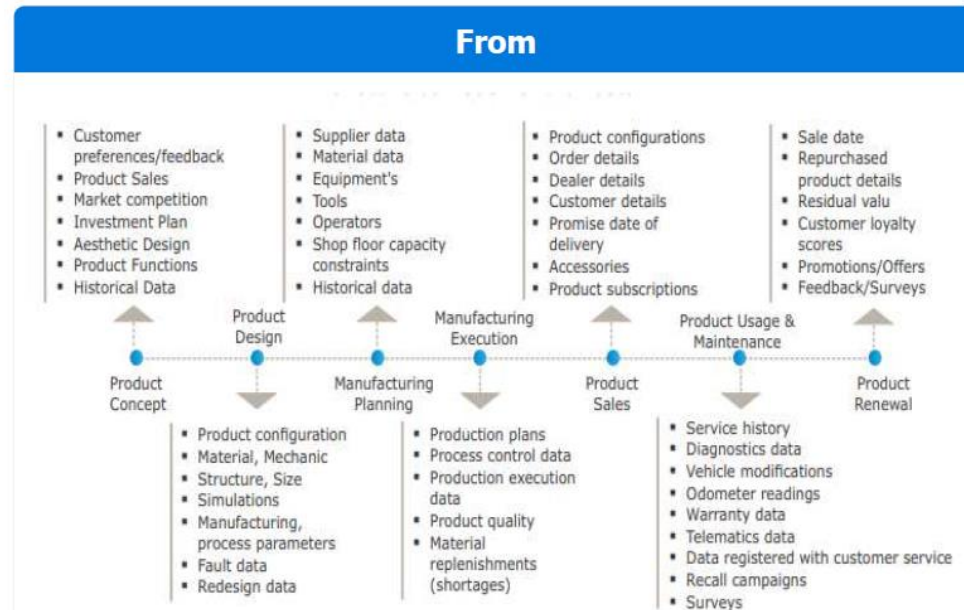
Time innovations needed to reach 50 million users (in years)



# Digital Transformation – Value Drivers

## 2 Accelerate new product innovations

Example from Automotive Industry



# Digital Transformation – Value Drivers

## 3 Provide superior customer experience

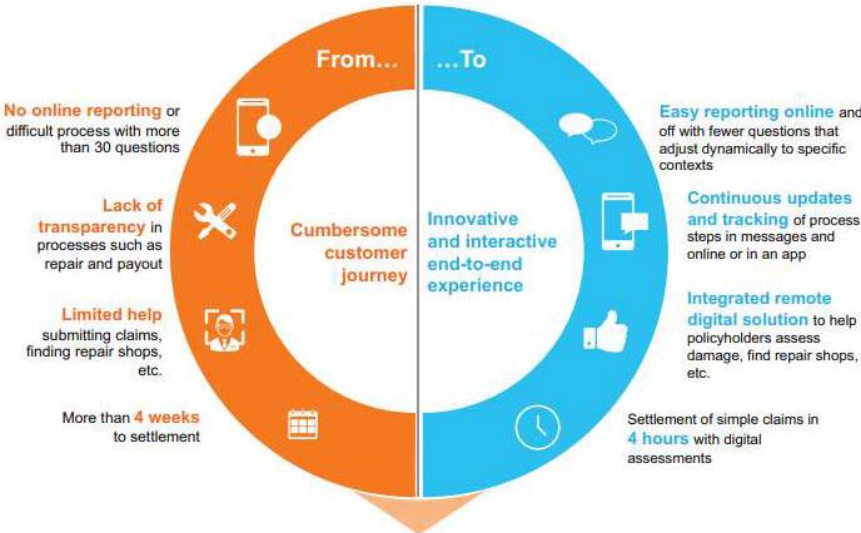
Digitalization can help provide consistently delightful customer experience across multiple channels



