



27th Technical Convention 2019

The 4th Industrial Revolution (“4IR”) | *Building the Power Utility of the Future, Today*

RELEVANT SKILLS REQUIRED TO SURVIVE AND THRIVE IN THE FOURTH INDUSTRIAL REVOLUTION

Presented
Heino van Jaarsveldt & Corrie van der Wath
Matleng Energy Solutions

Hosted by



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD



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BACKGROUND

1784

1

STEAM

Mechanization,
steam and
waterpower



1870

2

ELECTRICITY

Mass
production and
electricity



1969

3

AUTOMATION

Electronic and
IT systems,
automation



TODAY

4

CYBER PHYSICAL

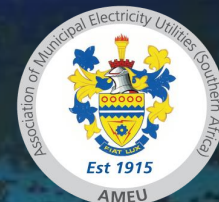
Cyber, Physical
and Biological



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FOURTH INDUSTRIAL REVOLUTION



CYBER

IoT
Big Data
Block Chain
On-Demand Economy



PHYSICAL

Autonomous Vehicle
3D Printing
Advanced Robotics
New Materials



BIOLOGICAL

Genetic Sequencing
Synthetic Biology
Health Monitoring
Biotechnology

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DISRUPTION

When a **new product or service** helps to create a new market

&

significantly **weaken, transform or destroy** an existing product; market or industry



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POTENTIAL IMPACT OF 4IR



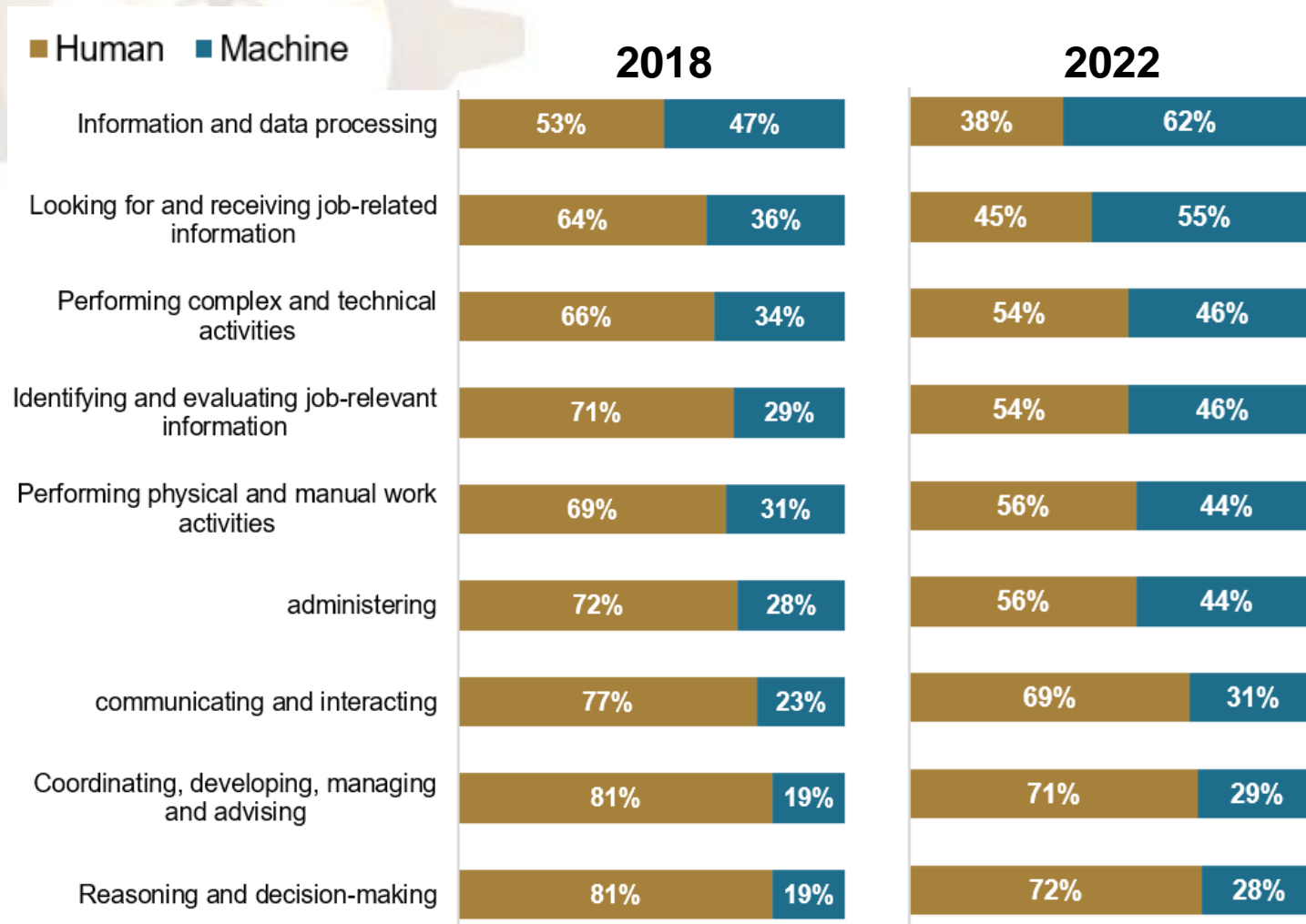
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HUMAN-MACHINE WORKING HOURS



