



SMEs need to go Digital

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Organised by:



National Productivity and Competitiveness Council

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ACADEMIC FELLOW

Speaker Profile

Kelvin Chan (BEng (Hons), RMC, FCMC, CMC-AF, APO-HCPP)
Director and Principal Consultant,
Teian Consulting International Pte Ltd



- ❏ Management Consultant, Trainer & Executive Coach
- ❏ APO Technical Expert / Resource Person
- ❏ Associate Faculty, Singapore University of Social Science
- ❏ Honorary Principal, Rotary Learning Institute (Singapore), FRCS
- ❏ Honorary Secretary / Head Secretariat, Institute of Management Consultants (Singapore)
- ❏ Honorary Certified Productivity Practitioner, APO
- ❏ SPRING-JPC Certified Productivity Consultant (Retail and F&B)
- ❏ Certified Business Excellence, SMART & IMPACT Consultant (SPRING)
- ❏ More than 33 years of Consulting Experience

- ❏ B Eng (Hons) (Civil & Structural Engineering) 1985, NTU
- ❏ Certificate in Management Consultancy 1988, JPC, Japan
- ❏ Diploma in Management Consultancy 1989, NPB, Singapore
- ❏ Certificate in Effective Problem solving for Production Managers 1990, AOTS-APO, Japan
- ❏ Productivity, Green Productivity and Business Excellence
- ❏ Lead Consulting Teams that provided assistance in Productivity, GP and BE to more than 800 Companies in Singapore and Overseas

Agenda

- Global trends that drives the future of SMEs
- Digitalisation for higher productivity
- How can SMEs start their digitalization journey?

Global Trends that Drives the Future of SMEs

- Cost and trends of key technologies
- Industry 4.0 – Global concern that SMEs are being left behind. SMEs are the backbone of modern economies, accounting for about 90% of businesses and more than 50% of employment worldwide, according to the G20 Action Plan on SME Financing.
- Future of jobs are changing as economy moves towards Industry 4.0
- Governments are driving digitalization of their economies.

Cost and Trends of Key Technologies

Connection to the Internet

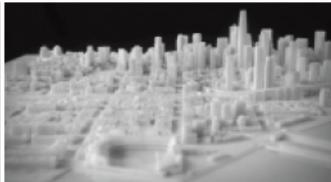
- 2005 : 500 million devices
- 2016 : 8 billion devices
- 2030 : 1 trillion devices

Key Technology Trends

- Internet of Me
- Outcome Economy
- The Platform Revolution
- The Intelligent Enterprise
- Workforce Reimagined



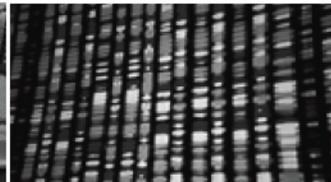
Drones cost per unit:
 - 2007: \$100k
 - 2013: \$700



3D printing cost averages for equivalent functionality:
 - 2007: \$40k
 - 2014: \$100



