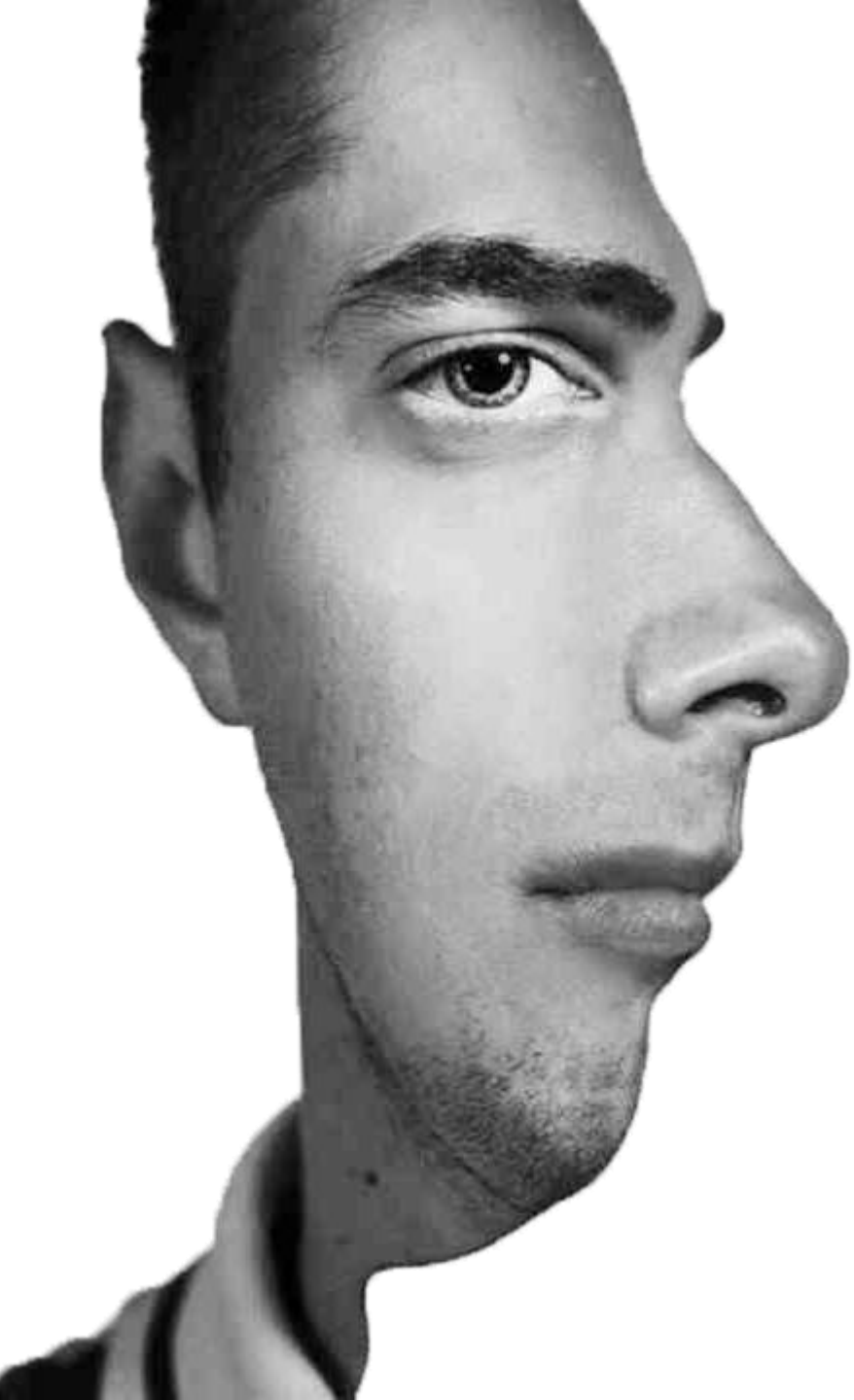


THE **FUTURE** OF DIGITAL is **HUMAN**

M P Vijay Kumar

INSURANCE !!

The views expressed are those of the presenter and, therefore, do not necessarily represent the views of either the Council or any Committee(s)/ Board(s) of the Council of the Institute of Chartered Accountants of India (ICAI).

- **The slide deck should be understood in context of the speaker presentation**
- **E&OE**

- Asia Rising. India…
- Changing world
- Work place @ 2030
- Society & Politics
- Accounting firms will die
- Personal

ASIA RISING; INDIA……

Asia Rising - Digital Driving

- Fast becoming the center of digital innovation for the world
- Accounts for half of the world's total 2.8 billion Internet users, and it is already the largest regional e-commerce market.
- By 2025, today's fast-changing technologies — including the mobile Internet, IoT, Cloud, 3-D printing and advanced robotics —expected to lead to over 30% GDP growth in Asia

M P VIJAY KUMAR

Microsoft Asia Digital Transformation Study 2017

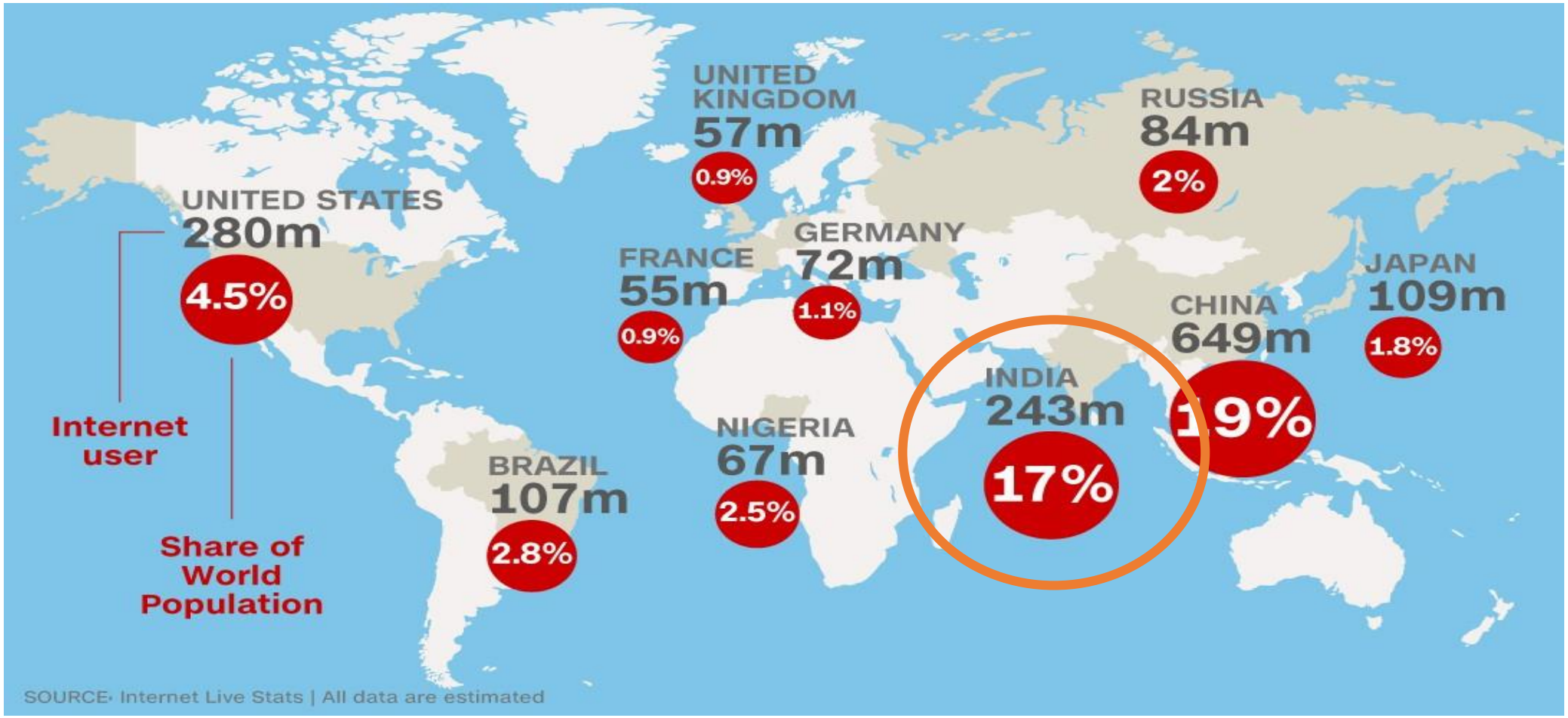
Majority Business leaders aware of urgent need to transfor`m digitally to address the changing business climate

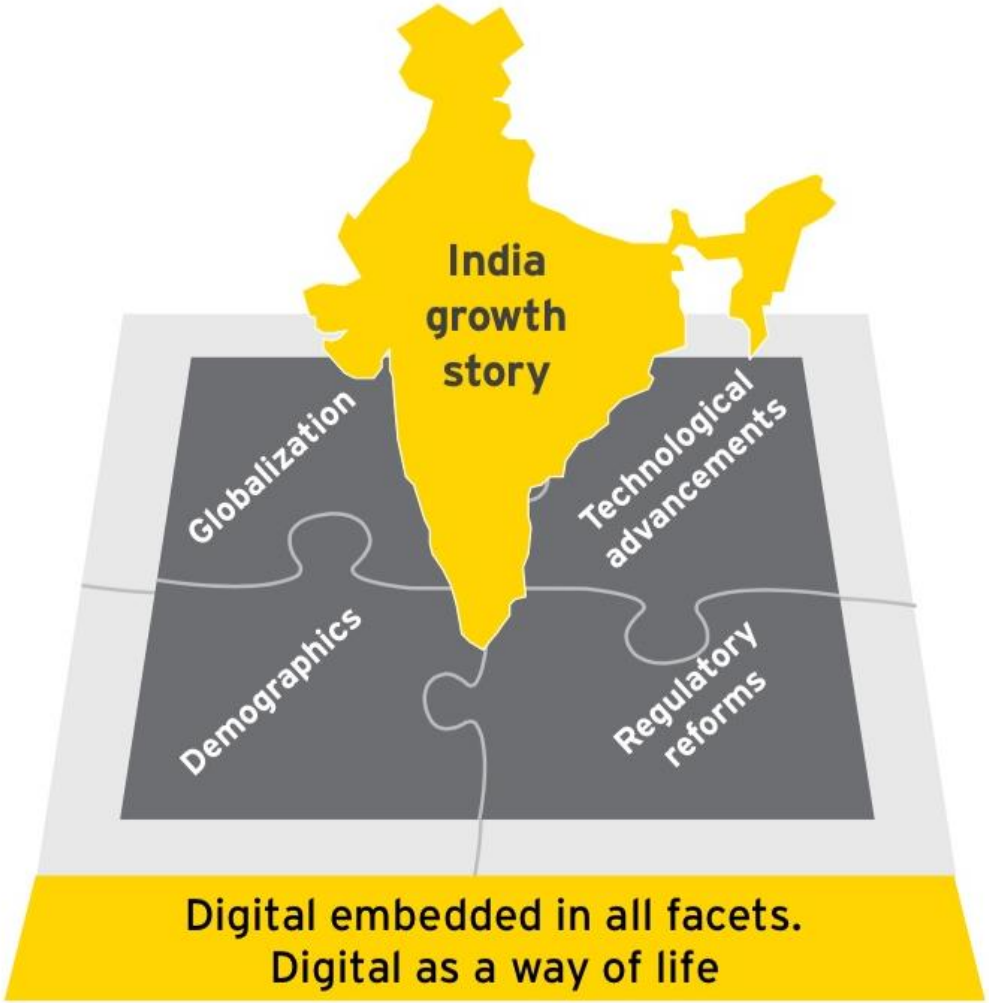
29% of business leaders have full digital transformation strategy	49% are in progress with specific digital transformation initiatives	22% have limited or no strategy in place