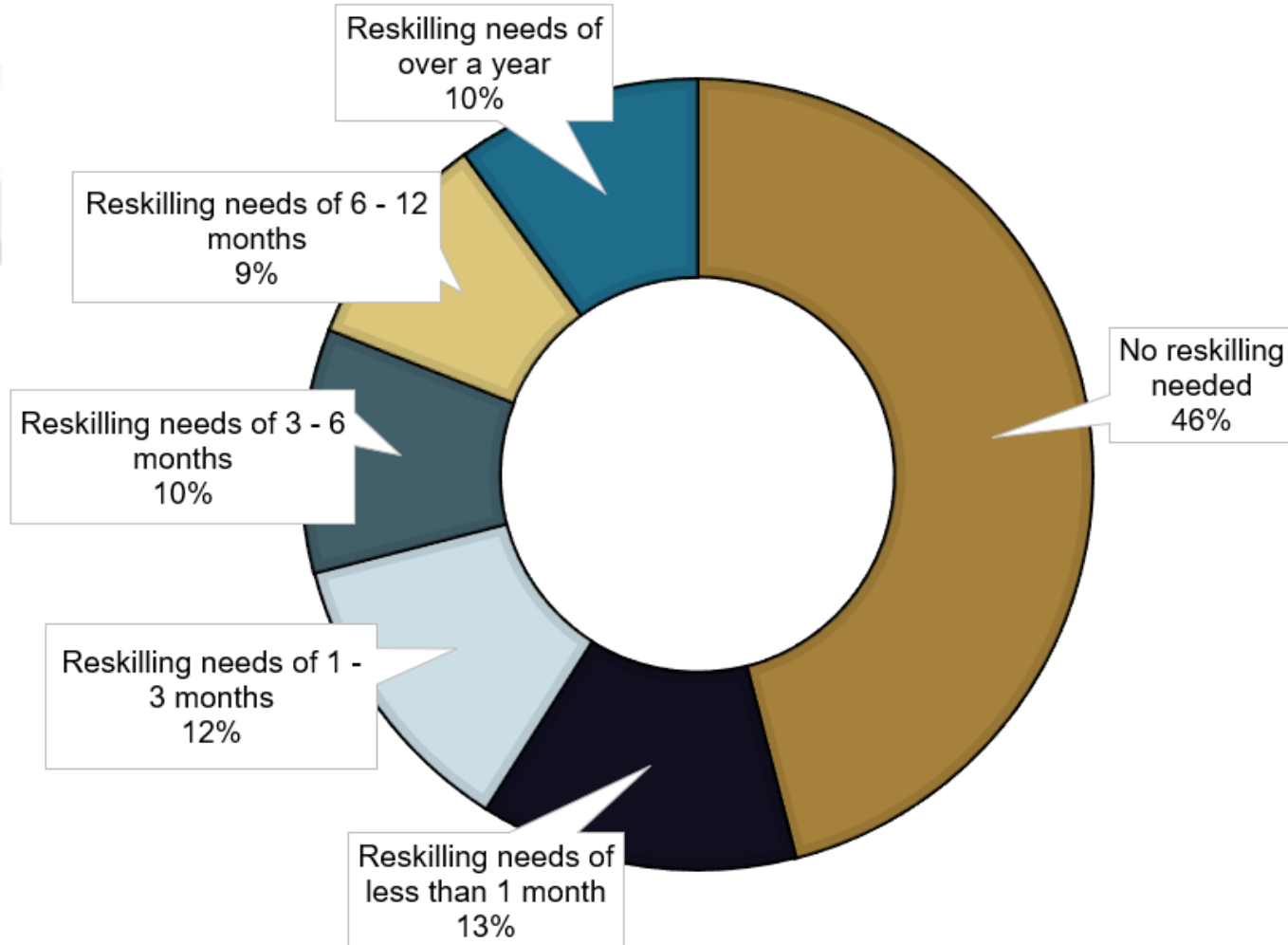
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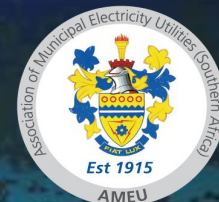
SHORT TERM RESKILLING NEEDS