Industrial robots:
 - 2007: \$550k
 - 2014: \$20k



Costs for DNA sequencing:
 - 2000: \$2.7bn
 - 2007: \$10mn
 - 2014: \$1k



Solar power cost per kWh:
 - 1984: \$30
 - 2014: \$0.16

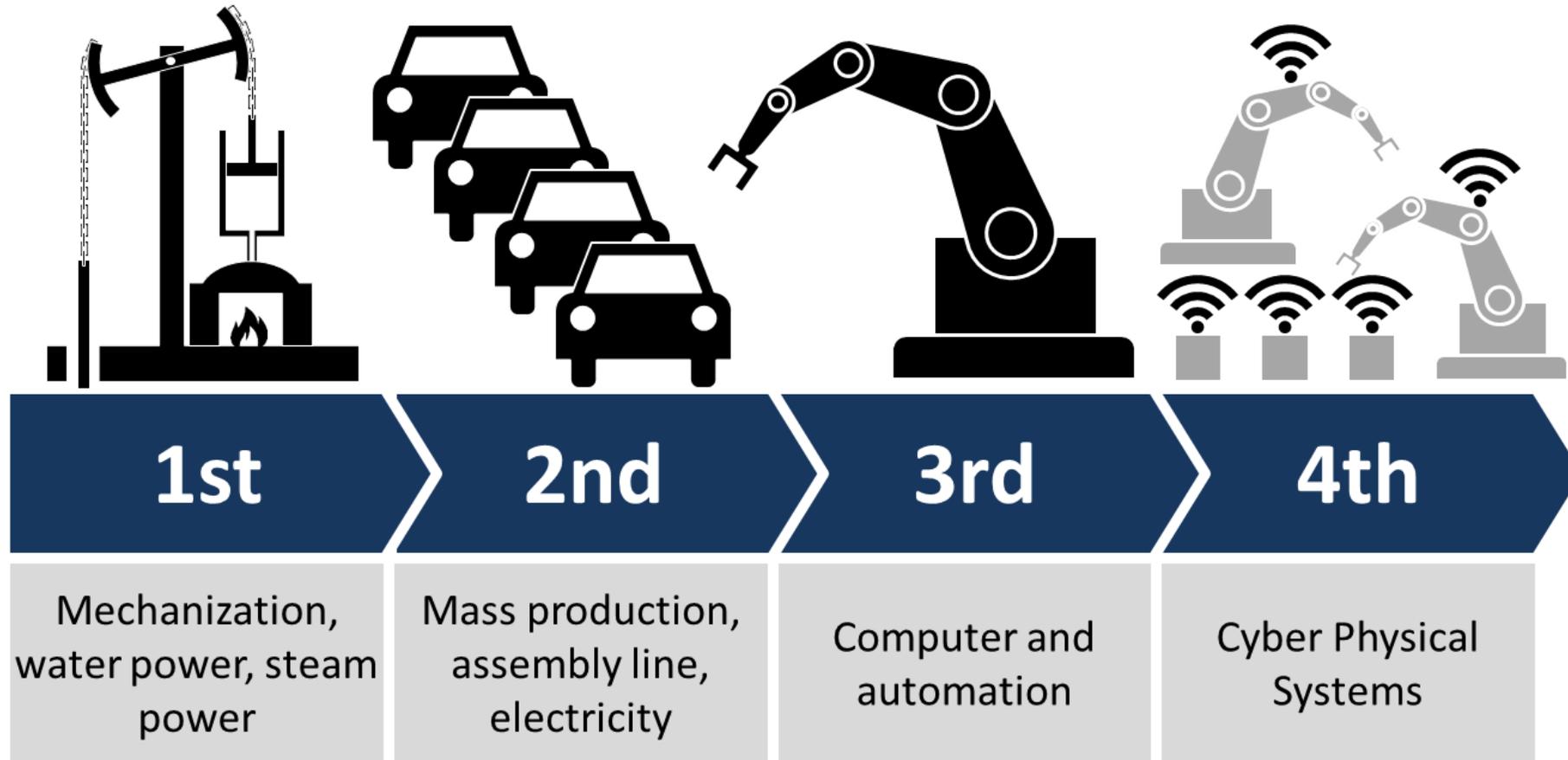


Sensors (3D lidar):
 - 2009: \$30k
 - 2014: \$80

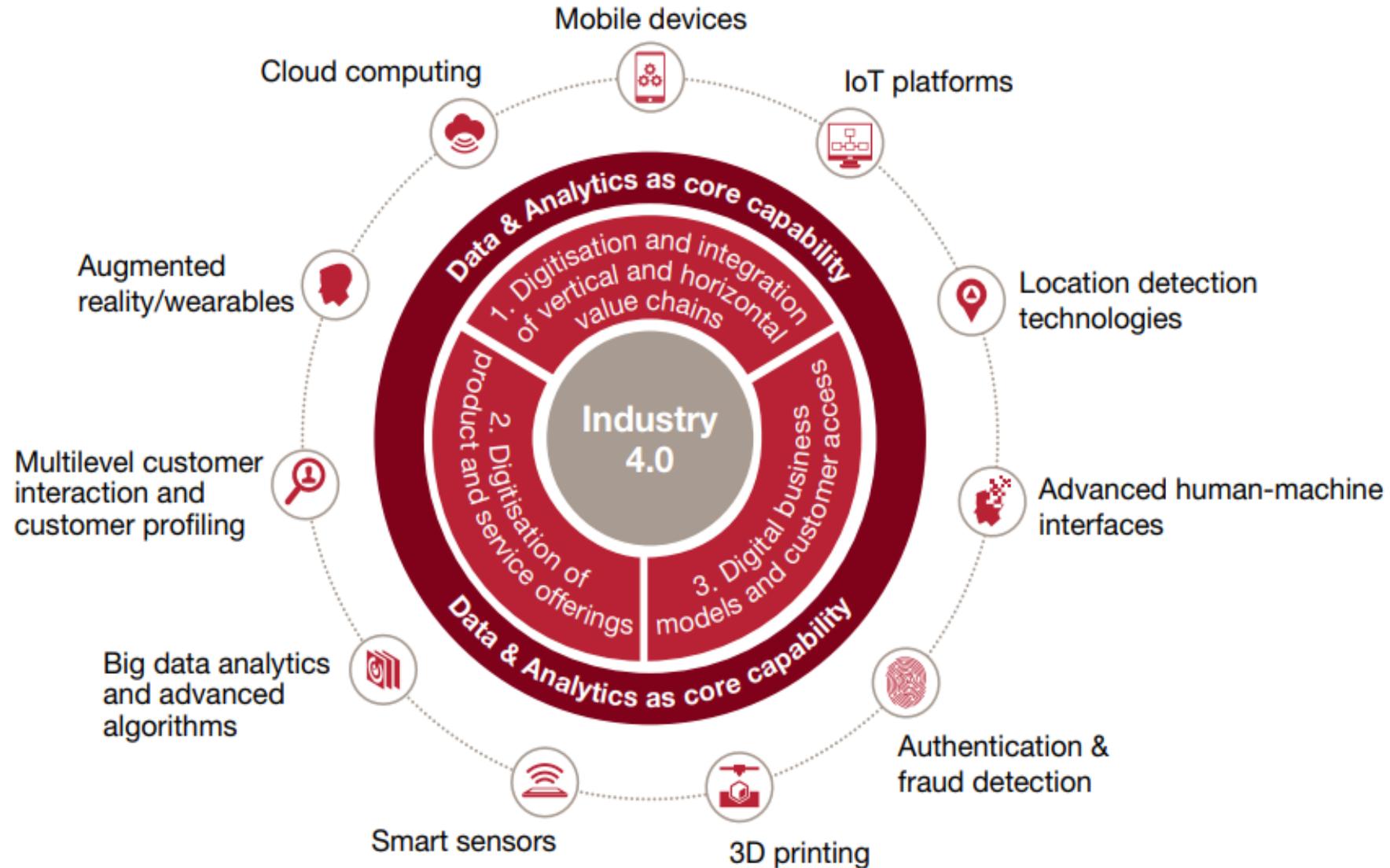


Cost of smartphone model with similar specifications:
 - 2007: \$499
 - 2015: \$10

Industry 4.0



Industry 4.0 Framework & Contributing Digital Technologies



Jobs in the Industry 4.0 Economy

Stable Roles	New Roles	Redundant Roles
<ul style="list-style-type: none"> • Managing Directors and Chief Executives • General and Operations Managers* • Software and Applications Developers and Analysts* • Data Analysts and Scientists* • Sales and Marketing Professionals* • Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products • Human Resources Specialists • Financial and Investment Advisers • Database and Network Professionals • Supply Chain and Logistics Specialists • Risk Management Specialists • Information Security Analysts* • Management and Organization Analysts • Electro-technology Engineers • Organizational Development Specialists* • Chemical Processing Plant Operators • University and Higher Education Teachers • Compliance Officers • Energy and Petroleum Engineers • Robotics Specialists and Engineers • Petroleum and Natural Gas Refining Plant Operators 	<ul style="list-style-type: none"> • Data Analysts and Scientists* • AI and Machine Learning Specialists • General and Operations Managers* • Big Data Specialists • Digital Transformation Specialists • Sales and Marketing Professionals* • New Technology Specialists • Organizational Development Specialists* • Software and Applications Developers and Analysts* • Information Technology Services • Process Automation Specialists • Innovation Professionals • Information Security Analysts* • Ecommerce and Social Media Specialists • User Experience and Human-Machine Interaction Designers • Training and