Transformation in four key Pillars

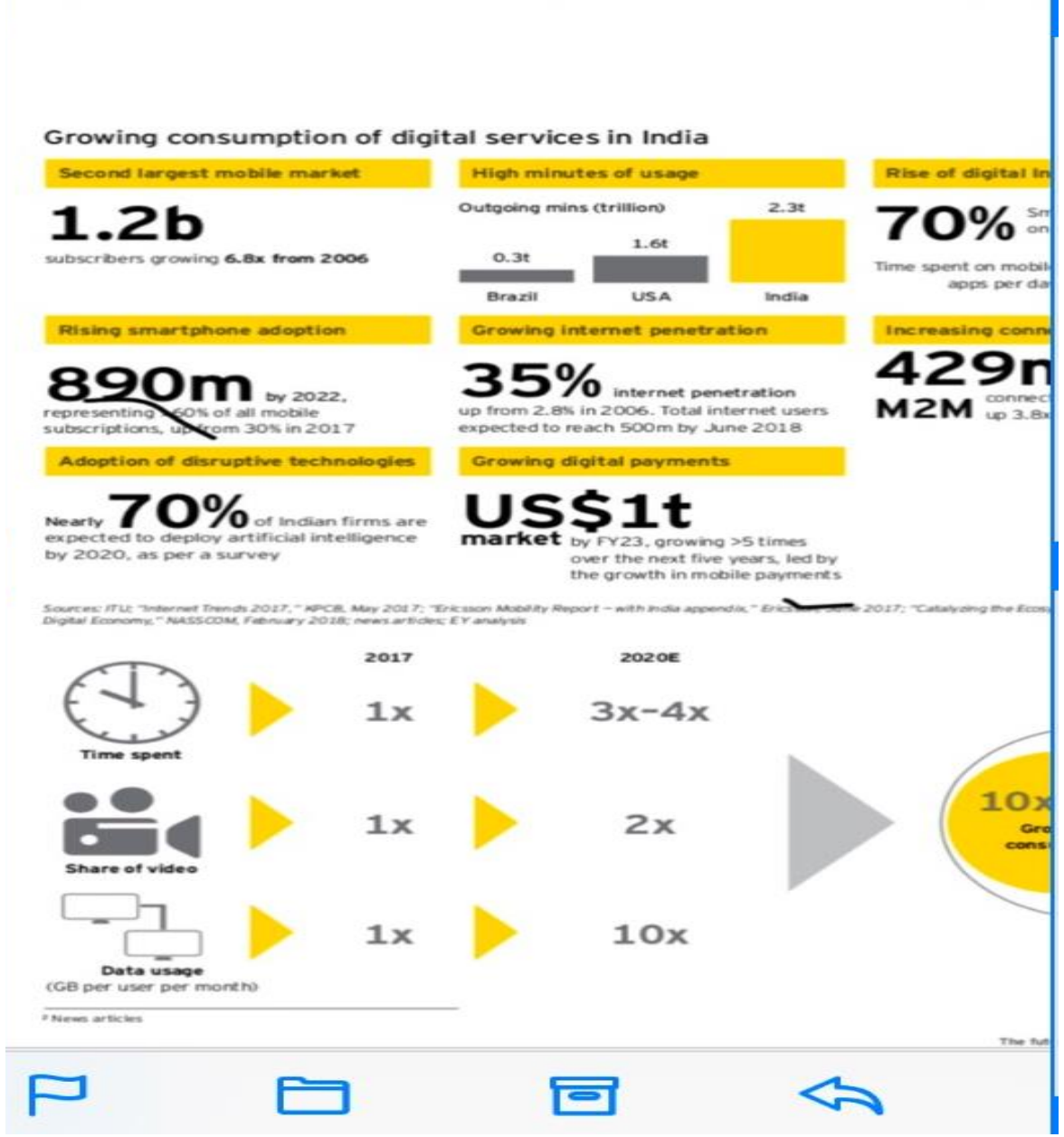
Empowering Employees	Engaging Customers	Optimizing Operations	Transforming Products and Business Models

INDIA LARGE INTERNET ECONOMY…



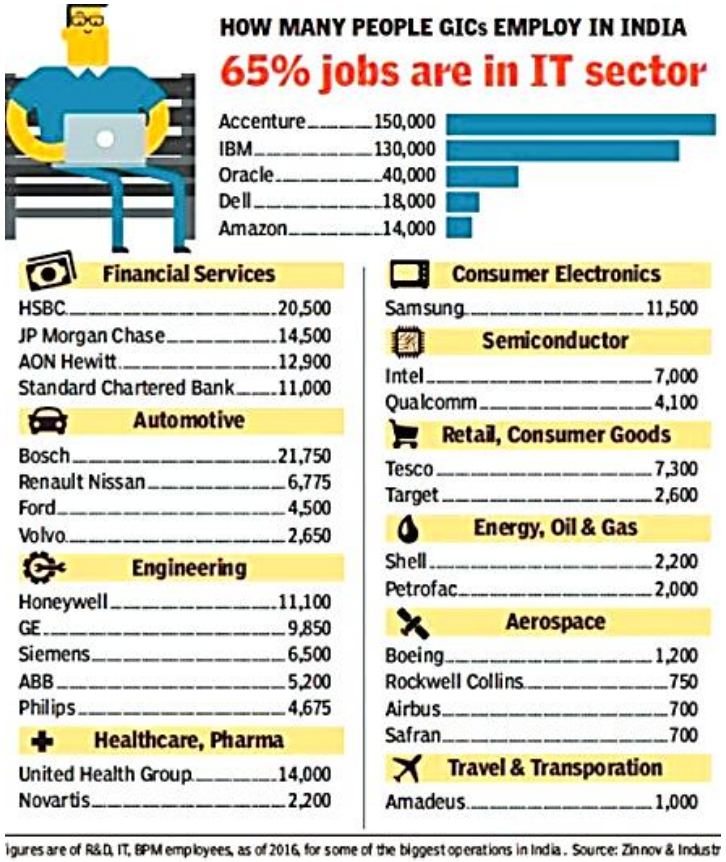


With around **34.8% share of youth in the total population**, India is one of the **largest young nations** globally



cloud@core

U either DO business in India or Invest in India



"These guys are competitors of those in Silicon Valley. The game has changed,"
THOMAS WEBER
ADVISER TO DAIMLER AG

THE ADVENT OF GLOBAL IN-HOUSE CENTRES (GICs)

"Our India site is the biggest in the world. We drive global charters from India. There are people in the US reporting to people here,"
SONALI DE SARKAR
DIRECTOR – HR, NETAPP INDIA

"We, in India, are providing insights and increasingly, the foresight to who is coming to my website, what is she going to buy, how much is she going to spend. We are writing the future"
LALIT AHUJA
FOUNDER, ANSR

1,150

MNCs in India with Global In-House Centres

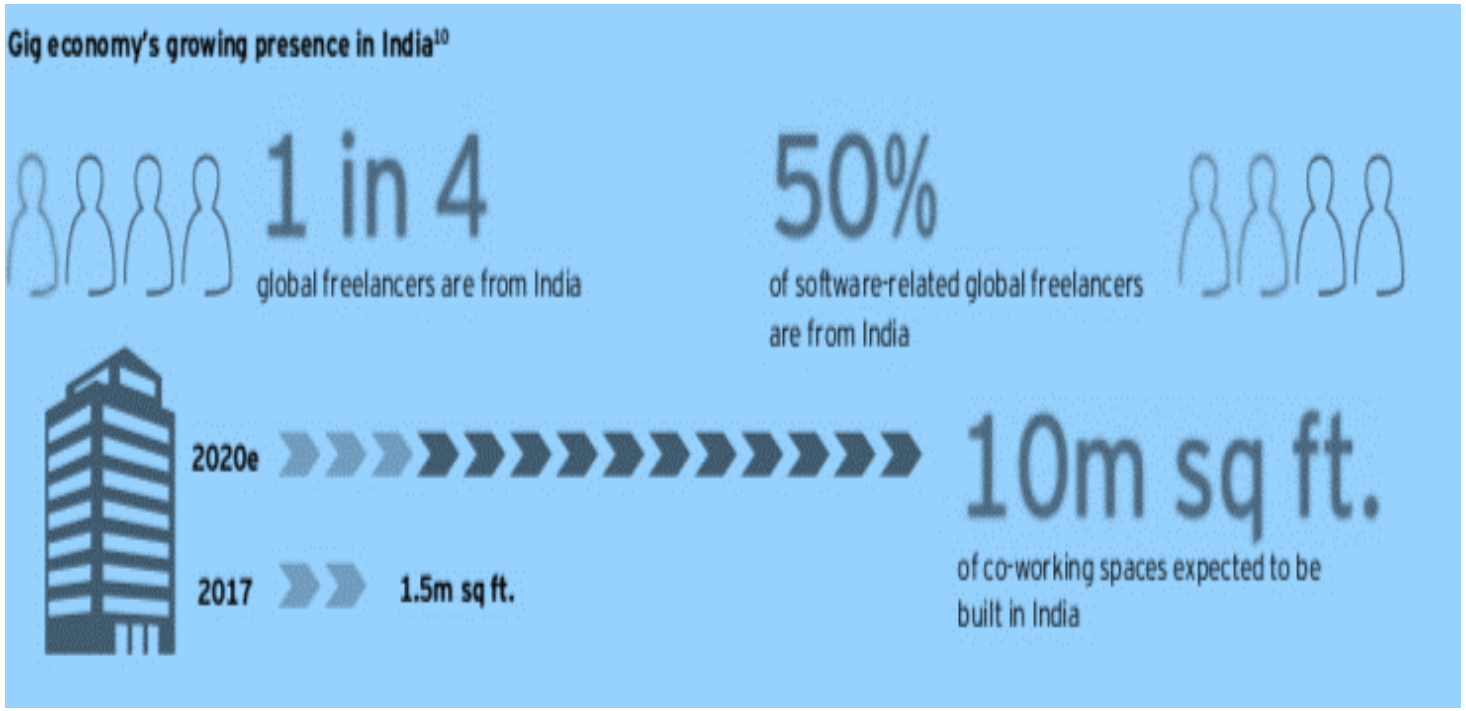
$23.1b GIC revenue in 2016; annual growth of 12% between 2010 and 2016	35% of GICs in Bengaluru; NCR follows at 15%

8.2 lakh Employees in GICs	45% of them are in R&D	23% growth in R&D employees in GICs in 2016

"If you challenge Indians and say, here's the product, reverse engineer it, bring down the cost to a third of what it is…they will do it. Indians are creative geniuses"
DINESH PALIWAL
CEO, HARMAN

"Cost is not a metric the company tracks. The India centre does the core R & D and says 'No' to any other kind of work."
ABDUL JALEEL
VP (Customer Experience), ADOBE

Digital India
Power To Empower


Gig economy's growing presence in India[10]
1 in 4
global freelancers are from India
50%
of software-related global freelancers are from India
2020e
10m sq ft.
of co-working spaces expected to be built in India
2017
1.5m sq ft.

last 24 months

- Biggest BCP on Earth – 85% currency sucked overnight in a predominantly cash economy
- UIDAI – Aadhar – can be used by any vendor for authentication – worlds largest KYC
- Banking without smart phone ; moving to premisesless banking
- DBT– 50bn dollars- 4bn transactions
- Jandhan bank account – 170mn
- Portable mobile numbers and bank account number
- UPI-– P2P payments

- E locker/ E signs - for all documents - property, health records, tax records
- 1bn smart phones, 1 bn bank accounts, 1 bn Aadhar – volume of data and analytics and solutions / commerce on use of analytics/AI for the info

Cost per unit for this volume

Top 10 Unicorn in India valued over $30bn

Chrome books in schools- sponsored by Google- make difference to people.

