



# Overview of the South African digital skills landscape

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Presented at the 4<sup>th</sup> S-DIRECT Seminar: The role of Universities in the Digital Era: A human-centric approach to e-Inclusion in the Digital Economy

1. What do recent surveys and indices tell us about digital skills in SA? Who are the role-players?
2. The broader perspective within which we should think about digital skills
3. The South African model for a national approach to digital skills development
4. A recently announced South African initiative for a new digital future

1. At least two major dimensions are implied:
  - **Digital literacy** - basic digital skills of the population, ordinary citizens
  - **Digital skills of the workforce** (built upon basic digital literacy)
2. WEF – Global Inf. Techn. Report (with “Networked Readiness Index”) (popularly called “e-Readiness Index”)
  - Last one in 2016 (reflecting info from 2015 or earlier) [SA in position 95 out of 139 countries, for skills]
  - GITR appears to have been terminated
  - GITR opened up the broader perspective within which we should think about digital skills and digital readiness
3. But it also had limitations
4. **Others ...**

From: *Readiness for the Future of Production Index* (WEF) – specifically relating to South Africa:

“... Across the Drivers of Production component, South Africa’s performance is mixed. On the one hand, the ability to innovate is one of South Africa’s greatest strengths, as the country has a strong innovation culture, and entrepreneurial activity is supported by a sophisticated financial sector.

On the other hand, human capital remains the most pressing challenge in preparing for the future of production, as there is a shortage of engineers and scientists as well as digital skills.

It will also be critical for South Africa to improve its Institutional Framework to effectively respond to change, offer a stable policy environment and direct innovation.”

# Readiness for the Future of Production Index ( /100)

Index Component	Rank /100	Value
 <b>Driver: Human Capital</b> 0-10 (best)	<b>67</b>	4.5
Current Labor Force 0-10 (best)	53	6.0
3.01 Manufacturing employment % working population	54	11.2
3.02 Knowledge-intensive employment % working pop.	56	22.5
3.03 Female participation in labor force ratio	48	0.79
3.04 Mean years of schooling Years	45	10.3
3.05 Availability of scientists and engineers 1-7 (best)	86	3.5
3.06 <b>Digital skills among population</b> 1-7 (best)	<b>94</b>	3.3
Future Labor Force 0-10 (best)	78	3.1
3.07 Migration migrants/100,000 pop.	60	-1.8
3.08 Country capacity to attract and retain talent 1-7 (best)	61	3.3
3.09 Quality of universities Count	23	9.0
3.10 Quality of math and science education 1-7 (best)	95	2.6
3.11 Quality of vocational training 1-7 (best)	72	3.6
3.12 School life expectancy Years	65	13.3
3.13 Pupil-to-teacher ratio in primary education Ratio	90	33.6
3.14 Critical thinking in teaching 1-7 (best)	69	3.1
3.15 Active labor policies 1-7 (best)	88	2.7
3.16 On-the-job training 1-7 (best)	38	4.5
3.17 Hiring and firing practices 1-7 (best)	90	2.9

Structure:

Complexity  
Scale

**Drivers:**

Technology & Innovation

**Human Capital**

Global Trade & Investment

Institutional Framework

Sustainable Resources

Demand Environment

[WEF, *Readiness for the Future of Production Index* (2018)]

# Automation Readiness Index (EIU) 2018 ( /25)

- |                |               |                  |
|----------------|---------------|------------------|
| 1. South Korea | 11. Italy     | 21. Saudi Arabia |
| 2. Germany     | 12. China     | 22. South Africa |
| 3. Singapore   | 13. UAE       | 23. Mexico       |
| 4. Japan       | 14. Malaysia  | 24. Vietnam      |
| 5. Canada      | 15. Turkey    | 25. Indonesia    |
| 6. Estonia     | 16. Russia    |                  |
| 7. France      | 17. Argentina |                  |
| 8. UK          | 18. India     |                  |
| 9. US          | 19. Brazil    |                  |
| 10. Australia  | 20. Colombia  |                  |



“Governments need to have a strategy for automation,” says Alan Manning, a professor of economics at the London School of Economics. “I don’t think you can just leave this to the market and believe it will deliver the right level of innovation.”

Here are the 25 evaluated countries, in order of preparedness for the coming changes of automation and robotics:

<https://www.forbes.com/sites/johnkoetsier/2018/04/23/usa-ranks-9th-in-global-robotics-automation-job-loss-report-after-korea-germany-japan-canada/2/#74091db83858>

SA does not currently have anything like:

- EU's DESI (*Digital Economy and Society Index*) and SA is not included in I-DESI (the international version)
- The Lloyds *UK Consumer Digital Index* (2018) (benchmarking digital and financial capability in UK)
- The German *D21 Digital Index* (2017-18) (annual state of the digital society, including digital skills of users)
- *digimeter - Measuring digital media trends in Flanders*

1. Two broader **initiatives** currently in process:
  - One on digital skills gaps (undertaken for DTSPS)
  - One spread over two years, by NEMISA, with findings on digital literacy expected by the end of March 2019
2. A regular survey by the Johburg Centre for Software Engineering (Wits Univ.) ("**JCSE Survey**")
  - "Demand" type of study of ICT practitioners
  - Based on views from business/industry players
  - Indicating areas in which business/industry experience gaps or needs, now or for the immediate future
  - Earlier, more specific i.t.o. overall numbers required
3. Various other more limited surveys on digital skills for the world of work

## 1. The usual categories:

- Public sector; Private sector; Third sector

## 2. Public sector:

- Provincial drives and interventions
- District/local/municipal interventions
- National drives (more later on Digital Skills CoLabs)
- Universities (institutes, centres, etc.) – in the world of work often through the continuing/executive education programmes of their business schools (and related)

## 3. Private/Third sector:

- Recently, many significant interventions by the likes of Google, Amazon, IBM, Microsoft, Cisco, spanning digital literacy, business (e-commerce) and technical skills
- Driven by both national and own interest (IT professionals appointed by them in large numbers)

## *Category: Digital space-makers*

### 1. Digital mindspace:

- Provincial entities thinking forward and creating space for positioning towards innovative digital futures
  - Western Cape Government
  - Gauteng (Johannesburg and Pretoria), Eastern Cape, etc.

