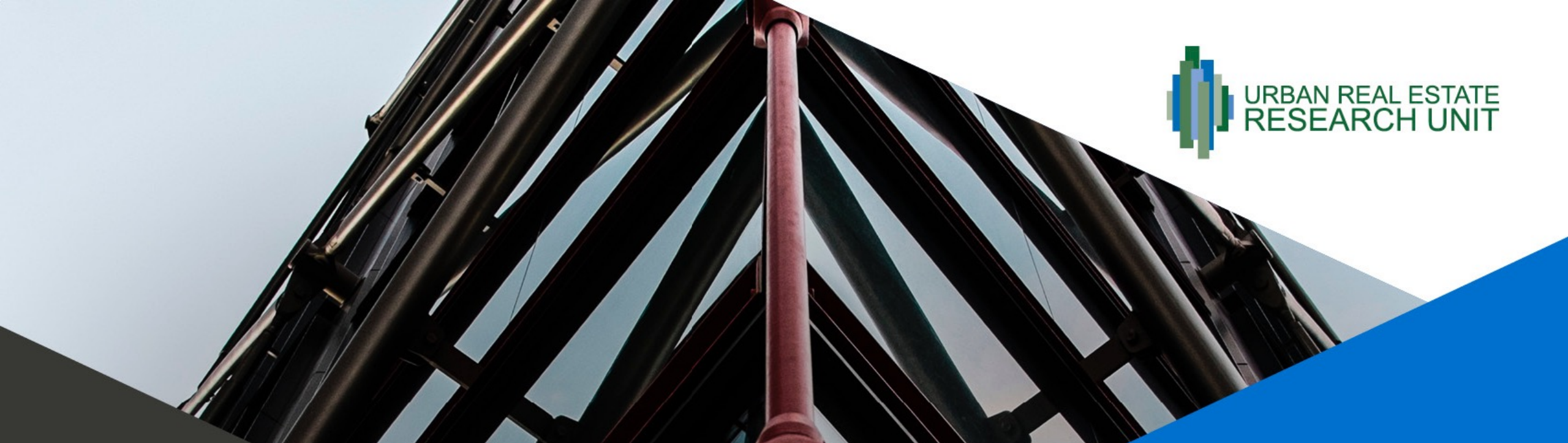

URBAN REAL ESTATE RESEARCH UNIT

POTENTIAL EFFECTS OF TECHNOLOGICAL INNOVATIONS ON FACILITIES MANAGEMENT PRACTICE

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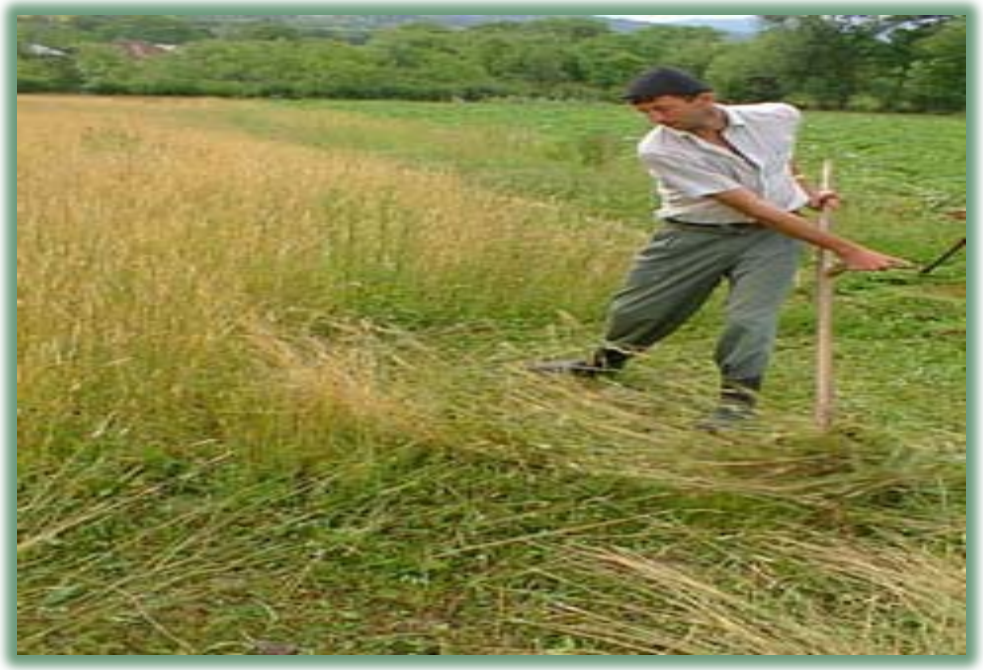
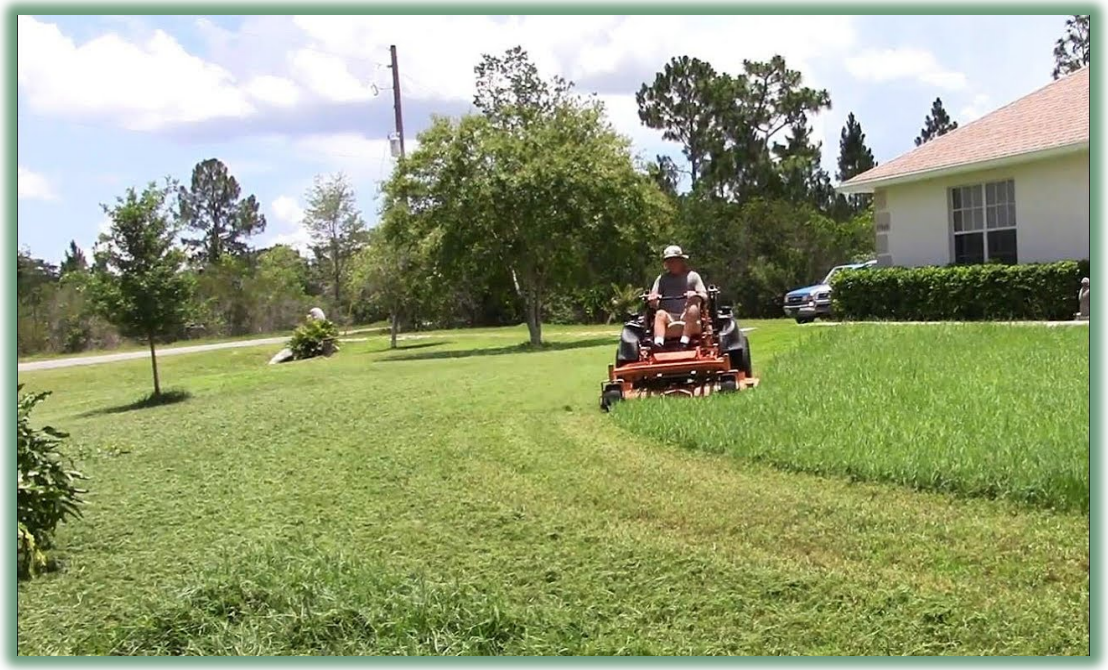
Introduction