- Commitment to Net Neutrality

CHANGING WORLD

A SLICE OF HISTORY:

NEW ORDER

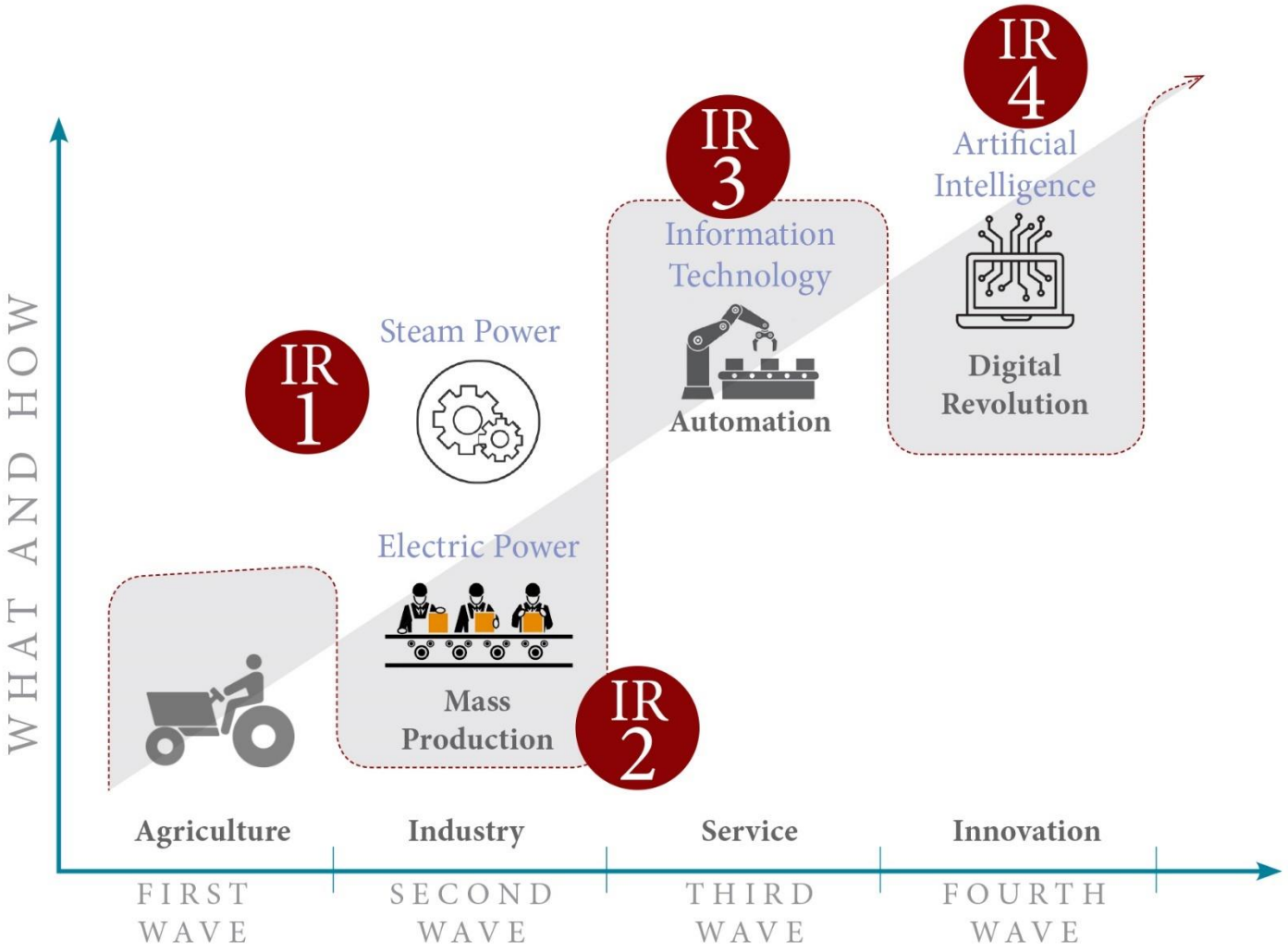
INTERNET – GOOGLE – EMAIL – SOCIAL MEDIA – MOBILE

What is happening around us is a revolution because the velocity of change is 10x. It is a Tsunami of digital revolution, with new technologies like AI, cloud, AR, and VR set to transfer businesses dramatically.

FOUR WAVES

The world has gone through three waves: agriculture, industry, and service. We are now set to step into the fourth, the giant sandstorm of innovation.

Powered by big data, it will unleash IR 4.0



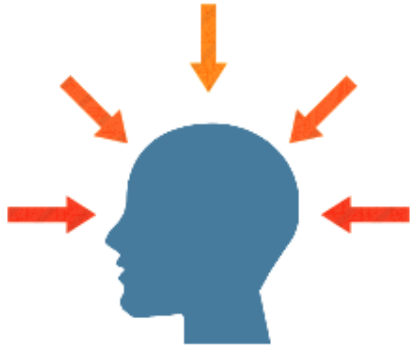
MEGA TRENDS

AUTOMATION,

ARITIFICIAL INTELLIGENCE,

MICRO INNOVATION

These have a massive impact on workplaces and on how we educate and skill ourselves.



Work place @ 2030

Work and workforces redefined

1. Reengineering work: Technology reshapes every job
2. Transforming the workforce: The growth of alternative work arrangements

Implications for individuals

1. Engage in lifelong learning
2. Shape your own career path
3. Pursue your passion

Implications for organizations

1. Redesign work for technology and learning
2. Source and integrate talent across networks
3. Implement new models of organizational structure, leadership, culture, and rewards

Implications for public policy

1. Reimagine lifelong education
2. Transition support for income and health care
3. Reassess legal and regulatory policies

WORK FROM **ANYWHERE**

DIGITALISATION

It will kill some jobs, leave others untouched, and create new ones.

Call center employees, data entry operators, insurance underwriters, tax preparers, sales representatives, translators, and fast food employees.

Psychiatrists, storytellers, world-class teachers, scientists, actors, and thought leaders because these roles need innovative skills.

Workplace 2030

Mobile work force:	Employees will be scattered across physical locations but connected via the Internet.
Organizational flux:	Customers want to talk to the doers. They don’t want layers.
Networked organization:	Companies get leaner and flatter. Freshmen must have a customer-centric view.

Workplace 2030

Digital transformation:	The two skills: (a) content creation (b) how to personalize contents to monetize them.
Another specialization:	Have multiple skills so that when one area plateaus, you can check into another area to stay relevant
Y work full time:	Most jobs will be for freelancers.

Skills 2030

Creative Thinking:	Let’s make a flying car
Life Long Learning:	60% of the skills required today may not be relevant in five years time.
All rounder:	Employers look for all-rounders and not for generalists or specialists

Skills 2030

Industry Orientation:	At college, students must exhibit employability at each stage. Extend an entrepreneurial streak even if you are in employment
Management Selling Skills:	You must learn to sell ideas.
Syndrome of Can-do:	Industry wants people who are patient and courteous. It is easy to say “Sorry I can’t do this.” This is not service.

Society & Politics

CONFEDERATION SYNDICAT EUROPEÆN TRADE UNION

Les travailleurs ne sont pas des ROBOTS

Labour..

- **Policy:**
  - PROSUMER
  - Isolation of work processes
  - Distribution of productivity gains in society
  - Shortening of work time
  - Polarisation between “good” (skilled, well-paid, workable and stable) and “bad” (low-skilled, poorly paid and precarious) work.
- Technology : no longer tool of a human, it has taken control of the work (human)
- Current estimates of global job losses due to digitalization range from 2 million to 2 billion by 2030. WEF
- 27-06-2018

- *technology and its application are not neutral, but socially determined and configurable; e.g. either by the interests of economic profit or by the political orientation to the general good.*

M P VIJAY KUMAR

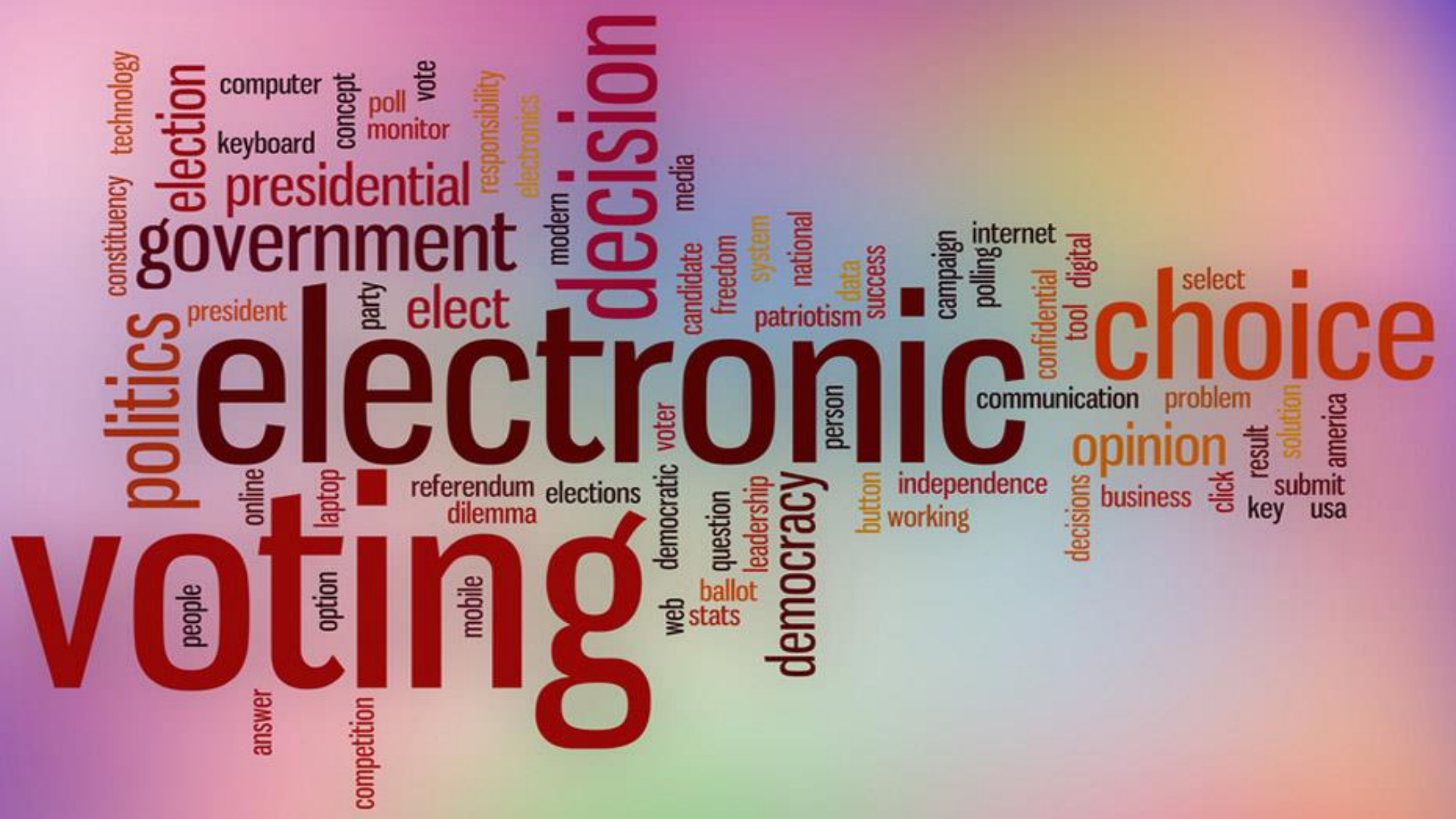
Driving Business Outcomes Through Digitization

Business & individual..

- Business
  - Productivity increase
  - Revenue growth due to larger market coverage and quick scale
  - Growth of some industries within services sector
  - Change of composition of industrial value chains

- Impact at individual level
  - Anonymysation
  - More interaction with machines
  - Longevity in life, but less years of work
  - **Depression**
  - Social inequality
  - **Blurring of boundary between work and liesure**

- *nevertheless, it must be emphasised that the definitive automation of a workplace depends on economic considerations and ultimately also on the form of societal acceptance and does not just necessarily arise from the technical development itself.*


technology
computer
concept
vote
poll
monitor
keyboard
responsibility
electronics
constituency
election
presidential
decision
media
modern
government
candidate
freedom
system
national
campaign
internet
polling
digital
tool
confidential
success
data
patriotism
select
choice
president
party
elect
politics
electronic
voter
person
communication
problem
solution
america
opinion
result
online
laptop
referendum
elections
dilemma
democratic
question
leadership
democracy
button
independence
working
decisions
business
click
key
submit
usa
people
option
mobile
ballot
stats
web
voting
answer
competition

Political..

- Anonymysiation
- Legal uncertainty (ex: crypto currency)
- UBI, coupled with assisted driving technologies, could reduce by 2025 the projected annual death toll from road accidents of more than 2 million by 10%
- Review policies of movement of people across geography
- Agriculture could get back focus (reduced labor migration)
- Elections:
  - More eligible voters would cast vote
  - More referendum
  - Citizens of informed governing voters
  - Cambridge analytica
  - **Machine/algorithm** fed info, influences…..
  - Politicians have used data analytics to discriminate
- Has to be area of HIGH focus for Govts world wide

- ***Social media users are responsible for the type and amount of information they willingly give up online.***
- ***that the belief that numbers speak for themselves is more an article of faith than a demonstrated truth***

What's dangerous
is not to evolve.

