UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI
EXTENDED LEARNING

The Future of Work Beyond 2020

Outline:

- Fourth Industrial Revolution
  - Global Perspective
  - Africa
  - South African Perspective
  - South Africa's Preparedness
- Recommendations of PC4IR

- The Great Reset
  - South Africa – COVID-19
  - The New World of Work
    - Remote Work
    - Some Job Roles

Fourth Industrial Revolution:

"The Fourth Industrial Revolution is about **more than just technology-driven change**; it is an **opportunity to help everyone,** including leaders, policymakers, and people from all income groups and nations, **to harness converging technologies in order to create an inclusive, human-centered future**" **-** WEF

History of the Future: Past Futures

01

1st Industrial Revolution: knowledge formulation

DNA: Newton and James Watt

steam mechanization, etc.

02

2nd Industrial Revolution: knowledge evolution

DNA: Electro-Magnetism by Faraday, Maxwell and Hans Christian Ørsted

electrification, mass production, etc.

03

3rd Industrial Revolution: knowledge distribution

DNA: Transistors based on Semi-Conductors by Bardeen, Brattain and Shockley

computerization, Internetization, etc.

04

4th Industrial Revolution: knowledge mutation

DNA: Artificial Intelligence by Turing

cyber-physical systemization, artificial cognization, robotization, etc.

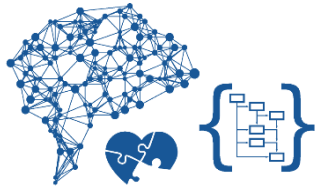
Top 10 skills

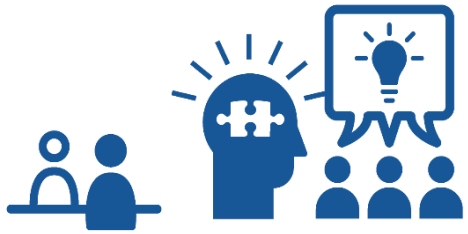
in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

in 2015

1. Complex Problem Solving
2. Coordinating with Others
3. People Management
4. Critical Thinking
5. Negotiation
6. Quality Control
7. Service Orientation
8. Judgment and Decision Making
9. Active Listening
10. Creativity





Source: Future of Jobs Report, World Economic Forum

2050

- Moravec's Dilemma
- Most of these skills will be in machines
- What shall remain then?

Consequences of the 4thIR

- Post-work era (due to advanced means of production)
- Irrelevance in the 4thIR versus exploitation of 1stIR
- Increase inequality
- Bounded freedom (we are being watched)
- Bounded decision making by humans
- Bounded nationalism
- Bounded democracy – (democracy in peril)
- Laws and ethics to regulate automation
- New economic theories
- Human-Robot interaction will create new psychology in people

Three Forces Shaping the Future of Work

BY 2020: Global access to markets and talent will reshape business

Globalization

BY 2020: Five generations will be working side-by-side in organizations

Demographics

BY 2020: Social media will connect employees, customers, and partners for immediate communication

Social Web

Some of the rapidly growing technologies of the Fourth Industrial Revolution:

- Artificial intelligence (AI)
- Big data analytics
- Machine learning (ML)
- Robotics
- Quantum computing
- Biotechnology
- Additive or 3D printing,
- Nanotechnology
- Internet of Things (IoT)
- Blockchain

Global Perspective:

Country	Strategy Name	Competitive Thrust	Human Capital	Industrialisation	Enablers
Germany 	Industrie 4.0 (I4.0)	Drive (decentralised) digital manufacturing	Technology (within broader High-Tech Strategy) to drive prosperity and maintain citizen's quality of life	Superior and efficient manufacturing	Private/Public partnerships in experimental research. Regulation, in particular financial services and data management.
India 	#AI4AL	Technology leadership for inclusive growth	Technology-led / -enabled socio-economic transformation	Social priorities drive technological advancement	Research leadership- the world's CERN for AI
Japan 	Society 5.0 (The 5th Science and Technology Basic Plan)	Resolution of social challenges through 4IR technologies	Improve wellbeing of citizens through deep integration of technology into the delivery of public and private goods.	Desired social outcomes determine technology priorities and deployment	Regulation of the trade of data and incorporation of such rules into the World Trade Organisation.

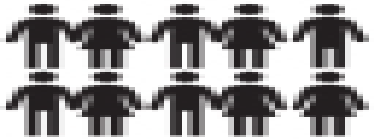
Global Perspective:

Country	Strategy Name	Competitive Thrust	Human Capital	Industrialisation	Enablers
Malaysia 	Industry4WRD	Digital transformation of manufacturing	Manufacturing efficiency, productivity to drive economic growth	Economic and industrial priorities inform strategy	SMME Development
Singapore 	Smart Nation	Digitisation of all areas of life, especially government service delivery	Digitally-enhanced government service delivery	Service-delivery priorities drive technology strategy	Clear & centralised industrial policy planning & infrastructure deployment
United Kingdom 	Industrial Strategy	Asserting global business leadership through AI	Invest in re-training the workforce; establish world-leading technical education centres; attract best minds in AI	Transport; housing & digital infrastructure are the focus areas	Private-public sector deals; investment in venture capital for new enterprises; SMME productivity & growth
United Arab Emirates 	UAE's Fourth Industrial Strategy	Becoming the world's hub and lab for 4IR applications	Enhancing quality of life through e-government and smart consumer experience	E-government; Food & Water Security; Advanced defence manufacturing & smart cities.	Become the world's open lab for autonomous and sustainable mobility to lead the innovations in transportation

