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# Towards E-Business Technology Deployment:

For Services improvement in Libyan Universities [Misurata University Case Study]

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## Introduction

1

There are indications that Libyan Universities still face management challenges [4] which in turn affect their reputation locally and internationally, and significant challenges in terms of effective use of e-business in their daily administration processes; these include a lack of e-business infrastructure, a lack of qualified personnel and an institutional resistance to change [3]. This research attempts to support the universities in developing more efficient ways of managing core organisational processes and associated information flows by adoption of e-business technology, and explores e-business deployment in Libyan universities, with an initial focus on the university of Misurata. It examines the current and potential uses of e-business for the University management, and assesses the barriers to wider use of e-business technologies. Existing models to measure e-business deployment are applied and assessed, and a new model is developed to better gauge the current situation at process level. The research attempts to make a worthwhile contribution to Technology deployment literature.

## RESEARCH QUESTIONS

2

This paper addresses the following research questions:

<b>RQ1</b>	What is the level of e-business deployment in Libyan universities (using Misurata university as an initial case study)?
<b>RQ2</b>	What are the key issues that impede the wider deployment of e-business applications and related information systems?
<b>RQ3</b>	What is the most appropriate model or framework for assessing and comparison of e-business deployment maturity in the Universities in Libya?

## THEORETICAL FRAMEWORK

3.A

### HEEKS Model:

Design-Actuality Gap model developed by Heeks (2002)[2] employed in this research as e-business strategy blueprint. The model identifies four elements of change that are key to transitioning an organisation from local actuality to its future state or design. The model provides a view of the possible transition from the current level of e-business deployment to the targeted 'design' stage. The transition is based on meeting certain criteria and standards in four interrelated elements of change (people, information, technology and processes) as shown in Figure 1. This research defined e-business as "all electronically mediated information exchanges, both within an organisation and with external stakeholders, supporting the range of business processes". [1]

