



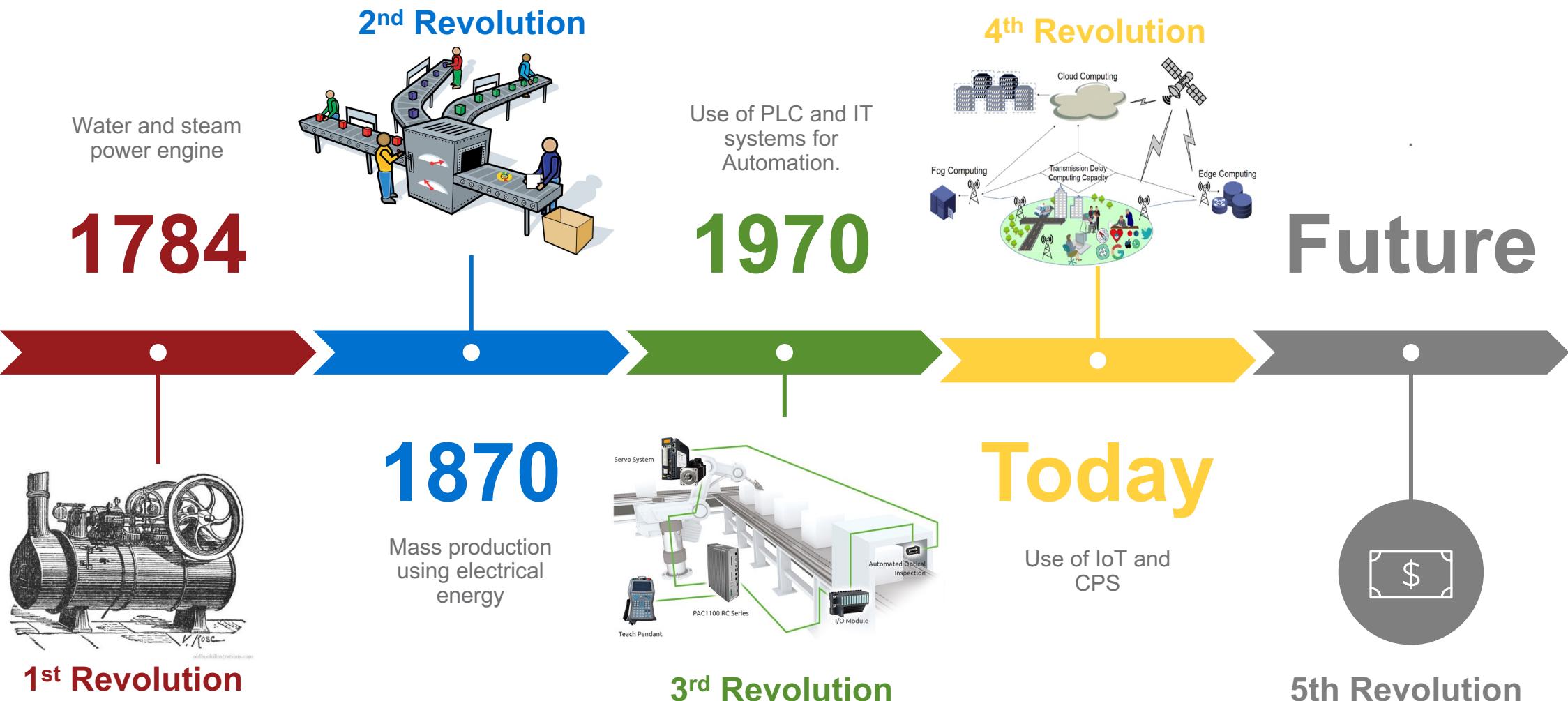
32nd Annual **INCOSE**
international symposium
hybrid event

