

Session 1



**NATION BUILDING:
LEADING TRANSFORMATION THROUGH 4TH IR**

CONTENT

- **Digital Transformation**
- **4th Industrial Revolution**
- **IR 4.0 Opportunities**
- **Impact of IR 4.0 On Business, Jobs & People**
- **Addressing the People Challenges**
- **Our Aspiration**
- **Way Forward**

“ You cannot wait until a house burns down to buy fire insurance on it. We cannot wait until there are massive dislocations in our society to prepare for the Fourth Industrial Revolution.”

Robert J. Shiller

*2013 Nobel laureate in economics,
Professor of Economics,
Yale University.*



LEADING DIGITAL THROUGH 4TH INDUSTRIAL REVOLUTION

GLOBAL MEGATRENDS

1 Demographics

Higher life expectancy and falling birth rates are increasing the proportion of elderly people across the world, challenging the solvency of social welfare systems, including pensions and healthcare. Some regions are also facing the challenge of integrating large youth populations into saturated labor markets.

Citizen questions to government:

Will I have a pension when I am old and will it be sufficient for me to live on?

How will we ever find enough jobs for our youth?

2 Rise of the individual

Advances in global education, health and technology have helped empower individuals like never before, leading to increased demands for transparency and participation in government and public decision-making. These changes will continue, and are ushering in a new era in human history in which, by 2022, more people will be middle class than poor.¹

Citizen questions to government:

What is government doing to improve services for me?
And how will they keep me better informed?

How will government protect my privacy and security in the information age?

3 Enabling technology

Information and communications technology (ICT) has transformed society over the last 30 years. A new wave of technological advances is now creating novel opportunities, while testing governments' ability to harness their benefits and provide prudent oversight.

Citizen questions to government:

What work will my children be doing by 2030?

How do I keep evolving my skills to ensure that they are relevant?

4 Economic interconnectedness

The interconnected global economy will see a continued increase in the levels of international trade and capital flows, but unless international conventions can be strengthened, progress and optimum economic benefits may not be realized.

Citizen questions to government:

How will governments help us compete?

What is government doing to ensure that my bank is safe?

5 Public debt

Public debt is expected to operate as a significant constraint on fiscal and policy options through to 2030 and beyond. Governments' ability to bring debt under control and find new ways of delivering public services will affect their capacity to respond to major social, economic and environmental challenges.

Citizen questions to government:

How will government (in developed countries) restore budgets and ultimately pay down debt in times of slow growth?

How is government balancing the need to reduce debt against the need to stimulate growth?

Why am I paying for previous generations' excesses?

GLOBAL MEGATRENDS

6 Economic power shift

Emerging economies are lifting millions out of poverty while also exerting more influence in the global economy. With a rebalancing of global power, both international institutions and national governments will need a greater focus on maintaining their transparency and inclusiveness.

Citizen questions to government:

How is government adjusting to a new economic world order?

How will government manage foreign ownership of corporations to ensure all benefits are received?

8 Resources stress

The combined pressures of population growth, economic growth and climate change will place increased stress on essential natural resources (including water, food, arable land and energy). These issues will place sustainable resource management at the center of government agendas.

Citizen questions to government:

How will government ensure that we have sufficient water for our future needs as demand exceeds supply?

What is government doing to guarantee that my children have sufficient food, water and energy?

7 Climate change

Rising greenhouse gas emissions (GHGs) are causing climate change and driving a complex mix of unpredictable changes to the environment while further taxing the resilience of natural and built systems. Achieving the right combination of adaptation and mitigation policies will be difficult for most governments.

Citizen questions to government:

Is government doing enough to reduce carbon dioxide (CO₂) emissions in our country?

How will government help maintain affordable insurances and asset protection for my home and business as weather gets more extreme?

9 Urbanization

Almost two-thirds of the world's population will reside in cities by 2030.² Urbanization is creating significant opportunities for social and economic development and more sustainable living, but is also exerting pressure on infrastructure and resources, particularly energy.

Citizen questions to government:

How can government plan for infrastructure better so that it is timely, effective and sustainable?

What is government doing to get rid of poverty in my city?

Glossary

Digitization is the process of changing from analog to digital form

Digitalization is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities. It is the process of moving to a digital business

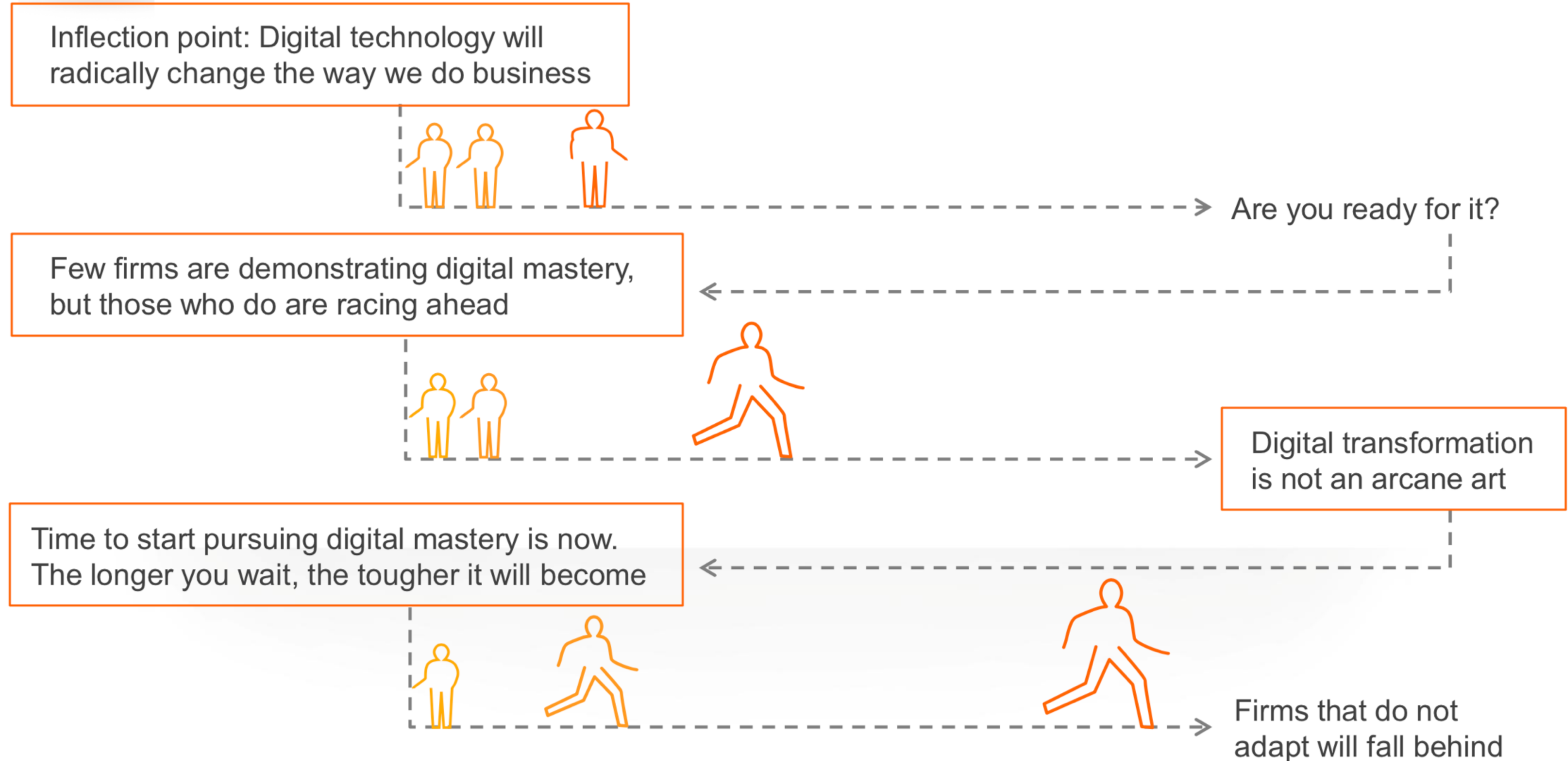
Digital Transformation refers to the customer-driven strategic business transformation that requires cross-cutting organizational change as well as the implementation of digital technologies.

WHAT IS DIGITAL TRANSFORMATION ?