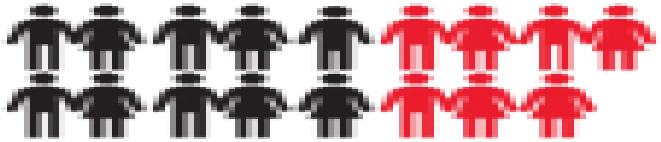
AFRICA

Population

2018: 1 billion



2040: 1.7 billion

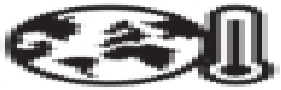


Uncertainties

Technology

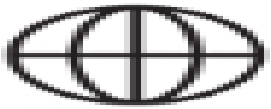
Impact on jobs and wages

Climate Change



Impact on growth and food security

Global Economic Integration



Impact on trade and financial flows

Scenarios

Africa Arisen

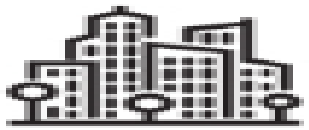
Africa for Africa

Africa Adrift

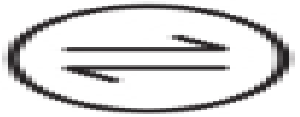
Today's Policies for Tomorrow's Jobs

Get connected

Flexible education system



Smart urbanization

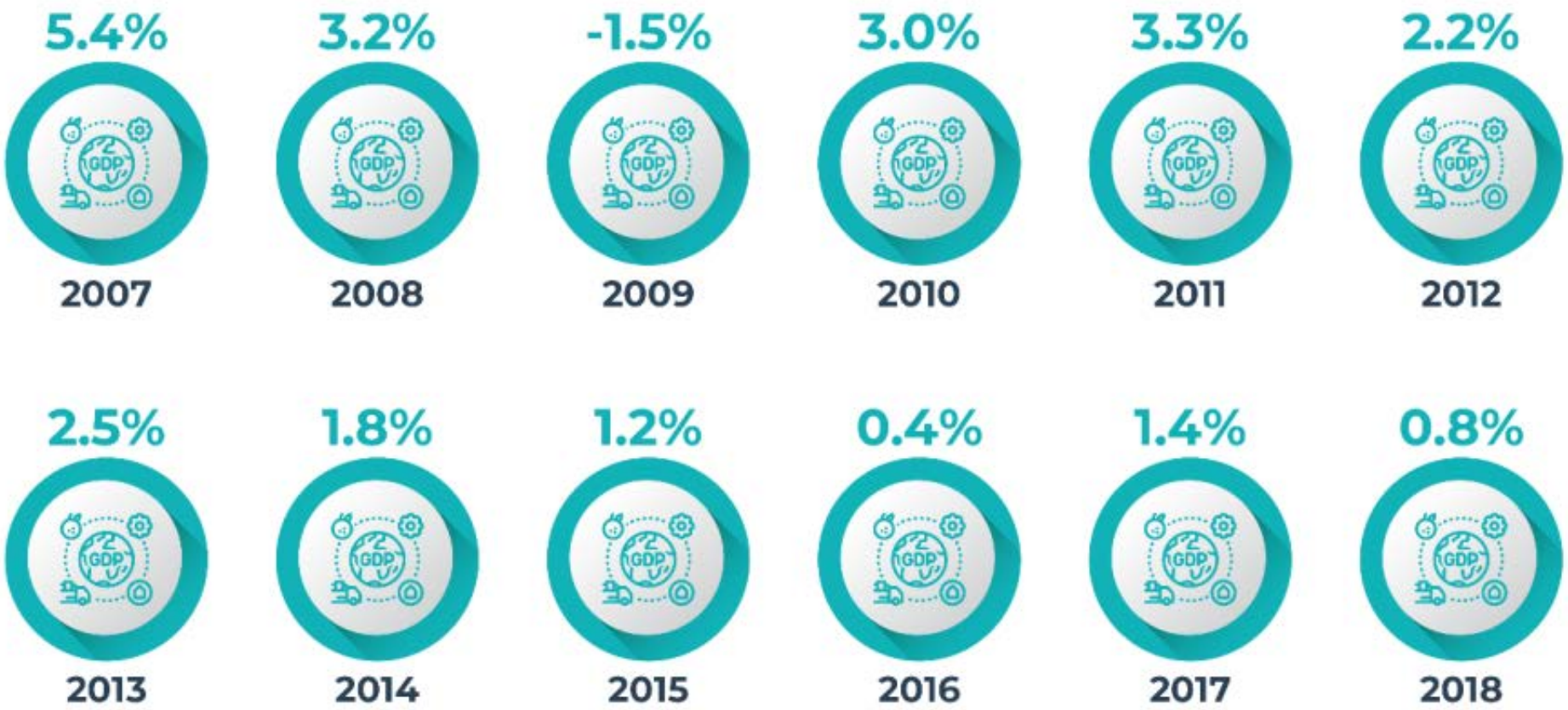


Trade integration

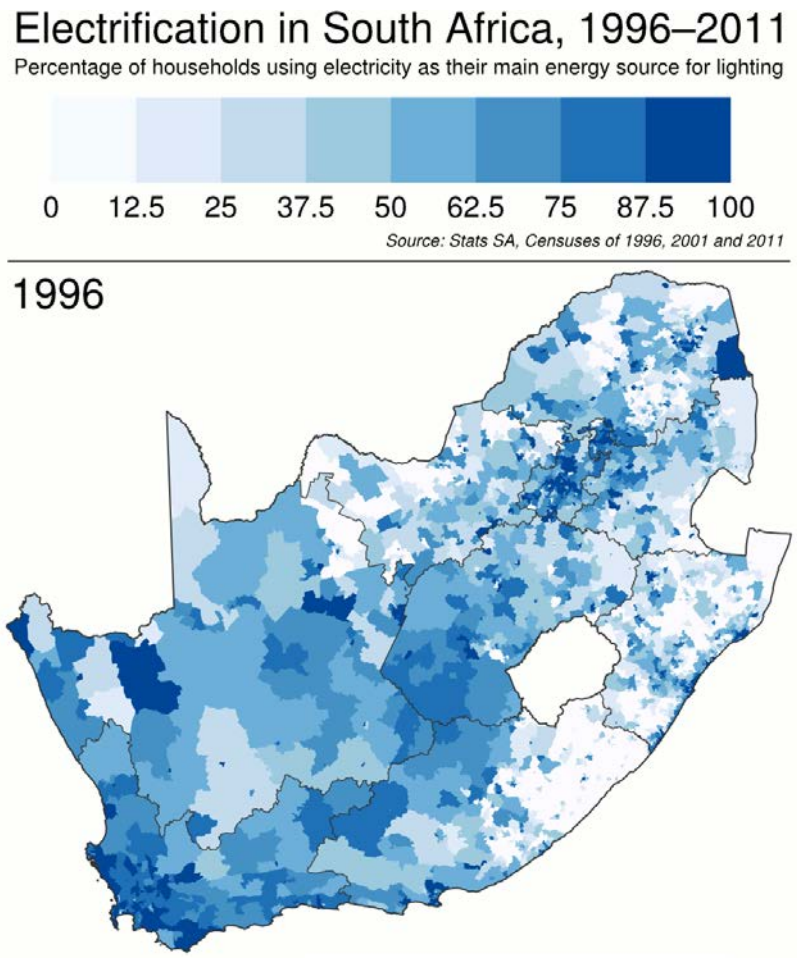
Strengthen social safety net

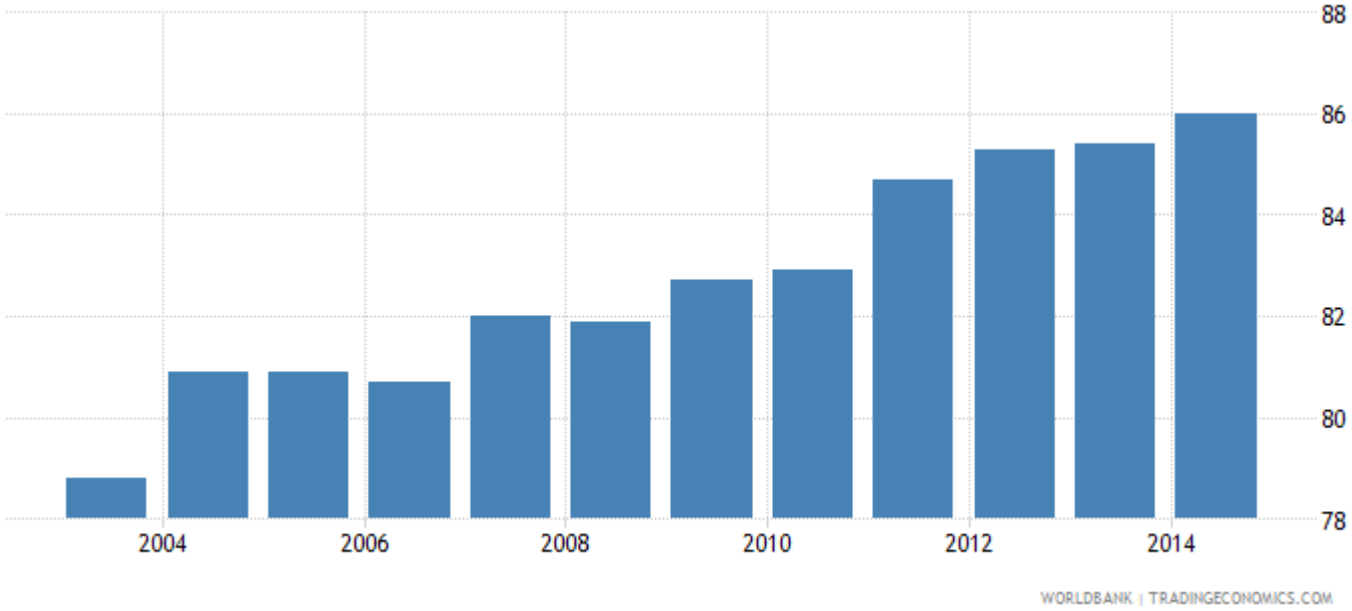
South African Perspective:

South African Economy:

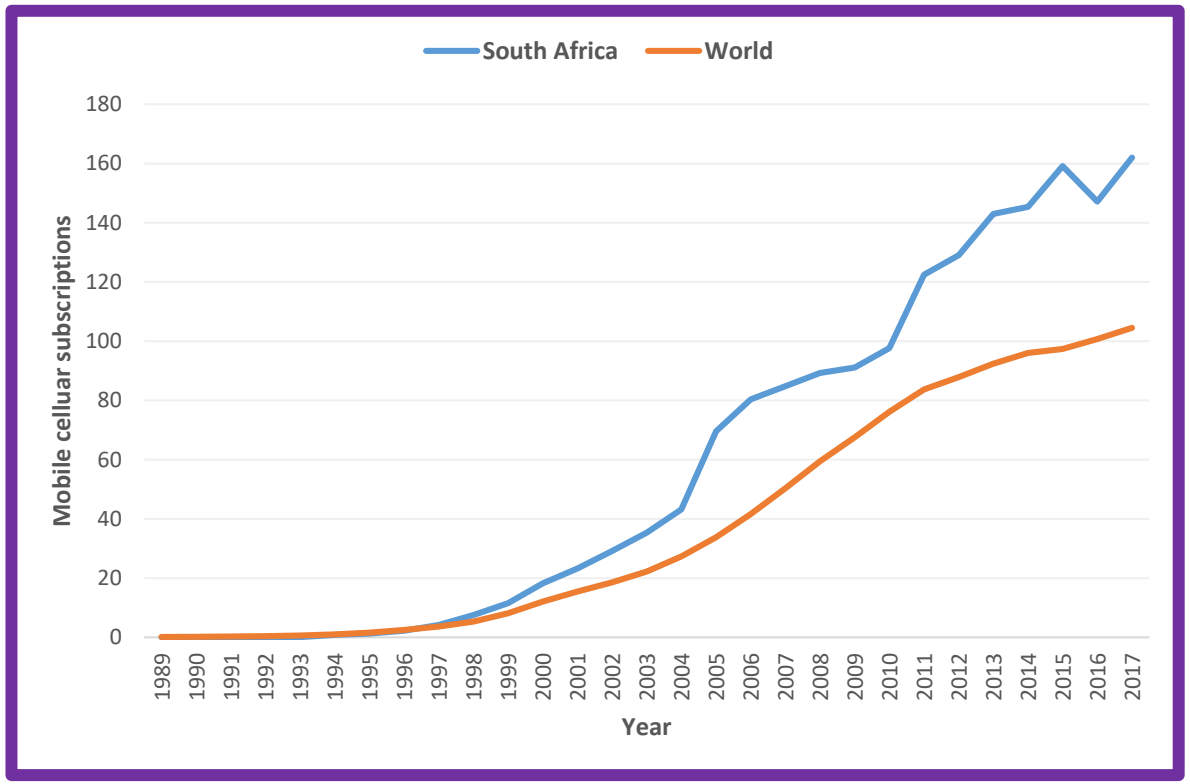


Electricity access:





Internet access:



Selected Top Countries for Mobile Subscriptions, 2014

Ranked by Total Mobile Subscriptions:	Total Population (MM)	Mobile Subscriptions (MM)	Smartphone % of Mobile Subscriptions
China	1,356	1,301	39%
India	1,236	907	15
Indonesia	254	343	19
Brazil	203	274	35
Russia	142	253	23
Pakistan	196	144	6
Nigeria	177	143	16
Vietnam	93	124	17
Philippines	108	113	26
Mexico	120	110	27
Egypt	87	103	19
Iran	81	99	10
Thailand	68	99	29
South Africa	48	73	31
Turkey	82	70	33
Total Mobile Subscriptions (MM)		4,153MM	—
Weighted-Avg. of Smartphone as % of Mobile Subs			26%

DIGITAL REACH IN SOUTH AFRICA

The following tables summarise the internet penetration rates and usage across South Africa.