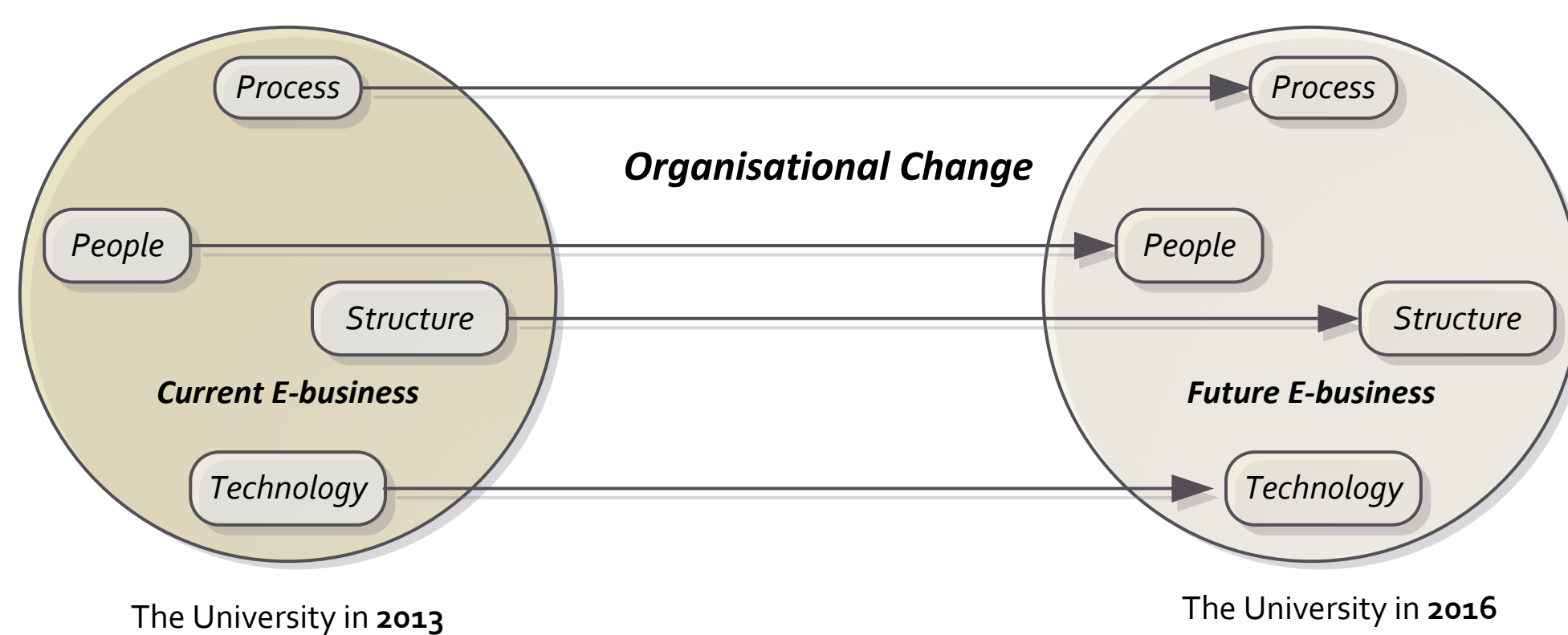


Figure 1. Design -actuality gap model  
source: Adapted from heeks (2002) [2]

## Developed (SCALE MODEL)

3.B

The developed SCALE model has five stages.

Stage	Description
<b>Start</b>	Indication of a clear organizational structure, with clearly defined roles and procedures, and a general awareness of the availability of e-business tools for day to day running of an organization, with possibly one or two individuals using standalone technologies (e.g. a Desktop computer, laptop or mobile phone)
<b>Connect</b>	An electricity network widely available and some internet connectivity allowing access to websites and inter-organization email exchange, a partial in-house data communications network facilitating multi-point access, and a few standalone users of basic office systems (e.g. a word processor or spreadsheet).
<b>Access</b>	A wider take-up of office systems and use of some information systems for recording, processing and reporting information in key process functions. These systems are often built in-house by end-users or via third party programmers. The first servers appear allowing access to systems and applications from the organisation's network. A central IT/IS department normally is put in place to manage the infrastructure and systems. The organization will normally have a website at this stage, which includes information on products and services, although there is probably no ability to take transactions via the website.
<b>Leverage</b>	Indication of an established level of e-business systems deployment in most process areas, with some basic cross-organisational standards being introduced for IT/IS products and services, and procedures for things like backup and upgrades are defined. There is a degree of process change at this stage, as new systems require and allow process improvements. Website content becomes more advanced, being used by internal staff as an intranet and transactions are taken via the website where appropriate to the type of organization.
<b>Enterprise</b>	Systems are in place in all main process areas, either using a range of integrated packages or in-house developments, or possibly an ERP integrated package. At this stage the end-user community includes information specialists. Processes are improved and streamlined and are reliant on a range of multi-user systems or modules accessing centrally held databases. The majority of corporate systems are accessible via the intranet or web portal, for both internal and external users, customers and business partners

## Methodology

4

Up to six Libyan universities will be the subject of detailed case study investigation[6]. To gather and analyse the data and information, at each university a range of investigative activities are being undertaken. These activities include mapping of organisational processes, overall review of e-business functions and capabilities at process and sub-process level, assessing information requirements, and systems architecture assessment.