Development Specialists • Robotics Specialists and Engineers • People and Culture Specialists • Client Information and Customer Service Workers* • Service and Solutions Designers • Digital Marketing and Strategy Specialists 	<ul style="list-style-type: none"> • Data Entry Clerks • Accounting, Bookkeeping and Payroll Clerks • Administrative and Executive Secretaries • Assembly and Factory Workers • Client Information and Customer Service Workers* • Business Services and Administration Managers • Accountants and Auditors • Material-Recording and Stock-Keeping Clerks • General and Operations Managers* • Postal Service Clerks • Financial Analysts • Cashiers and Ticket Clerks • Mechanics and Machinery Repairers • Telemarketers • Electronics and Telecommunications Installers and Repairers • Bank Tellers and Related Clerks • Car, Van and Motorcycle Drivers • Sales and Purchasing Agents and Brokers • Door-To-Door Sales Workers, News and Street Vendors, and Related Workers • Statistical, Finance and Insurance Clerks • Lawyers

The Future Skills in Demand

By 2022, those skills that are important in realising the digital vision of organisations and will be in demand are:

- Technology skills, Digital Skills
- Human skills such as creativity, originality and initiative, critical thinking, persuasion, negotiation, attention to detail, resilience, flexibility and complex problem-solving, emotional intelligence, leadership, social influence, and service orientation

Government Initiatives

The ASEAN-6 governments have various forms of pro-business policies to facilitate SME growth:

- Create suitable business environments through simplified legal and regulatory frameworks and good governance
- Develop capacity and infrastructure particularly within emerging markets
- Assist in capital funding, technical and creative support
- Guide IT and digital innovation
- Support manpower and talent management

Source: UOB, Dun & Bradstreet & EY. (2018). Asean SMEs – Are you transforming for the future?

