



VISION N 2030 SUMMIT

4IR - Its implications for South Africa

Mymoena Ismail, CEO: NEMISA

What is the 4th industrial revolution (4IR)?

Digital Economy

Knowledge Economy

Information Society etc

and the real economy **are not separate.**

They all refer to the same economy.

It's the **technologies** that make it seem as though we are talking about different economies.

So what is this 4IR?

From Industry 1.0 to Industry 4.0

First Industrial Revolution

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



First mechanical loom, 1784

Second Industrial Revolution

based on mass production achieved by division of labor concept and the use of electrical energy



First conveyor belt, Cincinnati slaughterhouse, 1870

Third Industrial Revolution

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



First programmable logic controller (PLC) Modicon 084, 1969

Fourth Industrial Revolution

based on the use of cyber-physical systems



Degree of complexity



1800

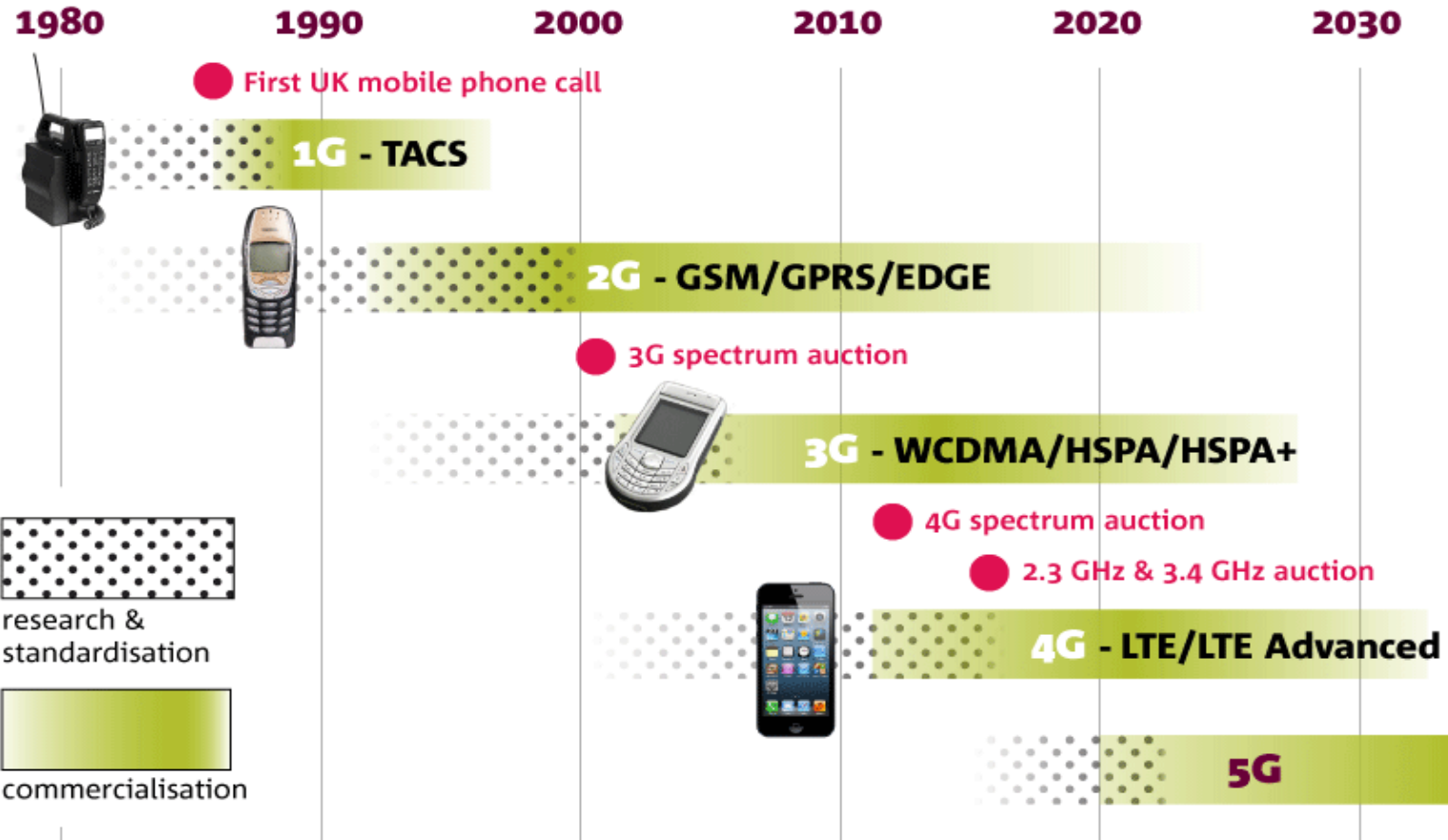
1900

2000

Today

Time

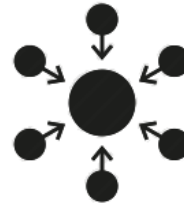
Evolution of mobile phone communications



4th Industrial Revolution

Characterised by a **convergence** of different technologies

seamlessly merging
physical, digital, and biological spheres



impacting on
social & economic sectors

Robotics, artificial intelligence, genomics, autonomous vehicles, mobile computing, smartphones, virtual reality, Internet of Things (IoT), 3D printing, quantum computing, peer-to-peer technologies, materials sciences, bioengineering, new energy technologies, digital currencies and the blockchain, metadata, analytics, crowd funding and crowdsourcing.