### 2. Digital physical spaces / hives / living labs / CoLabs:

- Where the buzz around digital innovation and new digital skills is created and fuelled
- Where individuals come to a community centre (with a trained manager) to use computers, and to learn digital skills to enrich their lives

### 3. Digital events & opportunities:

- Hackathons, code-jams
- Internships

## 1. Trustworthy figures that make sense?

- We do not yet have those at the level we need it
- We have useful qualitative insights, but not quantitative

## 2. Some of our challenges in South Africa:

- Huge differences in wealth, income, opportunity (for learning, work, well-being); rural and deep rural areas often very excluded and deprived
- Danger of new divides, e.g. an information or even an epistemic divide, through lack of access to affordable internet & not having the required skills
- Speed of educational institutions in providing graduates with the required skills as per market requirements
- and the ability of these institutions to provide appropriate upskilling and re-skilling programmes in sufficiently large numbers.

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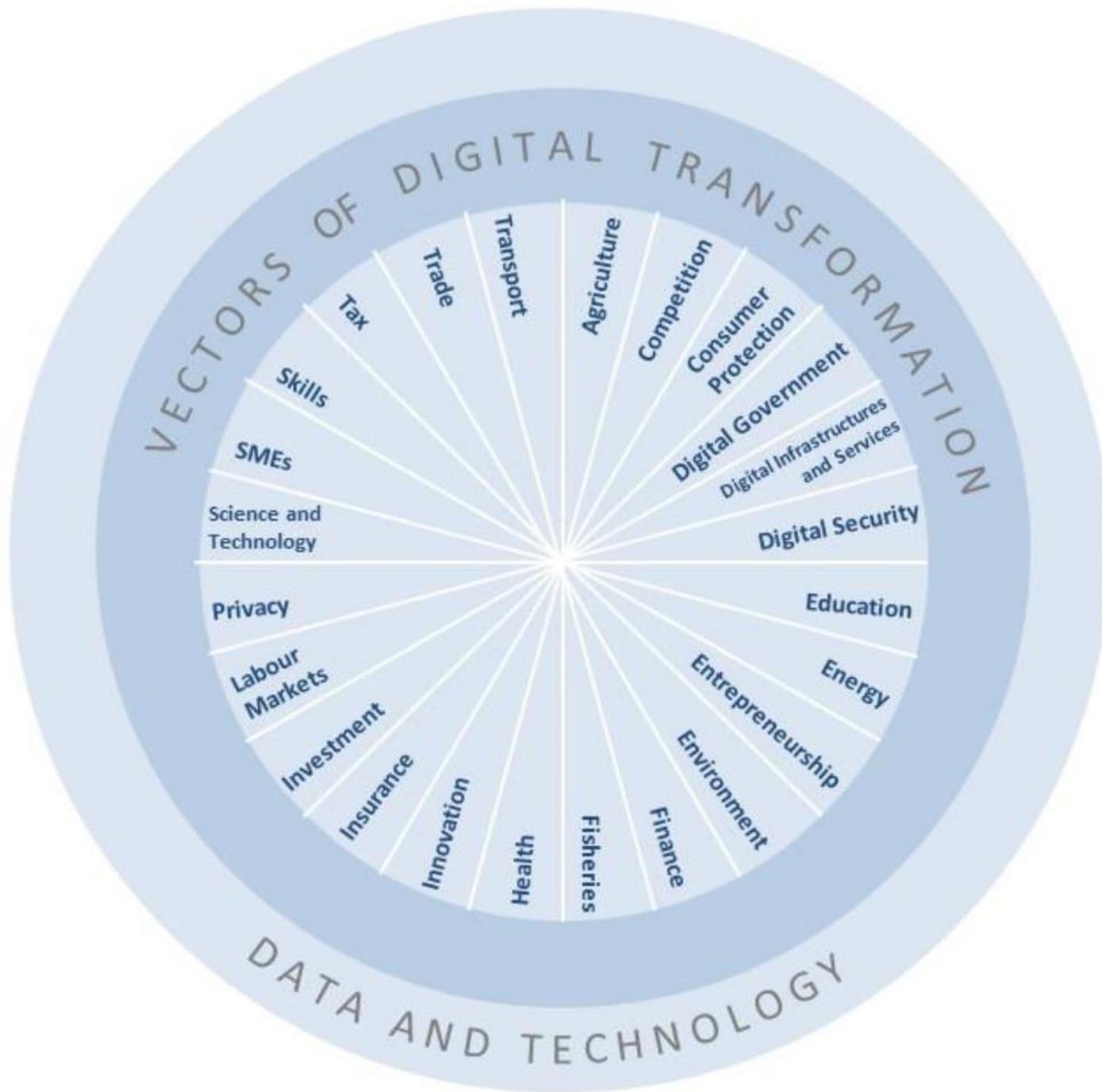
1. “digital society” and “digital economy”
  - for some, these are only useful terms to speak of more of the digital
  - for others, the expression of a more fundamental change that cannot be turned back and has to be managed pro-actively
2. The “Fourth Industrial Revolution” (4IR) is currently a point of discussion in many government circles and institutions/sectors:
  - not to be ignored, since its impacts will affect us all,
  - *but* to be harnessed
  - example: recently a report on the future of the Western Cape agricultural sector in the context of the 4IR
  - we will soon see many more such reports

[More on this later.]