Internet Penetration			**Key Digital Indicators**	
Total number of active Internet users	30.81 million		Total population	57.06 million (66% urbanisation)
Internet users as a percentage of the total population	54%		Active social media users	18.00 million (32% penetration)
Total number of active mobile Internet users	29.20 million		Unique mobile users	38.00 million (67% penetration)
Mobile Internet users as a percentage of the total population	51%		Active mobile social users	16.00 million (28% penetration)
Web Traffic by Device			**Devices used most often to access internet**	
		Y-on-Y change	Access the Internet most often via a computer or tablet	6%
Laptops and desktops	25%	+45%	Access equally via a smartphone and computer or tablet	10%
Mobile phones	71%	-9%	Access the Internet most often via a smartphone	69%
Tablet devices	4%	-16%		
Other devices	0.05%	+67%		

Source: GSMA, 2018; Statcounter, 2018; We are social, 18:15:38 UTC)

https://fr.weforum.org/videos/the-great-reset-726dedeacb

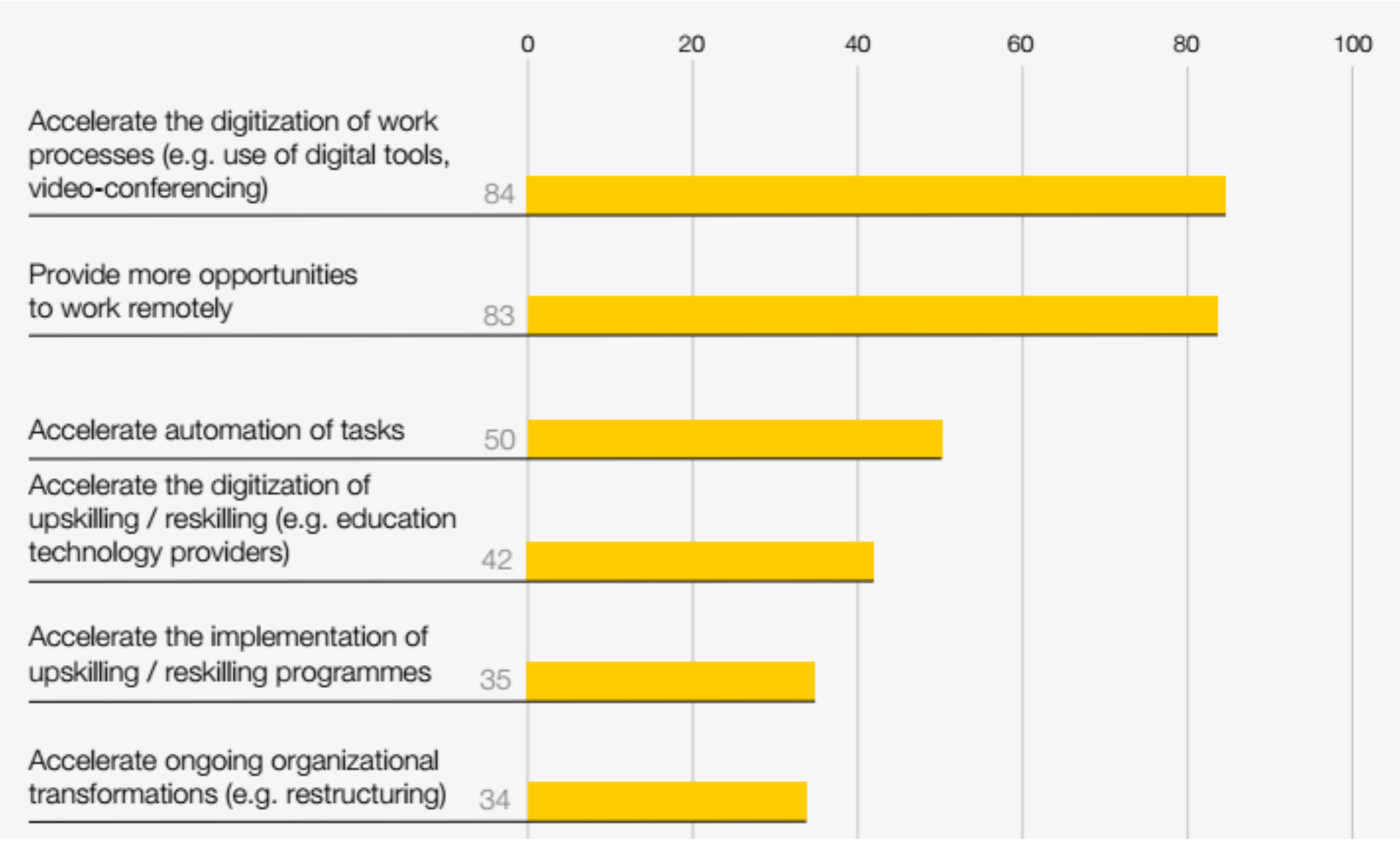
South Africa – COVID-19:

	Days	COVID-19 Spread	Health System Readiness
Level 1	21 Sept -	Low	High
Level 2	35	Moderate	High
Level 3	78	Moderate	Moderate
Level 4	31	Moderate to High	Low to Moderate
Level 5	36	High	Low

https://www.gov.za/covid-19/about/about-alert-system

Mid 2020 - 93% of the world’s workers resided in countries with some form of workplace closure measure in place to prevent the spread of coronavirus.

Planned Business Measures in Response to COVID-19:



Recommendations of PC4IR:

- Invest in Human Capital
- Establish an AI Institute
- Establish a platform for Advanced Manufacturing and New Materials
- Secure and Avail Data for Innovation
- Incentivize future Industries, Platforms and Applications of 4IR Technologies
- Build 4IR Infrastructure
- Review and Amend (Create) policy and legislation
- Establish 4IR Strategy Implementation coordination council in the Presidency

Five Imperatives for resetting the future of work agenda: 22

Transform Organization Design and Work Design
Transition into a more simple and agile structure, moving away from traditional multi-layered organizations

Align New Technology and Skills
Embrace the necessary integration of technology and skills to transform the workplace

Cultivate Health and Well-being
Support employees with dedicated and targeted programmes for physical, social, financial and mental well-being

Build Human-Centric Leadership Culture
Adopt a people-focused approach when connecting with workers

Transforming Organization design and work design:

Empower an agile and distributed workforce

complex, multilayered, matrix structures to a network structure

Explore hybrid working options

expand talent base beyond traditional sources – geographically as well as demographically.

Transforming Organization Design and Work Design:

Pivot to remote working

- New digital tools
- Clarifying remote work policies
- Fostering employee engagement and mental health
- Providing equipment for home working

Redesign the workspace

- The role of office space??
- Are offices essential??
- Remodeling offices for creative and activity based work

Aligning new technology and skills:

Embrace technology for business transformation

- 80% of global employers have accelerated the digitization of work processes
- Technology will continue to be a key enabler for businesses
- Digital guides to educate people across the organization on digital skills

Integrate reskilling and upskilling

- Current workforce needs to be empowered to grow with the organization
- Lifelong learning cultures within the organization

Cultivating health and well-being

Consider total well-being:

Physical, mental and financial well-being

Enable safe return to office

Building a human-centric leadership culture:

- Empower local leaders and improve communication

- Enhance employee listening and enable human connection

Remote | virtual | on demand Concerns (pre-Covid)

According to entrepeneur.com the main concerns include:

- Different time zones to juggle
- Lack of real-time collaboration
- Misplacing information
- Confidentiality
- Not trusting workers they can't monitor
- Limited control over how employees truly spend their time and create work-lif boundaries
- A belief that you need lots of extra tools, policies, training, and techniques to manage remote teams
- The switch seems like too big of a challenge

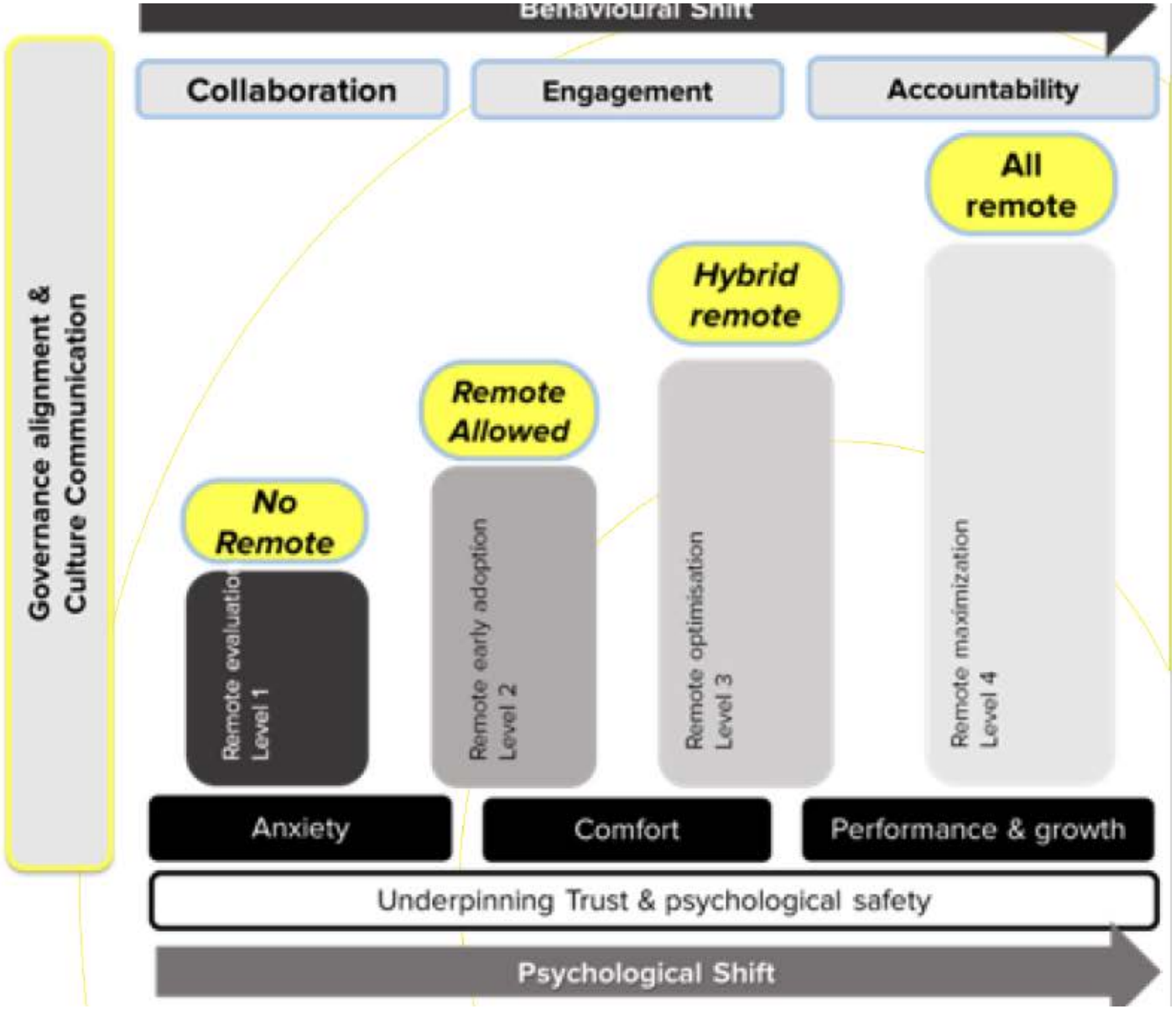
Remote Working - Maturity Framework

Once the excitement of remote work set-up wears off after a few weeks, the question really is how to prevent:

- **A degenerating work culture**
- **Distraction and loss of accountability**
- **Dipping team morale and emotional commitment**
- **A reduced team bond and trust**
- **Isolation and psychological illnesses**

You should be asking yourself, **how to build a sustainable remote work organisation?**