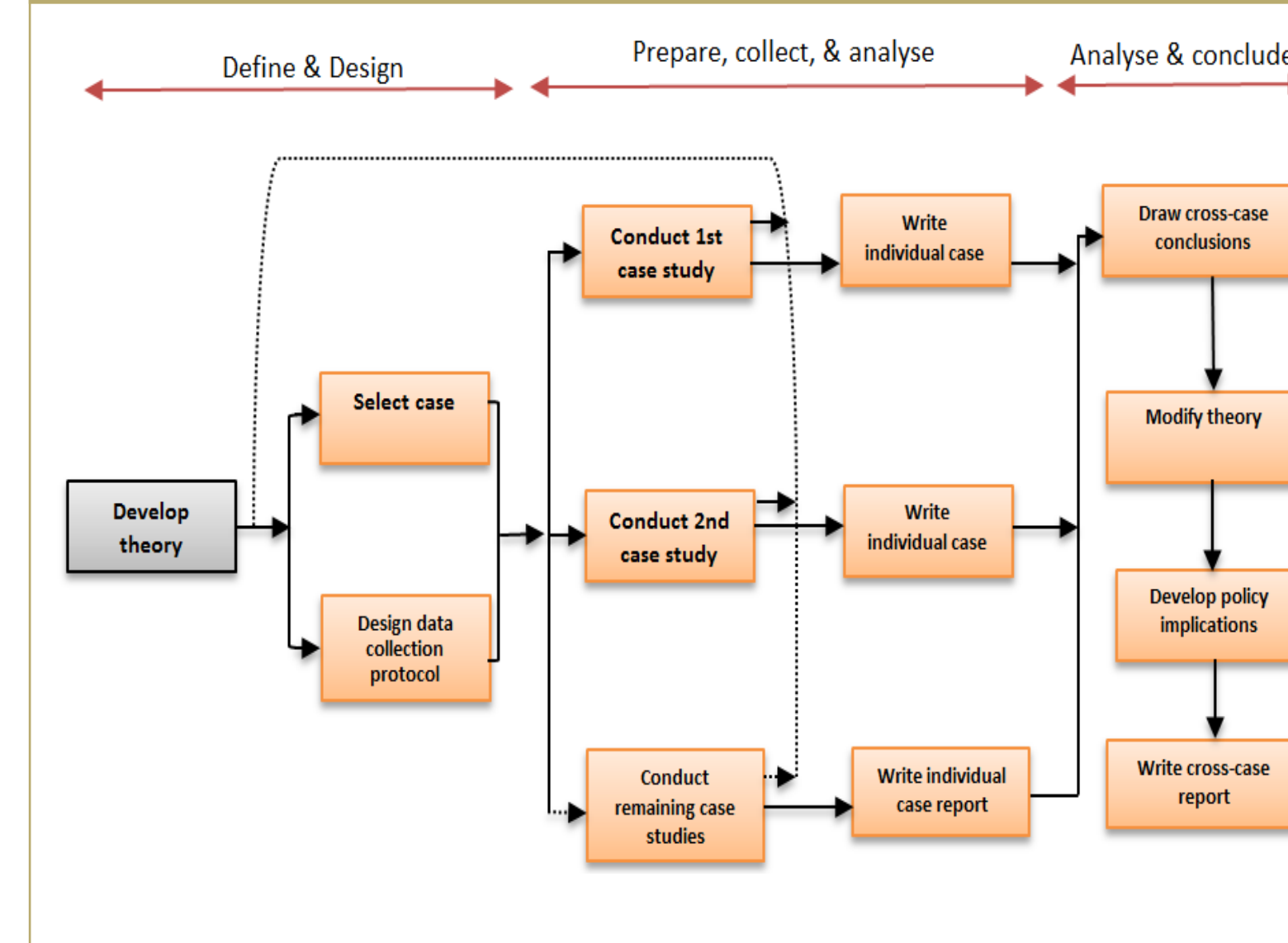


Figure 2. Yin's multiple-case study design [6].

### The research adopts

- qualitative methodology
- use (Case study) multiple cases
- an inductive approach
- uses multiple-sources of evidence: structured questionnaire, open qualitative semi-structured interviews with many different organisational actors, document analysis, workshops, and observation[5].
- philosophical perspective ontology of subjectivism, and the epistemological position is interpretivism. (Yin, 2009)[6].

## FINDINGS

5

There are some encouraging signs of change at Misurata University. Development of web-portal services is in progress in the student records management as well as teaching and learning processes, which will widen access to existing systems as the basic network infrastructure is upgraded and extended. It is increasingly recognized by staff that new e-business systems are needed. This supports the university opportunity to move forward. There is evidence of awareness at senior management level of the importance of e-business systems, but the University still faces a range of barriers to e-business deployment: (1) Lack of a clear university business plan that encompasses e-business strategy, objectives and investment; (2) lack of reliable and standard administrative processes and procedures; (3) lack of networks and internet connectivity; (4) lack of e-business skills and knowledge; (5) lack of training and development regards to e-business systems and technologies programs; (6) cultural of resistance to change management attitude, and (7) Lack of a dedicated budget for plans of e-business systems development strategy in the University. In line with Heeks' model, these barriers are strongly linked to all four of his key elements, but particularly; (process, technology and people) issues.