### 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 NEW YORK POST

## Home and Renters Insurance Built For the 21st Century

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

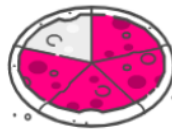


## How Lemonade Works

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

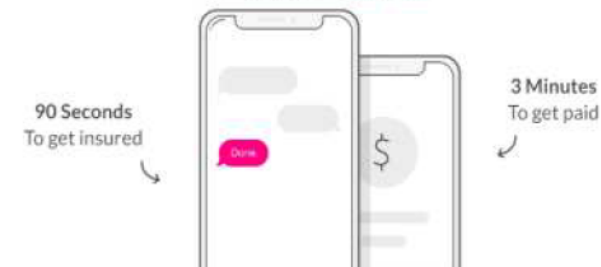
## Great Prices, Monthly Subscription

Renters Insurance	Homeowners Insurance
MONTHLY FROM	MONTHLY FROM
\$5	\$25
<a href="#">GET RENTERS INSURANCE</a>	<a href="#">GET HOME INSURANCE</a>

## 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](#)



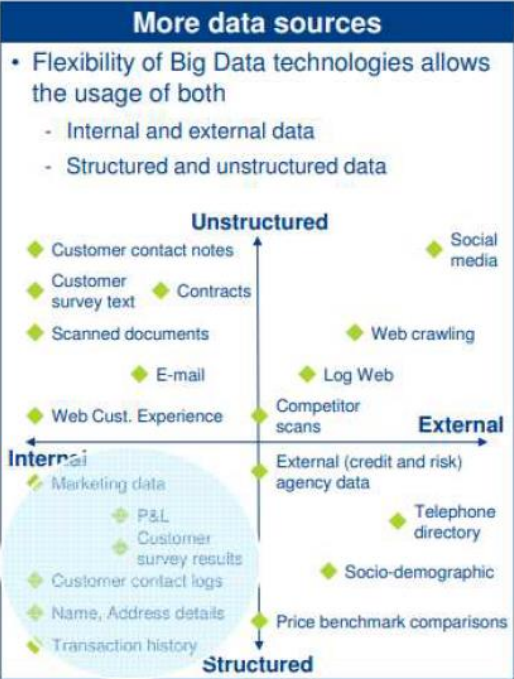


# Digital Transformation – Value Drivers

## 4 Connect data across value chain for superior insights



Digitalization can help provide consistently delightful customer experience across multiple channels



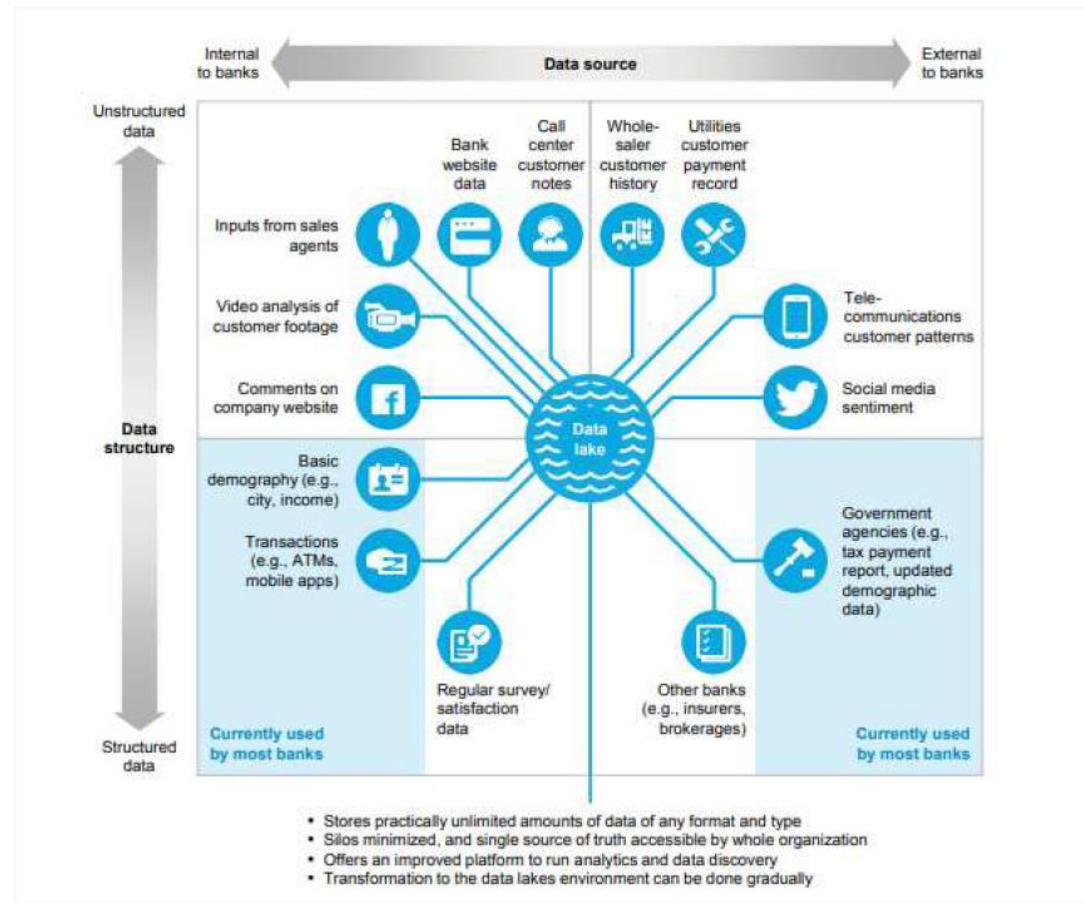
**Analytics will enable individually tailored products and services in these industries**