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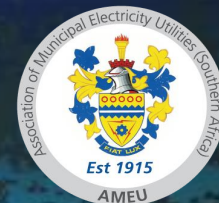


WHAT IF WE GET IT WRONG?



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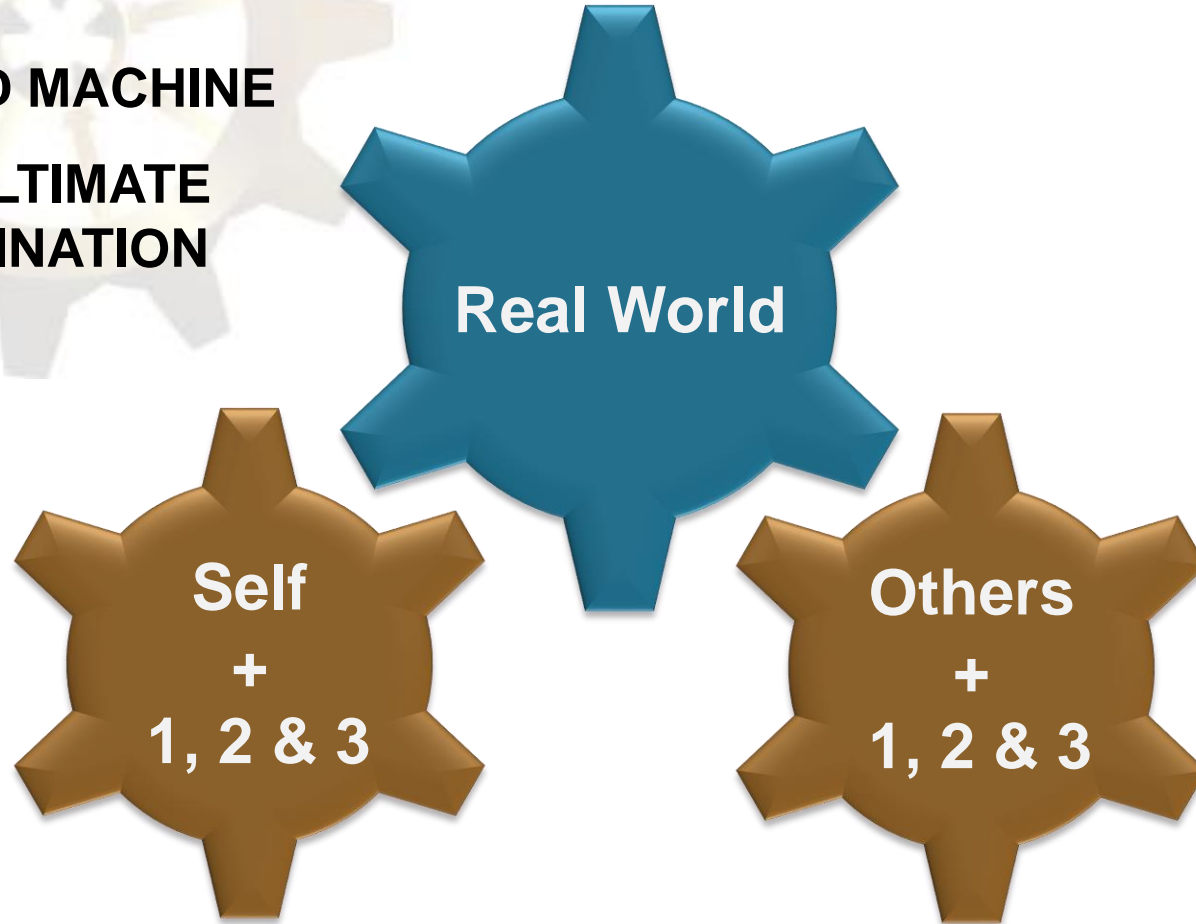
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TRIUMPH OF MANKIND TILL LATE 80s