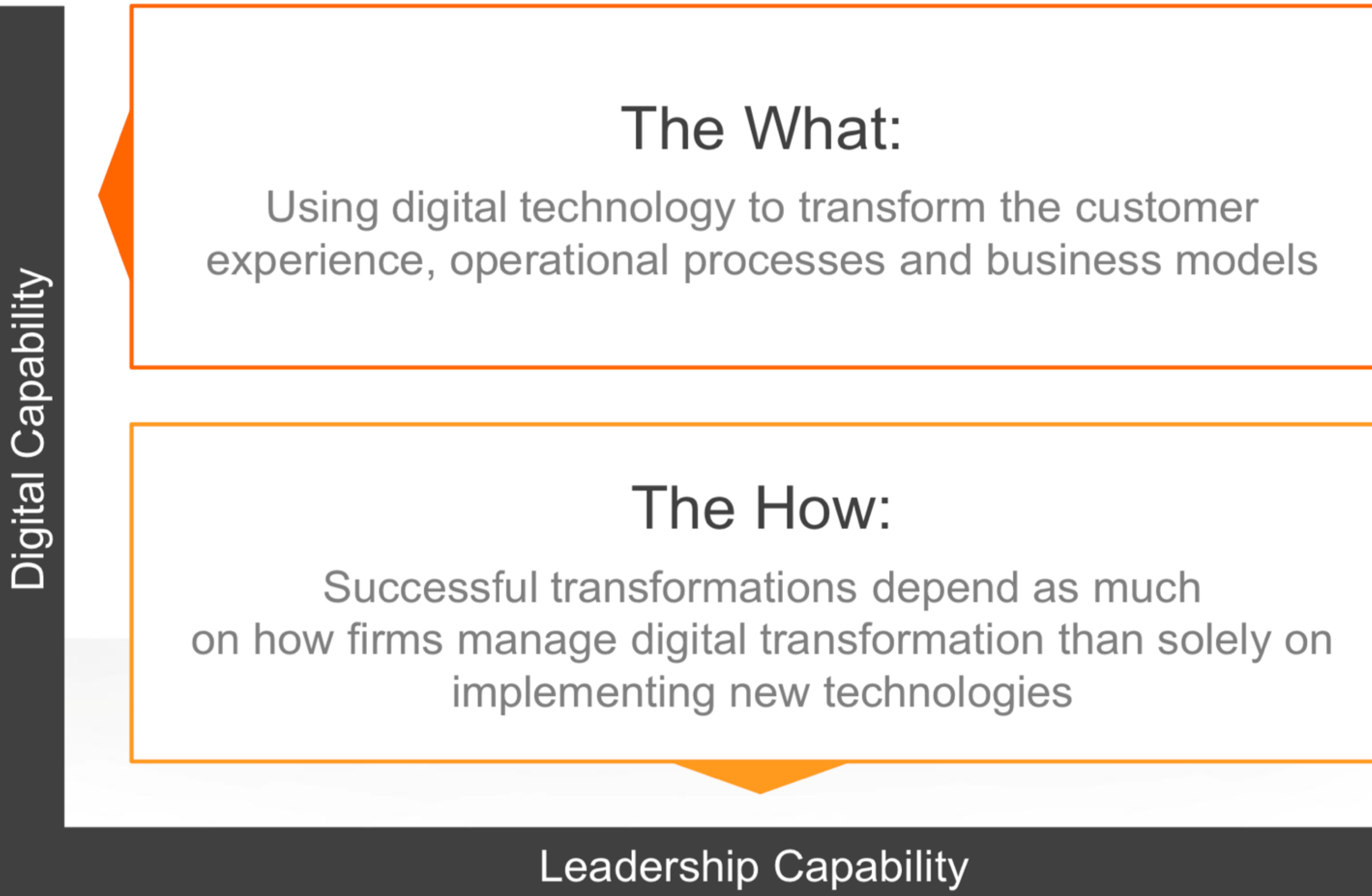


Digital Transformation \ di-jə-tʃl tran(t)s-fər-'mā-shən\ (1) the use of digital technology to radically improve the performance and/or reach of a company.

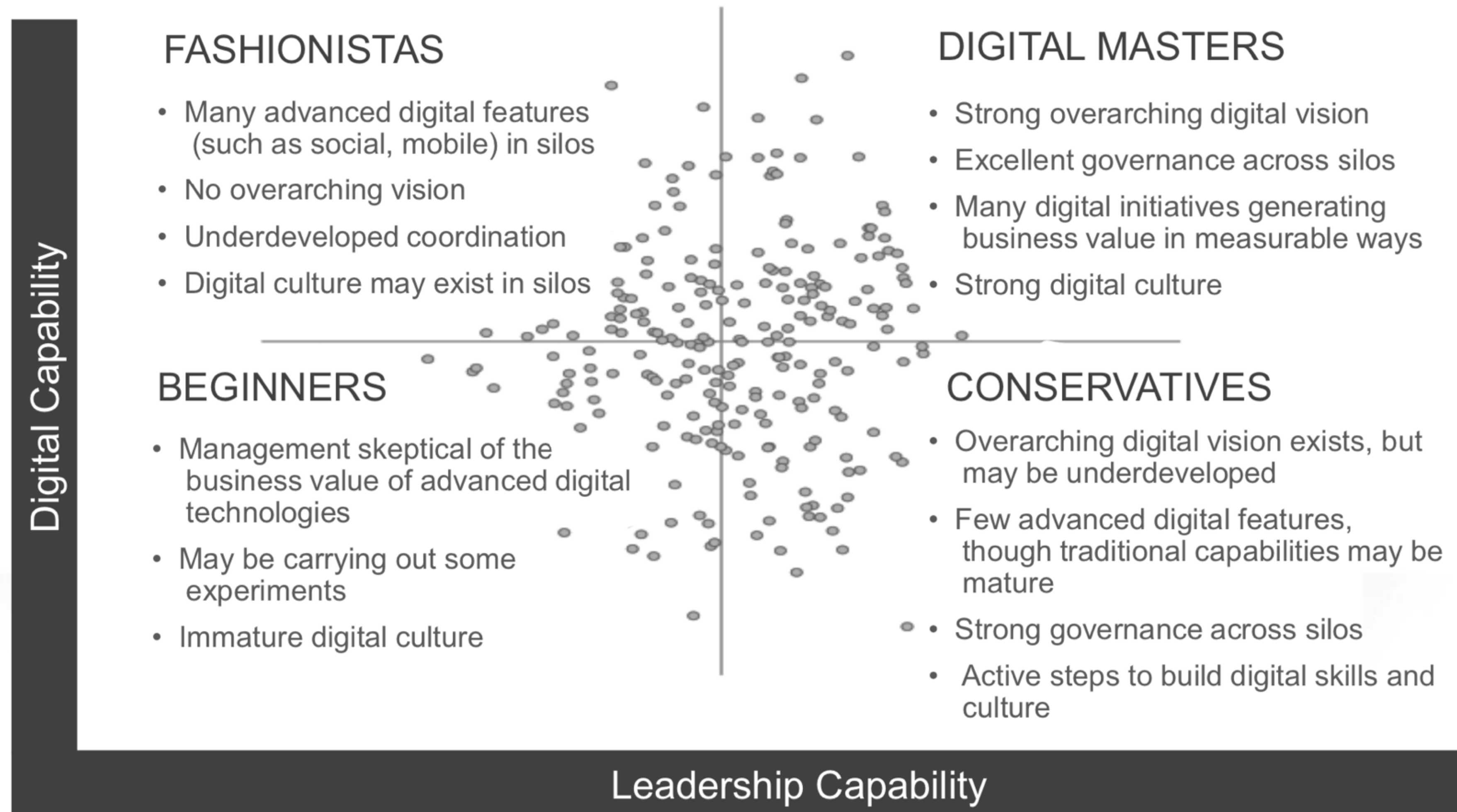
WHY WE SHOULD CARE?