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



\*FCCR - Fixed-Charge Coverage Ratio



# 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



Analytics & Intelligence



Human-Machine Interface



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

# 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



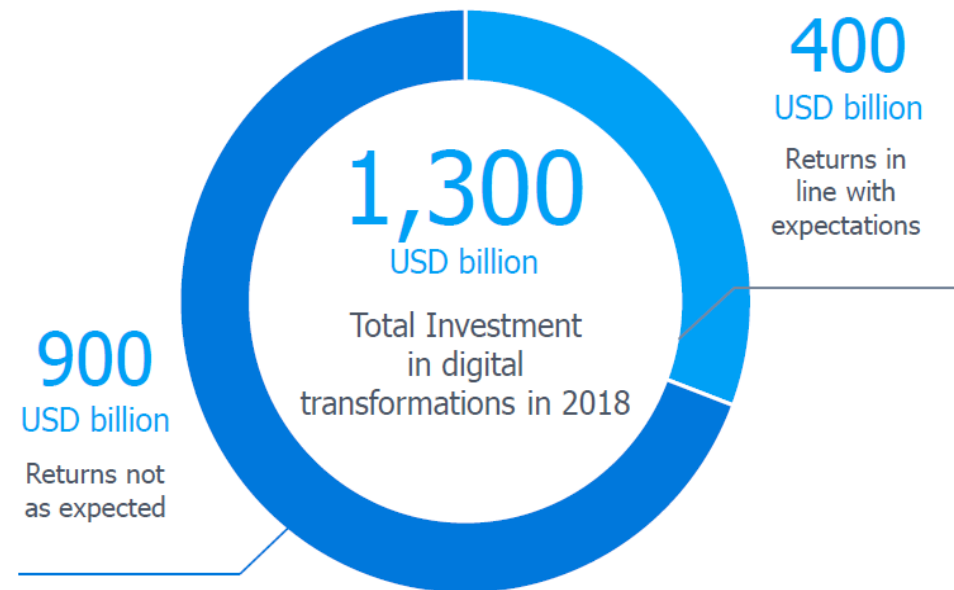
Failed to deliver, producing less than 50% of the expected results



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



### 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



Challenges	Best Practices
<ul style="list-style-type: none"><li>• Frontline not involved, even though it's a critical source of idea generation and use case identification</li><li>• Siloed approach across departments and regions across the company</li><li>• Need to generate relevant ideas and use cases for digital transformation</li><li>• Need to inspire and identify digital talent for the project</li></ul>	<ul style="list-style-type: none"><li>• Start with <b>pain points</b> to build a strong pipeline of ideas/initiatives</li><li>• Think about <b>key customer journeys</b> and generate ideas linked to the gaps in experience</li><li>• Define '<b>what's in it for me</b>' across levels to secure employee commitment</li><li>• Tap not only into internal but <b>also external</b> ecosystem</li></ul>