Four Steps for Long-term Success of SMEs

1. Attract the right talent and put employees in a position to succeed
2. Create agility through horizontal management
3. Harness the potential of the latest digital technology
4. Be part of a value chain of relevant and adjacent stakeholders

Innovation: A Top Priority for Singapore Businesses

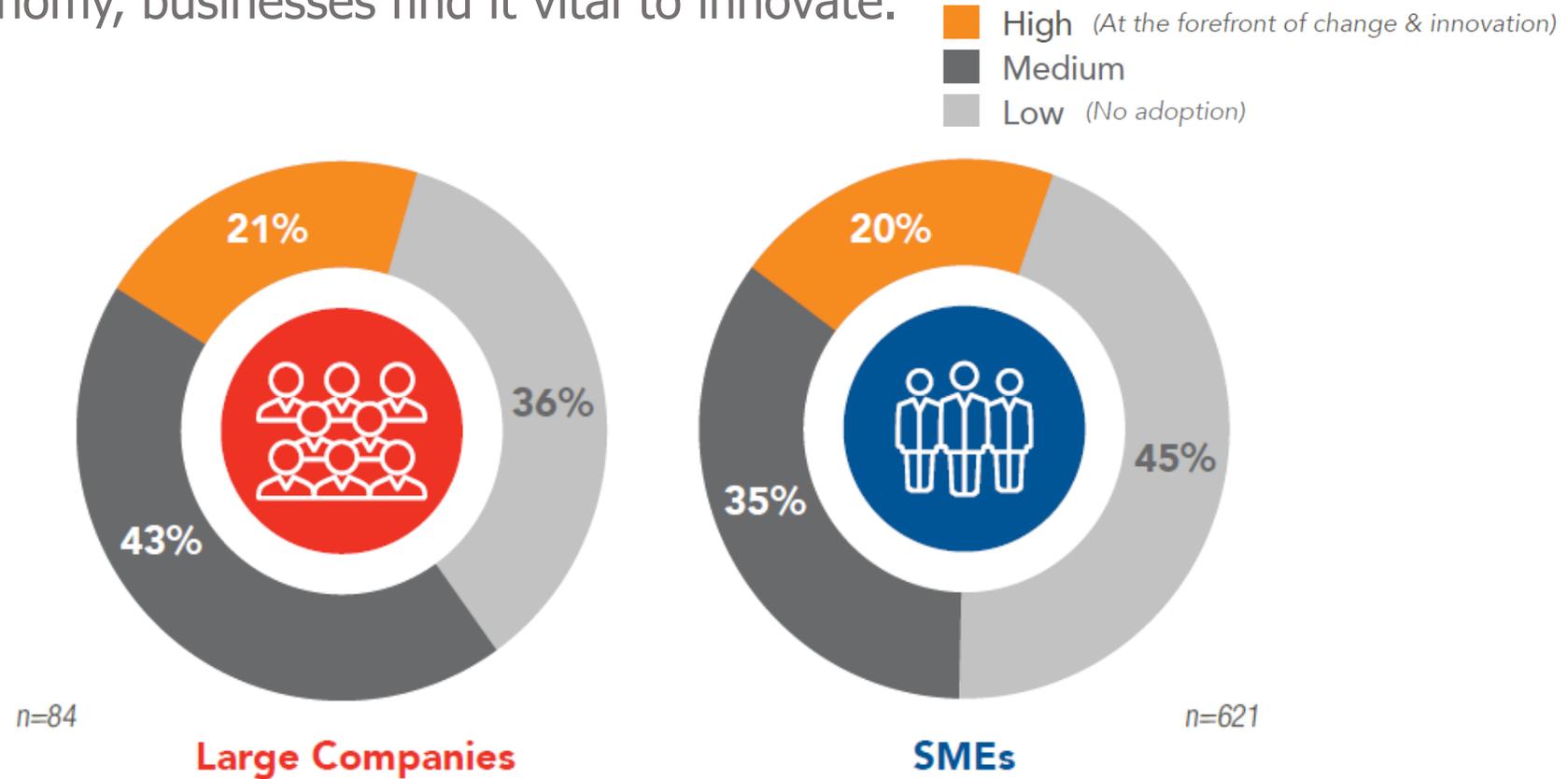
"A key trend emerging from the NBS 2018/2019 is business innovation. To remain competitive and stay up-to-date with the changes in today's economy, businesses find it vital to innovate. Innovation is recognised as important in areas such as customer experience and operational processes.

Through innovation, companies can increase their productivity and generate more value for their customers. The role of innovation is becoming more critical among businesses, as more than half (56%) of all Singapore businesses have implemented business innovation."

Source: Singapore Business Federation. (2019). National Business Survey.

Survey on 700 Businesses in Singapore

To remain competitive and stay up-to-date with the changes in today's economy, businesses find it vital to innovate.



Q: How would you describe the extent to which your own company has implemented these business innovations on a scale from 0 to 10? (0 – No adoption; 10 – At the forefront of change & innovation)

Source: Singapore Business Federation. (2019). National Business Survey.