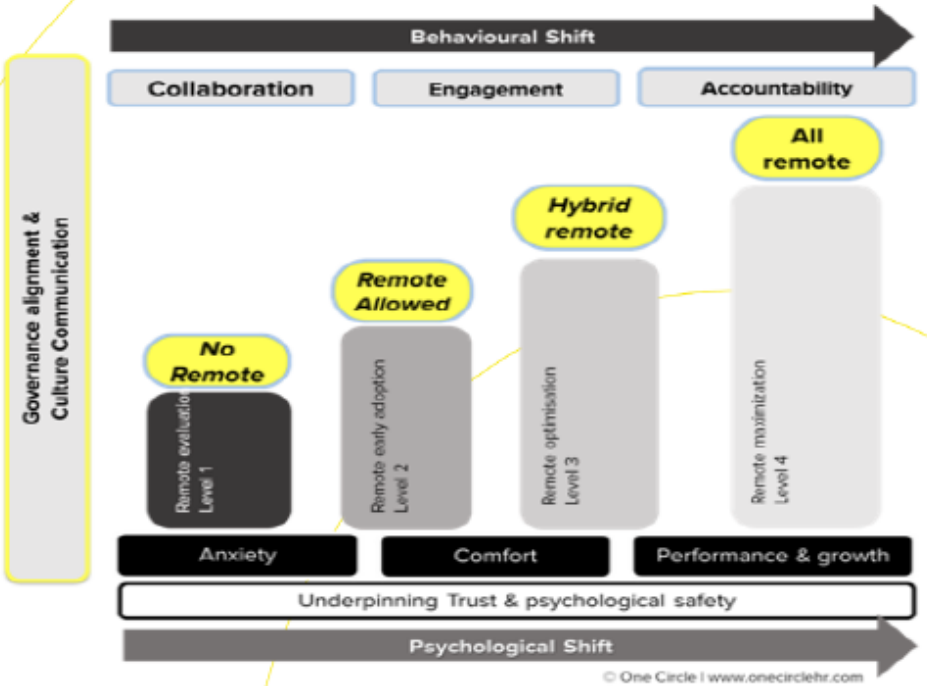
Remote Working Maturity Framework



Remote Working Maturity - 10 critical factors

Below are 10 critical factors to help you craft your journey and transition to remote working:

1. Leadership
2. Organisational Design
3. Culture and Values
4. Strategy & Goals
5. Performance
6. Learning
7. Communication & Engagement
8. Reward & Recognition
9. Employee Wellness & Ergonomics (psychological safety)
10. Technology & Tools



What are you looking for today as a business?

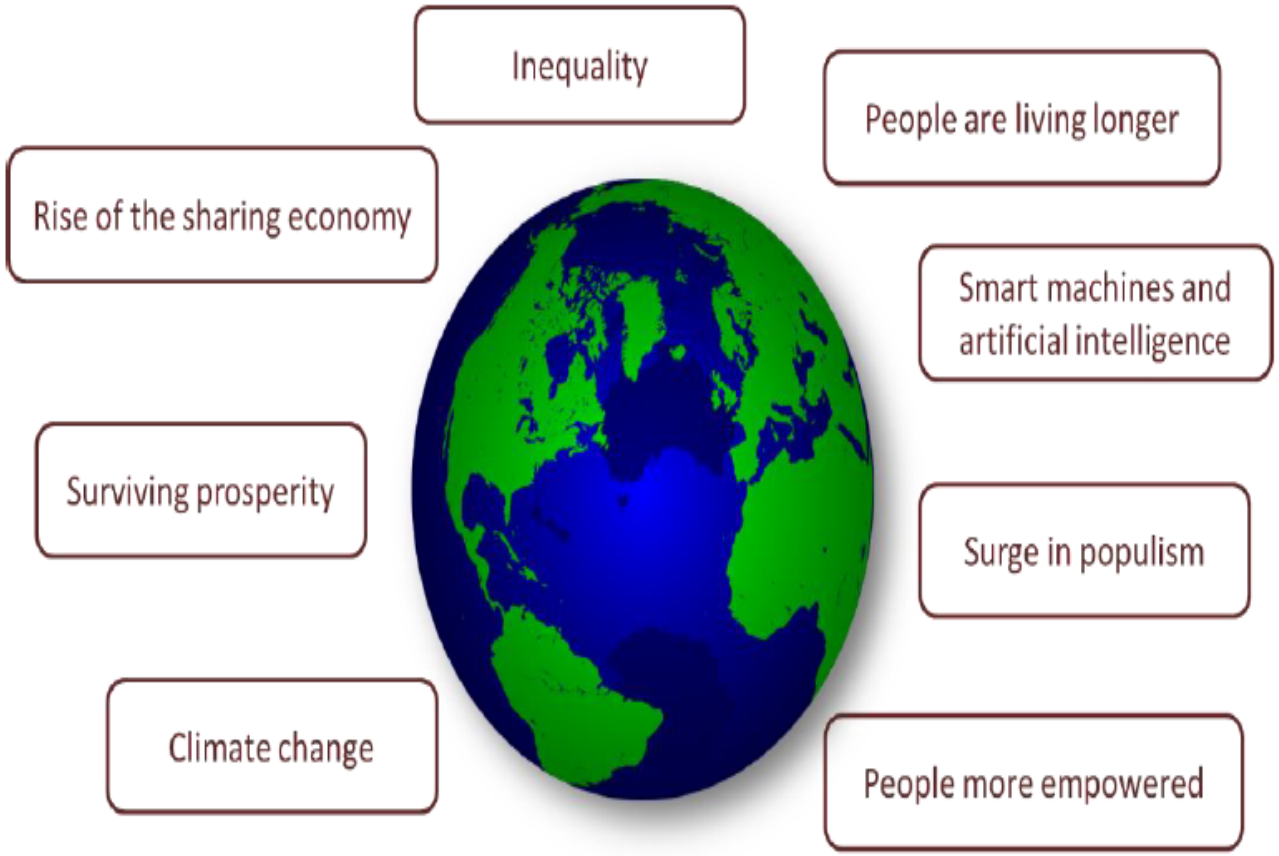
What should you be looking for today as a business?

- Fairly priced quality
- Flexibility
- Speed
- Sustainability

Adaptability is your differentiator
An outside-in change that is reshaping the business landscape.

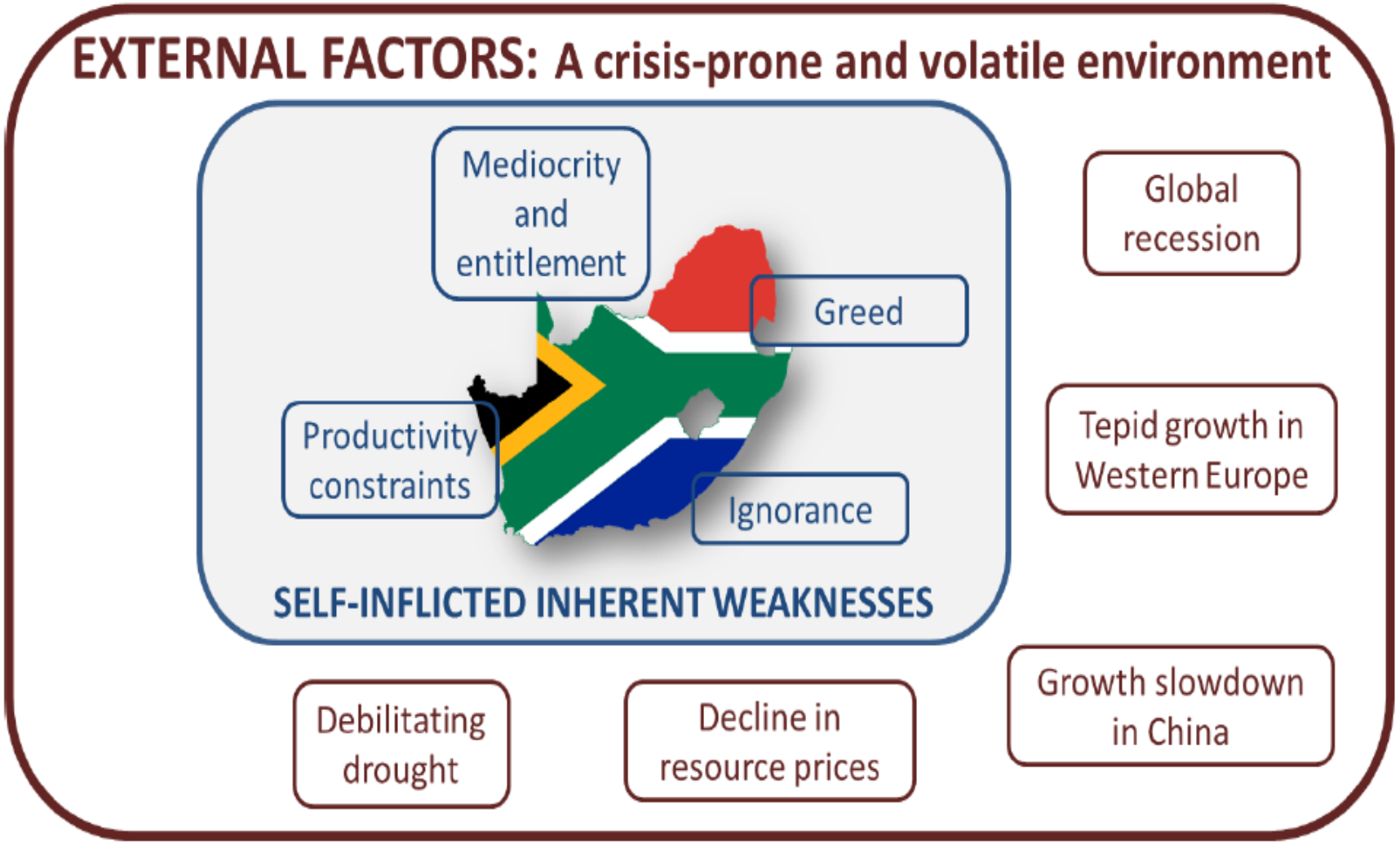
General environmental context

A number of global trends are influencing the world of work. In South Africa, we are feeling the influence of these trends in the economy as a whole, but also on industry and personal levels.

