NEMISA NPC
National Electronic Media Institute of South Africa

telecommunications & postal services
Department:
Telecommunications and Postal Services
REPUBLIC OF SOUTH AFRICA

4th Industrial Revolution
Its implications for South Africa

Mymoena Ismail, CEO: NEMISA

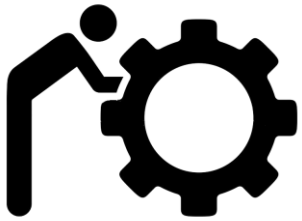
collaboration
innovation
agility
visionary
impactful
integrity

What is an industrial revolution?

When there are **major changes** in...

Industry **Economy**

The way we work, buy and sell things



Transportation

The way we travel

Society (social structure)

The way we live

It's usually new ways of thinking and doing and new technologies that cause the change to happen.

Number of industrial revolutions so far?

3

And we are now starting number 4. It is changing...

The way we work, buy and sell things

The way we travel

The way we live

4th Industrial Revolution

From Industry 1.0 to Industry 4.0

Degree of complexity

First Industrial Revolution

based on the introduction of mechanical productior equipment driven by water and steam power

First mechanical loom, 1784

1800 1900 2000 Today Time

From Industry 1.0 to Industry 4.0

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Second Industrial Revolution

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based on the use of electronics and IT to further automate production

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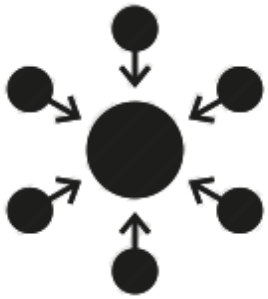
Fourth Industrial Revolution

based on the use of cyber-physical systems

1800 1900 2000 Today Time

4th Industrial Revolution

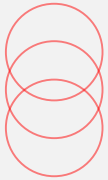
What's happening?



Different technologies are coming together

(convergence)

This is bringing different areas together



Physical
Digital
Biological

This affects social & economic sectors

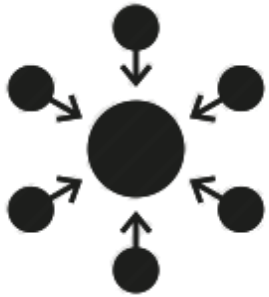
The way we work, buy and sell things

The way we travel

The way we live

What is happening already?

Different technologies coming together and bringing different areas together



New products & services

with increased efficiency (working better and faster)

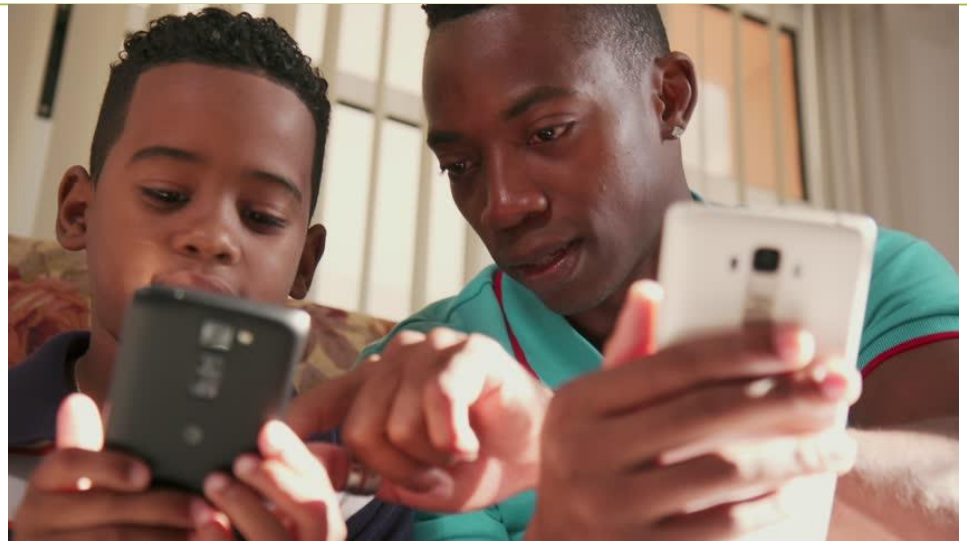
for a better life

Order a taxi (Uber)

Book accom

What is happening already?

Buying goods online



Paying bills online

- Learning online – education
- Listen to music
- Watch a film
- Play an online game

Being developed or new on the market

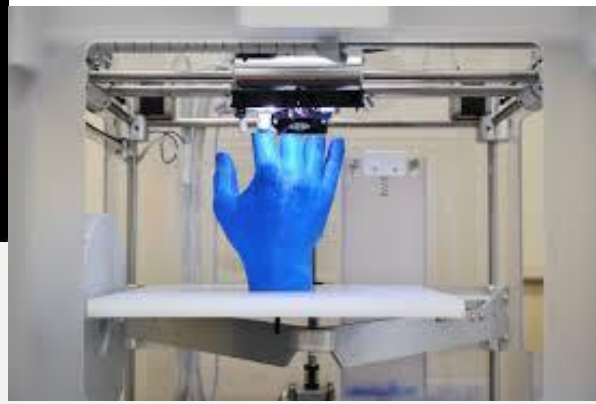
Robotics

Artificial intelligence

Virtual reality

Self driving cars

3D printing



Internet of Things (IoT)