MAN AND MACHINE

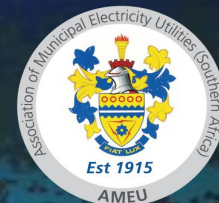
THE ULTIMATE
COMBINATION



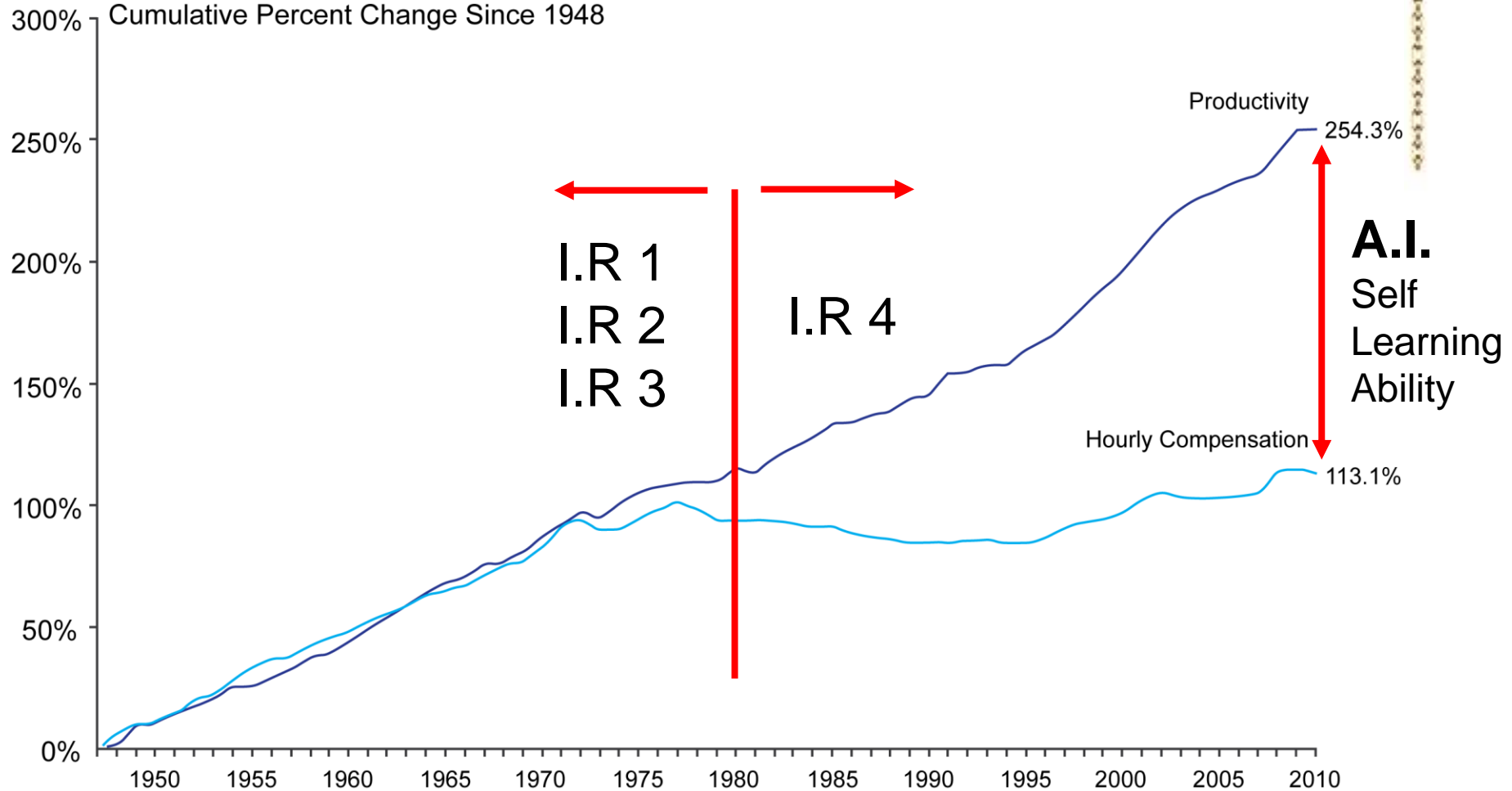
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HOURLY COMPENSATION FOR PRODUCTION