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

# Digital Transformation – How to Implement

## 3. Focus



Challenges	Best Practices
<ul style="list-style-type: none"><li>• Choose between – digitizing processes or and creating new products &amp; business models</li><li>• Lot of sub scale, fragmented or overlapping ideas and potential initiatives</li><li>• Significant investments required with low near term pay-offs</li><li>• Change fatigue, limited resources</li></ul>	<ul style="list-style-type: none"><li>• Clear <b>vision and strategic intent</b> – Digitisation, Digitalization or Digital Transformation</li><li>• Digital strategy integrated with overall strategy and clear articulation of '<b>where to play</b>', '<b>how to play</b>' and '<b>how to win</b>'</li><li>• Asses <b>use cases/ideas</b> against business needs/pain points rather than technologies</li><li>• Sequence <b>initiatives to promote quick wins</b>, consider Lighthouse based approach combining multiple use cases for scale-up</li></ul>

“Strategy is all about defining what NOT to do”

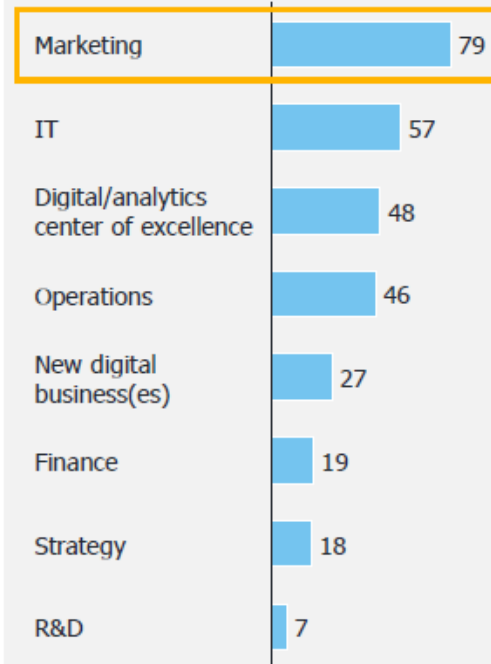
# Digital Transformation – How to Implement

## 3. Focus

Example – Retailers tend to prioritize customer focus revenue boosting initiatives

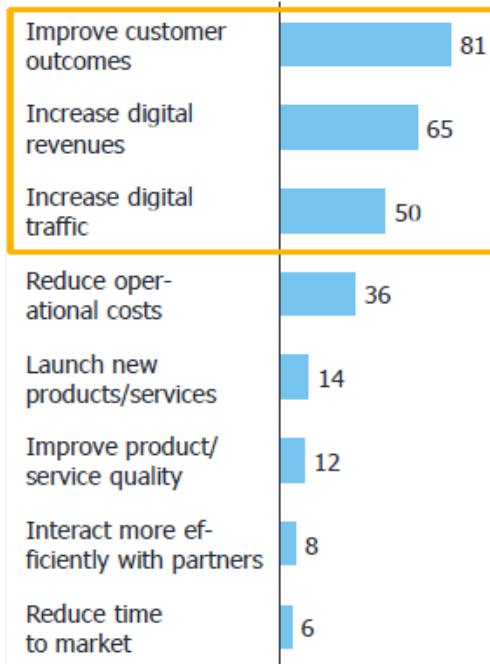


*In which areas has your org. developed new digital/ capabilities (%)?*



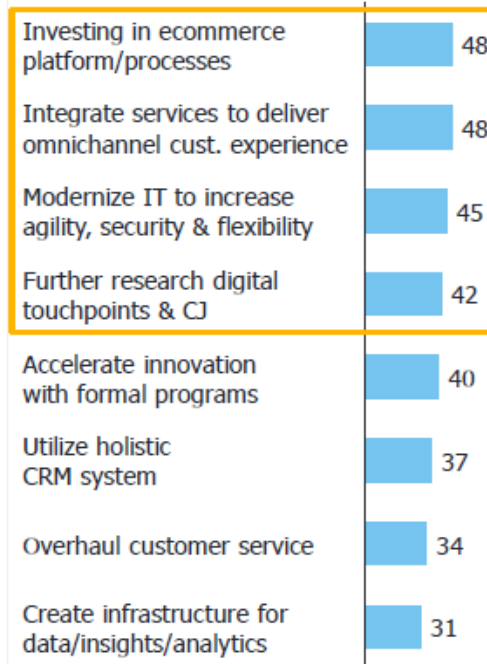
**Cost cut or revenue boost?**

*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



Challenges	Best Practices
<p><b>A</b> Operating Model – Who should lead or own the digital transformation project?</p> <p><b>B</b> Digital Talent – How to attract develop and retain digital talent?</p> <p><b>C</b> External Partnerships – How to work with external partners and startups to accelerate?</p> <p><b>D</b> IT Infra – How to modernize legacy IT to support digital transformation?</p> <p><b>E</b> 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