Quantum computing

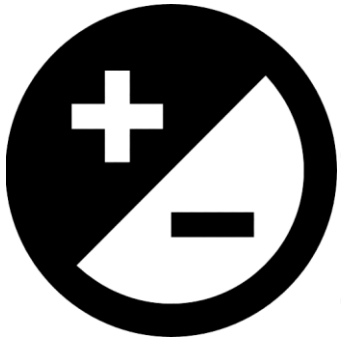
Metadata & analytics

Bioengineering

Digital currencies and blockchain

Pluses & minuses

See there are advantages and risks For example



Connection	Inability to change
Efficiency	**People not ready and skilled**
Improve lives	Not able to capture benefits
New opportunities	**Inequality may grow**

David Meads, President of Cisco Africa

"The Fourth Industrial Revolution is synonymous with uncharted growth in digitisation and internet connectivity.

It has the potential to drive Africa forward like never before, enabling innovation, spurring new business models and improving the delivery of public services."

4IR is disruptive & affects everything

All industries are being impacted by this disruption

We have to consider:

Focus on developing skills

Based on partnerships across all stakeholders.

Critical skills needed

Influence curriculum

Influence approaches to teaching & learning

New skills and competencies required

- Critical thinking
- Communication
- Collaboration and teamwork
- Complex problem solving
- Creativity
- Emotional intelligence
- Global awareness
- Financial, economic, business and entrepreneurial literacy
- Civic literacy
- Health literacy
- Environmental literacy
- Computational thinking
- Judgement and decision making
- Service orientation
- Negotiating
- Cognitive flexibility

Silicon Alley Insider Chart of the Day

Average Number Of Searches Per Day On Google

Source: DefineMG.com

7 forerunners in the world

Finland
Switzerland
Sweden
Israel
Singapore
Netherlands
United States

→ generating economic impact from investments in ICTs

According to the World Economic Forum's *Global Information Technology Report 2016*.


19.7B threats
ped daily


Education, as we know it, is obso-
lete. It still acts as a gateway to
knowledge that is no longer
needed with the rise of Internet.

Understanding the system

For nearly a decade, we have been talking about the opportunities technology gives us...

to unlock effective citizen service delivery,

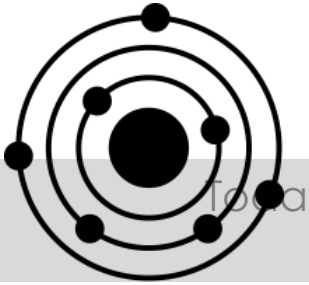
enhance customer experience

and bring about innovative solutions

for a better life for all

A number of things were not known at the time

More importantly the societal aspect was largely missed



Today addressing youth unemployment & harnessing human innovation forms part of the whole

NEMISA (becoming iNeSI)

The time is now to support skills development.
In 2013 the Department of Communications launched the concept of iNeSI.

Today, the DTPS together with NEMISA (becoming iNeSI) is developing the required legislation.

DTPS together with NEMISA has:

- Developed a decentralised model for e-skills in the country
- Developed local evidence-based research through its provincial e-skills collaboratories (which are hosted by local universities across the country)

Some threats and opportunities…

Increase of mobile and internet use comes with own threats – cybersecurity – **become a massive global problem. We need the e-skills to combat this.**

Cybersecurity: protecting organisations and their customers' data, assets and reputations. Also fundamental to successful digital transformation.

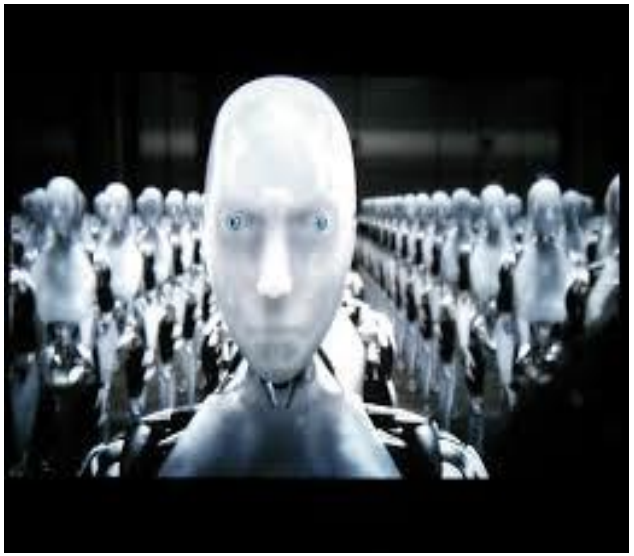
Digital skills enable services growth.
Service industries require digital skills as part of transitioning its population from low-skill and low-pay jobs to high-skill and high-pay jobs.

Data gathering

"Going forward, it will be important to reinforce data gathering efforts in order to more closely track the distributional impacts of the current transformations.

This will make it possible to shape the digital economy in a way that delivers broadbased gains."

Silja Baller, World Economic Forum



Innovation opportunities

4IR has lots of opportunities for innovation.

You need to have the digital skills (e-skills) to make use of those opportunities.

You can be part of driving South Africa forward

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