## “Vectors” of digital transformation:

1. Scale without mass
2. Panoramic scope (through integration of digital resources)
3. Speed
4. Intangible capital and new forms of value creation
5. Transformation of space
6. Empowerment at the edges\*
7. Platforms and ecosystems

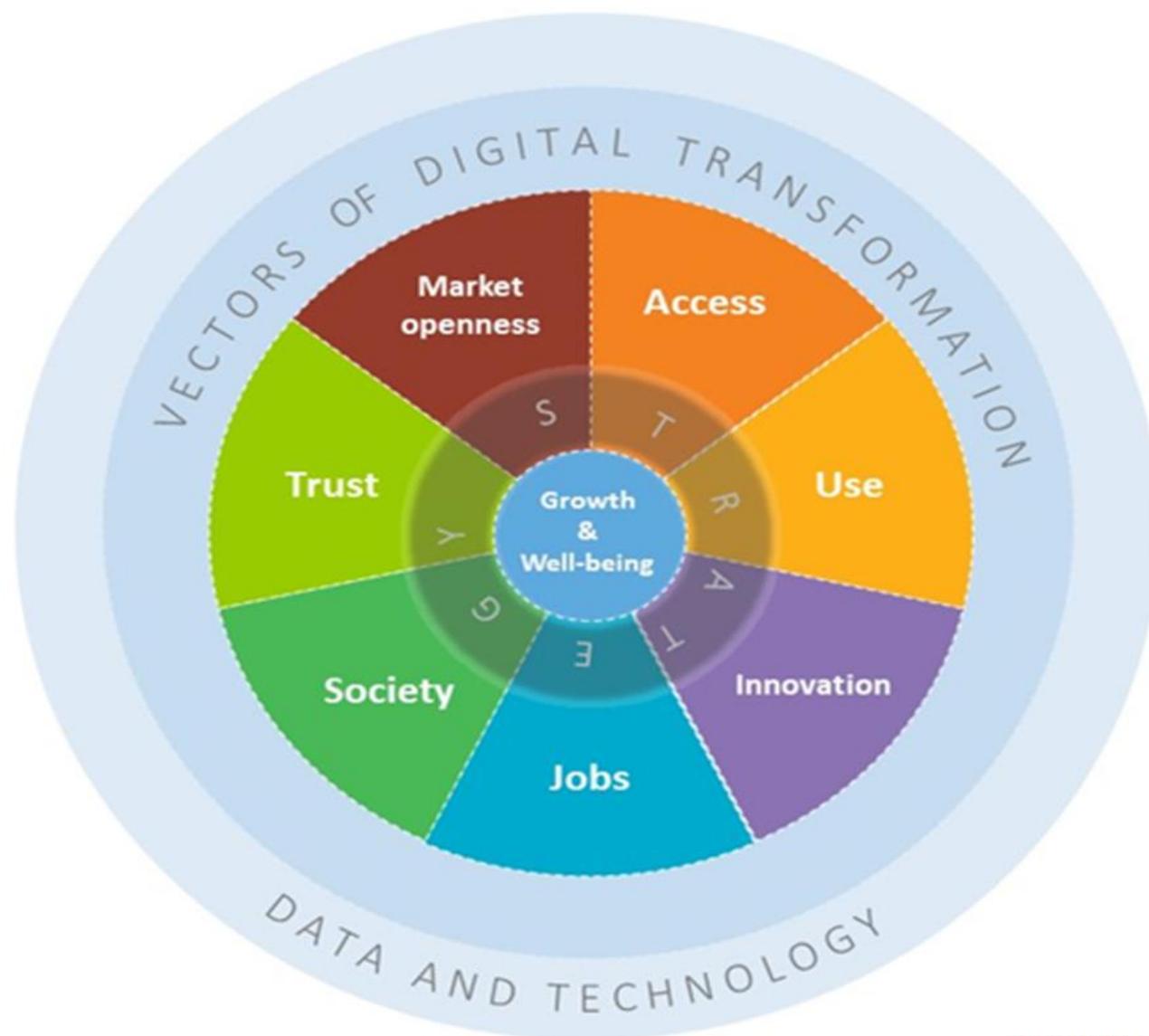
\* Internet and digital technologies empower “intelligence” at the edge of networks, broadening markets and communities and moves previously centralised responsibility (e.g. privacy and security) to decentralised users.