Aspects Where Companies Identify Innovation as Playing a Critical Role

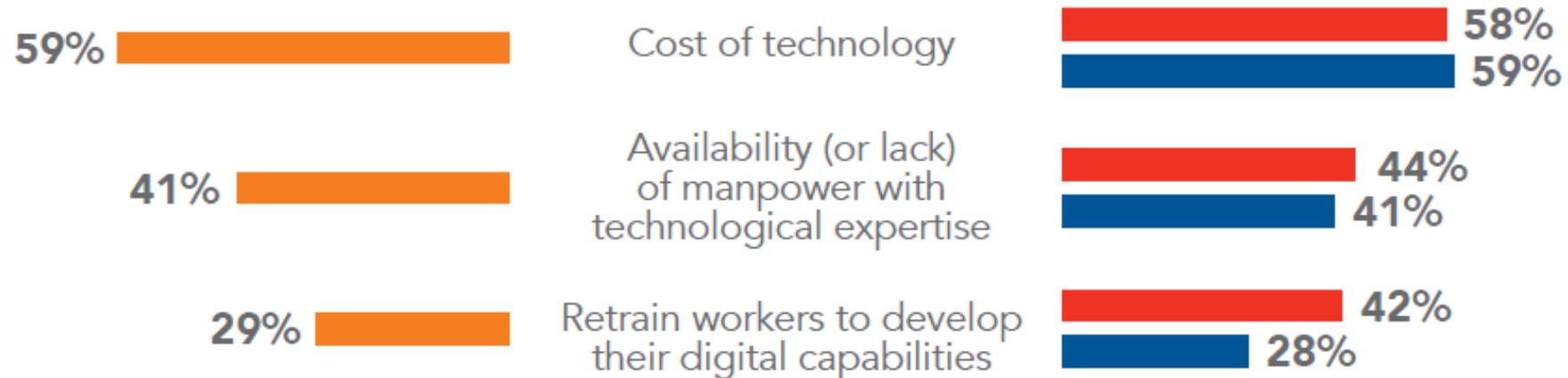


Q: How important is the role of innovation for the following aspects of your business? n=705

Source: Singapore Business Federation. (2019). National Business Survey.

Innovation Challenges

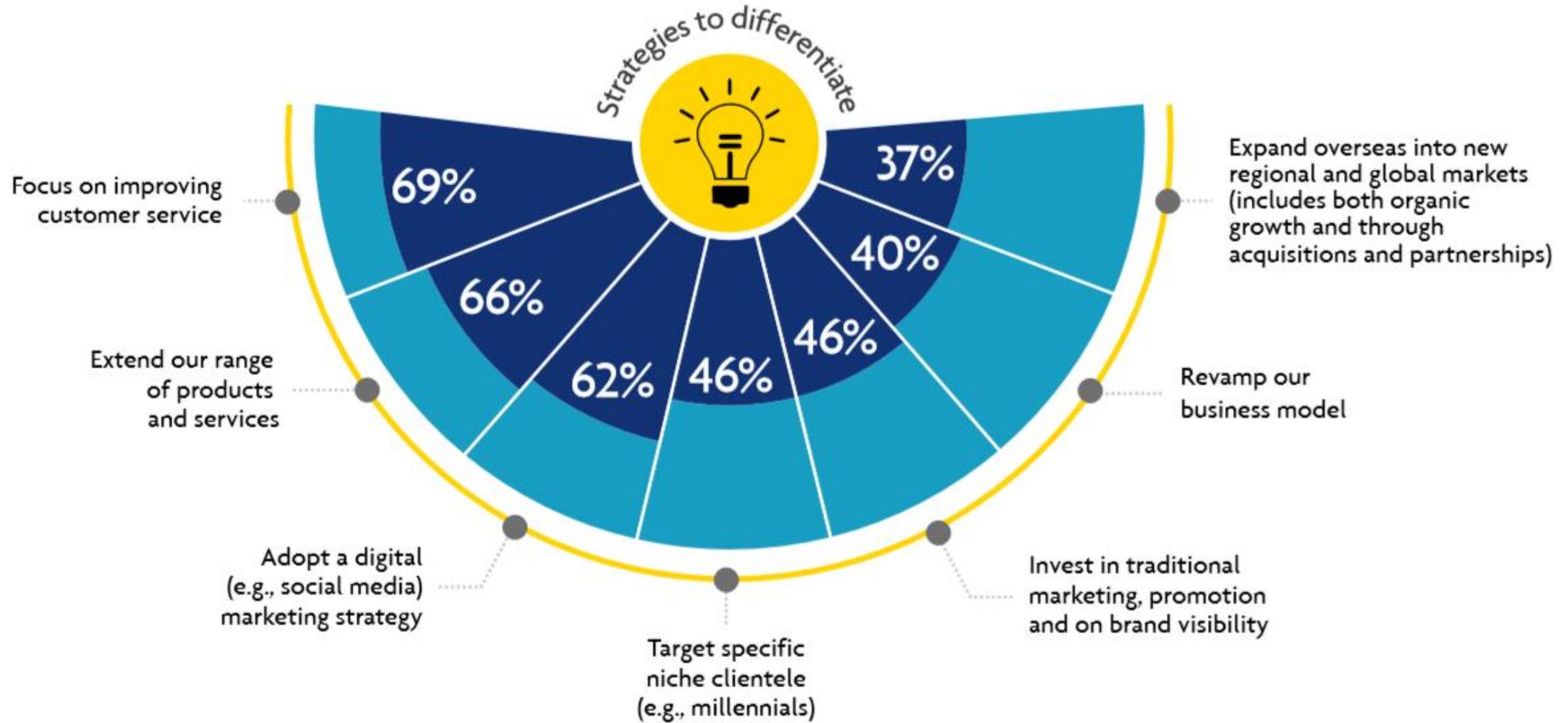
Innovation Challenges



Q: Which of the following challenges would you be concerned with in carrying out innovation within your business?