THE DNA OF DIGITAL MASTERS

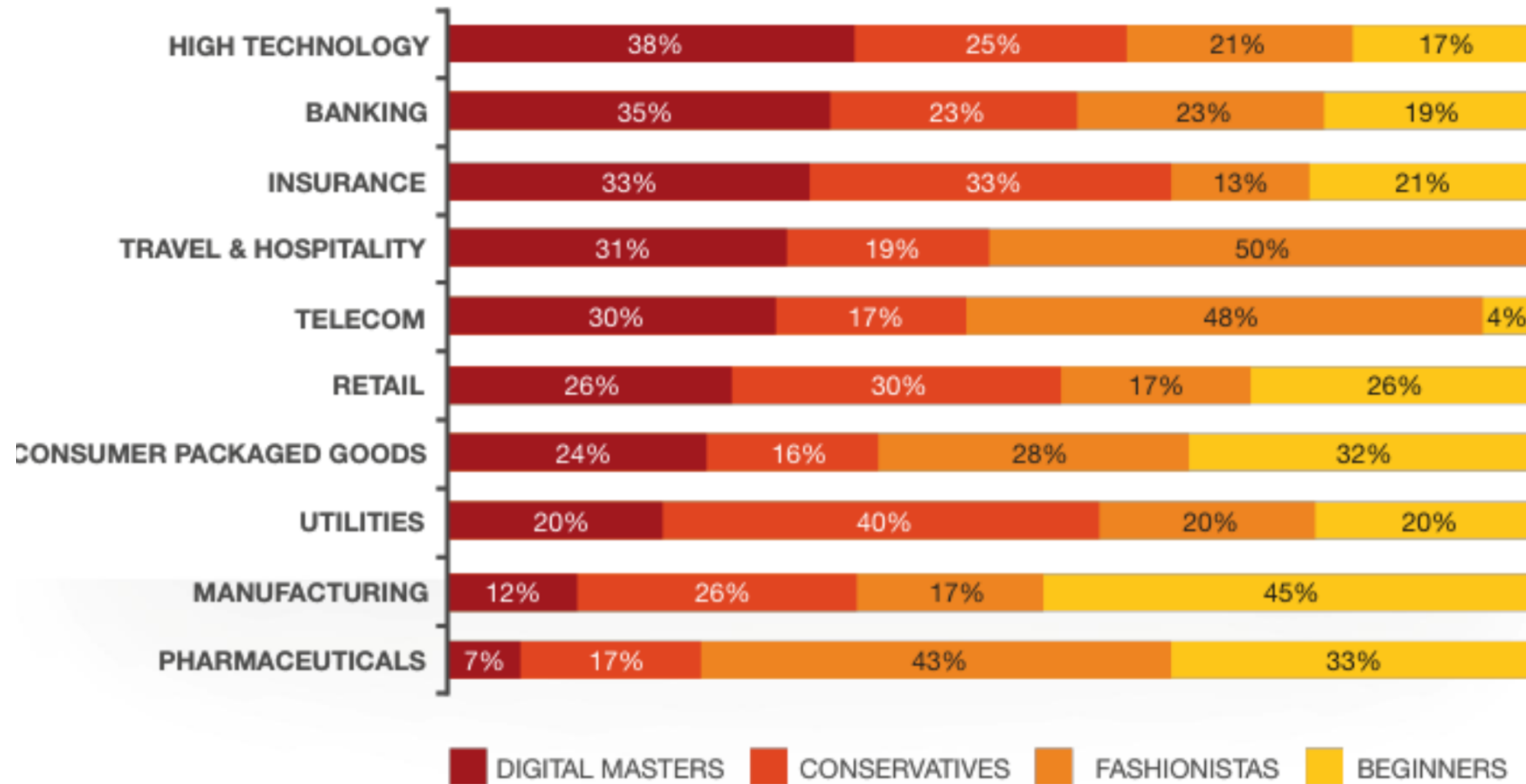


THE 4 LEVELS OF DIGITAL MASTERY



Source: Capgemini Consulting 2014

DIGITAL MASTERS REPRESENTATION



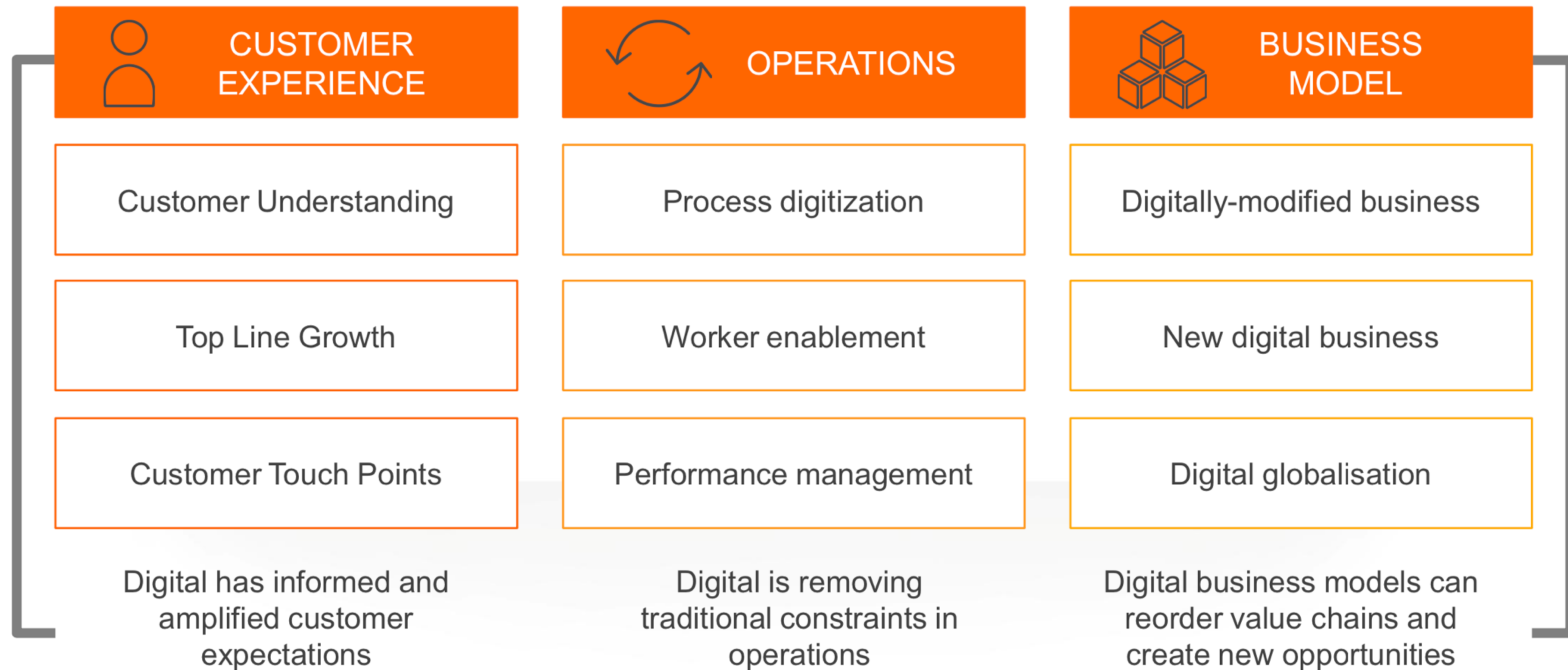
Source: Capgemini Consulting 2014

INDUSTRY DIGITALISATION INDEX

Degree of Digitisation by Sector –McKinsey Global Institute (2015)

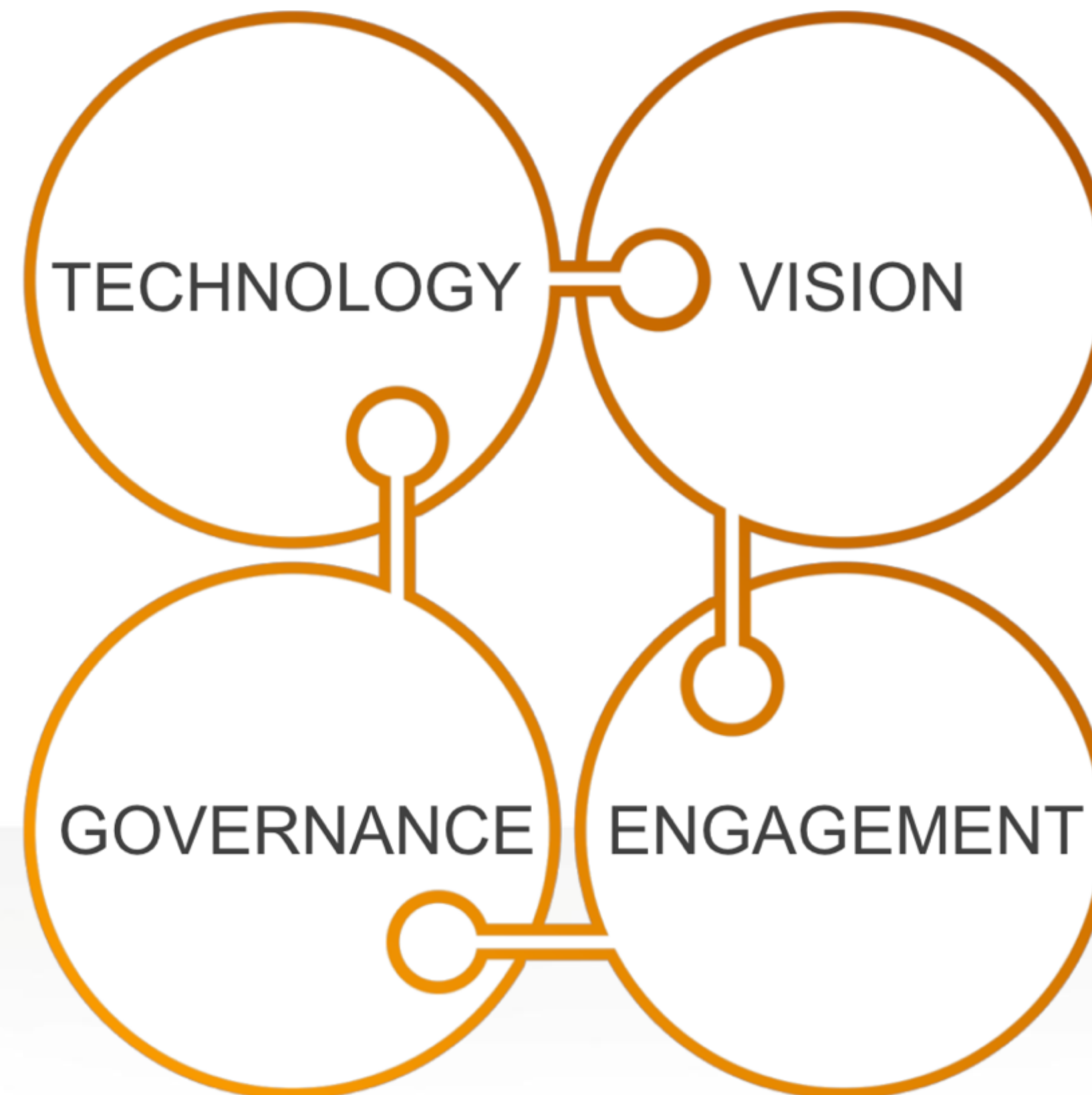


THE WHAT: BUILDING BLOCKS OF DIGITAL TRANSFORMATION



THE HOW: DIGITAL LEADERSHIP CAPABILITIES

Fuse IT & business communities to build digital skills & transform technology platforms