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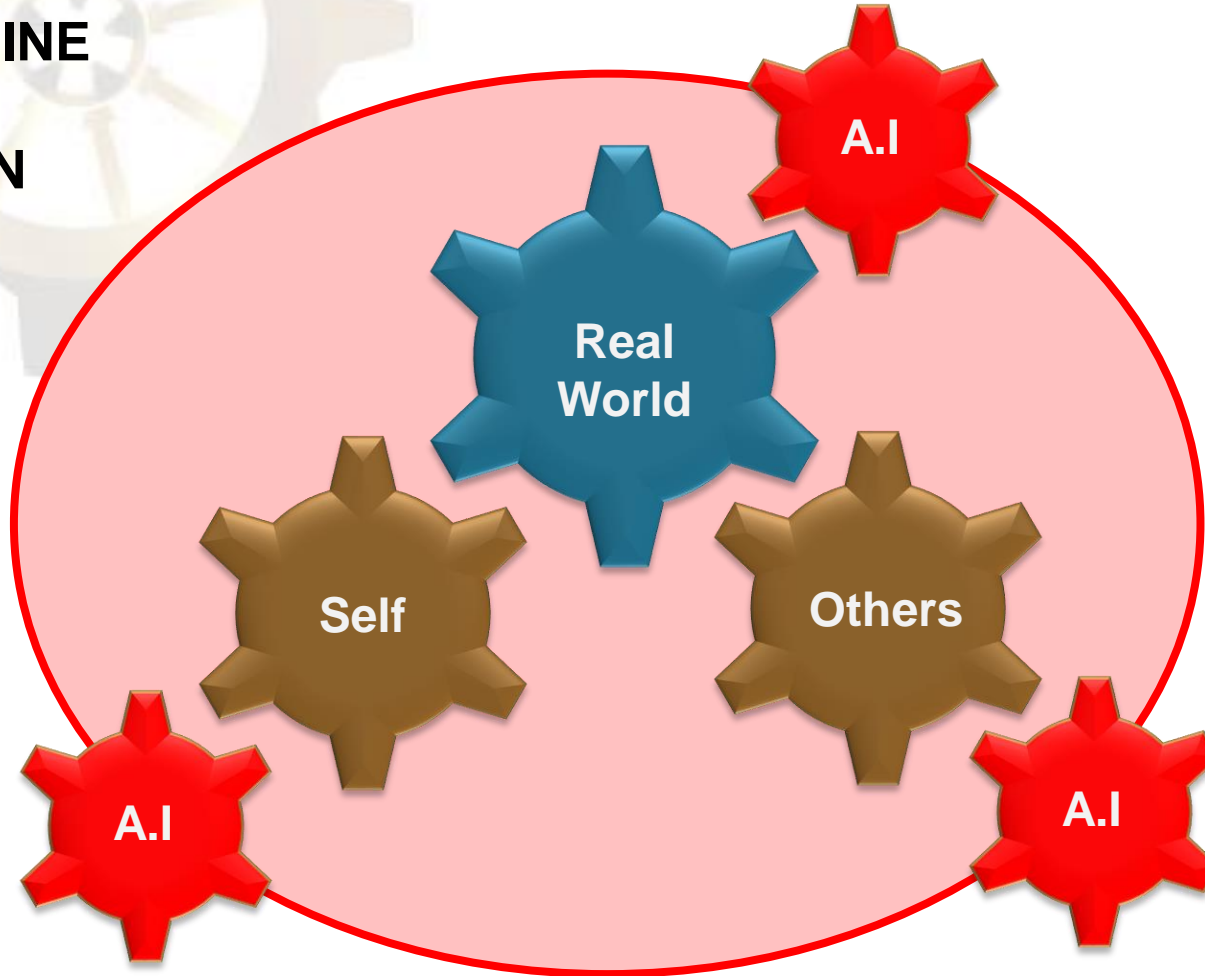
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THE NEW CHALLENGE

MACHINE
VS
MAN

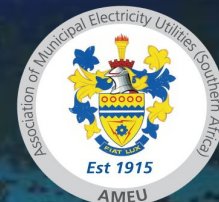


Everything
connected to
everything
(IoT)