Role of government, businesses and citizens to ensure a sustainable digital growth

Government

- Invest toward a Digital First agenda
- Light touch regulatory mechanism – focus on data governance and encryption frameworks to create a safe digital environment
- Create digitally aware citizens – enlightening individuals on data misuse, data sharing restrictions, shared data and legal implications
- Actively track and curtail the misuse of social media platforms to prevent anti-social activities

Businesses

- Data security and customer privacy as part of the business culture: data protection features should be embedded in the products and services from the design stage itself, instead of being looked at as an afterthought
- Strengthen consumer trust with adequate data security measures and consumer awareness initiatives
- Work toward a collaborative environment, focus on providing the latest technologies with better security features via joint industry efforts and partnerships

Citizens

- Develop a mindset where digital technology can be switched 'on' or 'off' as they choose, instead of being dependent on it
- Learn to make better choices about using time productively – especially for young generation that has instant access to a world of information and knowledge
- View digital technology as a tool and not an end; imbibe critical life skills such as mindfulness and stress management

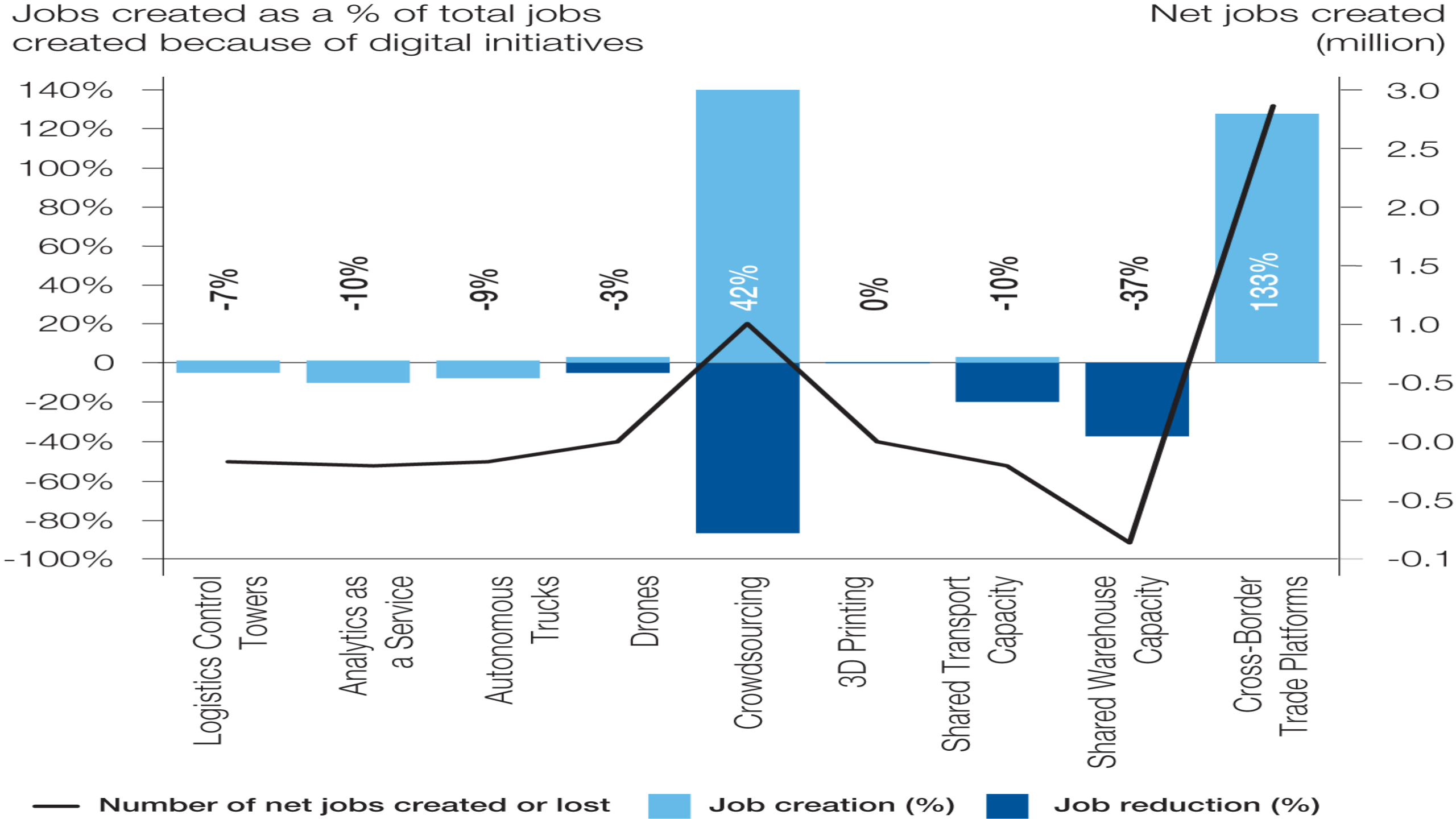
Exhibit 8. Examples of economic impact of advances in third wave digitization technologies

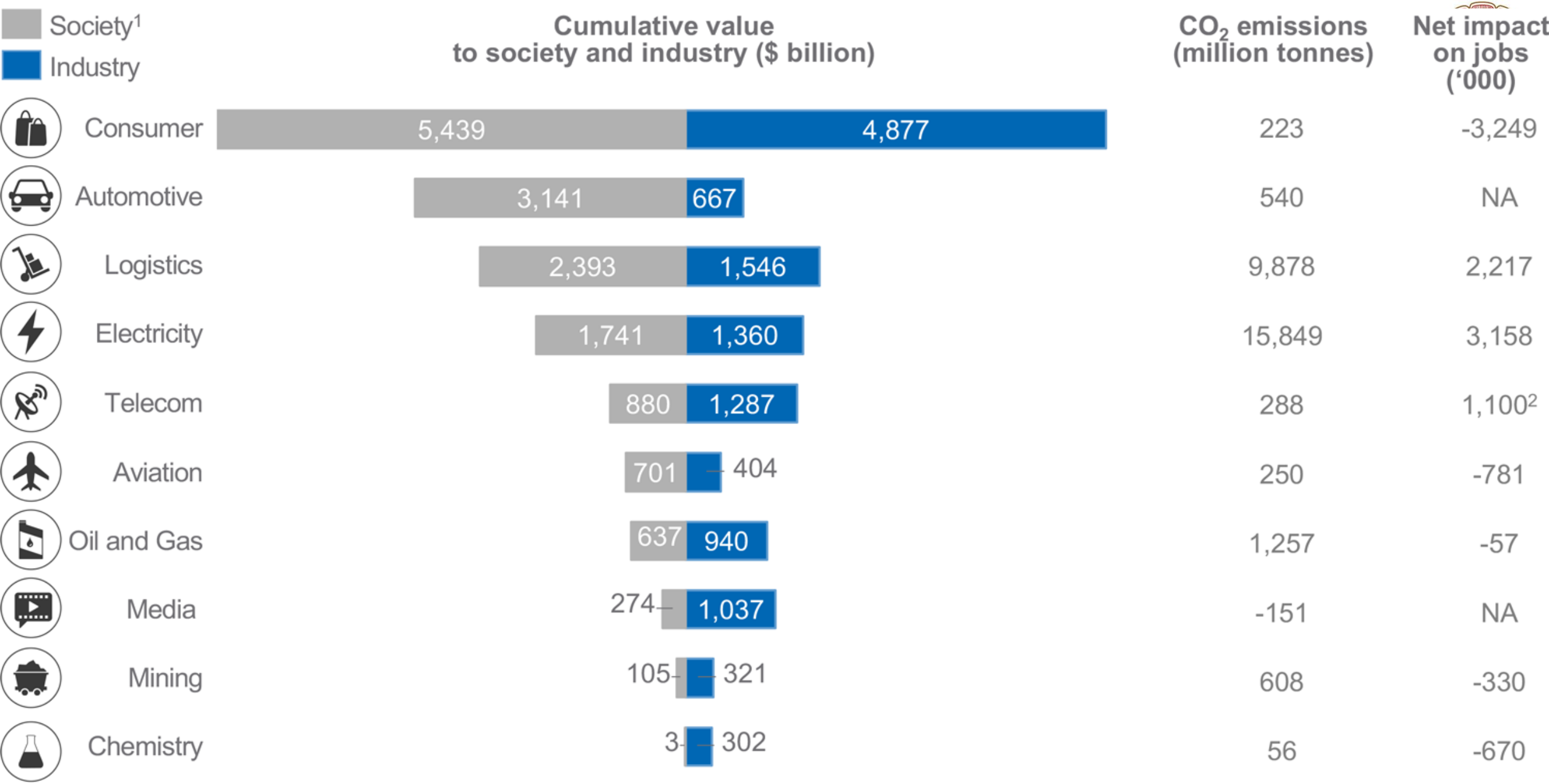
Application	Technology	Impact
Medical Diagnosis conducted by IBM's Watson	• Big data (cancer: 600,000 medical reports and 2 million pages of medical papers • Machine learning	• Match patient symptoms and genetics to deliver tailored treatment • Reduction in health care costs
Google Translate	• Machine Learning	• Improve accuracy in translation services • Reduction in delivery time of translated content
Smart Action call automation	• Speech recognition • Natural Language processing	• Reduce call center costs by 60-80 percent
Workfusion software	• Machine learning	• Splits job streams between routine ones that can be automated and those that cannot • Platform learns from humans as to how they execute tasks and routinizes / codifies them
Rethink Robotic (Baxter)	• Robotics • Sensors • Big data	• Robot can be instantly reprogrammed to perform different tasks ranging from line loading and machine tending to packaging
Workday software	• Artificial Intelligence • Big data	• Identify most promising job candidates by scanning CVs • Accelerate recruiting time by reducing paper data analysis

ource: compiled by the author

Exhibit 9. Examples of welfare impact of advances in third wave digitization technologies

Application	Technology	Impact
Horizon Scanning Center (United Kingdom)	• Big data	• Platform forecasting the impact of climate change on food and water availability, among other factors
Prediction of vacant residential property (United States	• Big data	• Help predict and prevent vacant residential property
ATISMART	• Big data • CAS mathematical core	• Traffic flow simulation platform based on the use of smart traffic lights, network sensors, and signals
Foot and mouth disease syndrome prevention (South Korea)	• Big data	• Analysis of data streams coming from animal disease overseas, customs/immigration records, breeding farm surveys, livestock migration, and workers in the livestock industry
Fraud detection in Social benefits payment (United States)	Machine Learning (Unsupervised Learning performing anomaly detection using unlabeled data)	• Fraud reduction in Medicare payments
Public transportation management	• Machine Learning	• Provide just-in-time access to public transportation • Expected to be faster, cheaper and more accessible to the public
Criminal Justice System (United States)	• Machine Learning	• Improve crime reporting, policing, bail, sentencing, and parole decisions (Data Driven Justice, Police Data Initiative) • Aid for decision-making in the criminal justice system


Jobs created as a % of total jobs created because of digital initiatives
Net jobs created (million)
140%
120%
100%
80%
60%
40%
20%
0
-20%
-40%
-60%
-80%
-100%
3.0
2.5
2.0
1.5
1.0
-0.5
-0.0
-0.5
-0.1
-7%
-10%
-9%
-3%
42%
0%
-10%
-37%
133%
Logistics Control Towers
Analytics as a Service
Autonomous Trucks
Drones
Crowdsourcing
3D Printing
Shared Transport Capacity
Shared Warehouse Capacity
Cross-Border Trade Platforms
Number of net jobs created or lost
Job creation (%)
Job reduction (%)



Note: [1] Total societal value at stake includes impact on the customers, society and environment. Impact on external industries has not been considered.
[2]Excludes Extending Connectivity digital initiative

Strengths	Opportunities
1. Connected world, open systems, knowledge economy	1. New jobs (computer engineers and scientists, network experts, etc.)
2. Networks, exchange, sharing and collaboration, with access based on functionality rather than ownership	2. More 'agile' work organisation; new forms of more flexible and more autonomous work
3. Integration of industries and services: intelligent factories, energy systems, mobility, transport and cities and 'optimised' governance	3. Abolition of repetititve and routine tasks
4. Automation, robotisation, learning machines	4. Better ergonomics, help in performance of heavy or complex tasks
5. Productivity, efficiency and profitability gains	5. New forms of collaboration and cooperation among workers
6. Zero marginal cost economy	6. Reshoring or onshoring (return of industries and new 'smart' factories – and jobs – to their country of origin)
7. Innovative products and services, proliferation of mobile apps to 'make life easier'	7. Possibility of new ways of distributing productivity gains (working time reduction)
8. New autoproduction capacities, micro factories	8. Possibilities of social emancipation, change of economic model geared to peer-to-peer and common goods ('post-capitalist' society)