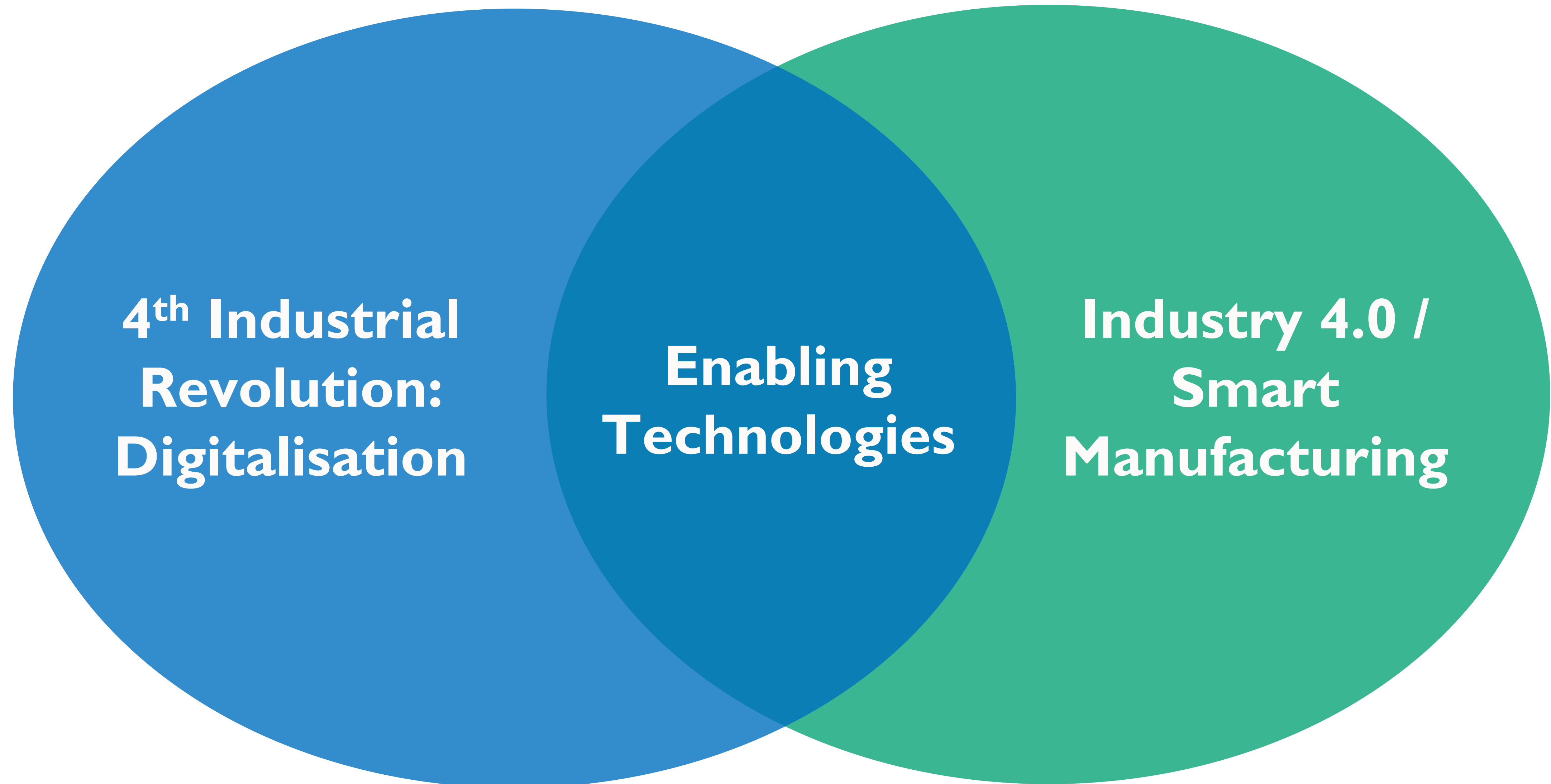


Create a shared transformative vision of the digital future

Establish strong digital governance to steer the course

Engage employees at scale to make vision a reality

IR 4.0 vs INDUSTRY 4.0



THE INDUSTRIAL REVOLUTIONS

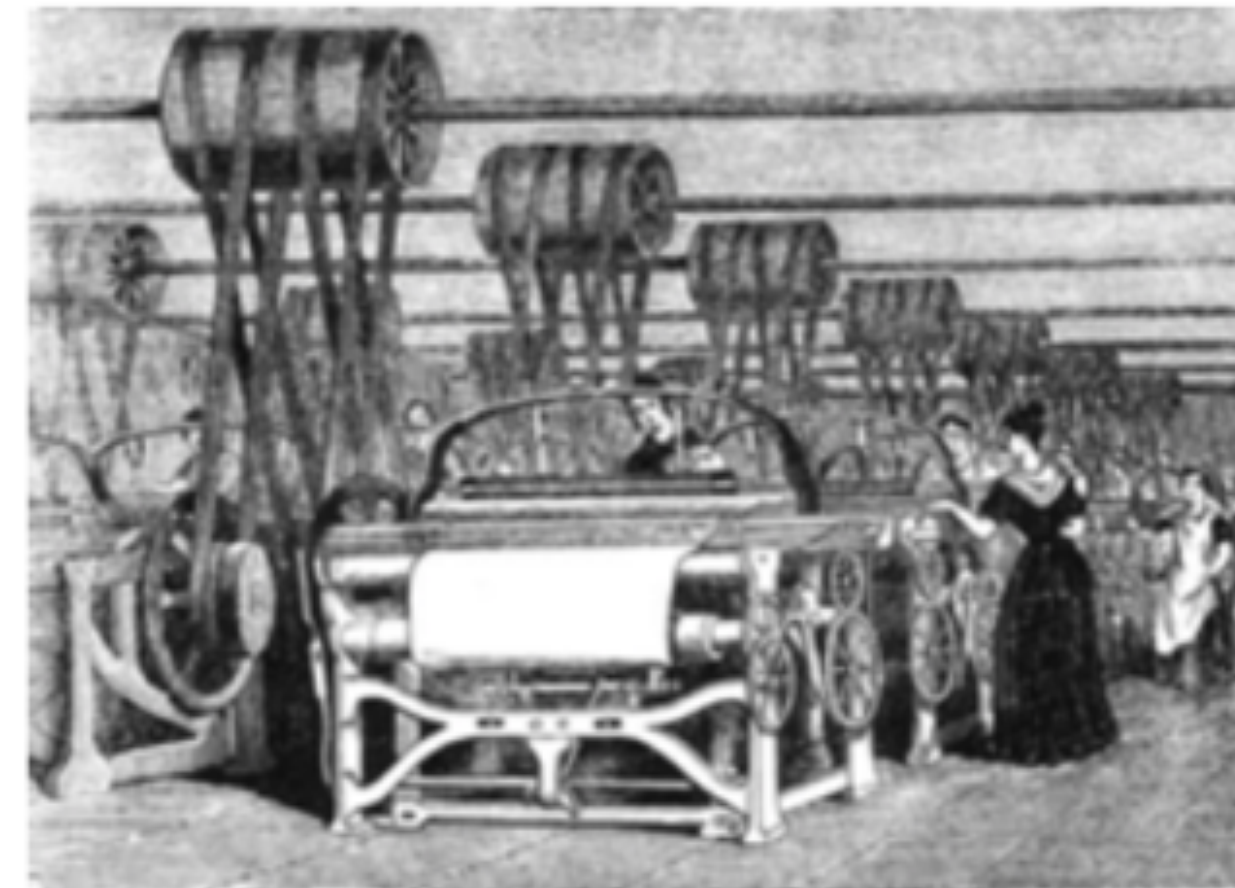
1st Industrial Revolution (~1760-1850)

- started in **Great Britain** and later in EU and USA
- **key enabling technologies**: shift in **power sources** (steam engine powered by **coal** replaced bio-fuels and wood)
- **organization**: from hand production to **machines**
- **industry**: textile
- **workers**: **specialization** emergence

OUTCOMES:

- costs↓, market size↑
- new employment opportunities
- income and living standards of the population↑
- rapid change of society: not only changes in industrial techniques and production, but profound social effects (strong urbanization)

1st-IR took **about 120 years to spread outside Europe**



THE INDUSTRIAL REVOLUTIONS

2nd Industrial Revolution (~1870-1945)

- started in **Great Britain** and **Germany**, later in USA and Japan
- **key enabling technologies**: shift in power sources (**electrical power**), transportation (railroads); advances in iron and steel production; invention of light bulb;
- **organization**: division of labor (**assembly line**) ⇒ **mass** production/consumption
- **industry**: automotive, mechanical
- **workers**: very simple skills and knowledge, high **specialization**

OUTCOMES:

- manufacturing time↓, costs↓
- rapid industrial development: manufacturing as a central driver of economic growth
- indoor plumbing, automobiles, airplanes, home appliances, public sanitation
- astonished growth of living standards



2nd-IR **not yet experienced by ~1.3G people** (~ 17%) without access to electricity

THE INDUSTRIAL REVOLUTIONS

3rd Industrial Revolution (~1970-2000)