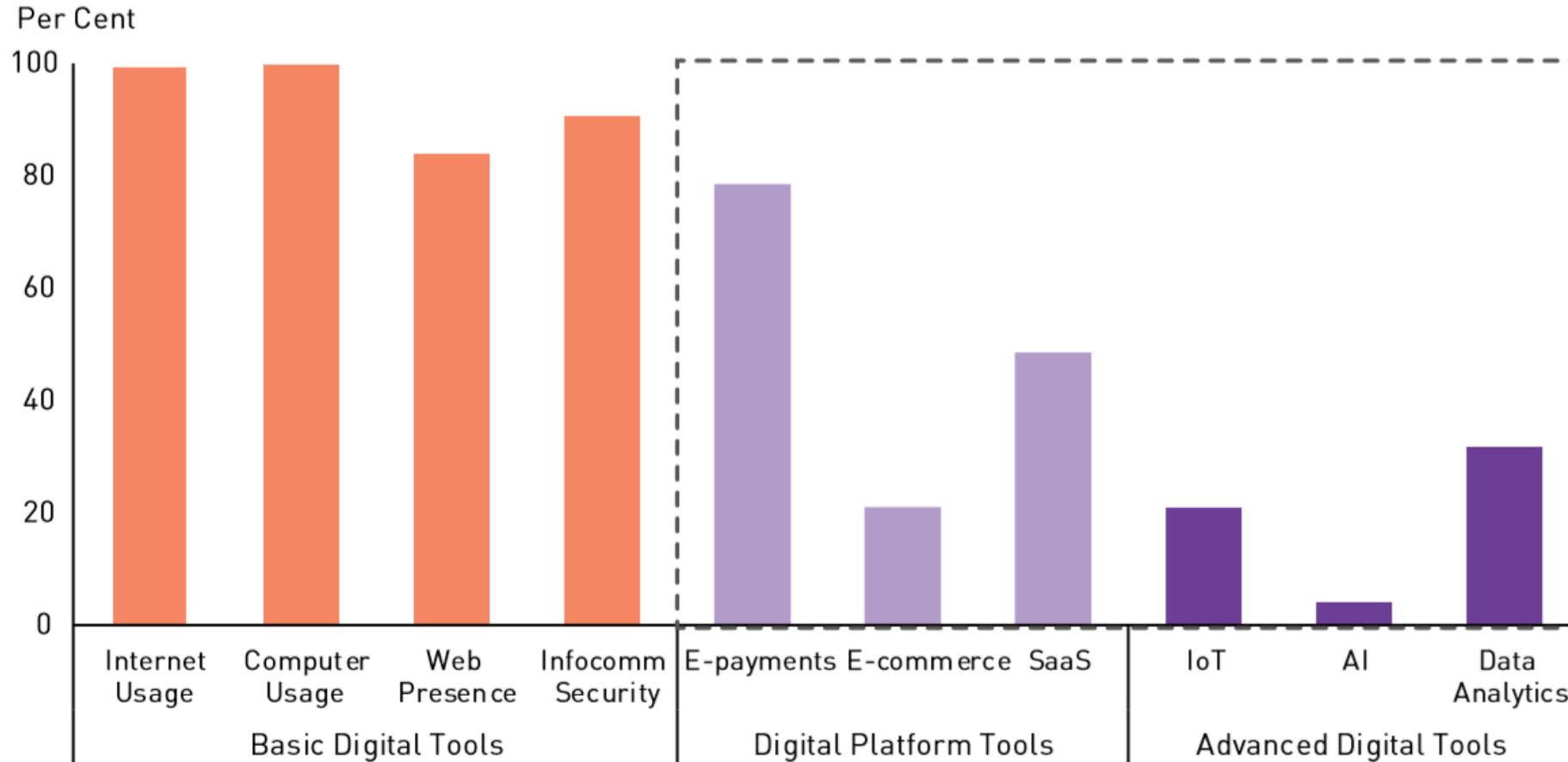
Source: Singapore Business Federation. (2019). National Business Survey.

Strategies to Differentiate (Asean)



Source: UOB, Dun & Bradstreet & EY. (2018). Asean SMEs – Are you transforming for the future?