**“Vectors”  
affect all  
policy  
domains**

OECD,  
*Going  
Digital  
Integrated  
Policy  
Framework  
... 2018.*

# Moving Beyond Policy Silos: An OECD Integrated Digital Policy Framework

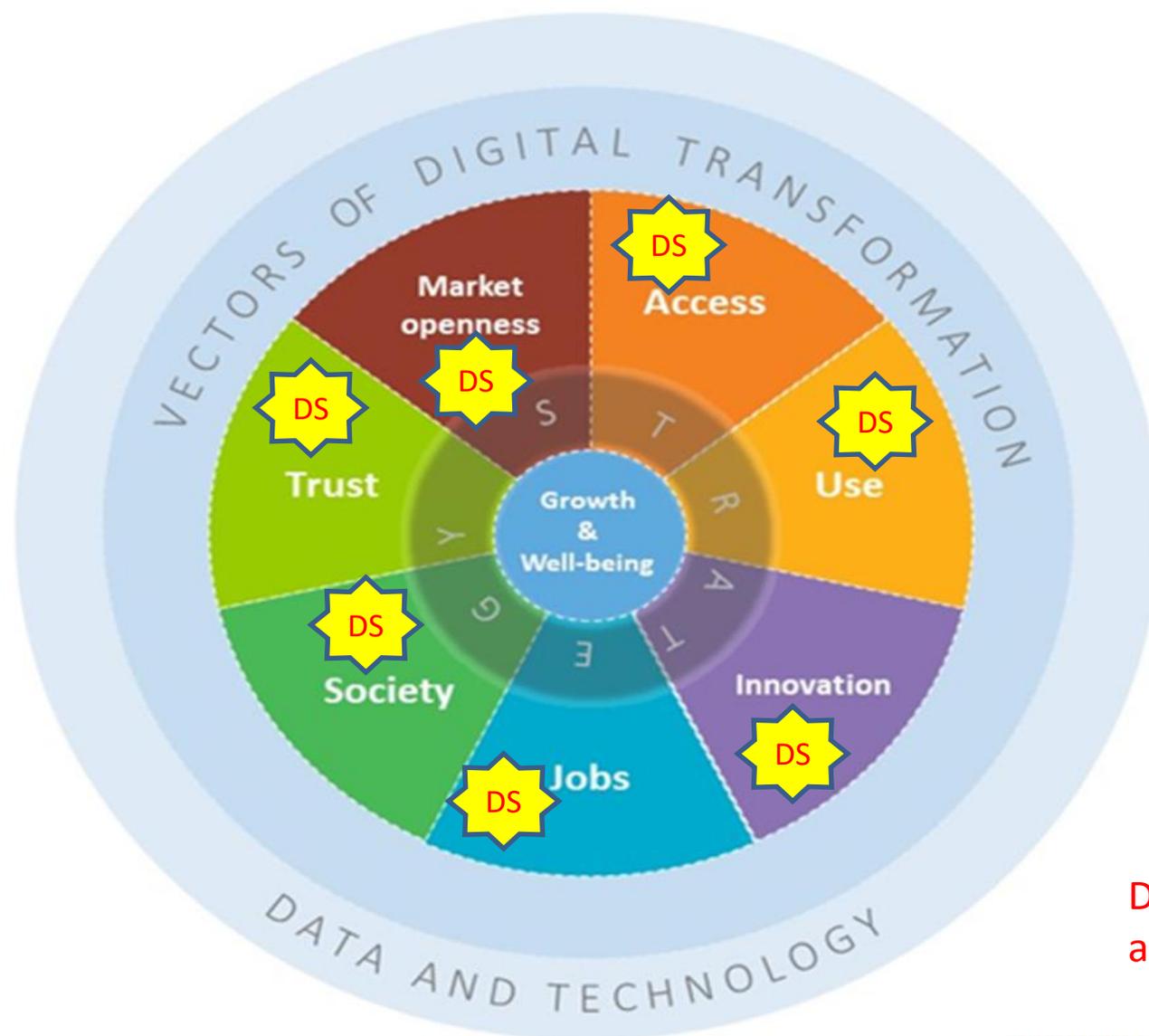


## Building blocks

1. Access
2. Use
3. Innovation
4. Jobs
5. Society
6. Trust
7. Market Openness

Building an Integrated Strategy for Growth & Well-Being