- started in **Western world** and later become globally
- **key enabling technologies: digital power** (beginning of the information age): digital logic circuits, microcontrollers, computers, CAD, CAM, ..., industrial robotics
- **organization**: production automation, optimization by inefficiencies removal (lean management)
- **workers: flexible**, higher education

OUTCOMES:

- global industrial development
- very high living standards
- pollution, climate and sustainability issues

internet took about 10 years to spread throughout the globe

3rd-IR **not yet experienced by ~3.5G people** (~ 50%)
without access to internet



4TH INDUSTRIAL REVOLUTION

4th Industrial Revolution (present)



MEGATRENDS (changing demographics, globalization, shortage of resources, climate change, ICT evolution, ...) are driving next manufacturing paradigm

referred to as **Factory of the future** or **Industry 4.0** in EU, **Smart/Advanced Manufacturing** in USA

the entire **service sector** (and public administration) and the whole **society** are strongly involved

DISTINTIVE FEATURES:

- **evolution rate** is exponential due to deep interconnections
- **servitization**: product – service boundary is becoming fuzzy since effective services are added to products
- **systemic impact**: it is transforming entire systems across and within companies, industries, countries and society as a whole

4TH INDUSTRIAL REVOLUTION

4th Industrial Revolution (present)

- **KEY ENABLING TECHNOLOGIES:**

convergence and integration of classical and emerging **technologies** that amplify each other and providing **cognitive** power, resulting in a fusion of **physical, digital and biological worlds**

- **ORGANIZATION:**

interconnection of all steps of the value creation chain over the entire **life cycle** of products (from the idea, to development and production, to distribution, to recycling) - including all related services - **optimizing** them using huge amount of available information from ICT to **communication environments** (focus on the crucial role of **relationships**)



4TH INDUSTRIAL REVOLUTION

4th Industrial Revolution (present)

WORKERS are an **essential pillar** of smart factory

- **generalists** rather than specialists
- **adaptation** to new technologies and organizational changes
- performing in **almost sterile environments** in clean, safety, reliable, efficient ways
- both “**cold**” and “**hot**” **skills** first determinants of success
 - “**cold**”: technical, functional, multitasking, complex problem solving
 - “**hot**”: values, passions, participation, relational, proactivity, creativity, responsibility, adaptation

economic and social **relations are de-structured**: independent workers perform specific tasks (the “**human cloud**”)

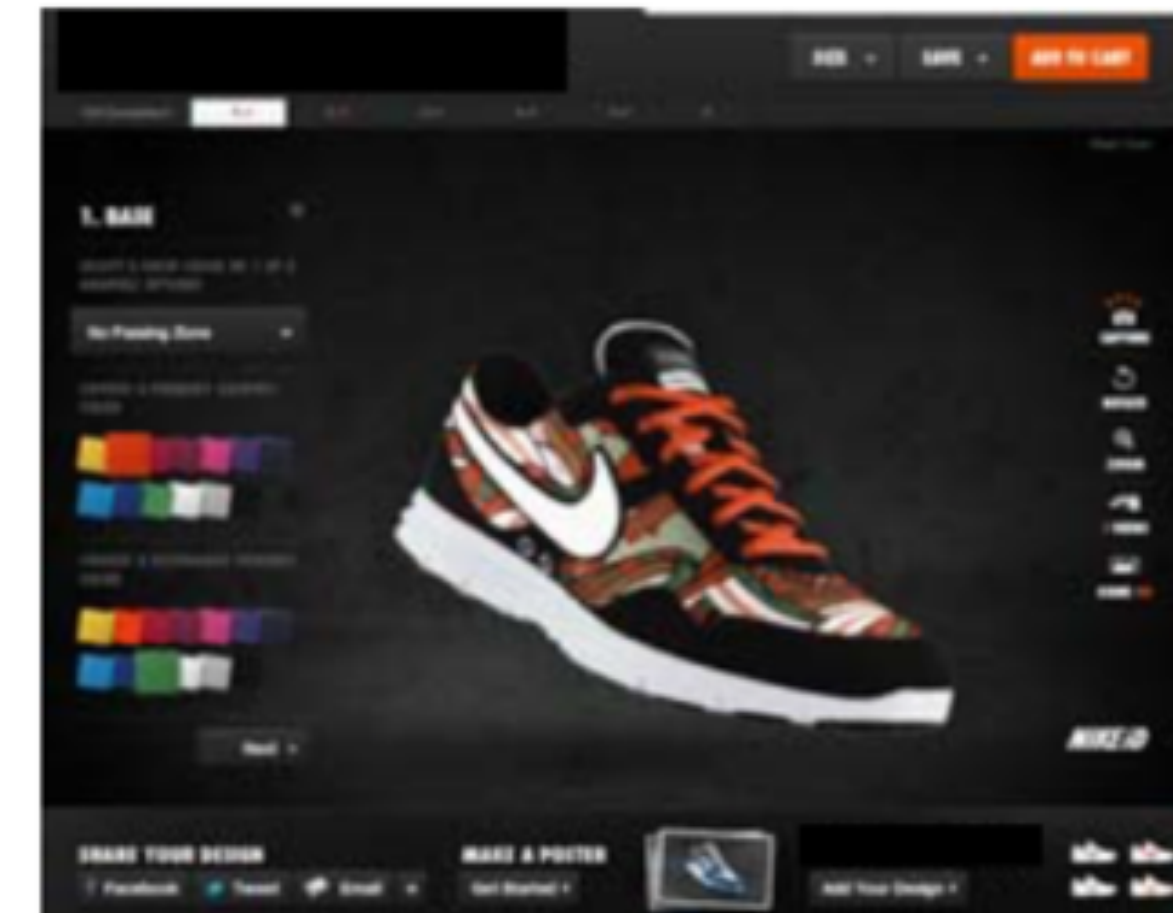


4TH INDUSTRIAL REVOLUTION

4th Industrial Revolution (present)

EXPECTED OUTCOMES:

- change the competitiveness of companies and regions
- strengthening the potential of offering new business models
- **mass customization**: switch from "**pull from the market**" to "**pull from the customer**", i.e. individualized solutions to satisfy specific customers' needs
- a reversal of the trend to relocate production to low-wage countries, promoting domestic production (**reshoring**)



RISKS:

- exacerbate **inequality**: concentration of wealth
- fundamental **societal changes**: reshape of government, work, relations



STRATEGIC IMPACTS

PEOPLE

Specialisation,
knowledge driven,
flexibility, generalist
and adaptable

PROCESS

Manual to mechanical,
division of labour,
automation,
interconnectivity

TECHNOLOGY

Power, mechanical,
electrical, electronic,
computer, software,
high-tech and
convergence of digital
technology.

IMPACT OF 4TH INDUSTRIAL REVOLUTION

Economy

- **Growth**
- **Employment**
- **New skills**
- **Nature of work**

Business

- **Customer expectations**
- **Data enabled products**
- **New collaborations**
- **New operating model**

National

- **Disruptive changes in operating model**
- **Act like entrepreneurs**
- **Speed of action**

Individual

- **New Identity**
- **Behaviours**
- **Privacy**
- **Consumption**
- **Time utilisation, for work & personal use**