Detroit, MI, USA
June 25 - 30, 2022

BY BONGEKILE MATSENJWA

**MANUFACTURING INDUSTRY IN INDUSTRY 4.0:
*AS EXPERIENCED BY ENGINEERING MANAGERS.***

HOW IT ALL STARTED



IMPACT OF INDUSTRY 4.0 IN MANUFACTURING



MAIN PRINCIPLES

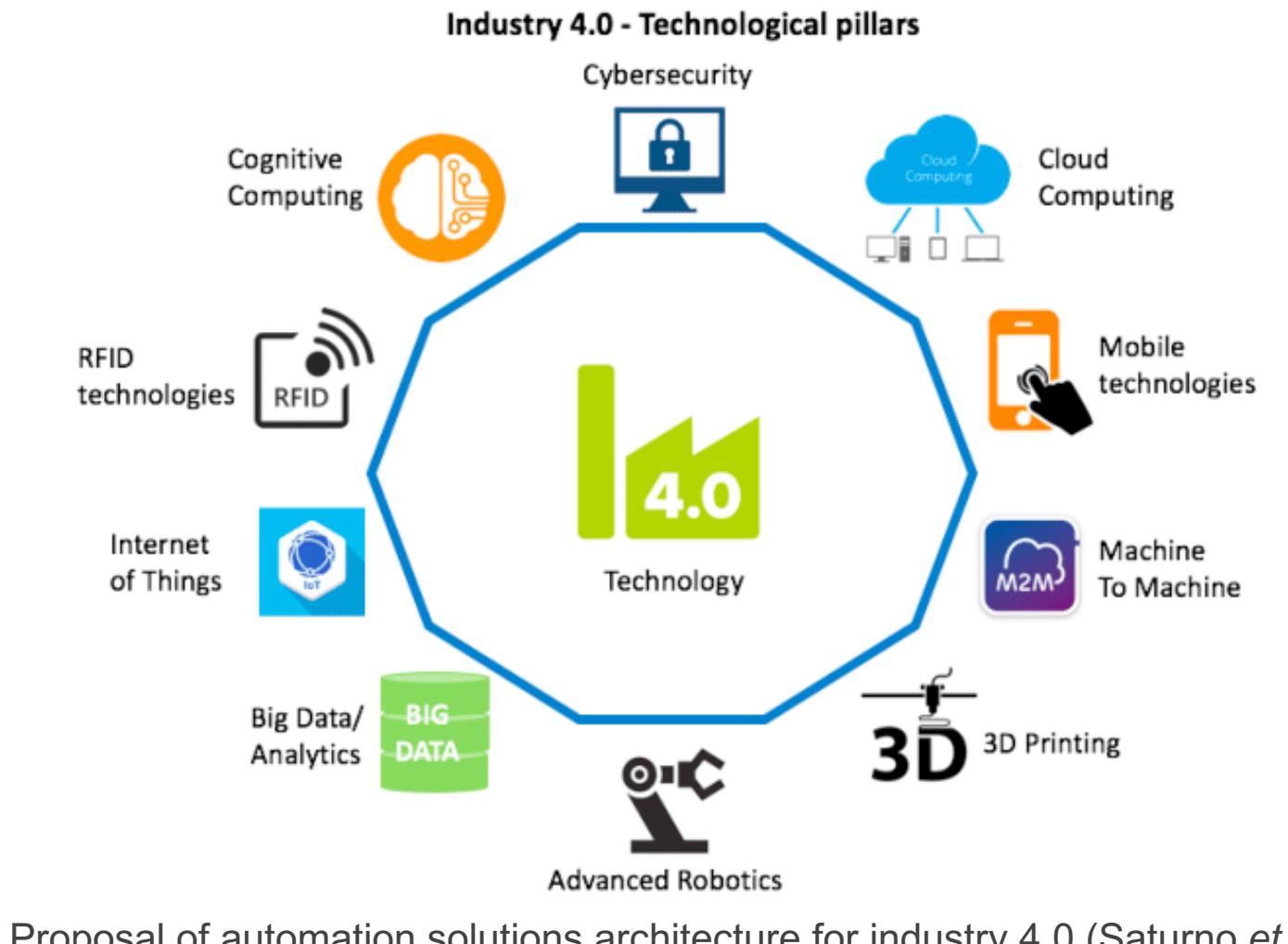
- Interoperability
- Decentralization
- Virtualization
- Real-time capacity
- Modularity
- Service orientation
- Big data
- Artificial intelligence