Weaknesses	Threats
1. Jobless growth, jobless future	1. Massive destruction of medium-skilled jobs (computerisation)
2. Emergence of super powerful oligopolies, new world data masters	2. Intensification of 'anytime, anywhere' work; blurring of the boundary between private life and working life leading to stress and burnout
3. Concentration of power and wealth in value chains (equivalent losses for other companies, sectors and countries)	3. Loss of control by workers of their own expertise and know-how and free will (becoming the tool of a machine)
4. Frequent problems of (non)-compliance with regulatory, administrative, labour and taxation standards	4. Digital management, policing of workers, risk of mutual loss of trust between employees and management
5. Protection of personal data exposed to intrinsic risks	5. Precarisation of jobs and statuses, total dependence on 'data masters'; 'servification'
6. 'Algorithmisation' of individual behaviour, work and consumer habits, social and cultural preferences; normalisation and standardisation of the individual	6. Weakening of collective action and industrial relations
7. Hollowing out of the middle classes and polarisation of society between a reduced number of 'top-of-the-scale' workers and a mass of 'bottom-of-the-scale' workers	7. Skills and training/labour demand mismatch
8. Under-investment and under-utilisation of digital tools for the social emancipation of low-income sections of society	8. Exacerbation of inequality, wage stagnation
	9. 'Digital Taylorism' and emergence of a class of digital galley workers (crowd sourcing); world competition among workers for all jobs not requiring face-to-face contact
	10. Erosion of tax base and social insurance financing

Source: Christophe Degryse (ETUI 2016)

Accounting firms will die

Digitization driving the world to a new order

- **Virtual Digital Banks - There would be no banks, just digital platforms; API banking**
- **There would be no telecom, just digital marketing companies**

Telecommunication used to be point of sale business for voice then came the value added services, mobile payments and many such services.

Voice is now free.

Mr. Mukesh Ambani (Forbes, 33) said Voice is a democratic right, should be free and that data was the new Oxygen. Well in sometime probably data too would be free.

- **All companies, across all industries are becoming software companies**

QUESTIONS
QUESTIONS
&
&
ANSWERS
ANSWERS

The future is the beginning……

AUTOMATION

It will kill some jobs, leave others untouched, and create new ones.

Call center employees, data entry operators, insurance underwriters, tax preparers, sales representatives, translators, and fast food employees.

Psychiatrists, storytellers, world-class teachers, scientists, actors, and thought leaders because these roles need innovative skills.

ARTIFICIAL INTELLIGENCE

is already here

Google maps tell us how long it will take to drive from place A to B

GMAIL filters 99.9% of spam at unbelievable accuracy

GRE grades essays using a robot

Banks use machine language to assess credit score

Chess players use AI-powered engines to analyze their games.

A Boeing flight has only seven minutes of human intervention.

Is AI the same as automation?

Elevator is an example of automation. In takes the tedium away from you in climbing the staircase.

AI is at work when there are six lifts and only one press button: the nearest lift reaches when you press the button.

INVENTORY

LEASE DOCUMENTATION

RFID

WARRANTY PROVISION

PREDICTIVE POWER

27-06-2018

M P VIJAY KUMAR

Deep Learning

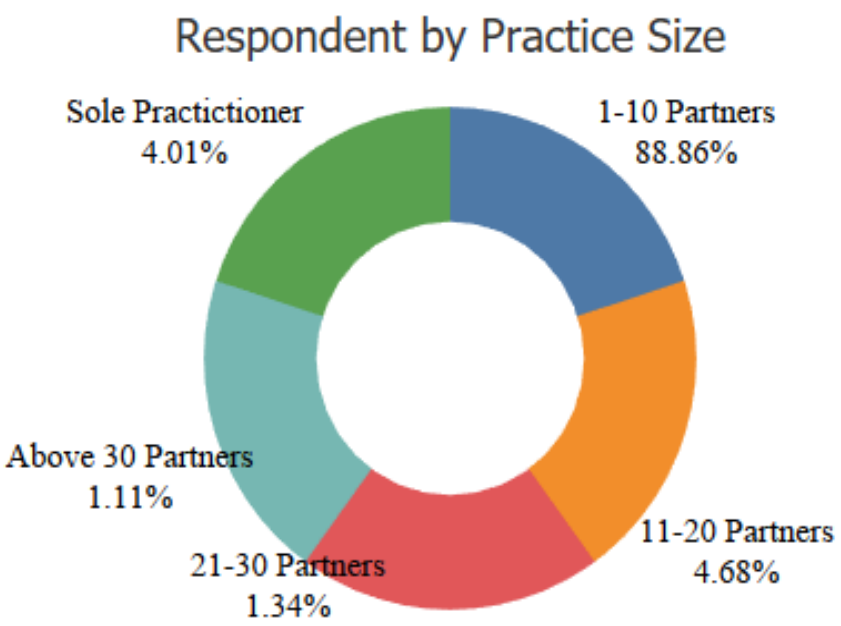
Deep Learning is the new heart of AI

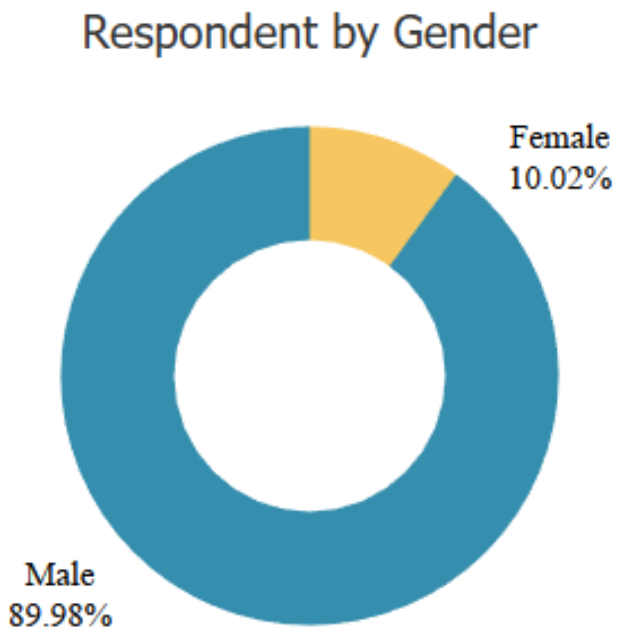
When the French h PM delivers a talk in French, if you can hear it in real time in English, someone can listen in German, and a third person in Chinese, we have deep learning at work.

DIGITAL ERA AND THE CHARTERED ACCOUNTANCY PROFESSION – SURVEY REPORT 2017

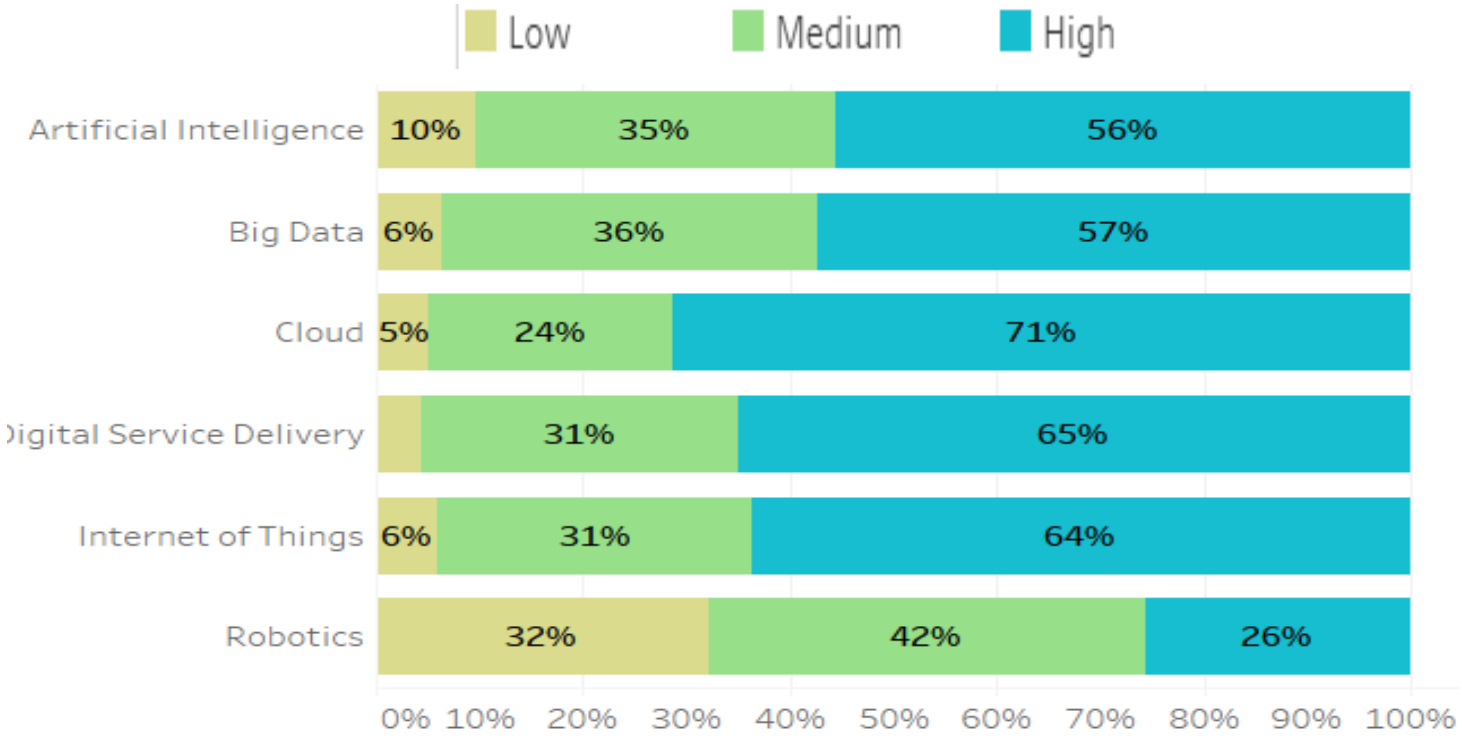
Questionnaire - Ten questions/ forty five issues.