New products & services
with increased efficiency
providing better quality of life

Ability to order a cab (Uber), book a flight or accommodation, buy a product, make a payment, listen to music, watch a film, share files, play a game

Impact of 4IR

Understood that there are **advantages and risks**

Connection

Efficiency

**Management of assets from
organisations to natural assets**

Improve lives

New opportunities

Inability to adapt

People not ready and skilled

Not able to capture benefits

Inequality may grow

New security concerns

David Meads, President of Cisco Africa: quote

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 all economies

All industries are being impacted by this disruption

We have to consider:



Prioritise **development of skills** this is paramount



Underpinned by **partnerships** across all stakeholders.
Powerful levers for change.

Gearing up for 4IR

Some of the **important activities** for SA & Africa:

ICT policy, infrastructure implementation
and broadband connectivity

Roaming charges and termination rates

Harmonisation of SIM registration
regime

Cyber security

Mainstreaming of ICT in the
integration projects

e-services

**e-skills (digital/ICT) human capital
development**

Digital migration

Mining Weekly quote

“What is being done with technology,
and not technology itself,

is the essence of 4.0,




which has at its core the use of data and
the ability to analyse and apply that
data.”

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

7 forerunners in the world



- Finland
- Switzerland
- Sweden
- Israel
- Singapore
- the Netherlands
- the United States



**generating economic impact
from investments in ICTs**

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

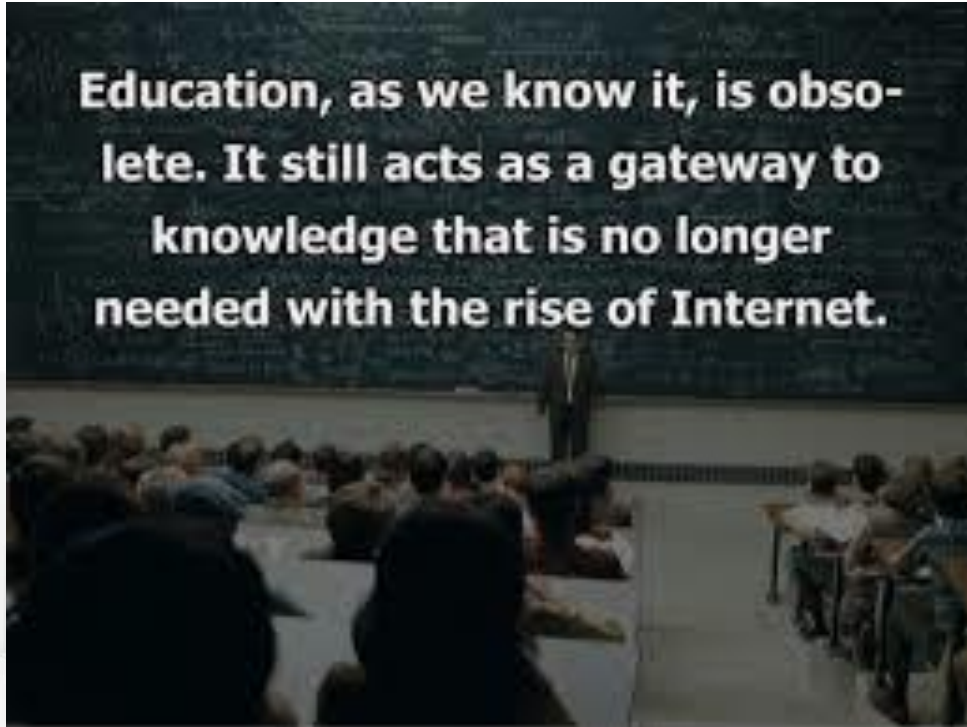


Average Number Of Searches Per Day On Google



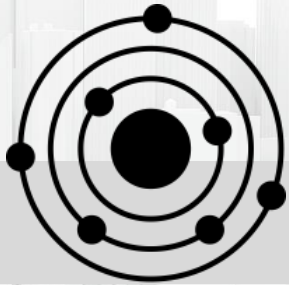


Education, as we know it, is obsolete. It still acts as a gateway to knowledge that is no longer needed with the rise of Internet.



Understanding the system

For nearly a decade, talking about the **opportunity** technology presents to unlock effective citizen service delivery, enhance customer experience and bring about innovative solutions, for a better life for all



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

Not known at the time – how the entire system of production, management and governance is affected

More importantly the **societal aspect** was largely missed

NEMISA (becoming iNeSI)

The time is now to support skills development.

In 2013 the Department of Communications launched the concept of iNeSI aligned to the NDP.

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



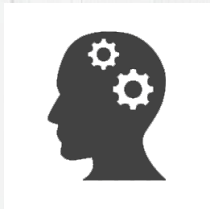
DTPS together with NEMISA has:

- 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 for shaping the Digital Economy

“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



Collaboration for impact

Is 4IR synonymous with digitisation and the internet?

Is there potential to drive South Africa forward?



NEMISA invites you to join in making South Africa an e-skilled nation by 2030.

The answer to both is yes

but we need a **platform for collaboration** as the need is greater than the work of one stakeholder

opportunity for to make 4IR work for our local conditions – inequity, poverty and unemployment especially among our youth.



Before

Carbon Monoxide Detector



After



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Thank you