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DISTURBING TRENDS OF A.I

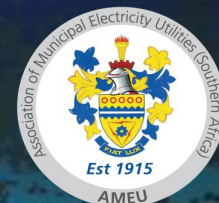
1. **LEARNING ABILITY - A.I. (*narrow, general & super*) vs HUMAN**
2. **STAGNANT WAGES – UNEMPLOYMENT**
3. **LONG TAIL DISTRIBUTION**
4. **CORPERATIONS vs LABOUR SHARE**
5. **SOARING INEQUALITY**
6. **RECENT UNDER-EMPLOYMENT OF UNIVERSITY GRADUATES**
7. **CLIMATE CHANGE AND SCARCE RESOURCES**
8. **GLOBILIZATION, POLITICS & CYBER ATTACKS**
9. **WORLD POPULATION GROWTH AND URBANIZATION**

THE PERFECT STORM

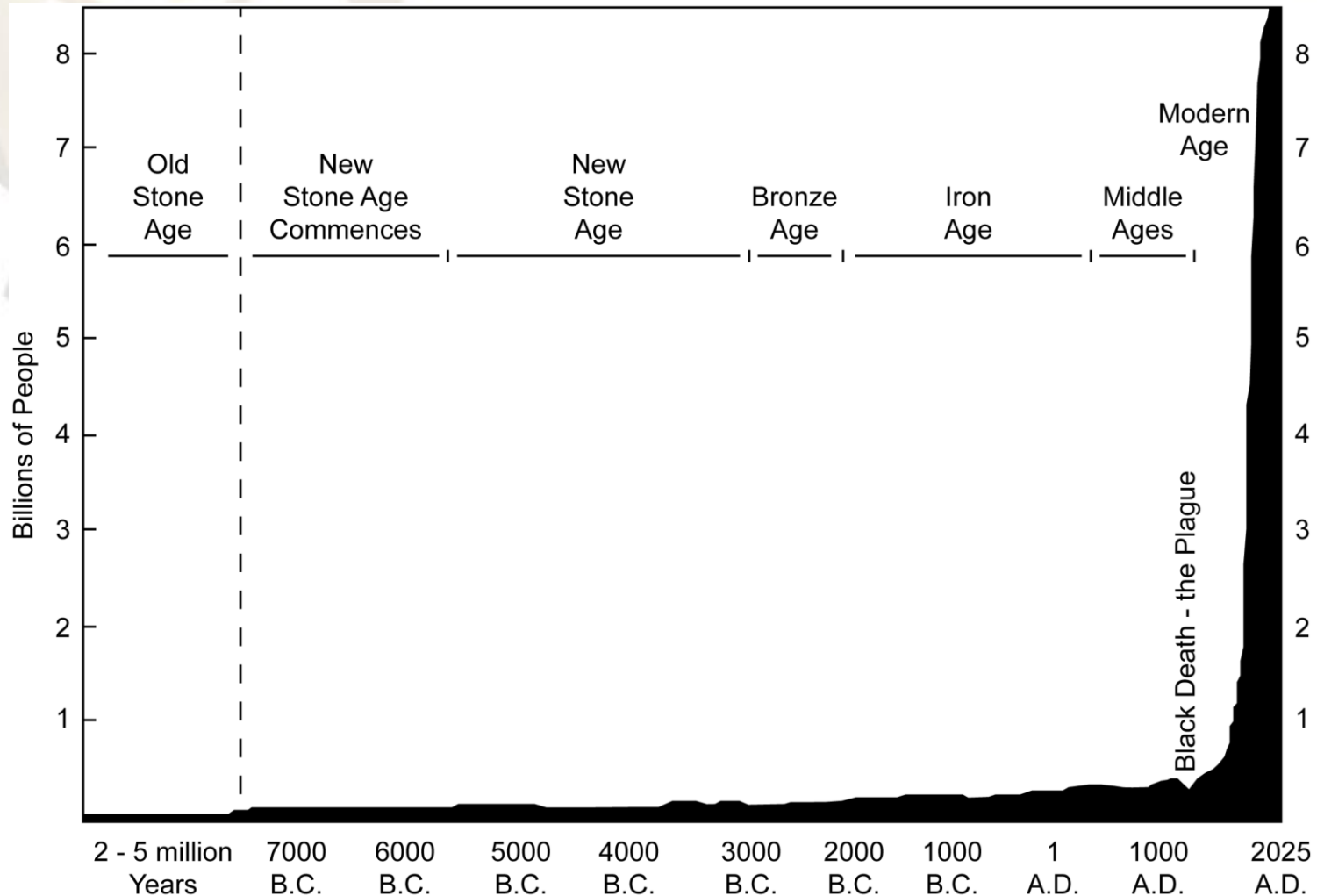
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WORLD POPULATION GROWTH