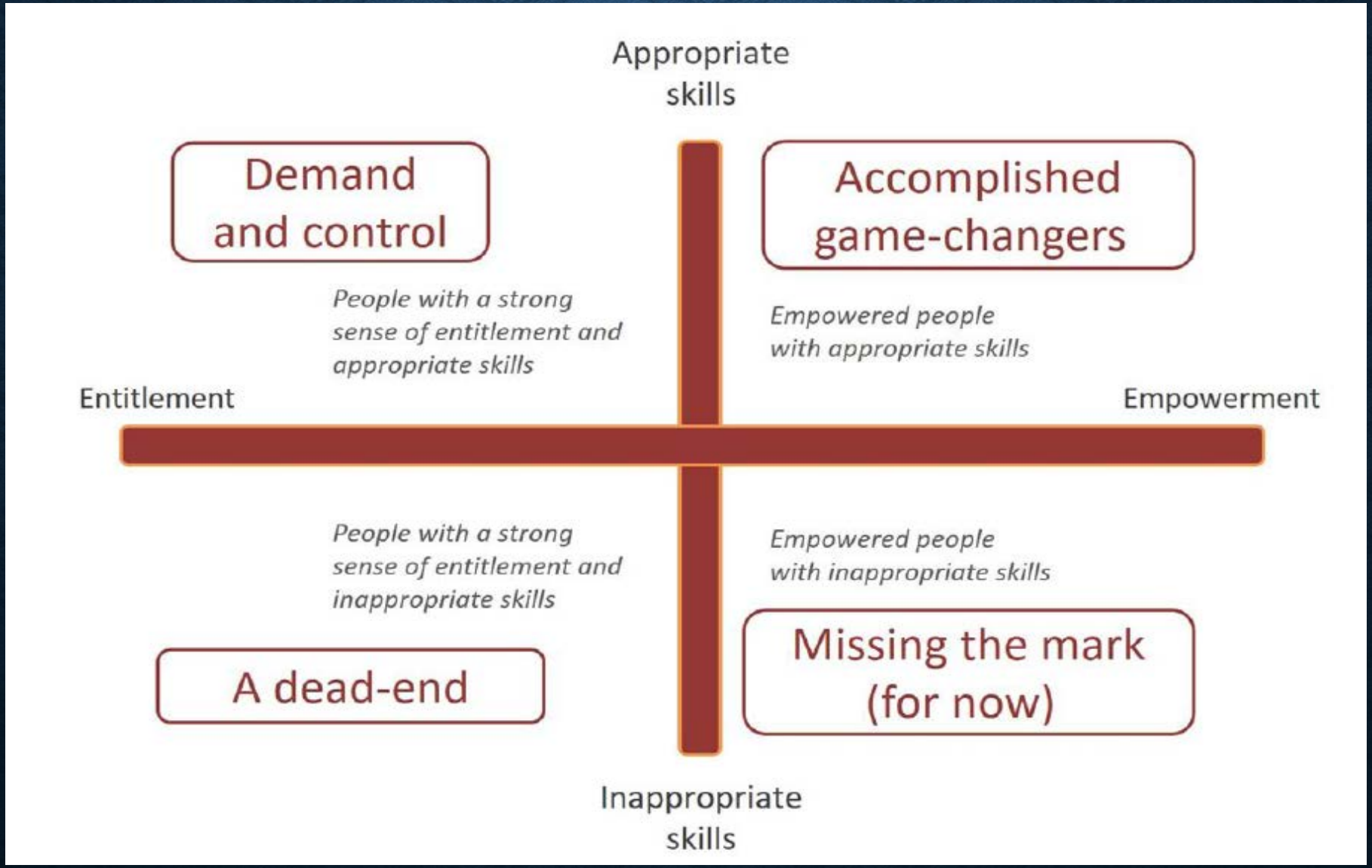


The South African problematique

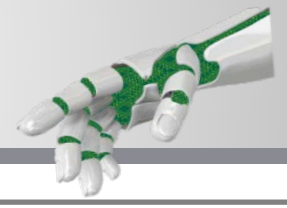
The South African economy finds itself in the grips of significant forces in a crisis-prone and volatil external environment as well as some self-inflicted inherent weaknesses.



The world of work in South Africa in 2030



Skills of the Future



Abilities

Cognitive

- Cognitive flexibility
- Creativity
- Logical reasoning
- Problem sensitivity
- Mathematical reasoning
- Visualisation

Physical

- Physical Strength
- Dexterity and recision

Mental

- Happiness
- Energy

Fundamental Skills

Content Skills

- Active learning
- Oral expression
- Written expression
- Reading comprehension
- Basic digital literacy

Process

- Active listening
- Critical thinking
- Self- monitoring
- Monitoring
- Transdisciplinary

Cross Functional Skills

Social Skills

- Collaborating (5 basic)
- Emotional intelligence
- Influencing
- Service Orientation
- Sharing
- Change Management

Management

- Managing financial results
- Managing material resources
- Managing people
- Managing time

Technical Skills

- **Equipment maintenance and repair**
- **Equipment operational control**
- **Quality control**
- **Slide 4**

Leadership

Servant Leadership:

- Whole leadership
- Business acumen
- Technical ability
- Relationship building
- Global acumen

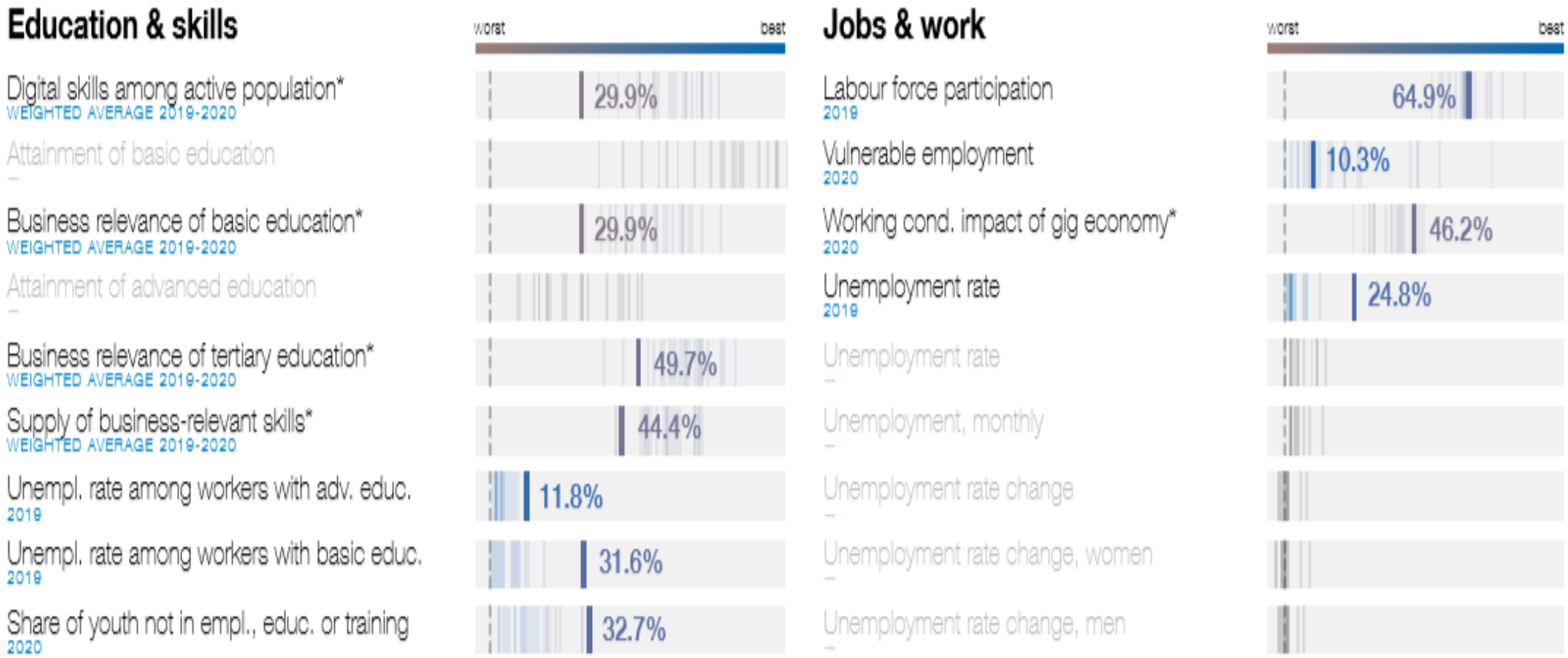
Digital Leadership:

- Balance growth & risk
- Create virtuous circle of customer engagement
- Rethink products and business models

Digital Skills

- Robotics
- Application Development
- Design Thinking
- User Interface Design (UI)
- User Experience Design (UX)
- Social Media Customer Services
- Digital Innovation
- Cyber/Digital Security
- Data Security
- Data Architecture/Engineering
- Data Security
- Data Storage
- Data Management
- Data Mining
- Data Analytics
- Agile
- Coding

Country Profile South Africa



* The figures presented for these indicators are rebased 0-100% progress scores, with 0 being the worst performance, and 100 being the best performance.

Jobs – Redundancy and Emerging Skills

Emerging and redundant job roles

Role identified as being in high demand or increasingly redundant within their organization, ordered by frequency

EMERGING

1.	Process Automation Specialists
2.	Data Analysts and Scientists
3.	Social Psychologists
4.	Management and Organisation Analysts
5.	Business Development Professionals
6.	Big Data Specialists
7.	Assembly and Factory Workers
8.	Compliance Officers
9.	Chemists and Chemical Laboratory Scientists
10.	AI and Machine Learning Specialists

REDUNDANT

1.	Accounting, Bookkeeping and Payroll Clerks
2.	Client Information and Customer Service Workers
3.	Data Entry Clerks
4.	Administrative and Executive Secretaries
5.	Vehicle, Window, Laundry and Other Hand Cleaning Workers
6.	Sales Representatives, Wholesale and Manufacturing, Technic…
7.	Insurance Underwriters
8.	Business Services and Administration Managers
9.	Assembly and Factory Workers
10.	Accountants and Auditors

Emerging skills

Skills identified as being in high demand within their organization, ordered by frequency

1.	Analytical thinking and innovation
2.	Critical thinking and analysis
3.	Troubleshooting and user experience
4.	Leadership and social influence
5.	Complex problem-solving
6.	Systems analysis and evaluation
7.	Creativity, originality and initiative
8.	Technology use, monitoring and control
9.	Quality control and safety awareness
10.	Persuasion and negotiation
11.	Emotional intelligence
12.	Technology installation and maintenance
13.	Resilience, stress tolerance and flexibility
14.	Reasoning, problem-solving and ideation
15.	Active learning and learning strategies