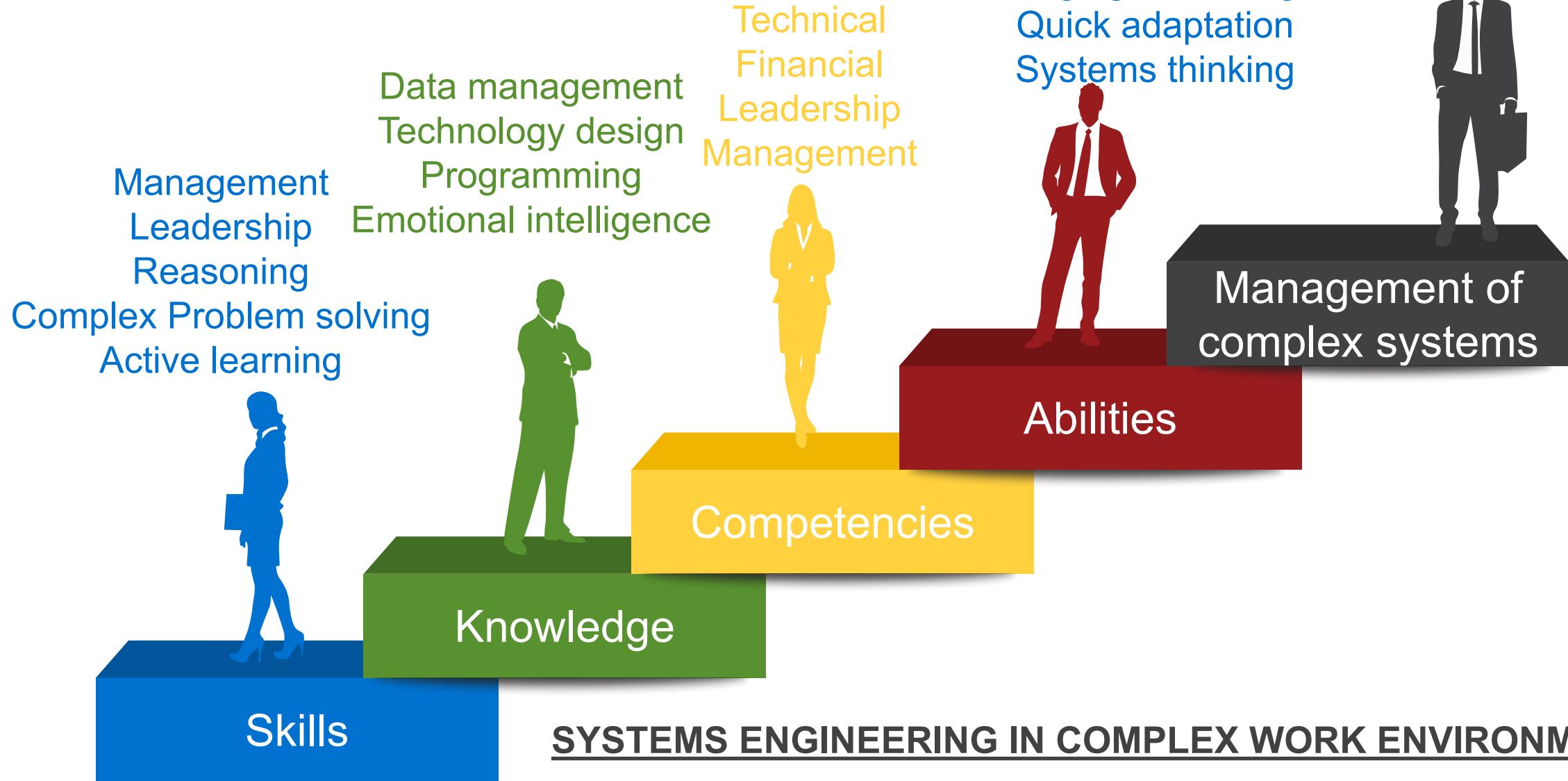
IMPLEMENTATION REQUIREMENT

- 1 Infrastructure and broadband
- 2 Cybersecurity
- 3 Electricity
- 4 Mindset change
- 5 Lack of skills