Responses of 920 members



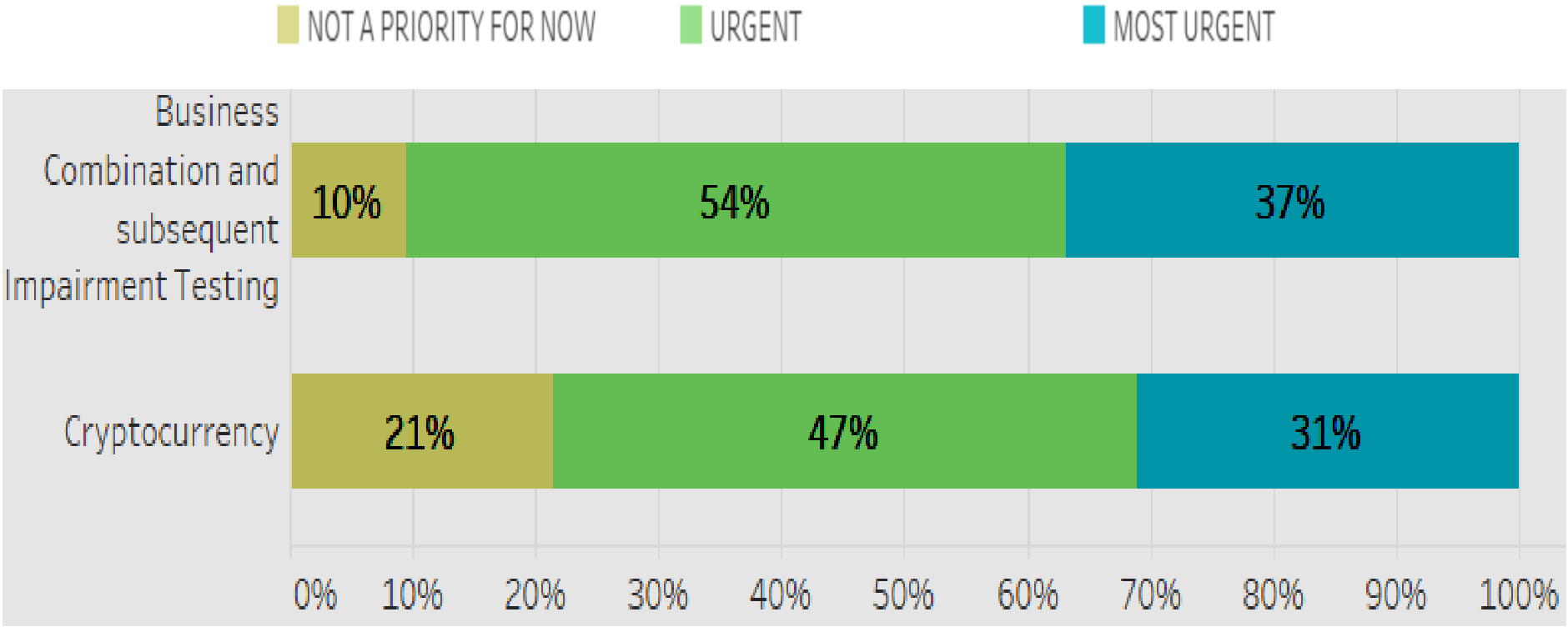


Technology Trends – Significantly Impacting Profession in next 3-5 years



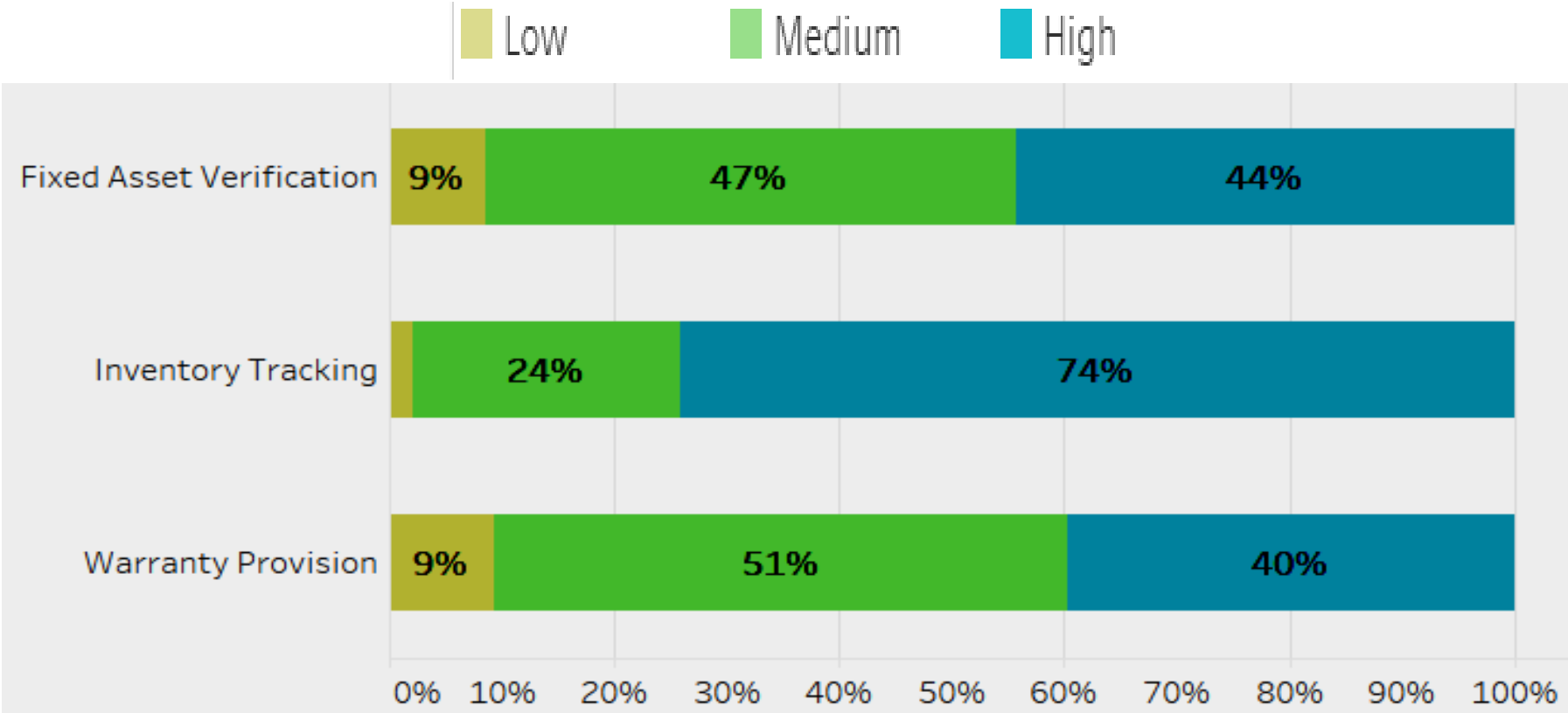
Survey reveals that all six technologies except robotics is perceived to have high impact on accounting profession.

Digital Era & CA Profession – Survey 2017



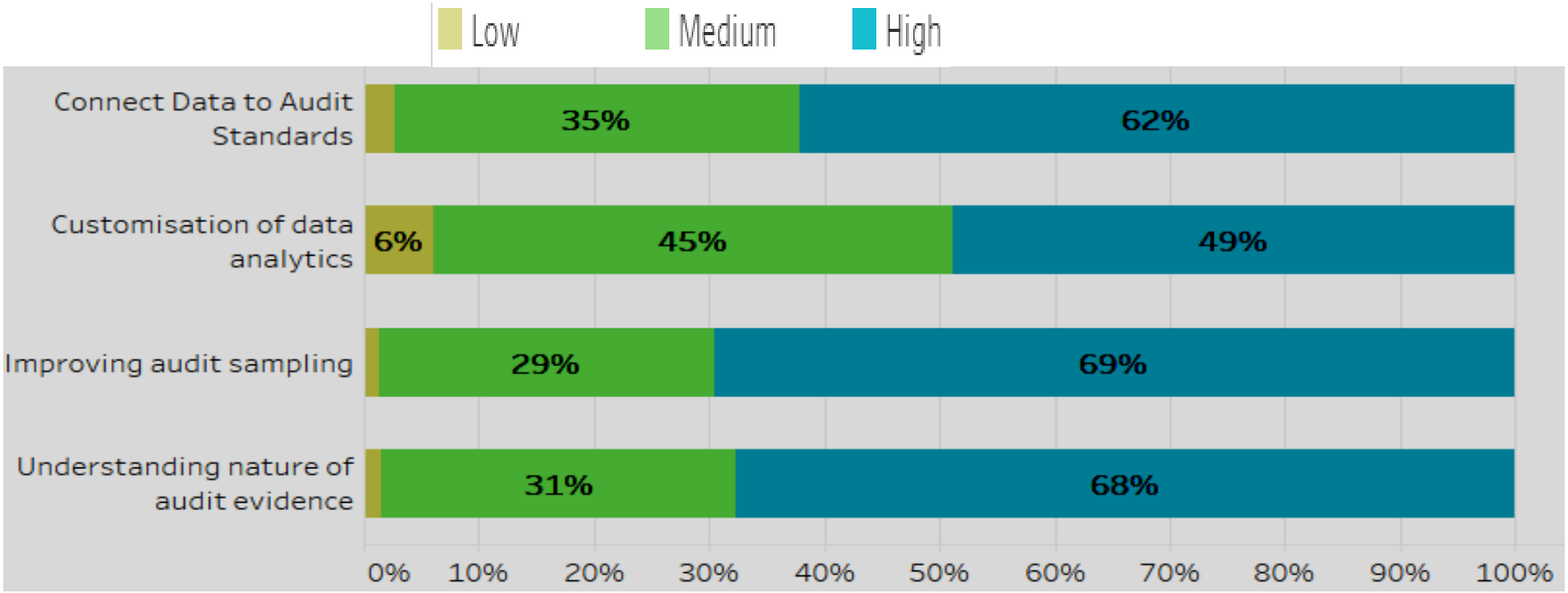
Survey reveals mixed response on critical accounting issues warranting more guidance.

Digital Era & CA Profession– Survey 2017



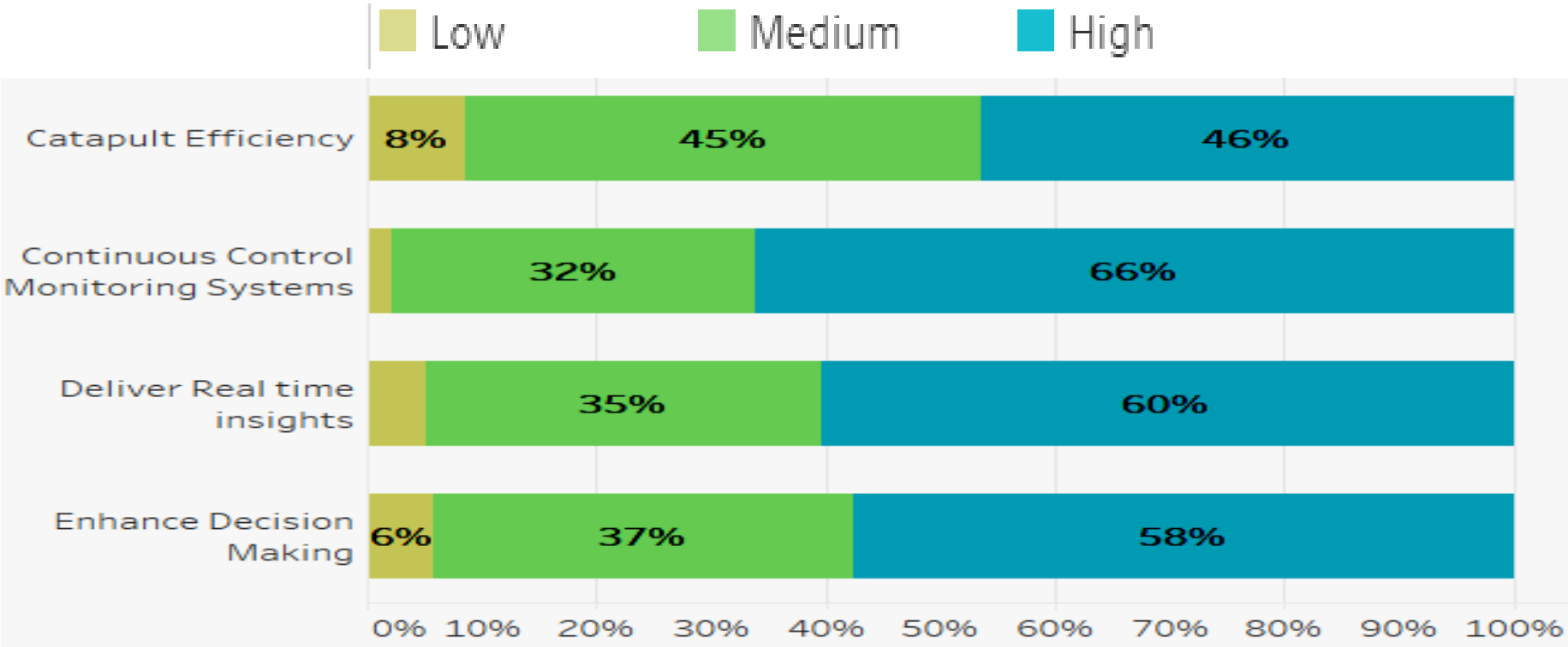
Almost 90% of respondents have stated that Internet of Things (IOT) will have an impact on audit evidence ranging from high-medium, while mere 10% respondents represents a low impact