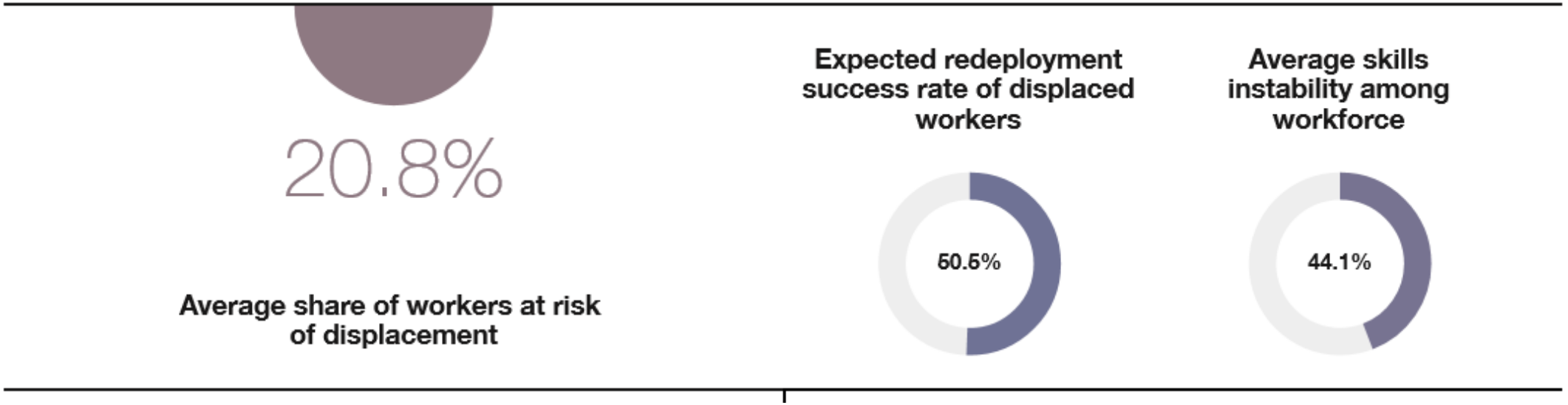
Top 15 skills for 2025

1	Analytical thinking and innovation
2	Active learning and learning strategies
3	Complex problem-solving
4	Critical thinking and analysis
5	Creativity, originality and initiative
6	Leadership and social influence
7	Technology use, monitoring and control
8	Technology design and programming
9	Resilience, stress tolerance and flexibility
10	Reasoning, problem-solving and ideation
11	Emotional intelligence
12	Troubleshooting and user experience
13	Service orientation
14	Systems analysis and evaluation
15	Persuasion and negotiation

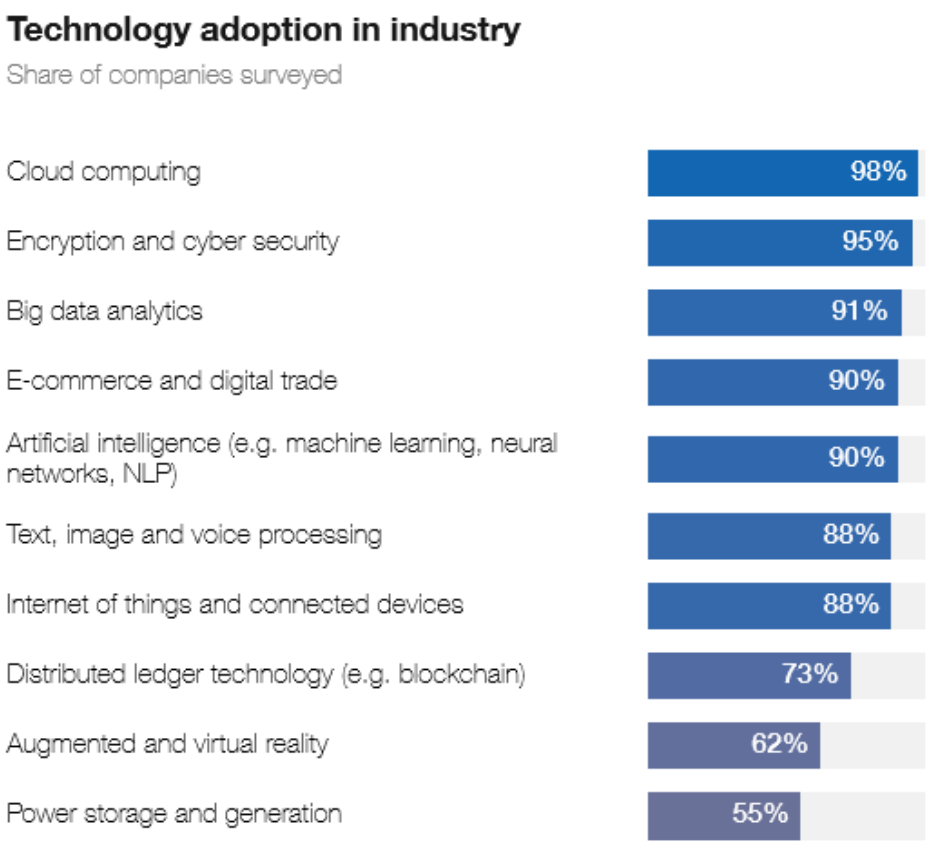
Source

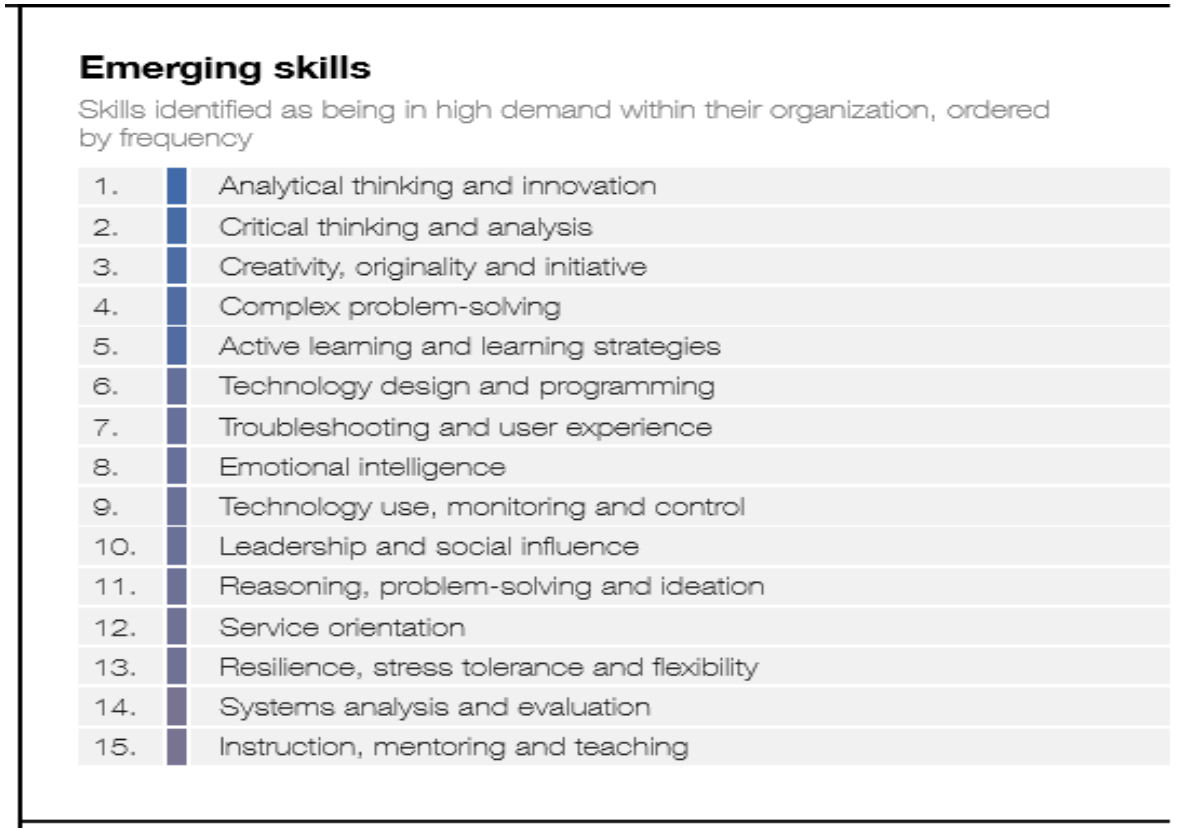
Future of Jobs Survey 2020, World Economic Forum.