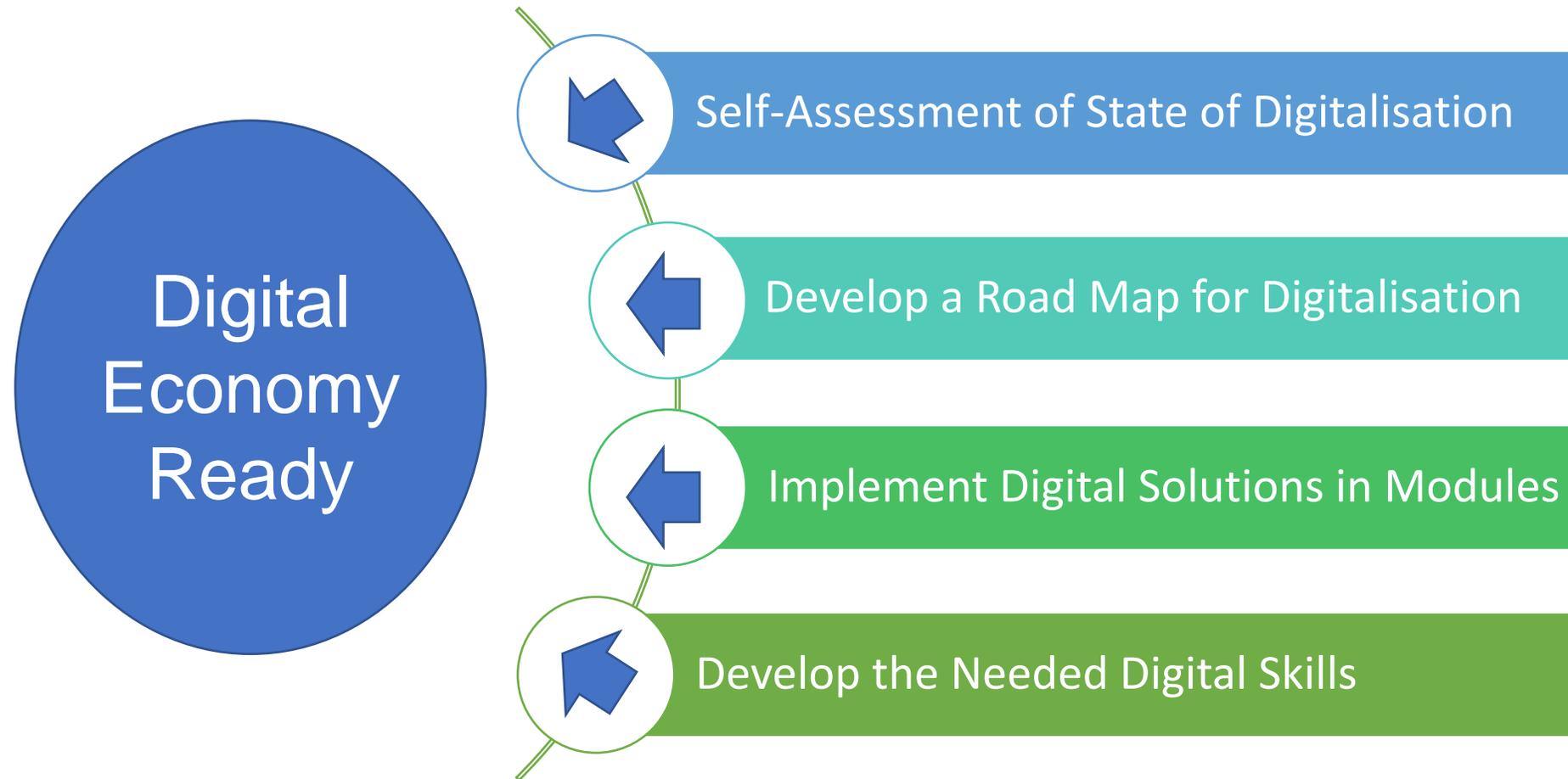
Adoption Rates of the 10 Digital Technologies (2016)



n= 1,150

Source: Singapore Ministry of Trade and Industry. (2019)