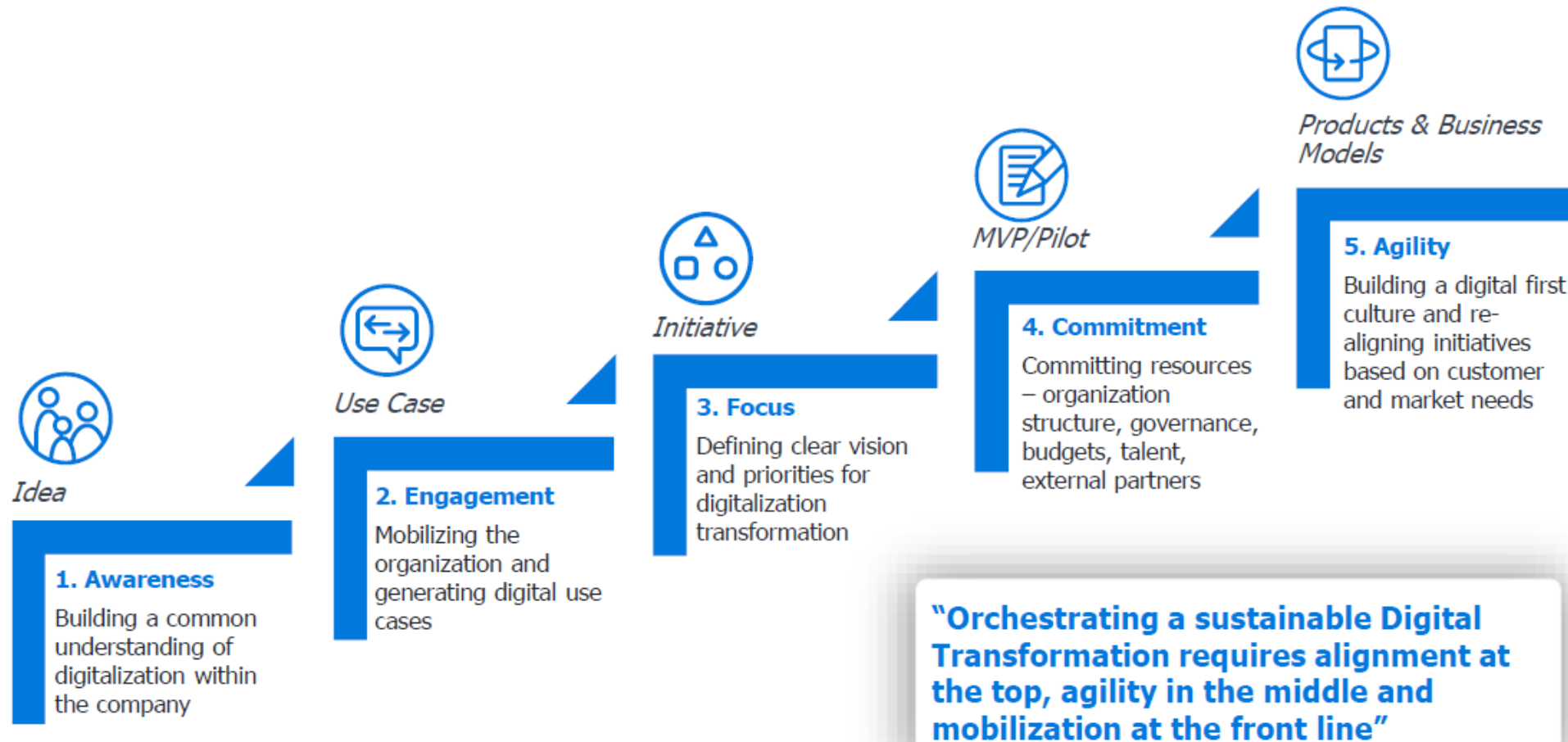


Challenges	Best Practices
<ul style="list-style-type: none"><li>• Not all initiatives deliver desired results along with rapidly changing technology landscape</li><li>• Need to focus on faster time to market rather than perfect solutions</li><li>• Need to attract &amp; retain best talent</li><li>• Need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