Industry Focus – Financial Services

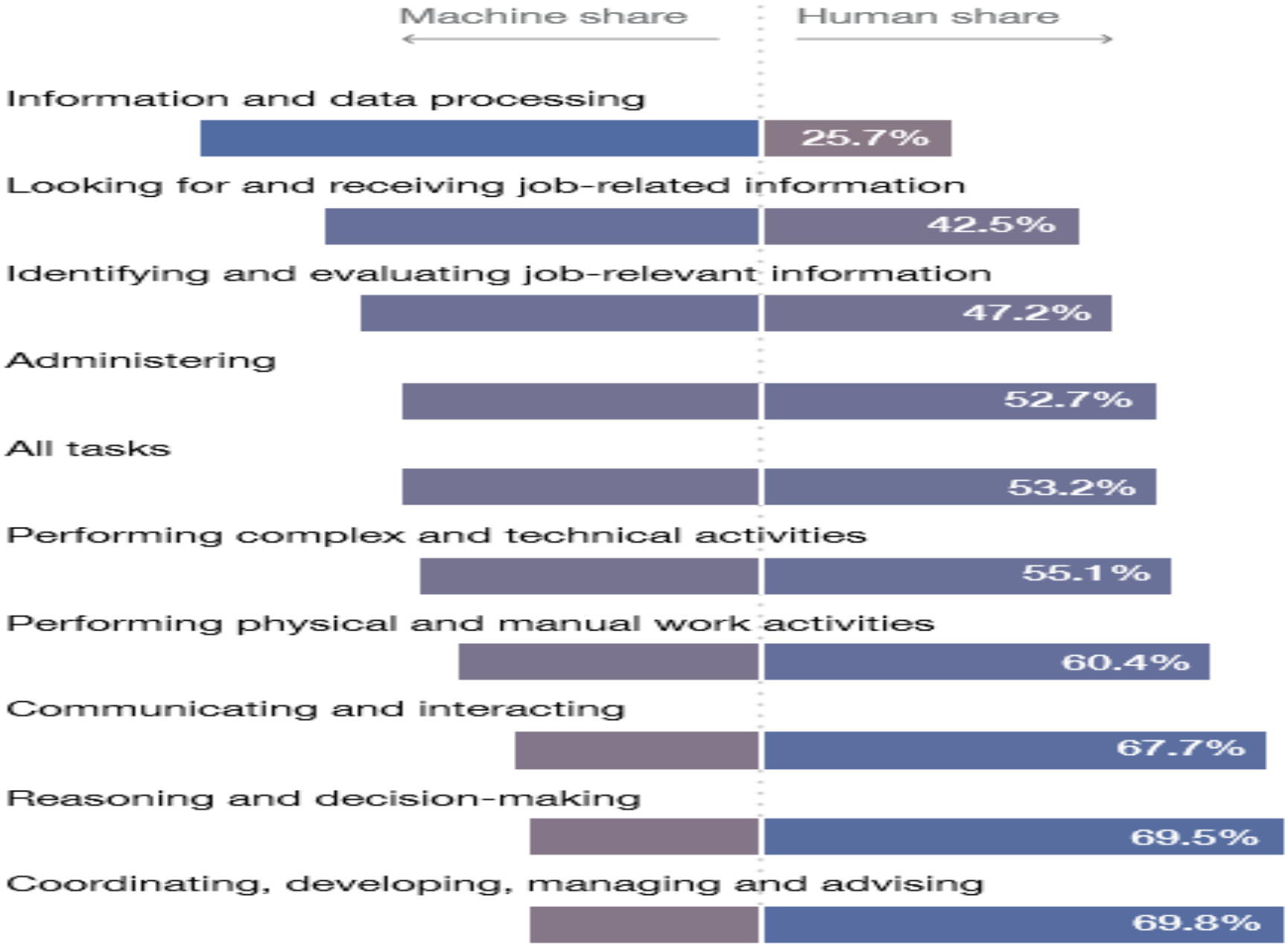


Tech Adoption and Emerging Skills





Augmentation of key job tasks by 2024

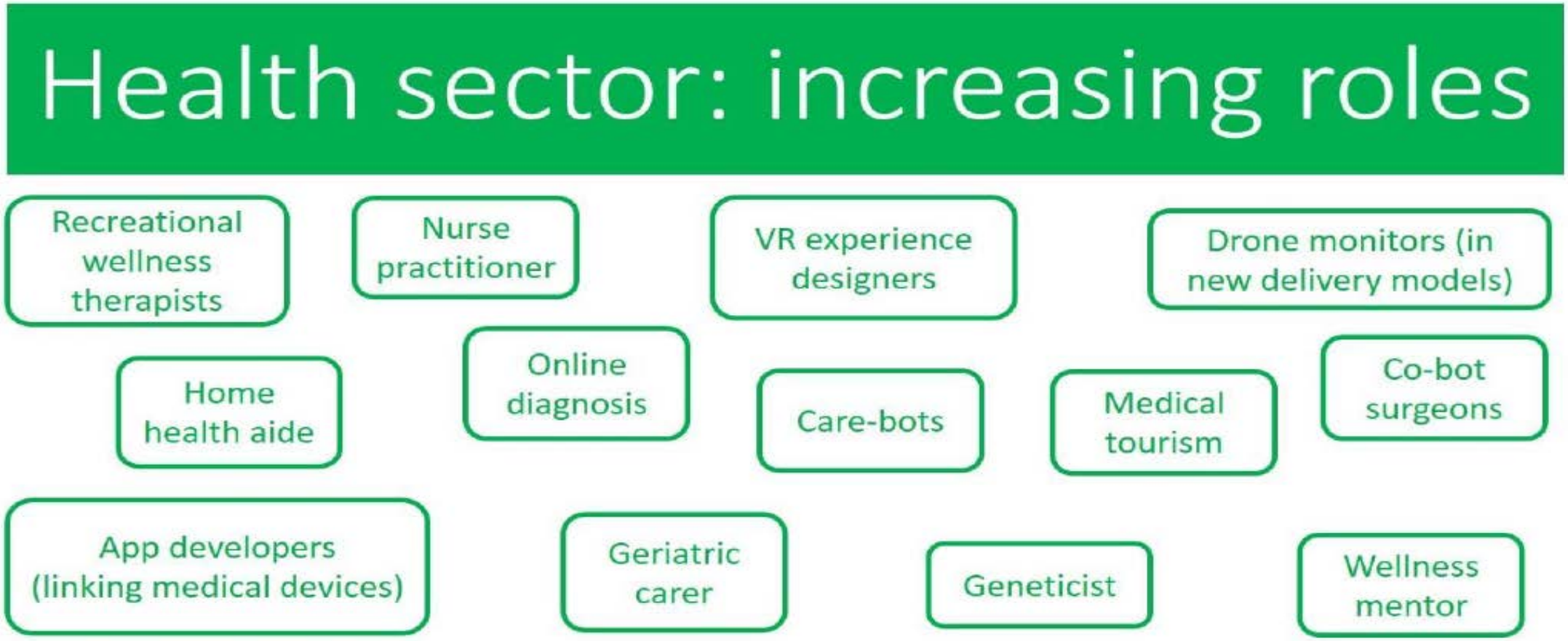


South African Perspective –Jobs of the future and Influencers

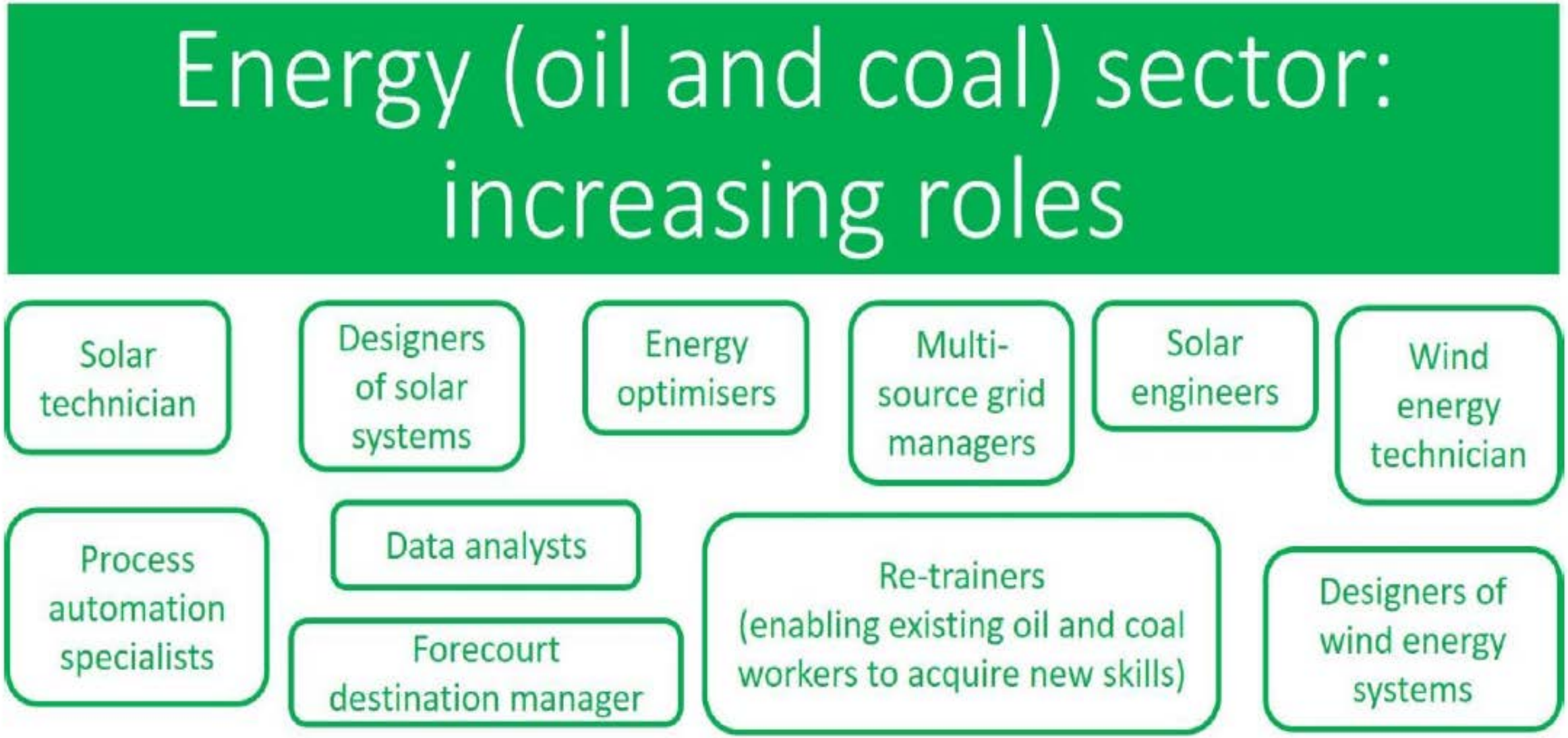
Trends set to positively influence business growth towards 2022
Increasing adoption of new technology
Increasing availability of big data
Advances in mobile internet
Advances in artificial intelligence
Advances in cloud technology
Shifts in national economic growth
Expansion of affluence in developing economies
Expansion of education
Advances in new energy supplies and technologies
Expansion of the middle classes

Trends set to negatively influence business growth towards 2022
Increasing protectionism
Increase in cyber threats
Shifts in government policy
Effects of climate change
Increasingly older societies
Shifts in legislation on talent migration
Shifts in national economic growth
Shifts in the mindset of the new generation
Shifts in global macroeconomic growth
Advances in artificial intelligence