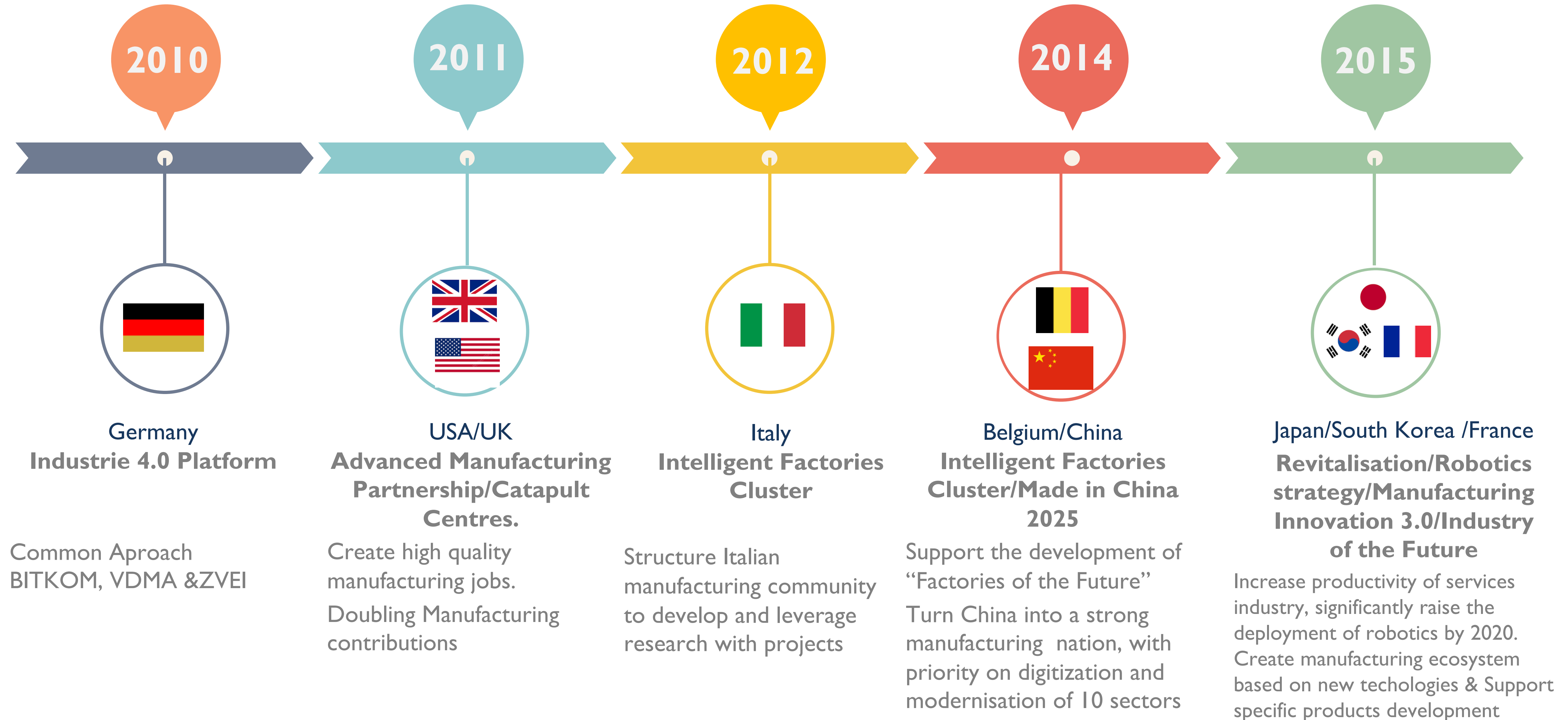
Society

- **Absorb & accommodate modernity whilst maintaining tradition**
- **Community defined by personal projects and individual values**

GLOBAL IR 4.0 “GROWTH” INITIATIVES




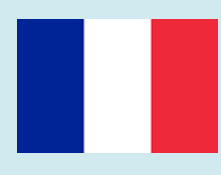




GLOBAL IR 4.0 ROLLOUT

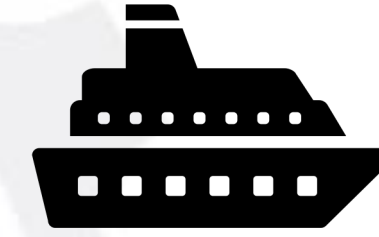
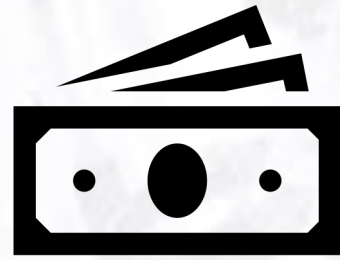


RATIONALE FOR THE IR 4.0 ROLLOUT

The rationale is based on **prioritisation** and **maturity level** of the industry.

| What |  |  |  |  |  |  |
|--|---|---|---|---|---|---|
| Added value on competitiveness | | | | | | |
| Footprint and new business model | | | | | | |
| Global leadership in 4.0 solutions | | | | | | |
| Internationalisation & Risk Management | | | | | | |
| Digital Start-ups & Ecosystems | | | | | | |
| Employee satisfaction at work | | | | | | |

NETT IMPACT OF IR 4.0 FOR THE NATION



GDP = Government Spending + Investment + Consumption + Net exports



Increase on investment spend for 4th Industrial Revolution infrastructure



Increased investment on high growth technologies/ companies



Increased expenditures on technologies



Increase in export of technological services and products



Cost savings through the provision of more efficient services



Decline in investment in low growth, less digitised sector



Decline in cost of goods due to more efficient manufacturing practices



Increase in imports on parts to build the necessary technology

REGIONAL IR 4.0 OPPORTUNITIES

ASEAN

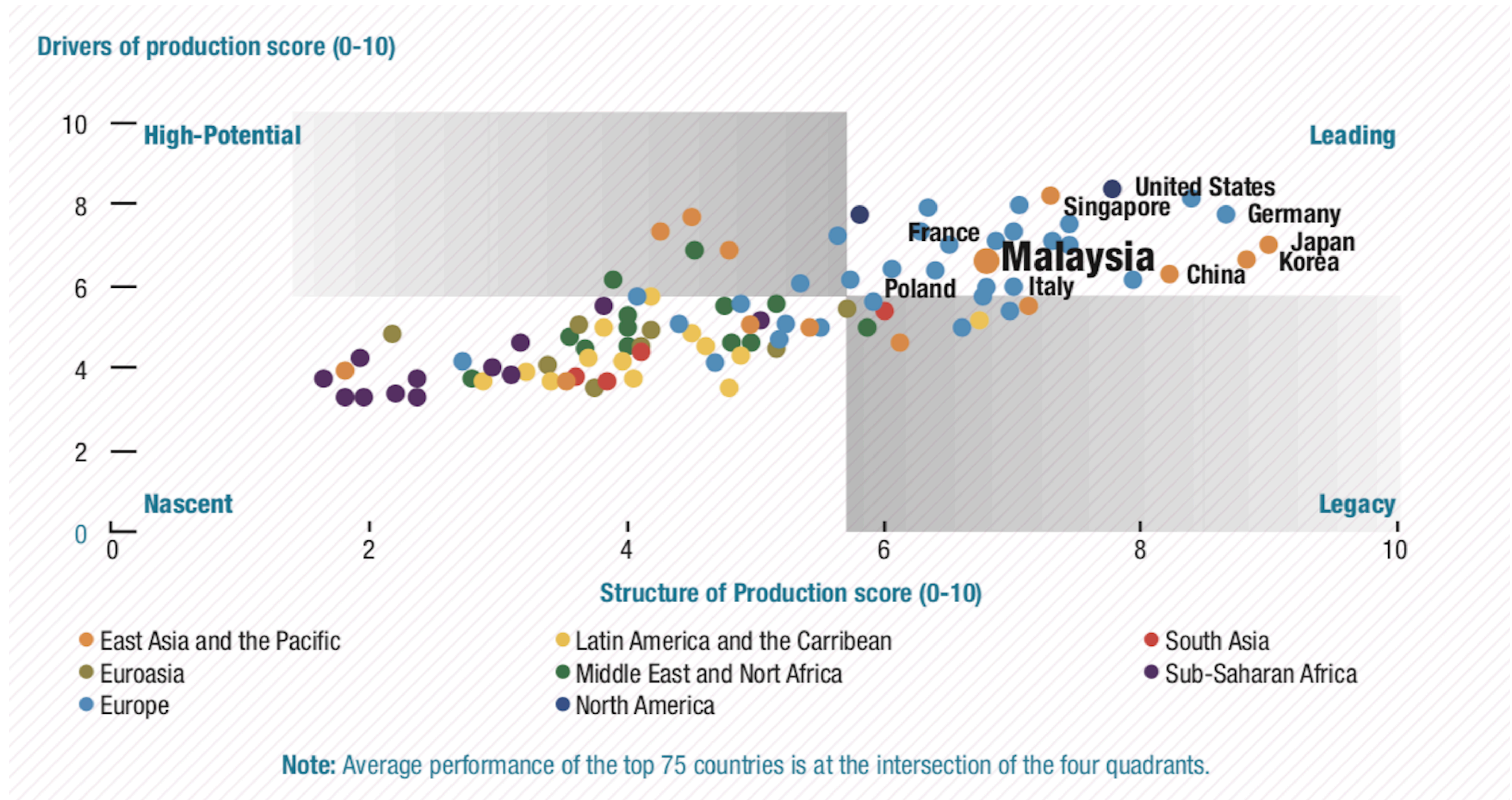
Combined gross domestic product (GDP) of US\$2.4 trillion makes it the third largest economy in Asia and the seventh largest, globally.



The ASEAN-6 alone – Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam – are projected to run a digital economy worth US\$200 billion by 2025

Source: ASEAN Business Guide 2018, KPMG

ARE WE READY FOR IR4.0?