Digital Era & CA Profession– Survey 2017



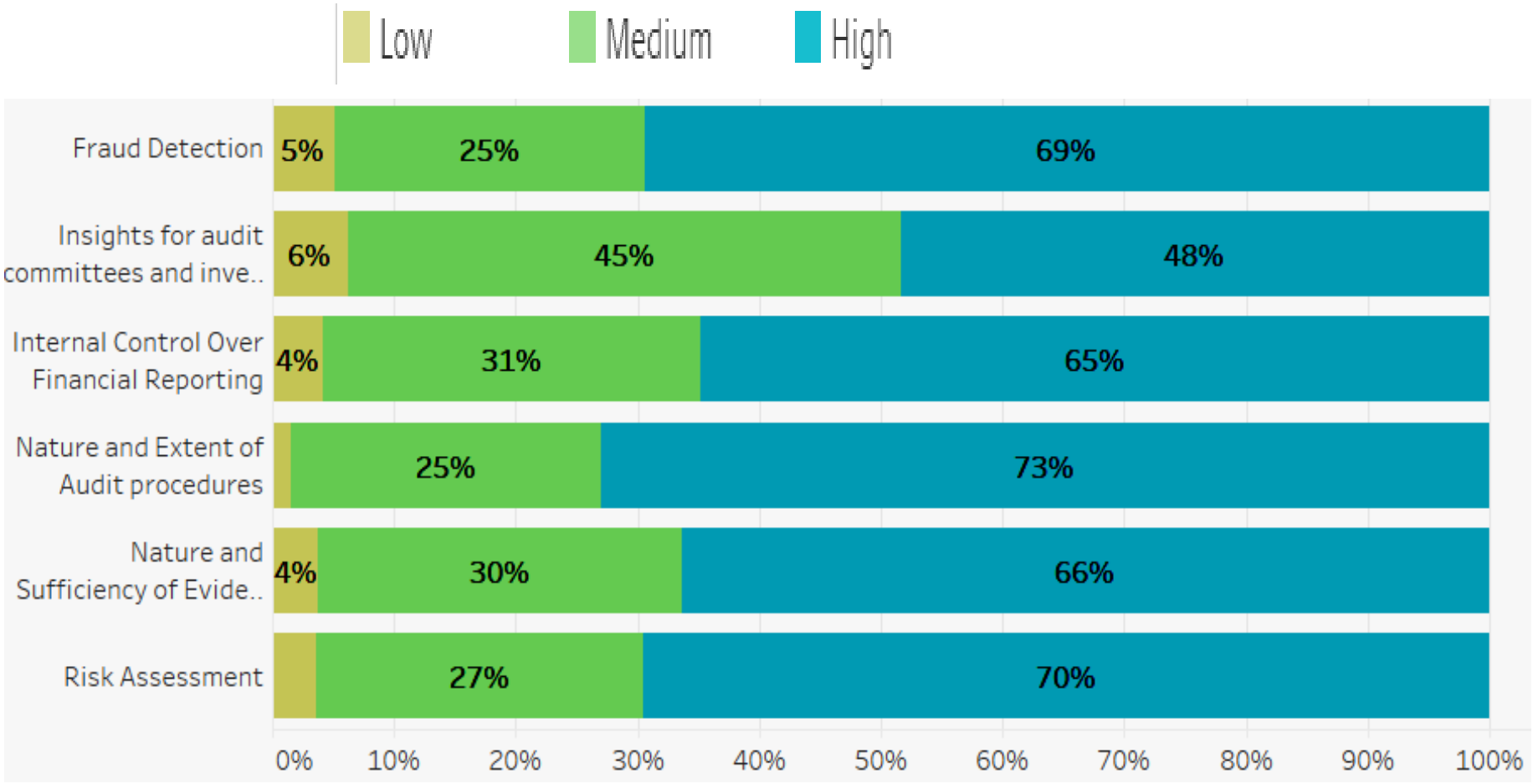
More than 60% of respondents agreed to connecting data analytics to existing suite of auditing standards, and also recognised use of data analytics for improving audit sampling. Majority of respondents agreed to importance of incorporation of data analytics into audit process.

Digital Era & CA Profession– Survey 2017



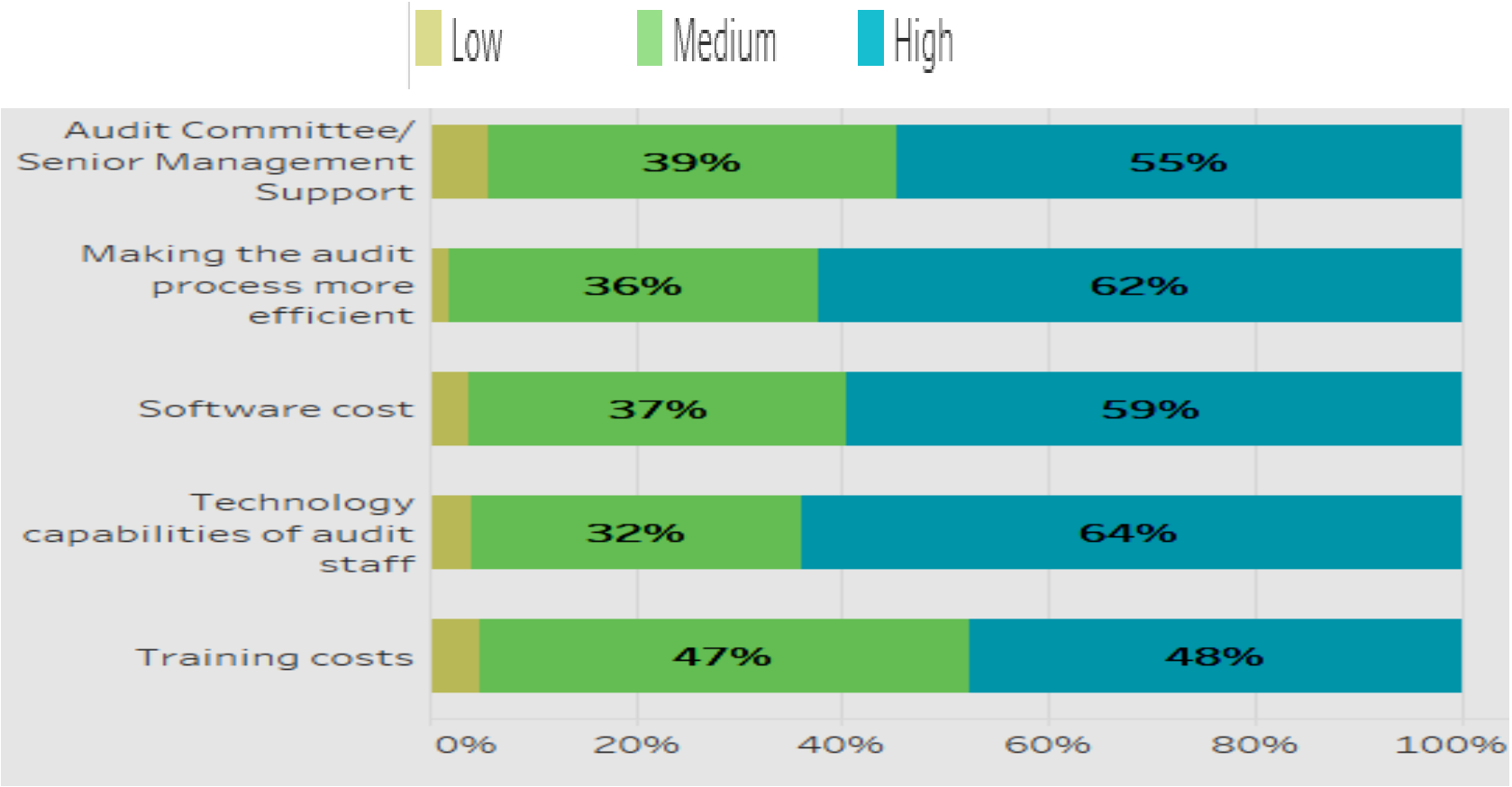
More than half of respondents reported that Artificial Intelligence (AI) as a technology will play an important role in innovation by eliminating the manual process in accounting and assurance sector.

Digital Era & CA Profession– Survey 2017



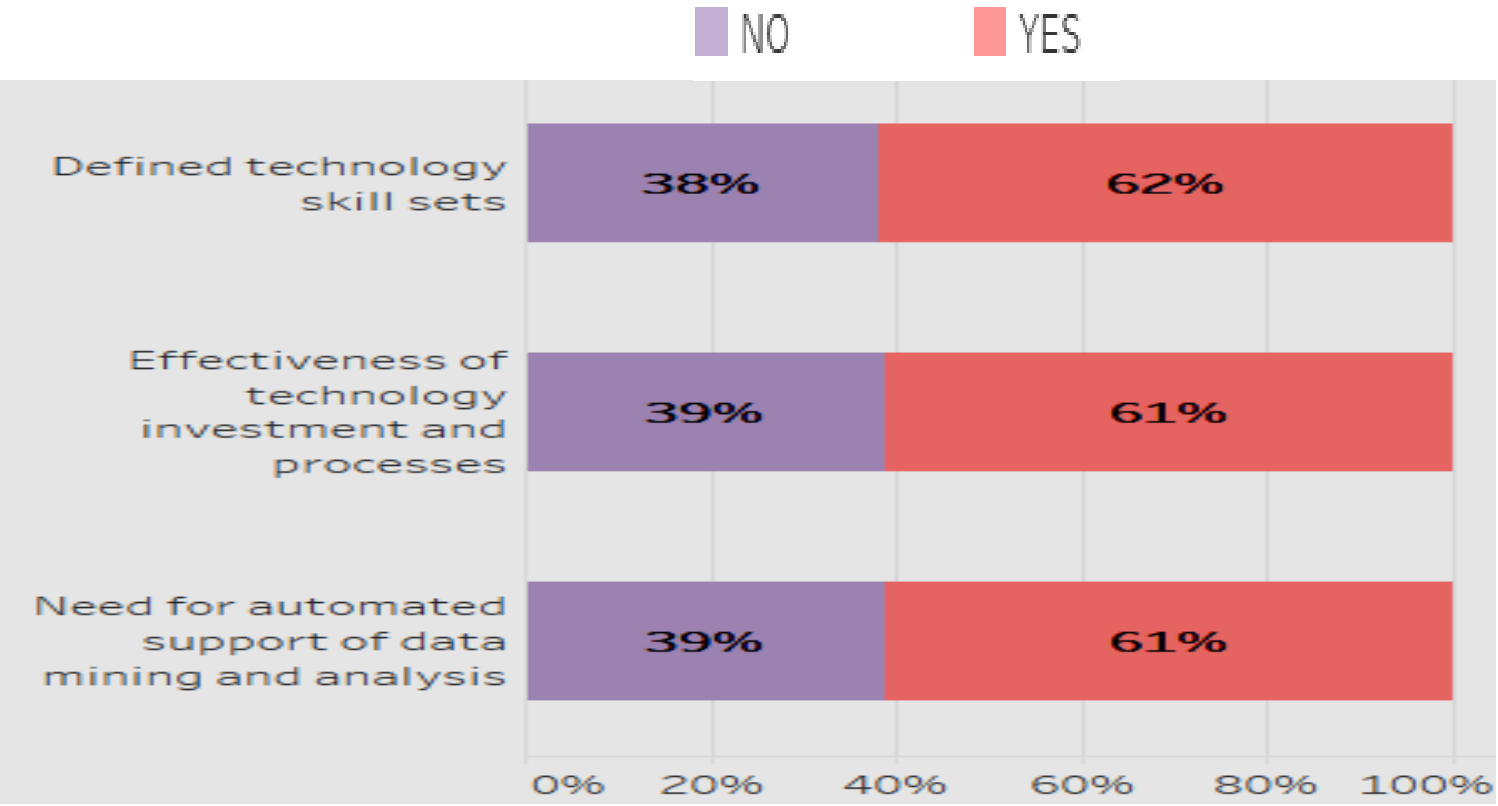
USE OF DATA AND TECHNOLOGY IN AUDIT.