MANAGEMENT IN INDUSTRY 4.0



CASE STUDY: FCMG, SOUTH AFRICA



The experience of an engineering manager

Before industry 4.0

Manual work with nonvalue adding activities



Human error and high production costs



Launching new products within 6 months



With industry 4.0

Automation and digitization of processes



Seamless data integration with improved efficiencies



Launching new products within two months with reduced costs



CASE STUDY: FCMG, SOUTH AFRICA



The experience of an engineering manager

Implementation

“But our factory was running inefficiently such that our global team was looking at shutting it down. This is how bad the situation was. So, we had to go into a big saving initiative not only for saving costs but for saving our factory and saving jobs”

INCREASING EFFICIENCIES



Investment



Training



Challenges faced



Culture change

1. Business case based on production line
2. Purchasing new technologies

1. Skills assessment
2. Training and upskilling leaders and employees on new technologies

1. Resistance from employees
2. Lay-off
3. Changes in roles and responsibilities

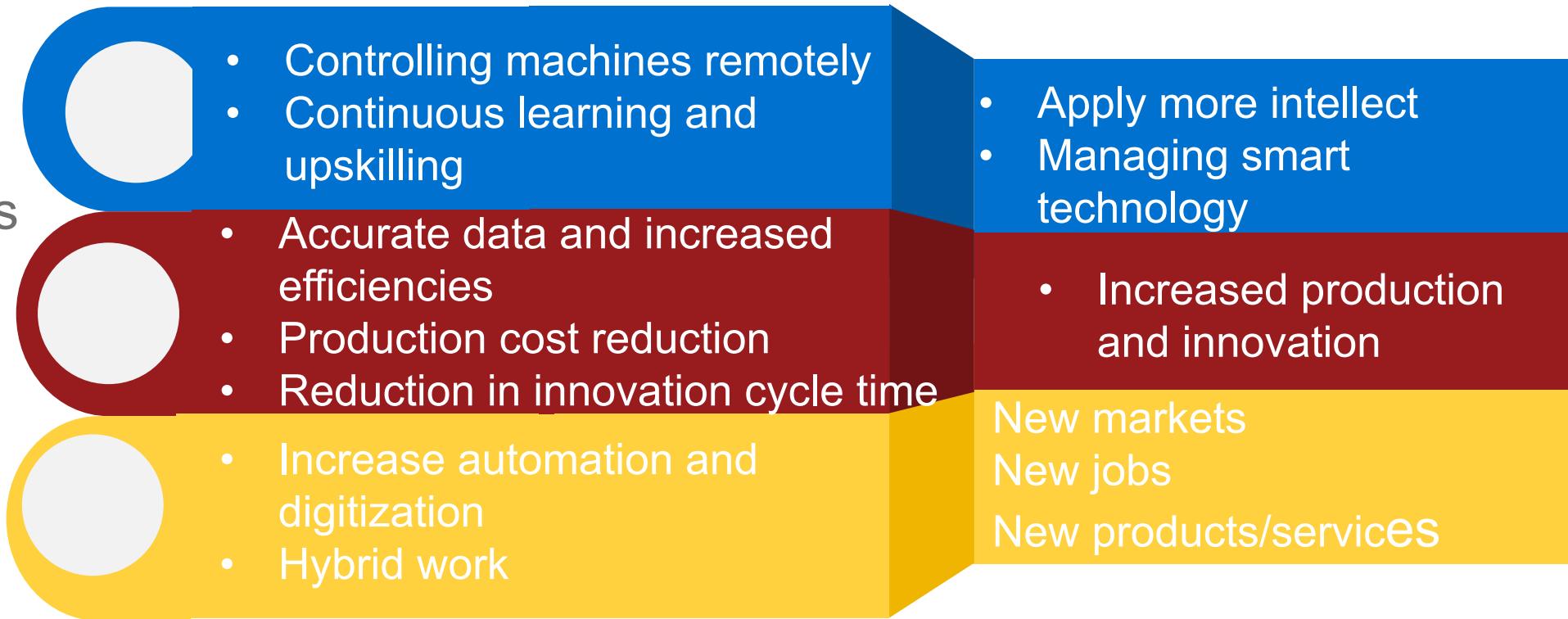
1. Understanding the why
2. Coaching and training
3. New ways of working



