4TH INDUSTRIAL REVOLUTION
FRIEND OR FOE?

FATIMA FERNANDES
PhD- WIL

SUPPORT given to students within WIL in Student-placement holistically

- PhD – 1st Part Literature
- Findings
PhD- WIL

- The current education isn’t preparing the current generation for 4\textsuperscript{th} IR –

But

- Preparing them to work with the Oldies that don’t understand nor grasp technology
100 years ago, everyone owned a horse and only the rich owned cars. Today everyone has cars, but only the rich own horses.
WAY BACK WHEN....
WAY BACK WHEN....

World's First Computer

World's First Motor Cycle

World's First Camera
BACKGROUND

Industry 1.0: 1784 - Steam, water, mechanical production equipment
Industry 2.0: 1870 - Division of labour, electricity, mass production
Industry 3.0: 1969 - Electronics, IT, automated production
Industry 4.0: Coming up - Cyber-physical system
4th INDUSTRIAL REVOLUTION

4th IR - Cyber Physical Systems (CPSs)
(Drath & Horch, 2014; Mosterman & Zander, 2017)

Deep integration of intelligence and networking system (Zhang, 2014)
The Industrial Internet (Leber, 2012; Xuet al., 2016)
Both enabling technologies which create the integration of the virtual and the reality (Jopp, 2013),
Network where intelligent objects communicate with each other.
4th IR is not limited to industrial production
4th INDUSTRIAL REVOLUTION

- 4th IR is manifested in *all aspects of the society*
- **Technology** (Xu et al., 2013; Lalanda et al., 2017; Theorin et al., 2017),
- **Production** (Kube and Rinn, 2014; Webster, 2015),
- **Consumption and business** (Sommer, 2015; Gentner, 2016; Ivanov et al., 2016),
- it is influencing every field of **Human life** (Home et al., 2015; Singer, 2015; Qin & Cheng, 2016; Sackey & Bester, 2016; Weiss et al., 2016).
FRIEND OR FOE?

SA University
Rewriting modules and qualifications
- Ubuntu
- Decolonisation
- Africanisation

- 4th Industrial Revolution ??
FRIEND OR FOE?

4\textsuperscript{TH} INDUSTRIAL REVOLUTION

FEAR

UNEMPLOYMENT!!!
INTEGRATE WITH 4\textsuperscript{TH} IR

IS IN Government POLICY??

PSET institutions are to incorporating components into their courses (programmes)

To provide students with transferable skills and knowledge that can be taken into the work place

Jack Ma says only by changing education can our children compete with machines
INTEGRATE WITH 4TH IR

• Curriculum at PSETS institutions that produce employable graduates that meet the demands of the industrial sector.

• This phenomenon aim to bridge the gap between academic knowledge and professional skills of graduates in real life environments. (Cooper, Orrell & Bowden 2010:19).
INTEGRATE WITH 4\textsuperscript{TH} IR

STAKEHOLDERS ROLE

- 4\textsuperscript{th} IR to be \textbf{successful}, it requires a 4-way partnership of:
  - Role of Government
  - Role of Education institutions;
  - Role of Employers/Workplace
  - Student ?????

Government
Education Intuitions
Work place

STUDENT
SA Millennials are taking the world by storm,

Changing the face of the continent and transforming the world’s understanding of Africa, From the ‘dark continent’ to the ‘lit’ Africa, (Mpoza:2018)

There is no time like the present, to come together and harness our resources, both human and natural. (Mpoza:2018)
Rwandan President P Kagame, in his opening address of the 26th World Economic Forum on Africa in January 2016 encouraged the continent to look ahead to the 4th Industrial Revolution. Called for PARTNERSHIPS across Africa. This is a positive development, one that governments and business people across the continent need to take seriously.

With reference to Minister Pandor opening yesterday morning Partnership within the SA in Africa.
Who is the Y Generation?

MOST DIVERSE GENERATION

- More tolerant of races and groups than older generations (47% vs. 19%)

- MULTITASKING REDEFINED: rewiring the brain with extensive multitasking training

- The generation are also attracted to organisations where technology is at the forefront of the companies ethos
"Congratulations! Your baby has been born with everything it needs. He has all of his eyes, ears, toes, arms, fingers... and a smartphone!"
GENERATION Y

- **Tech/Web Savvy:** plugged into technology, communicate more quickly and effectively

- **Family Orientate:** Instead of working long shifts to work their way up an organisation, *prefer flexible working* schedules and a more rounded work/life balance.

- **Ambitious:** Confident and ambitious to take on *important roles* within organisations as soon as they begin. Believe there is no limit to what they can achieve.
GENERATION Y

- **Team Players**: Working as a team is high on the agenda. Wants to be *involved and included*.

- **Communicators**: Sending an email, a tweet or a Facebook message will *receive an instant reply* whereas a phone call may take a little longer for a return the baby boomers love

- **Like to be loved**: Constant *feedback, gratitude*, relaying to someone they are doing a good job.
2022 Skills Outlook

Growing
1. Analytical thinking and innovation
2. Active learning and learning strategies
3. Creativity, originality and initiative
4. Technology design and programming
5. Critical thinking and analysis
6. Complex problem-solving
7. Leadership and social influence
8. Emotional intelligence
9. Reasoning, problem-solving and ideation
10. Systems analysis and evaluation

Declining
1. Manual dexterity, endurance and precision
2. Memory, verbal, auditory and spatial abilities
3. Management of financial, material resources
4. Technology installation and maintenance
5. Reading, writing, math and active listening
6. Management of personnel
7. Quality control and safety awareness
8. Coordination and time management
9. Visual, auditory and speech abilities
10. Technology use, monitoring and control
Regardless the **background** in Africa

No one **can nor may be** left behind

All students should be carried, if not dragged with forward
GENERATION Y

ELON MUSK – GURU OF ARTIFICIAL INTELLIGENCE

- SA – Pretoria boys High
- Zip. 2 – made him millionaire
- PayPal – financial system
- Space X – 1st commercial vehicle in space
- Tesla – Electrical car

“When Henry Ford made cheap, reliable cars, people said, ‘Nah, what’s wrong with a horse?’ That was a huge bet he made, and it worked.”

ELON MUSK
CEO of Tesla Motors
CONCLUSION

The question that arises is whether the much anticipated 4th Industrial Revolution IS YOUR Friend or Foe?

THANK YOU
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