Digital Era & CA Profession– Survey 2017



INTEGRATION OF TECHNOLOGY IN AUDIT PROCESS

Digital Era & CA Profession– Survey 2017



ORGANIZATIONAL STRATEGY TO ADDRESS ISSUE

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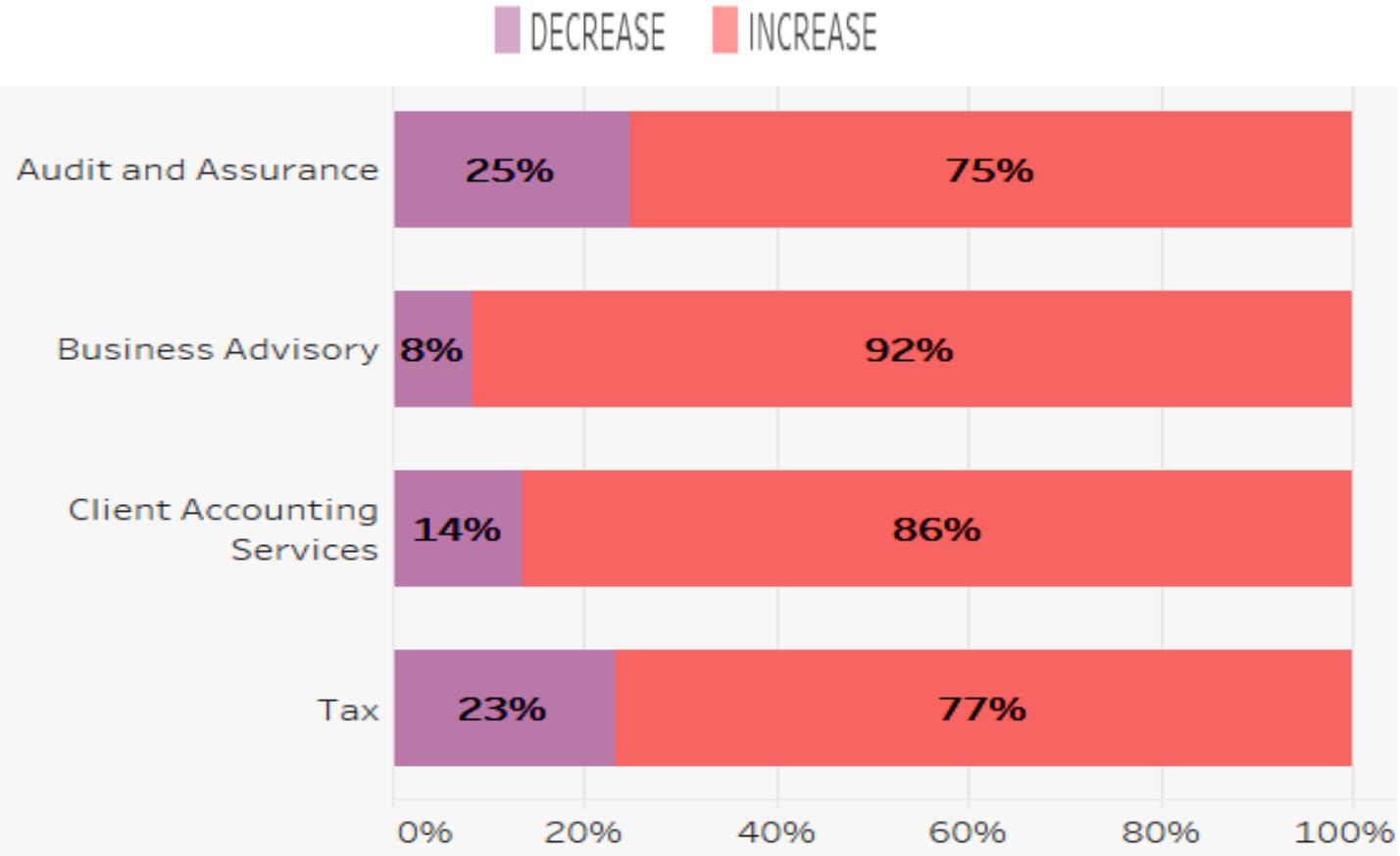


Change in Demand of SMP Services in Future

DIGITAL COMPETENCY MATURITY MODEL

(DCMM)™*

For Professional Accounting Firms

Version 1.0

Digital Accounting and Assurance Board

The Institute of Chartered Accountants of India

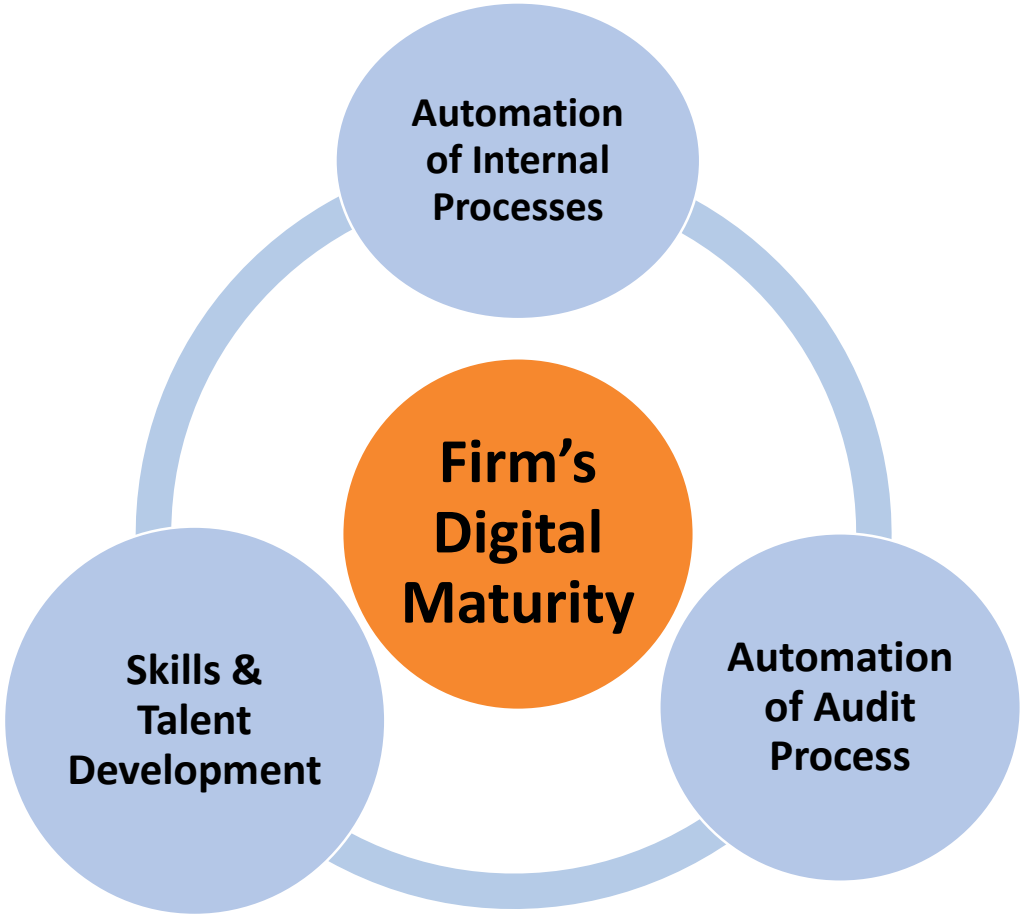
* Trade Mark has been applied under Trade Marks Act, 1999

Context

- Size of firms; majority are SMPs and SMEs
- Govts are fully focused on digitalization
- SMEs are embracing IT : accounting and all compliances are now on the cloud. Almost real time update.
- Accounting firms will die and will be born again as IT firms
- Important to create awareness to members; tsunami type approach as death is nearer than it appears
- SAFA adopted DCMM

DIGITAL COMPETENCY MATURITY MODEL (DCMM) – VERSION 1.0

Evaluation Matrix for audit/ accounting firms to self-evaluate current level of Maturity on Digital Competency



DCMM – THREE DIMENSION APPROACH

AUTOMATION OF INTERNAL PROCESS

- Managing Digital Identity
- Operational Process Automation
- High Availability
- Data Security & Protection
- Electronic Payments
- Copyrights & Licenses
- External Validation & Certification
- Online scans of adverse content
- Digital Media for Communication

SKILLS & TALENT DEVELOPMENT

- Skilled Resources
- Training/ skill for automation
- Skills for audit in computerized environment
- Digital Etiquette
- Protecting against digital threats
- Content delivery through digital platforms
- Access to content search online
- Creative use of digital technologies

AUTOMATION OF AUDIT PROCESS

- Use of Automated Audit Planning Software
- Use of External Automated Audit tools for Data Extraction, Sampling, Analytics
- Use of in-built audit tools/ capabilities in client side applications
- Design of Application Level Controls
- Information System Related Audits/ Reviews

DCMM - Firm Maturity Rating

Every Competency Dimension has score point for each Yes/ No. Total score assesses level of firm maturity.

Automation Of Internal Process (max. points 31)	• Less than 9 points • = or > 9 upto 18 points • > 18 points	Level 1 Firm Level 2 Firm Level 3 Firm
Skills & Talent Development (max Points 15)	• Less than 5 points • = or > 5 points upto 9 points • > 9 points	Level 1 Firm Level 2 Firm Level 3 Firm
Automation of Audit Process (max. points 13)	• Less than 4 points • = or > 4 points upto 8 points • > 8 points	Level 1 Firm Level 2 Firm Level 3 Firm

DIGITAL COMPETENCY MATURITY MODEL (DCMM) – VERSION 1.0

LEVEL 1

- **Indication -** ***Firm in nascent stages of adapting technologies***
- **Recommendation -** ***Immediate Steps to Upgrade***

LEVEL2

- **Indication -** ***Reasonable Adaptation of technologies***
- **Recommendation -** ***Steps to reach next Level***

LEVEL 3

- **Indication -** ***Significant Adaptation of technologies***
- **Recommendation -** ***Leverage present status to score full points***

DCMM ROAD MAP FOR MOVING NEXT LEVEL OF MATURITY

Benchmarking Current Maturity Level

↓

Planning Initiative with timelines

↓

Identifying Resource & Execution Plan

↓

Assessing progress & re-validation against DCMM

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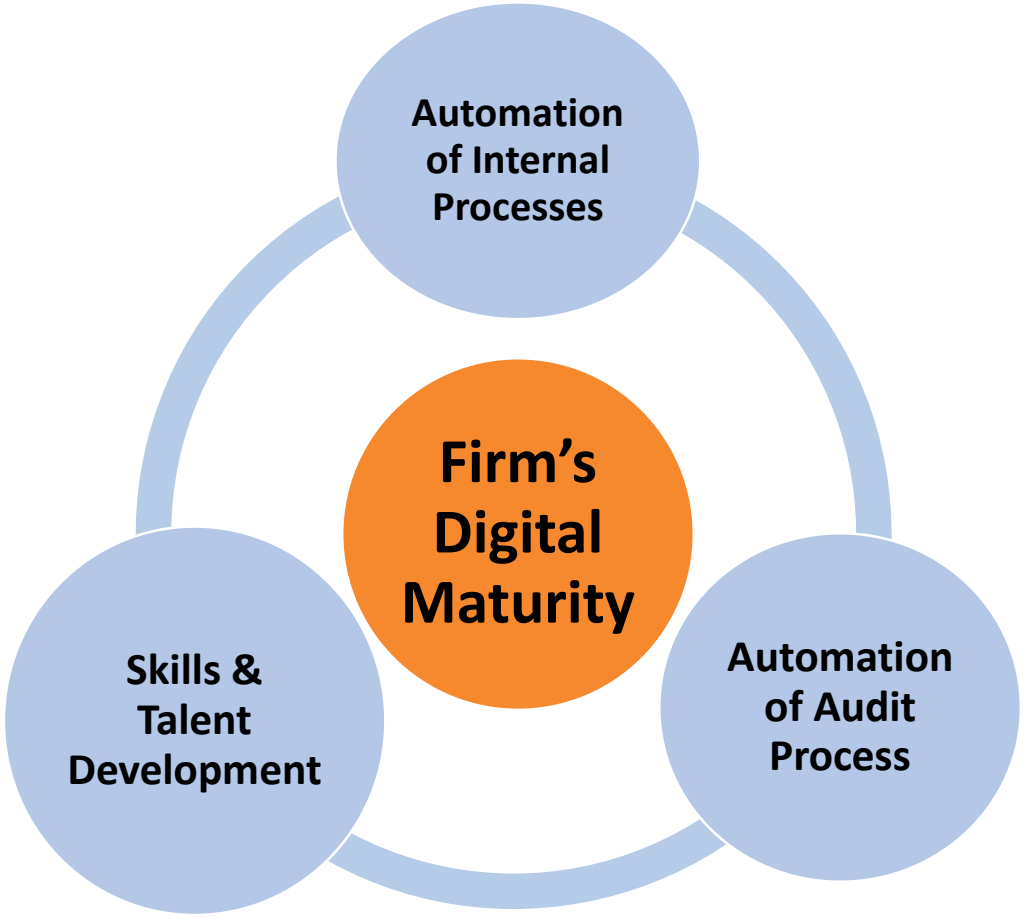

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