# Moving Beyond Policy Silos: An OECD Integrated Digital Policy Framework



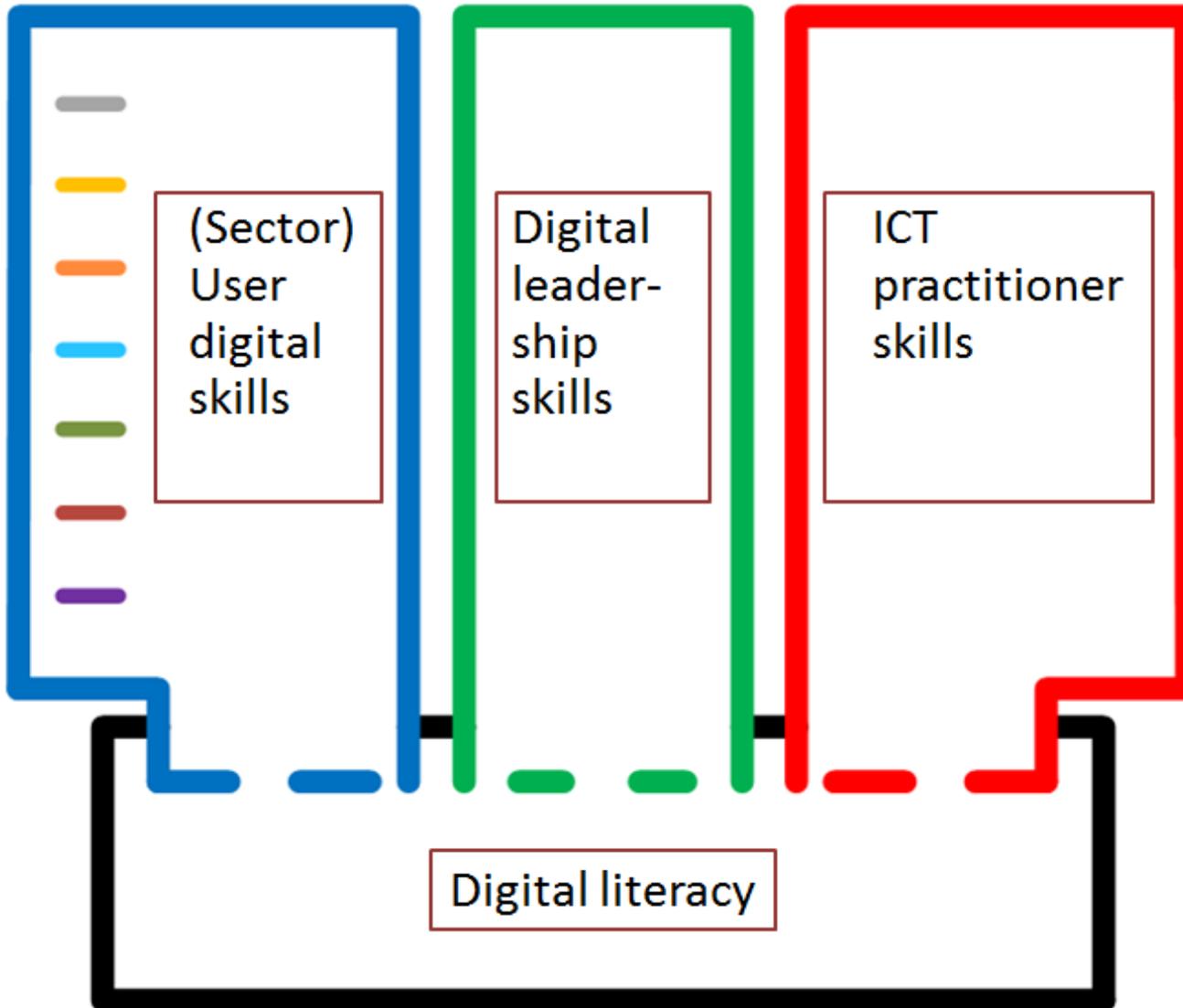
## Building blocks

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## Building an Integrated Strategy for Growth & Well-Being

Digital skills (DS) relevant in all building blocks

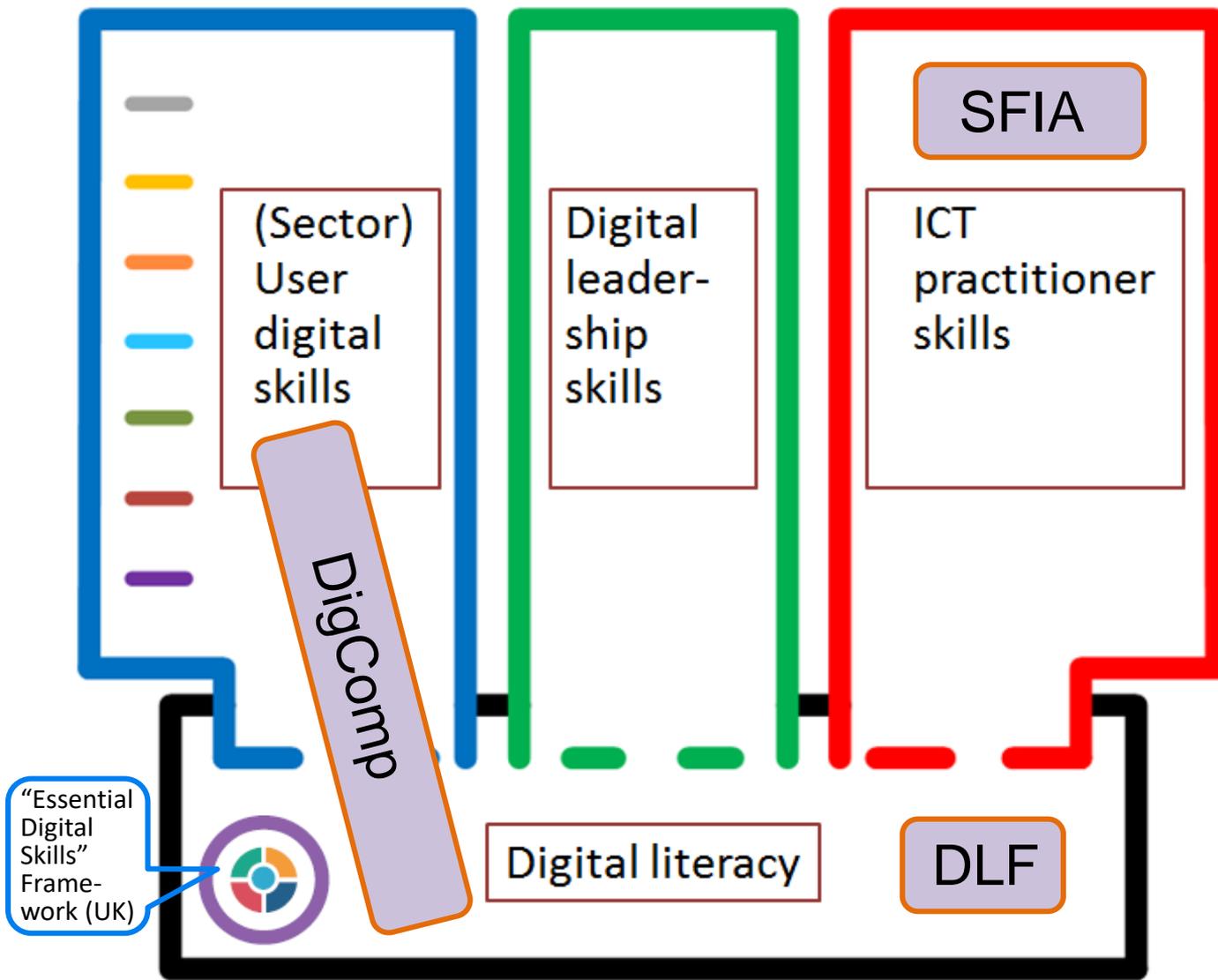
# Compr. DS Framework



NEMISA operates in terms of a comprehensive digital skills framework – involving all domains of digital skills