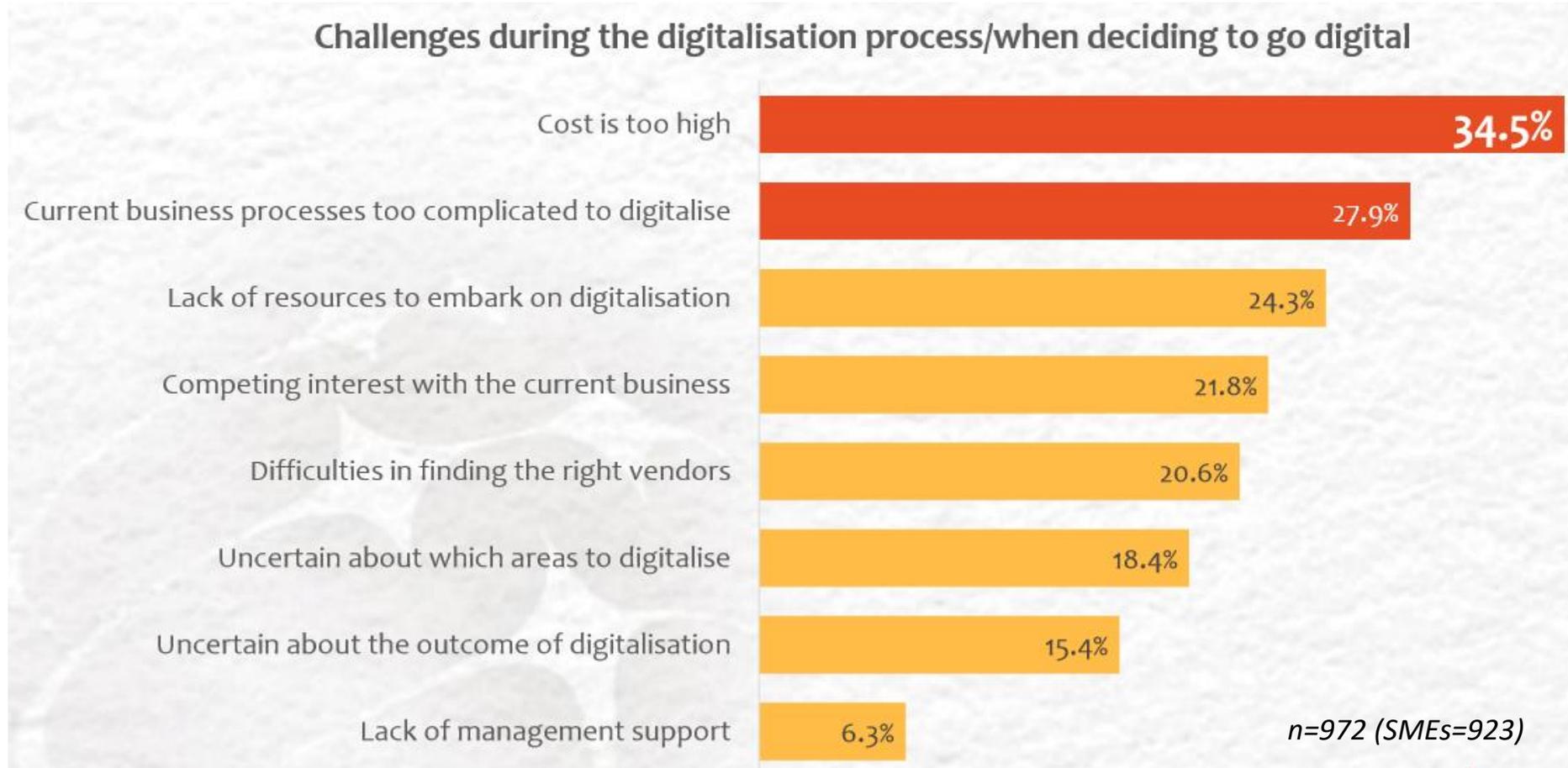
Steps for Digitalisation



Self-Assessment Checklist – Are our operations digitalized?

SN	Systems and Processes	Yes	No	NA	SN	Systems and Processes	Yes	No	NA
1	Human Resource Management				11	e-Marketing			
2	Customer Relations Management				12	e-Commerce			
3	Accounts				13	e-Payment			
4	Inventory Management				14	Mobile Enabled Payment			
5	Fleet Management				15	Cyber security			
6	Sales Management				16	Collaborative Robotics			
7	Workforce Management				17	Augmented Reality / Virtual Reality			
8	Manufacturing Systems				18	Internet of Things			
9	Integrated Point of Sales				19	Artificial Intelligence			
10	Web-presence				20	Data Analytics			

Digitalisation Challenges



Source: Singapore Chinese Chamber of Commerce and Industry. (2019).
Annual Business Survey.

COVID-19 Facilitates Faster Adoption of Digital Technologies



Source: The Straits Times. Singapore. (2019).



Questions and Comments

STAGE 1 Getting Digital Economy Ready

Improved Customer Experience,
Optimised Operations

FRONT-OF-HOUSE



Digital / Online
Food Ordering



Digital Payment



e-Loyalty /
Customer
Relationship
Management



Automated
Reservation



Wireless Self
Collection



Queue
Management

BACK-OF-HOUSE



Kitchen
Management



Fleet
Management

STAGE 2 Growing in the Digital Economy

Scaled Operations,
Integrated Ecosystem

FRONT AND BACK-OF-HOUSE



B2B e-Marketplace
/ e-Procurement



Data Analytics
Platform



IoT-enabled
Central
Kitchen
Management

STAGE 3 Leaping Ahead

Global Markets,
Intelligent Business

FRONT AND BACK-OF-HOUSE



Sensing /
Video Analytics
for Restaurant
Observation



Predictive
Ordering System
powered by AI



Immersive
Training using
AR / VR



F&B Preparation
/ Cooking Robot



Farm-to-Fork
Food Trust
Assurance



Restaurant
Layout
Optimisation
using AR / VR

Example of a Digitalisation Road Map

Source: Infocom and Media
Authority. (2018).