- The advancement in technology and its adoption in FM has continued to transform the practice.





Introduction - Impact of Technology

- The adoption of these technologies impact both the core business and the employees in organisations.

- There has been more attention to the effects of technological innovations on the core business compared with the employees in FM organisations.

Introduction (cont.)

- This practice is not holistic because:

✓FM integrates people, place, process and technology.

✓FM profession seeks to assess the impact of its operations on society.

✓FM is highly involved in soft services including: human resource management, cleaning and customer services etc.

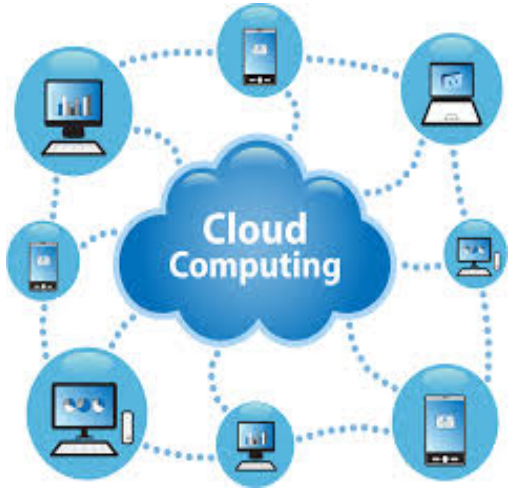
Introduction (cont.)

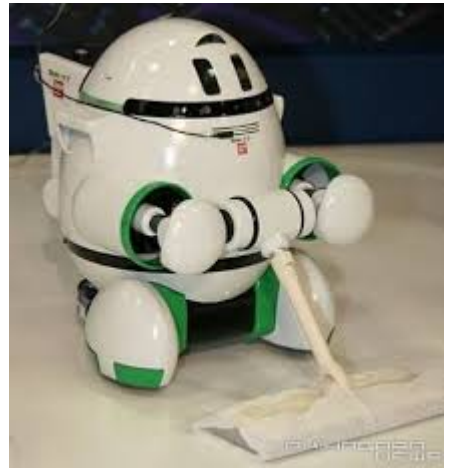
✓Employees are the drivers of technological innovations (Pralahad and Ramaswany 2003; Ngo and O'Cass, 2013)

- This study is a part of an ongoing PhD research that intends to assess the influence of technological innovations in FM practice and the implications for social sustainability in South Africa.

- This study adopted some technological innovations that impact on both the employees and core business of the organisation like:

Introduction - Some Technological Innovations in FM





Methodology

- A review of literature on these adopted technologies revealed the impact of these technologies on FM.

- Some of which will be discussed in the following slides.

Cloud-based Technology

- On-demand provision of hard and software data services (Buyya *et al.,* 2011).