CASE STUDY: FCMG, SOUTH AFRICA

The experience of an engineering manager

- 1 Impact on roles and responsibilities
- 2 Impact on production
- 3 Impact in the workplace





CASE STUDY: FCMG, SOUTH AFRICA

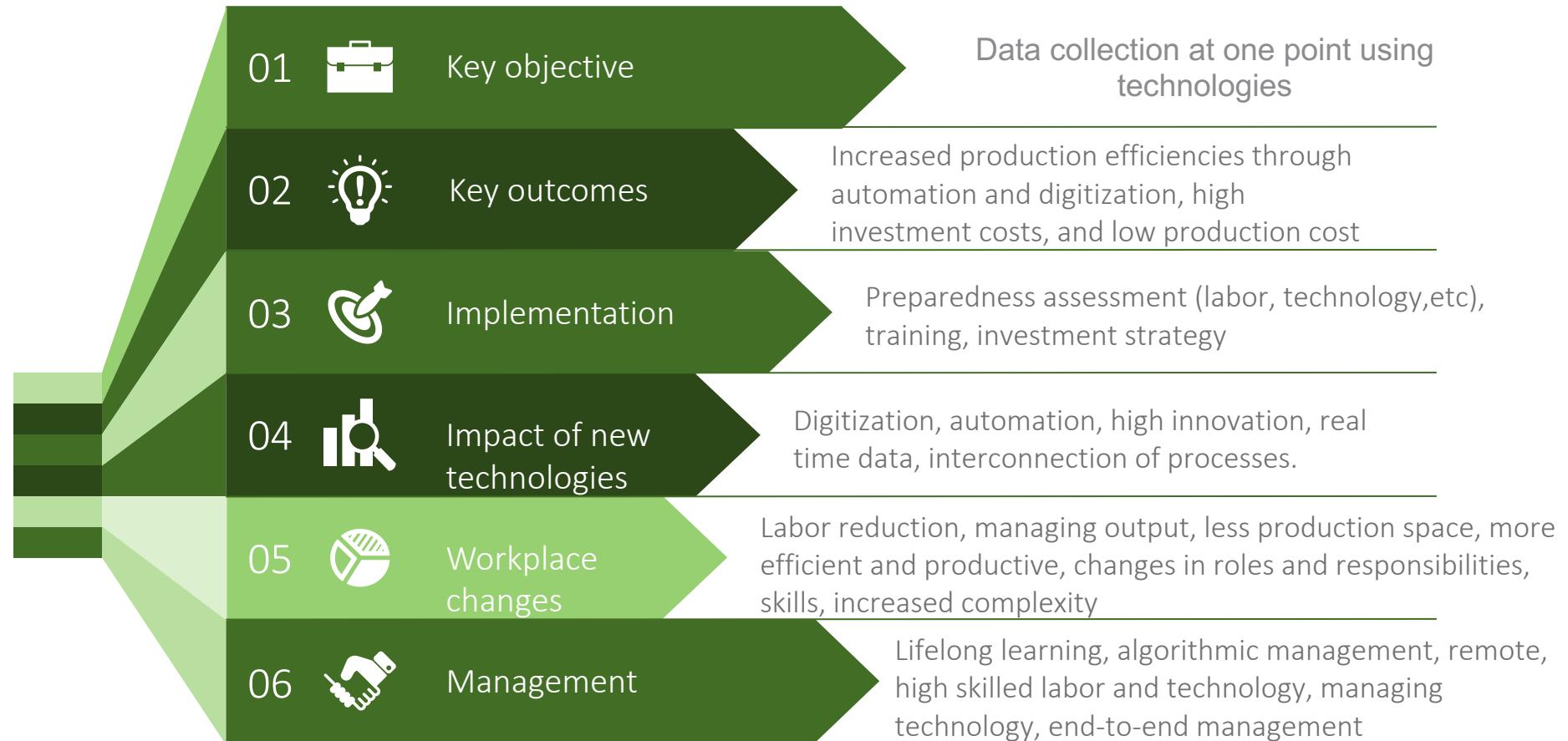
The experience of an engineering manager



SUMMARY



MANAGING INDUSTRY 4.0





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THANK YOU