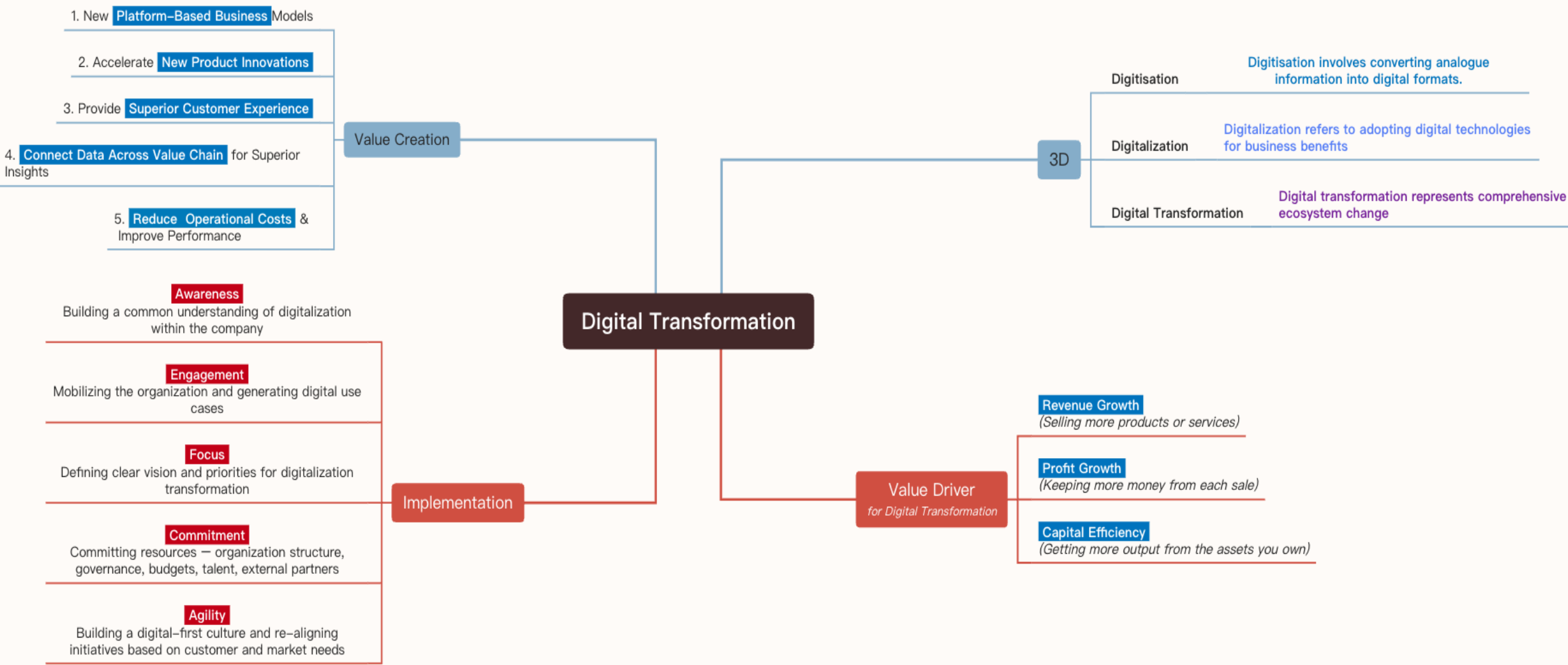
“In the new world, its no more about big fish eating small fish – but the fast fish eating the slow fish”

# Digital Transformation – How to Implement

## Recap – Five elements for a successful digital transformation



# Digital Transformation – Recap



# First Step towards Digital Transformation

“First Principles Thinking”

# First principles Thinking