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FUTURE SKILLS

1. HUMANS vs ROBOTS vs *CYBORGS

2. DEVELOP THE RELEVANT SKILLS

****CYBORGS – CYBER, PHYSICAL & BIOLOGICAL ORGANISMS
(NEURALINK)***



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HUMANS VS ROBOTS (THE BIG DEBATE)

KNOWLEDGE

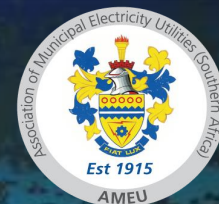
EMOTIONS = EQ

SURVIVAL = DESIRE

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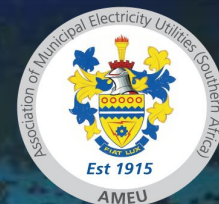
HUMANS VS ROBOTS *continued*

- THE **COMPLEX DESIGN** OF THE HUMAN BRAIN - THE ULTIMATE SURVIVAL MACHINE
- BRAIN **100 000 TIMES** MORE ENERGY EFFICIENT THAN COMPUTER
- **SPEED OF EXECUTION** – WHILE ONE DOCTOR CAN MAKE A DIAGNOSIS IN ~10 MINUTES, A.I. CAN MAKE A MILLION IN THE SAME TIME
- COMPUTERS = HUMAN CAPABILITY - **2040**

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SKILLS DEVELOPMENT



1. CRITICAL THINKING SKILLS

(MENTAL ELASTICITY, CREATIVITY/INNOVATION & COMPLEX PROBLEM SOLVING)

*To dictate the solution, connecting the dots. (**Understanding the Essence**)*

2. TECHNICAL SKILLS (INTERDISCIPLINARY KNOWLEDGE)

***Superior** practical / technical solutions to **correct** standards and needs*

3. PROJECT INTEGRATION & DELIVERY SKILLS

*Delivering a successful product / project **start to finish**, including **servicing** its **lifecycle** purpose.*

4. PEOPLE / CYBORG SKILLS

*Bringing out the **best in people** while **achieving together***

5. PERSONAL SKILLS

*The ability to know, understand and manage your **own emotions***



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SKILLS DEVELOPMENT

6. MANAGEMENT SKILLS

To deliver (*connecting the delivery dots*)

7. LEADERSHIP SKILLS

To *influence* “**PEOPLE / CYBORGS / SYSTEMS**” to the *desired outcomes*

8. BUSINESS SKILLS

The *integration* of *People*, *Product*, *Profit* and *A.I / systems*

9. FINANCIAL SUSTAINABILITY SKILLS

Efficient and effective management of **CURRENCY** in such a manner as to *accomplish our goals*

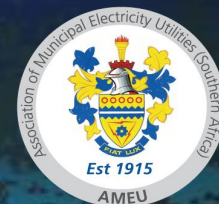
10. DRIVE & WILL

To be aware, active, alive and to *embrace 4IR*

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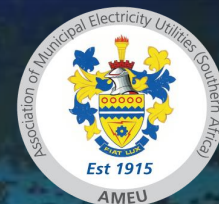
THE WAY WE SEE IT

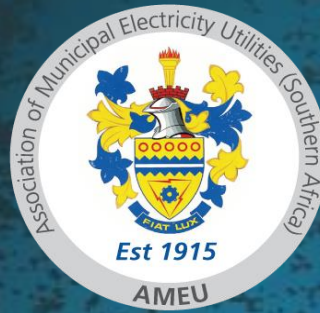
- PLATFORM / LONG TAIL – BE THE PLATFORM OR SERVE IT (PRIMARY INCOME JOBS WILL DISAPPEAR / MULTIPLE JOBS)
- ROUTINE – PREDICTABILITY – REPLACABILITY (A.I. SELF LEARNING)
- FORESIGHT / ADAPTABILITY / FLEXIBILITY (INTEGRATION IS KEY)
- KNOW YOURSELF AND DEVELOP YOUR SKILLS (VALUE ADD)
- **POSITION YOURSELF**

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Thank you

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