*Digital Skills Framework One*

# Compr. DS Framework

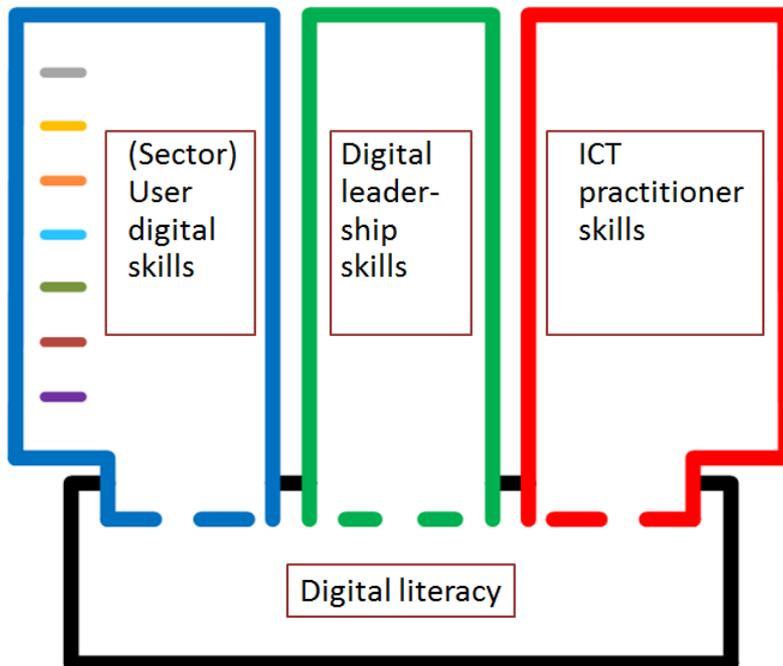


Comprehensive digital skills framework - providing space for other (sectoral and sectional) frameworks

*Digital Skills Framework One*

“Overlays” to be considered, based on the context of implementation:

1. Data literacy
2. Media literacy  
(a.o. Informational dimension)
3. Moral and ethical dimensions



*Digital  
Skills  
Frame-  
work  
One*

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1. It is all about **digital skills** *and* **their meaningful use** for life, learning and work
2. A **multi-stakeholder** approach is followed (in line with best practice internationally, involving all role-players)
3. Skills development is **decentralised** (with provincial CoLabs close to stakeholders and local context), but the national effort is **centrally orchestrated** to achieve maximum **catalytic effect**
4. There is a **knowledge base** that is continuously developed further:
  - CoLabs at universities, with interaction in both ways
  - a research network supporting the knowledge base
5. Effective **use** and **aggregation** of resources and effort are pursued.

DTPS = Department of Telecommunications and Postal Services

DTPS  
Gov. Dept.  
mandated with  
Digital Skills  
Dev.

**How do CoLabs fit into the bigger picture?**

Dept. A

Dept. B

Dept. C

Dept. D

NEMISA  
→ iNeSI

CoLab  
1

CoLab  
2

CoLab  
3

CoLab  
4

CoLab  
5

Hosting  
University

Partner  
Universities

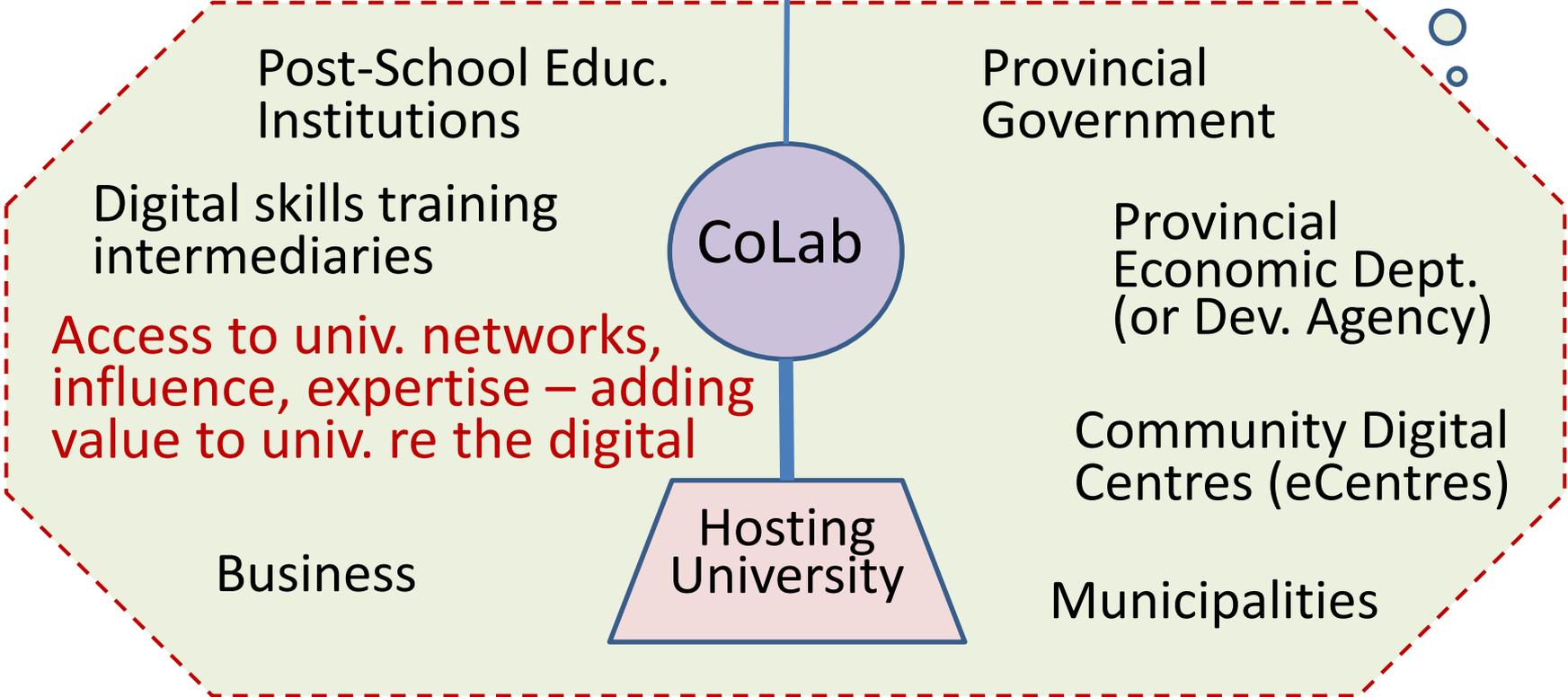
Sharing & building knowledge & expertise between CoLab and host's partners, directly or via host acad. depts.