- Opportunity for unified management of portfolios that are scattered over geographically dispersed area (Lau *et al*., 2013).

- Minimises the prohibitive cost of computer infrastructure management in many locations.

Cloud-based Technology (cont)

- Unlimited access to specialised and latest software.
- Promotes effective service delivery.
- Enhanced the capacity for storing historic and current facilities management data.

Internet of Things (IoTs)

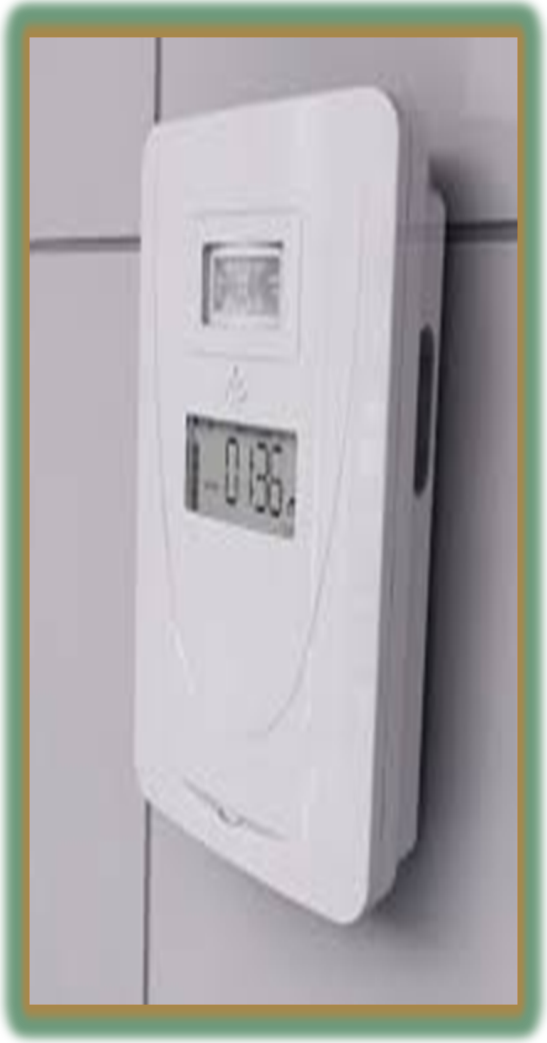
- The internet is an enabler for most of the technological innovations (Hoeven *et al.,* 2016).
- Flexibility of operations.
- Virtual office practice, open office form, compressed work weeks, teleconferencing etc.
- Streamlined organisation process.
- Increased productivity.

Robots

- Adopted for portering, customer care services and maintenance etc.
- Enhanced efficiency and effective crowd control in places.
- Increased operational safety.
- Better-quality maintenance operations.
- Efficient management of energy, water etc.

Sensors

- Adopted for monitoring infrastructure or installed in buildings to monitor indoor temperature, lighting, safety and security etc.
- Reduced operational cost.
- Enhanced productivity.
- Improved occupants comfort.
- Data from sensors are vital resource for decision making on space optimisation and energy planning (Yerby 2013, Roth 2017).



Drone Technology

OPERATIONSAFETY

Customized, Affordable Safety Solutions

- Adopted for security, maintenance operations, logistic services etc.
- Quick access to building inspection at lower cost, and efficient documentation of asset conditions (Bobby, 2017).
- Accessing facilities where safety is a concern.

The Potential Implications for FM practice

- Robots will replace humans on a greater scale thereby leading to job losses and job insecurity (Nakegawa 2015; West 2015).
- Increasing job insecurity will create social threat for businesses e.g. Uber business model.
- The greater need for stakeholders consideration as a strategy for reducing social threats.

The Potential Implications for FM practice (cont.)

- The use of sensors will create legal and ethical issues that will increased litigation costs.
- Employee privacy advocates will seek reforms for greater protection of the employees (Yerby, 2013).
- The boundary between work and home-life of employees will be further diminished as a result of increased internet access (Hoeven *et al.*, 2016).

The Potential Implications for FM practice (cont.)

- This will lead to social problems such as alienation, social isolation, overwork, social integration problems, etc. for the employees.

- The ability of the drone to access difficult building areas and carryout operations at heights will increase the safety profile of FM services.

- There will be enormous data to aid planning and optimisation of FM services.

The Potential Implications for FM practice (cont.)

- The enormous data will necessitate the adoption of Augmented Reality (AR) for better analysis, interpretations and possible predictive services in FM.

- The combination of AR, Sensors and Robots forecloses the relevance of the tactical level of FM.

- Increased security threats from hackers and terrorists on facilities that are connected to the internet.

Conclusions

- Technological innovations have an enormous potential impact on:
  - FM practice and the profession
  - FM managerial structures within organisations
  - Employees.

- FM profession needs to be better positioned for the future threats, opportunities and the social implications that technological innovations hold for both the employees and the profession.

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Thank you

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