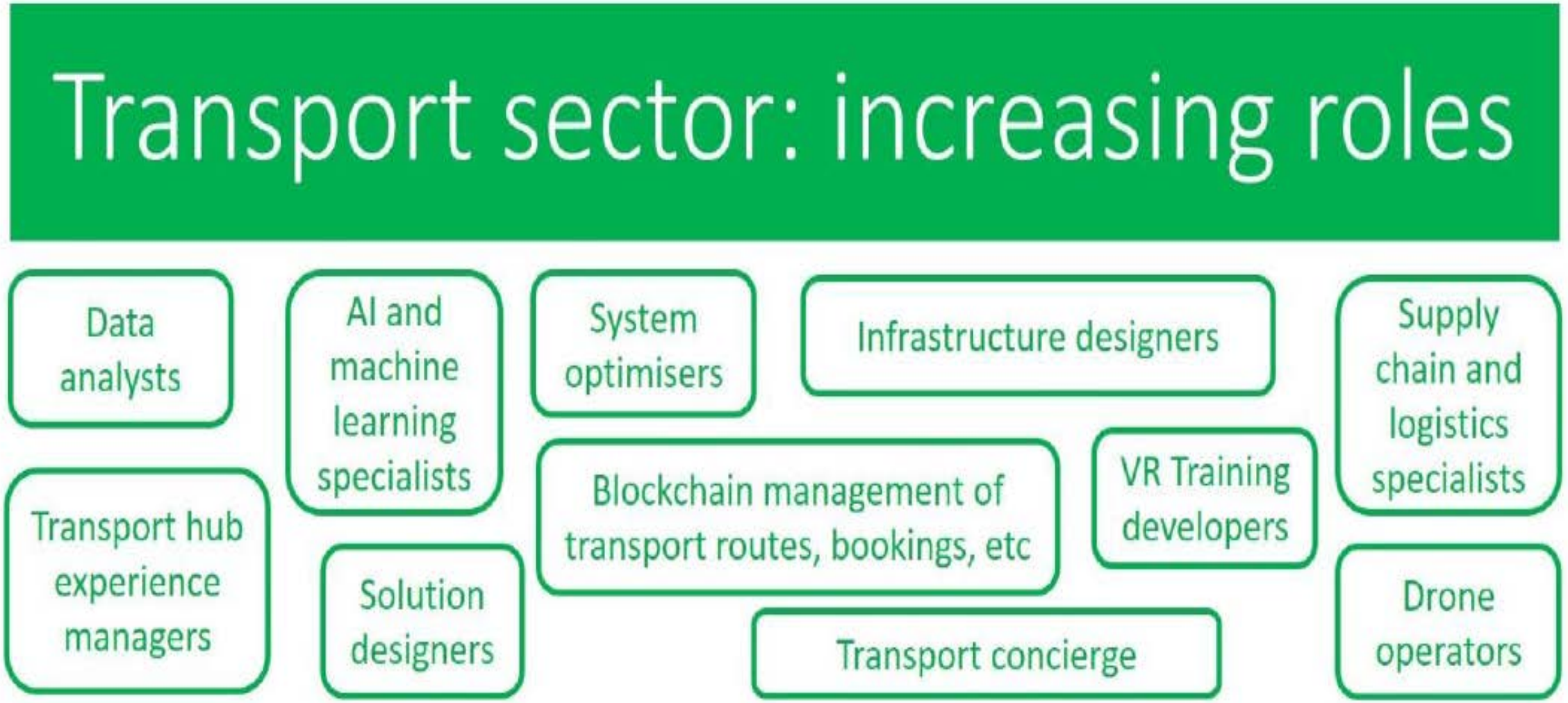
Roles and activities expected to increase



Roles and activities expected to increase



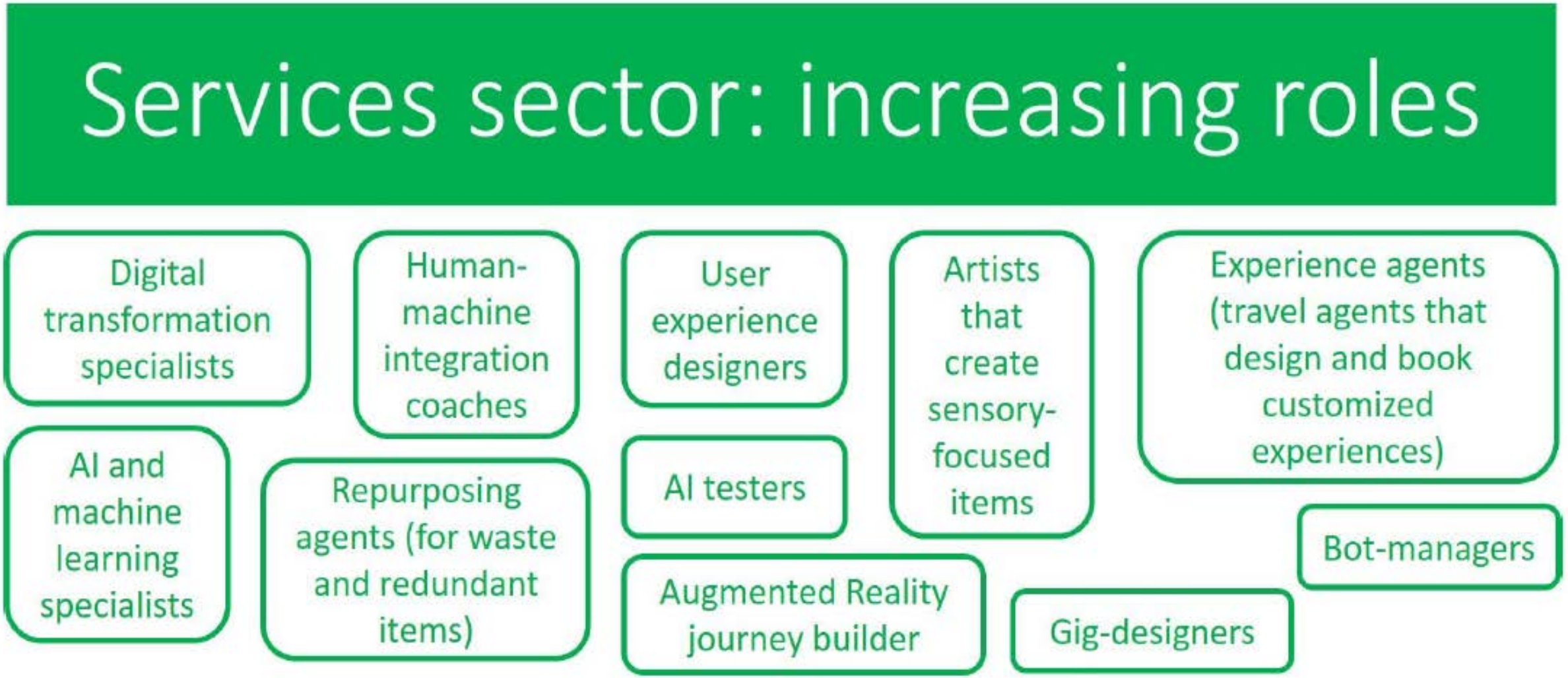
Roles and activities expected to increase



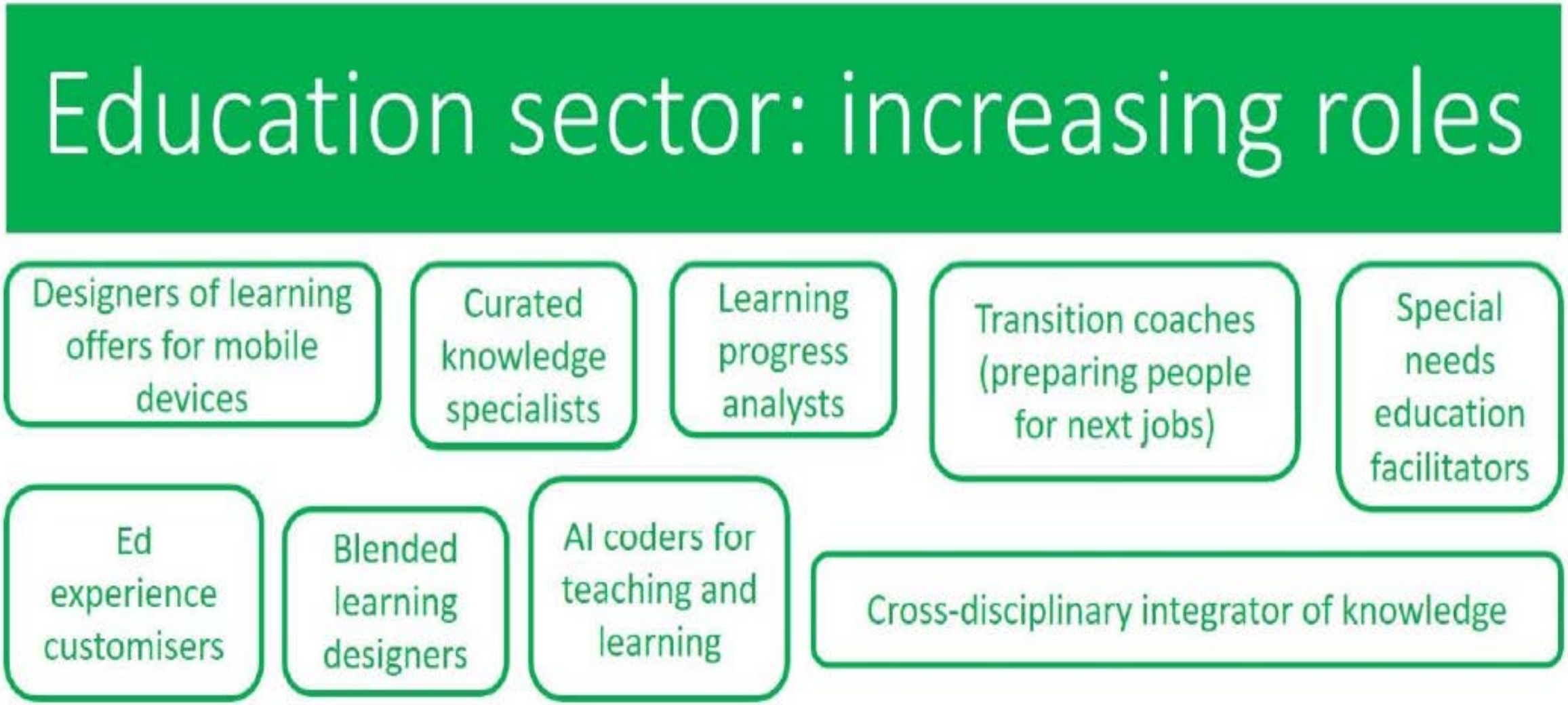
Roles and activities expected to decrease

Roles and activities expected to increase

Roles and activities expected to increase



Roles and activities expected to increase



Roles and activities expected to increase

Financial sector: increasing roles

- Conversational interface designer
- Compliance expert
- Mixed reality experience designer
- Cloud banking
- Cybersecurity expert
- Platform creator
- Investor protection specialist
- Interconnectors – between business and customers, employers and employees, sellers and buyers
- Financial services and fin-tech 'concierge'
- Hyper-personalisation inventors
- Interaction policy writers
- Financial ecosystem creators

CHANGE @SPEED

WORKING WITH PURPOSE

PERMANENT FLEXIBILITY

PLATFORM FOR TALENT

DIGITAL FROM THE INSIDE OUT

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EXTENDED LEARNING

Contact us

Sindiswa Ndlovu

Tel: +27 31 260 3796
Cell: +27 64 961 5611
Email: Ndlovus1@ukzn.ac.za

Venouasha Bahadur

Tel: +27 31 260 8870
Cell: +27 81 422 3369
Email: BahadurV@ukzn.ac.za

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dankie!

thank you!

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ngiyabonga!

ke a leboha!

siyabonga!