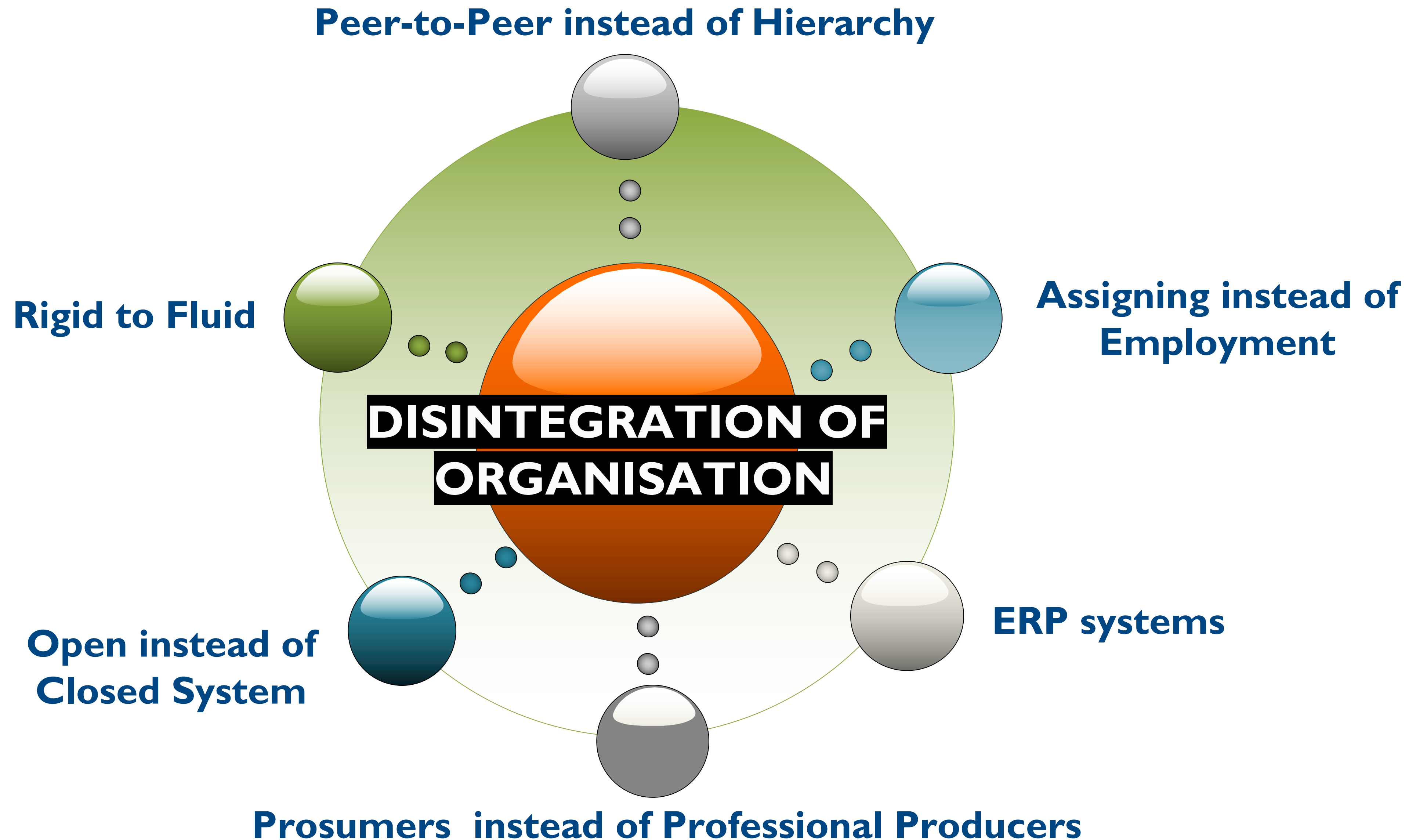
CHALLENGES IN IR4.0 IMPLEMENTATION



The background of the slide features a large, light gray gear on the right side and a robotic arm with a gripper on the left side. The text is centered in a dark blue banner with orange diagonal accents on the left and right sides.

IMPACT OF 4TH INDUSTRIAL REVOLUTION ON BUSINESS OPERATIONS, JOBS & PEOPLE

IMPACT OF IR 4.0 AT WORKPLACE



IR 4.0 TRANSFORMATION SUCCESS FACTORS

People:

Having the right skills in the organisation

Action:

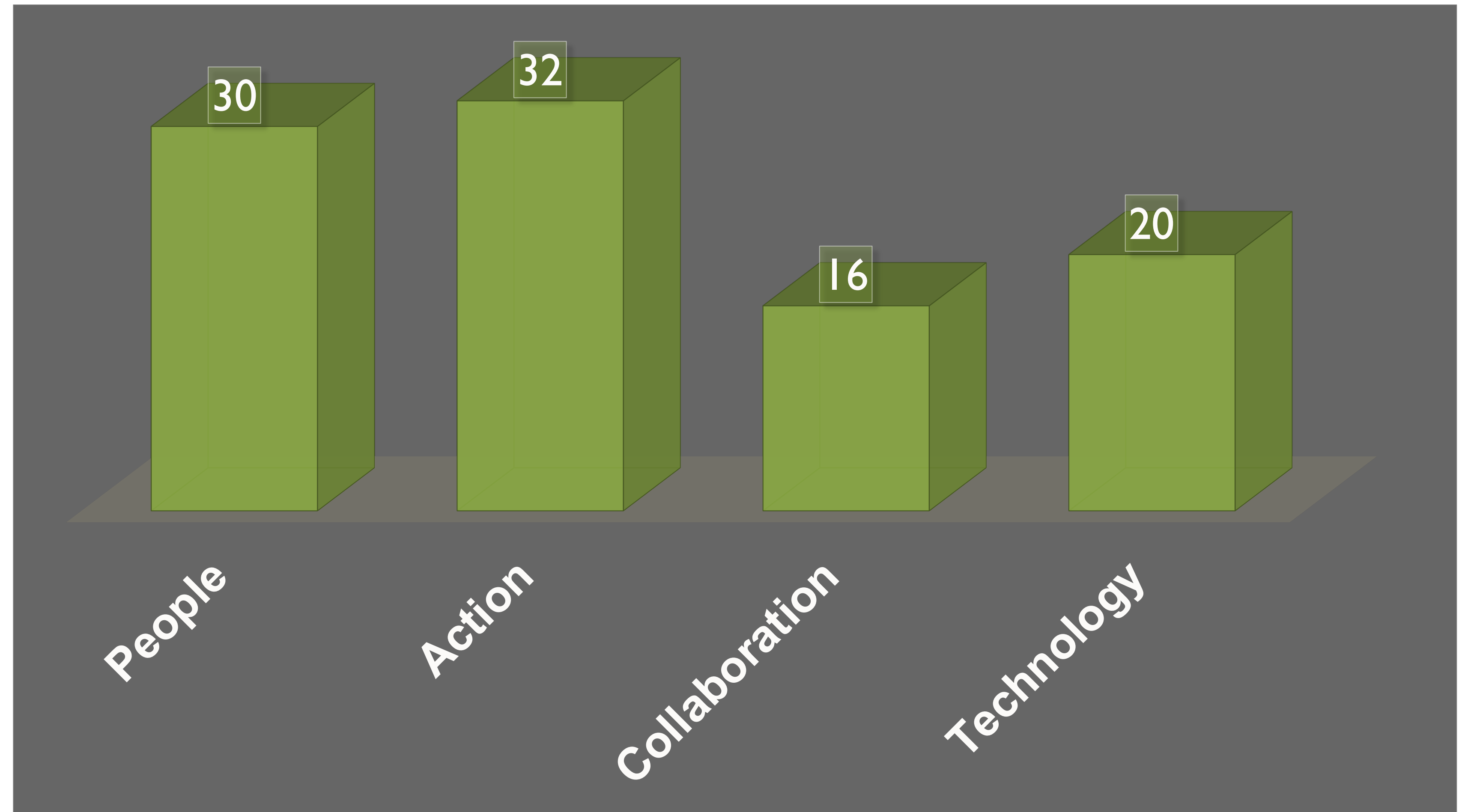
Having the right processes, attitudes and behaviours

Collaboration:

Working openly with partners to innovate

Technology:

Having the right Technology



Source: Capgemini

TALENT DISRUPTED BY IR 4.0

**35% of core skills
will change
between 2015-2020**

-WEF on Future of Jobs in
the Fourth Industrial
Revolution, 2017

Disruption across countries and industries

43% Financial Services & Investors
42% Basic & Infrastructure
39% Mobility

35% Information & Communication Technology
33% Professional Services
30% Energy
30% Consumer
29% Health
27% Media, Entertainment & Information

48% Italy
42% India
41% China
41% Turkey
39% South Africa
39% Germany
38% France
37% Mexico

31% Brazil
29% United States
28% United Kingdom
27% Australia
25% Japan
21% Gulf Cooperation Council
19% ASEAN