5-year MoU and 3-year MoA between NEMISA and hosting university

DTPS  
Gov. Dept.  
mandated with  
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Dev.

NEMISA  
→ iNeSI

Areas of  
engagement/  
influence/  
interaction



Post-School Educ.  
Institutions

Provincial  
Government

Digital skills training  
intermediaries

CoLab

Access to univ. networks,  
influence, expertise – adding  
value to univ. re the digital

Provincial  
Economic Dept.  
(or Dev. Agency)

Community Digital  
Centres (eCentres)

Business

Hosting  
University

Municipalities

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**How do CoLabs fit into the bigger picture?**

Dept. A

Dept. B

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Dept. D

Research network interacting with all CoLabs

NEMISA  
→ iNeSI

CoLab  
1

CoLab  
2

CoLab  
3

CoLab  
4

CoLab  
5

9 CoLabs

Sharing & building knowledge & expertise between CoLab and host's partners, directly or via host acad. depts.

Hosting  
University

5-year MoU and 3-year MoA between NEMISA and hosting university

Partner  
Universities

DTPS = Department of Telecommunications and Postal Services

DTPS  
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**How do CoLabs fit into the bigger picture?**

Dept. A

Dept. B

Dept. C

Dept. D

Research network interacting with all CoLabs

NEMISA  
→ iNeSI

CoLabs build expertise in different areas; shared across the national model

9 CoLabs

CoLab 1

CoLab 2

CoLab 3

CoLab 4

CoLab 5

Sharing & building knowledge & expertise between CoLab and host's partners, directly or via host acad. depts.

Hosting University

5-year MoU and 3-year MoA between NEMISA and hosting university

Partner Universities

1. NEMISA (original mandate: broadcasting and related skills development for disadvantaged groups) - given the additional mandate of broad digital skills development in October 2014
2. NEMISA **reconceptualising**, planning, gearing up, reconfiguring its staff plan ... but also already **implementing** the iNeSI objectives
3. **iNeSI Bill** in the final stages in Parliament to become the iNeSI Act
4. iNeSI to become a **public entity** (**iKamva National e-Skills Institute**) (iKamva = future)