**average
disruption**

TALENT CHALLENGES FOR IR 4.0

Upskilling

The shorter skills
lifecycle warrants
upskilling

Lifelong Employability & Lifelong Learning

Adapting to industry
centric qualifications
continuously



Reskilling

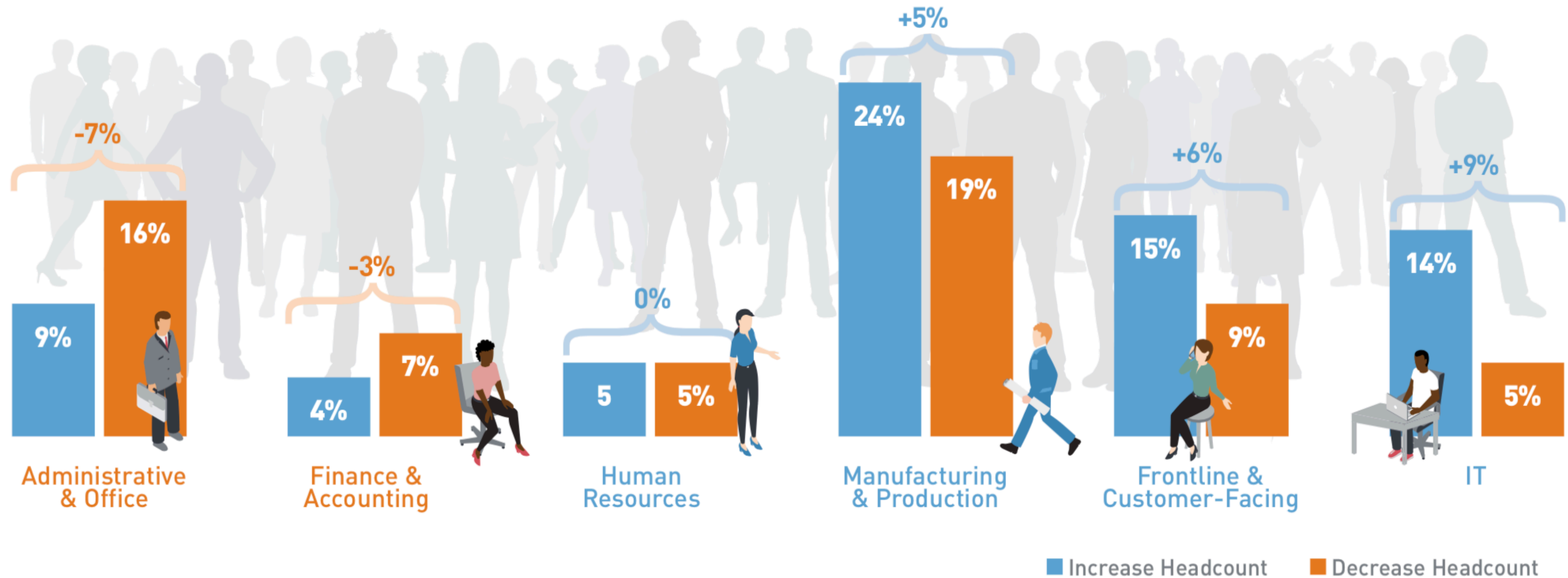
Investment on
anticipated future
skills

Mindset Change

To facilitate transition to
advanced
operational processes

TALENT IMPACT WITH AUTOMATION

Function likely to see increase/decrease in headcounts due to technological impact/automation



Robots take tasks, not jobs!

The background features a light gray illustration of a mechanical system. On the left, a bundle of white cables is connected to a circuit board. To the right, several interlocking gears of different sizes are visible. A solid orange diagonal bar cuts across the middle of the image, serving as a backdrop for the title text.

ADDRESSING THE IR 4.0 PEOPLE CHALLENGES

SKILLS DEVELOPMENT FRAMEWORK

Anticipated changes?

- What kind of machines & tools & new processes will be deployed at the workplace?
- How will decisions be made?
- Will there be changes in decision making authorities?
- What will be the new mode of communication?

1

How the task will differ

- How will the staff operate the new generation tools and machines?
- What will be his/her level of involvement in decision making?
- How much manual work will be done

2

Required skills

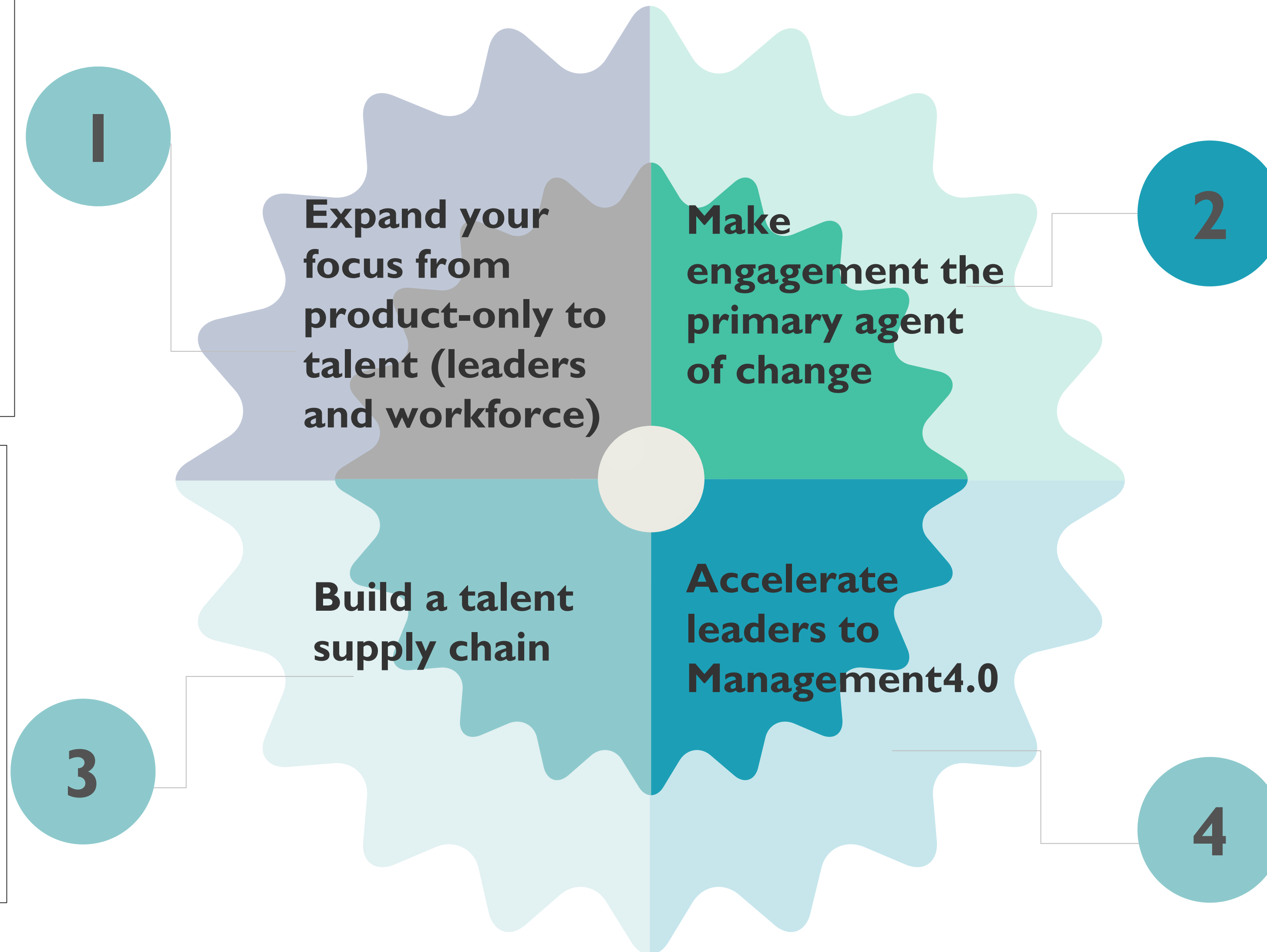
- **What will be the important skills required to successfully execute the tasks?**
- **How will the qualification requirements change?**

3

GAME CHANGING TALENT STRATEGIES

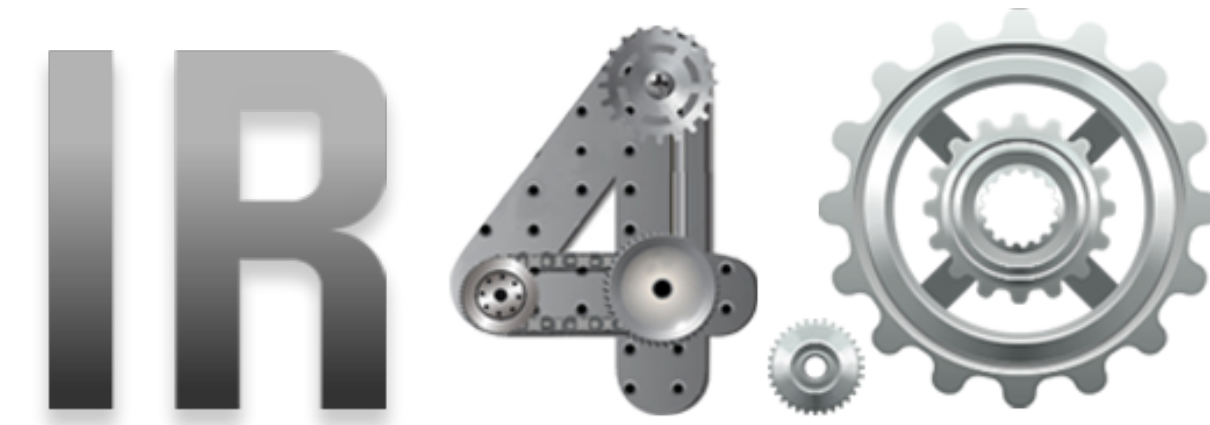
- Define what success looks like
- Evaluate readiness
- Build critical mass and prioritize mission- critical roles
- Engage key stakeholders and create accountability
- Build initial awareness for your leadership strategy
- Use talent analytics

- Identify new upstream talent supply sources to avoid future talent shortages
- Demand a radical shift in your hiring and promotion practices
- Consider contingent workforces to manage production volume
- Audit your practices for gender diversity



- Operationalize engagement skills
- Design SOPs for workplace interactions
- Monitor gaps in engagement
- Build ownership and involvement
- Coach to build future capability

- Simulate what good looks like
- Leverage high-potential pools
- Avoid scrap learning
- Accelerate development across the pipeline
- Build the business case for women leaders



Support from All Stakeholders





Holistic Development of Human Capital



LEADERS

- » Business Leaders
- » Leaders in Government



WORKFORCE

- » Future Workforce
- » Existing Workforce

Way Forward