The objects of the Institute are to —

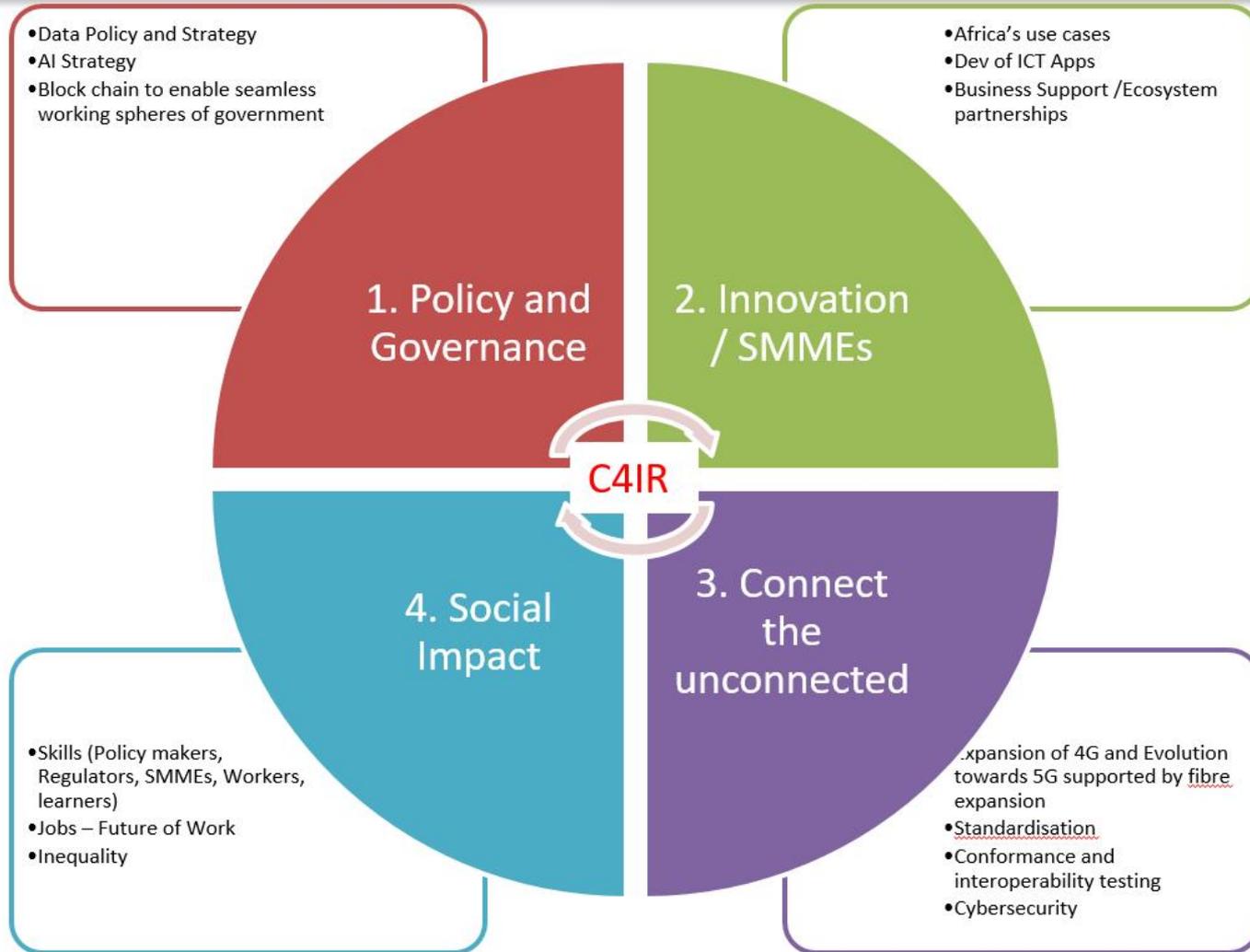
1. act as a **national catalytic collaborator, and change agent for digital skills development and organisational capacity** towards **systemic change** across all sectors for inclusion and competitiveness in the digital economy;
2. **collaborate with relevant Post-School Education and Training Institutions** who are offering or intend offering digital skills training to maximise the use of existing infrastructure and resources and to work towards a **pro-active response to the demand for digital skills**; and
3. encourage and promote an **innovative research network** focusing on the promotion and development of digital skills.

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1. At the ITU General Meeting in Durban on 13 Sept., the DTSPS announced a (largely virtual) **centre** that:
  - takes seriously the ubiquitous, pervasive and persistent nature of the digital dimension, within a **digital economy**
  - wishes to engage pro-actively with the **Fourth Industrial Revolution**, its impacts and affordances
  - presents **opportunities** for universities to position themselves within a broader SA and African digital initiative driven by the DTSPS as an ITU legacy project
2. Aim: **"Mitigate against the undesirable impacts and maximize the benefits of the desirable impacts of the 4th Industrial Revolution"**
3. Mission: **"Making South Africa a Global Leader in Harnessing ICTs for Socio-economic Development"**

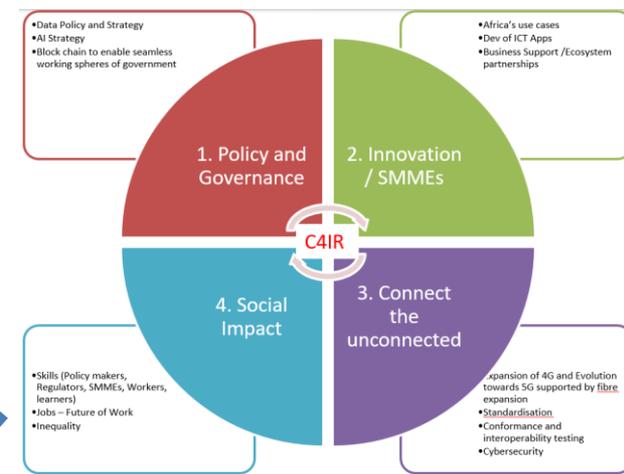


# Key Focus Areas - Digital Transformation Centre



# ... with a firm place for an expanded digital skills development mandate for NEMISA → iNeSI

“Capacitated NEMISA Digital Skills CoLabs focused on reskilling and upskilling the workforce”



## Social Impact Pillar

**Policy or Project:** Capacitated NEMISA Digital Skills CoLabs focused on reskilling and upskilling the workforce

**Champions:** NEMISA, ILO, ITU  
**Stakeholders:** QCTO, Industry

### Challenge

Lack of understanding of the skills required to enable Digital Transformation  
Issues of re-skilling and up-skilling the workforce to support Digital Transformation

### Value proposition

Identification of the skills required to enable Digital Transformation  
Skilled workforce to meet the opportunities afforded by Digital transformation

### Recommended Action

Prioritise the initiatives for the reskilling and upskilling of the workforce within the NEMISA CoLabs  
Formalise partnership with QCTO and establish PPPs for the development of skills programs

### Knowledge Base

iKamva Bill, National e-Skills plan

### Good Practices

### Problem Owners & Beneficiaries

Youth, Existing workforce

### Key Resources & Support

NEMISA buy-in  
Government mandate

### Risks & Constraints

Need for funding  
NEMISA and Government buy-in

### Mission, Achievement Criteria

Prioritisation of a skills framework to support Digital Transformation  
Development of skills programs to support the re-skilling and up-skilling of the workforce  
Hosting of first series of skills programs

[Source: *Digital Transformation Centre. ITU Legacy Project. Presentation made at the ITU General Meeting in Durban, 13 Sept. 2018, by DDG of DTPS on behalf of the Minister.*]

# Thank you

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