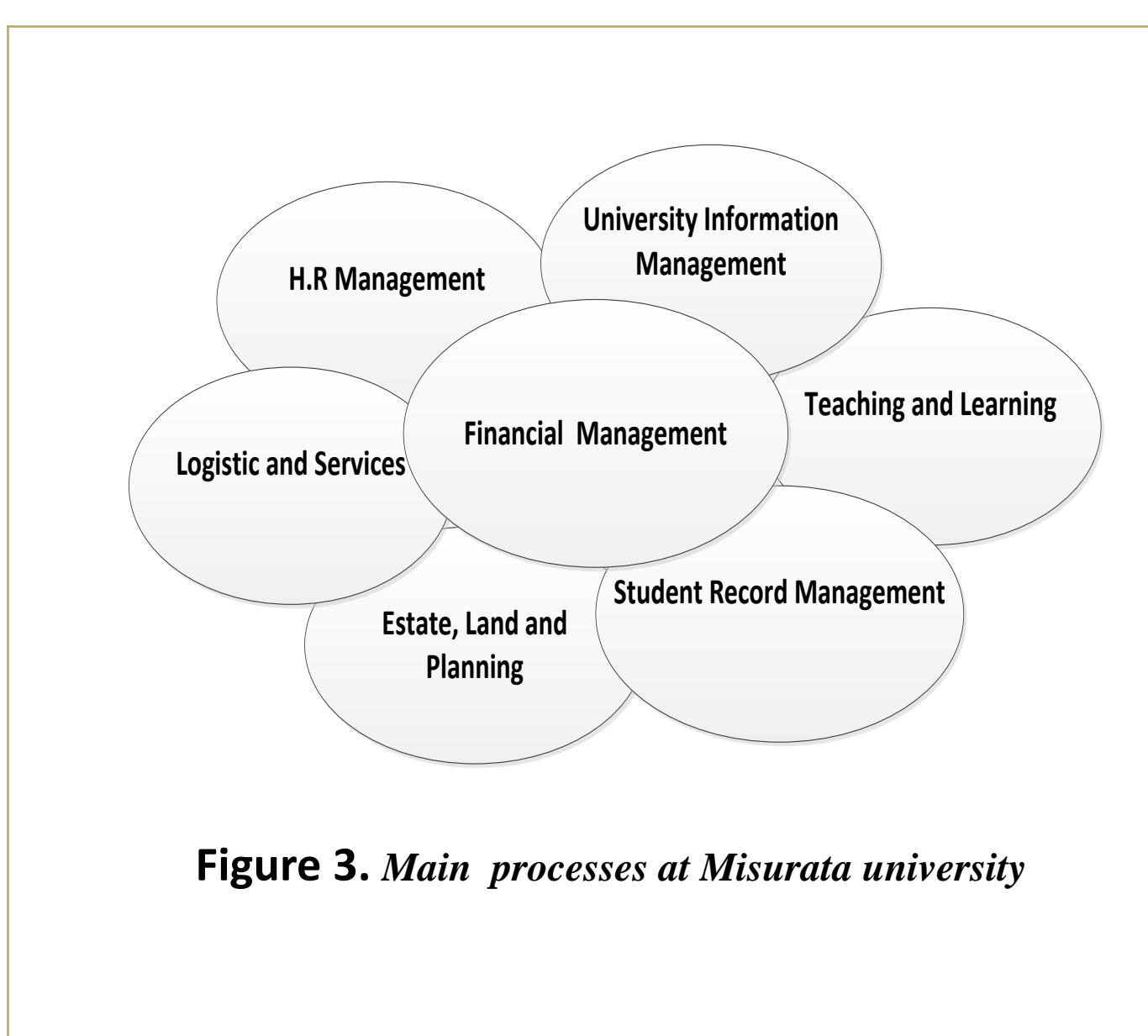


Figure 3. Main processes at Misurata university

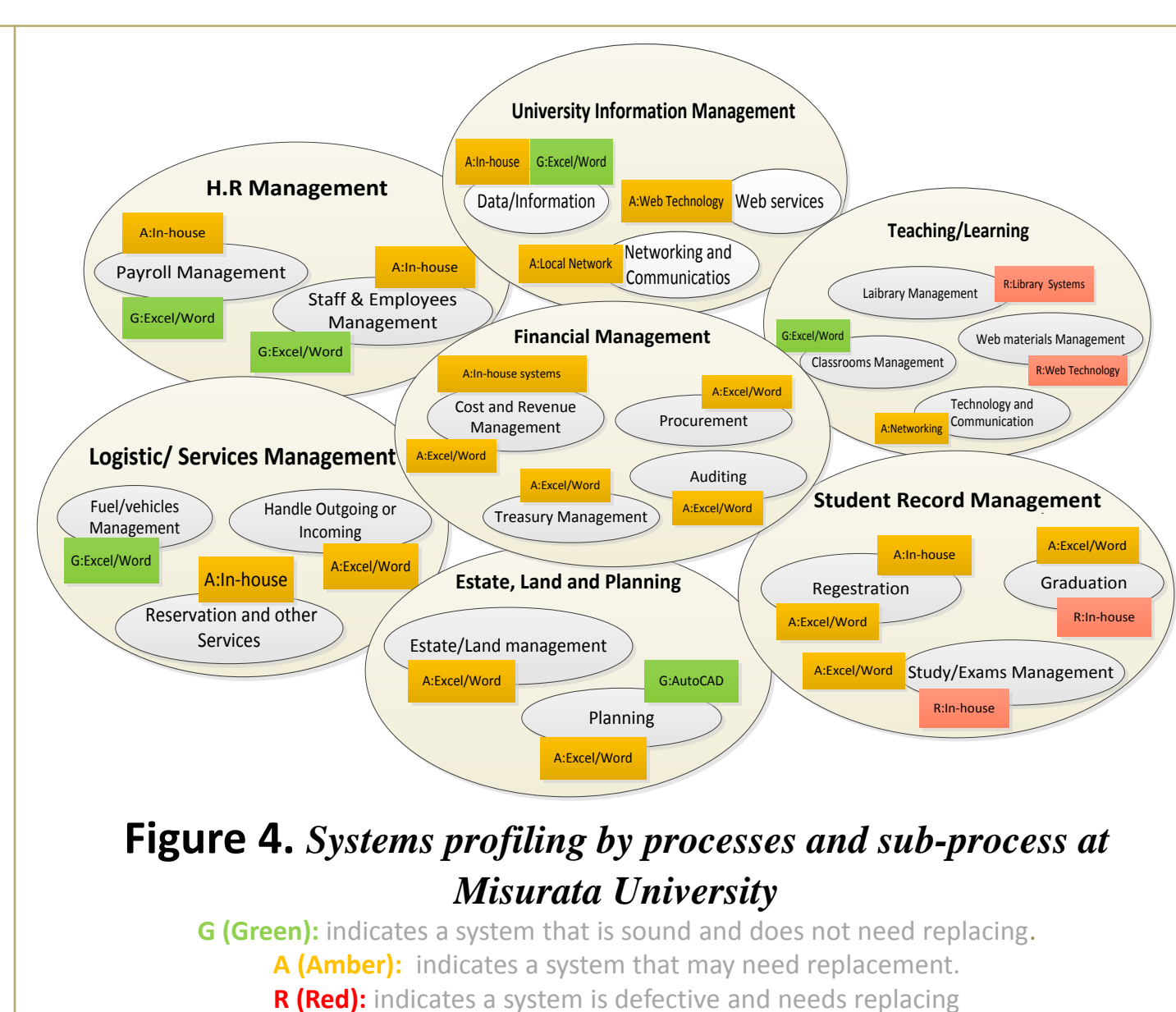


Figure 4. Systems profiling by processes and sub-process at Misurata University

G (Green): indicates a system that is sound and does not need replacing.  
A (Amber): indicates a system that may need replacement.  
R (Red): indicates a system is defective and needs replacing

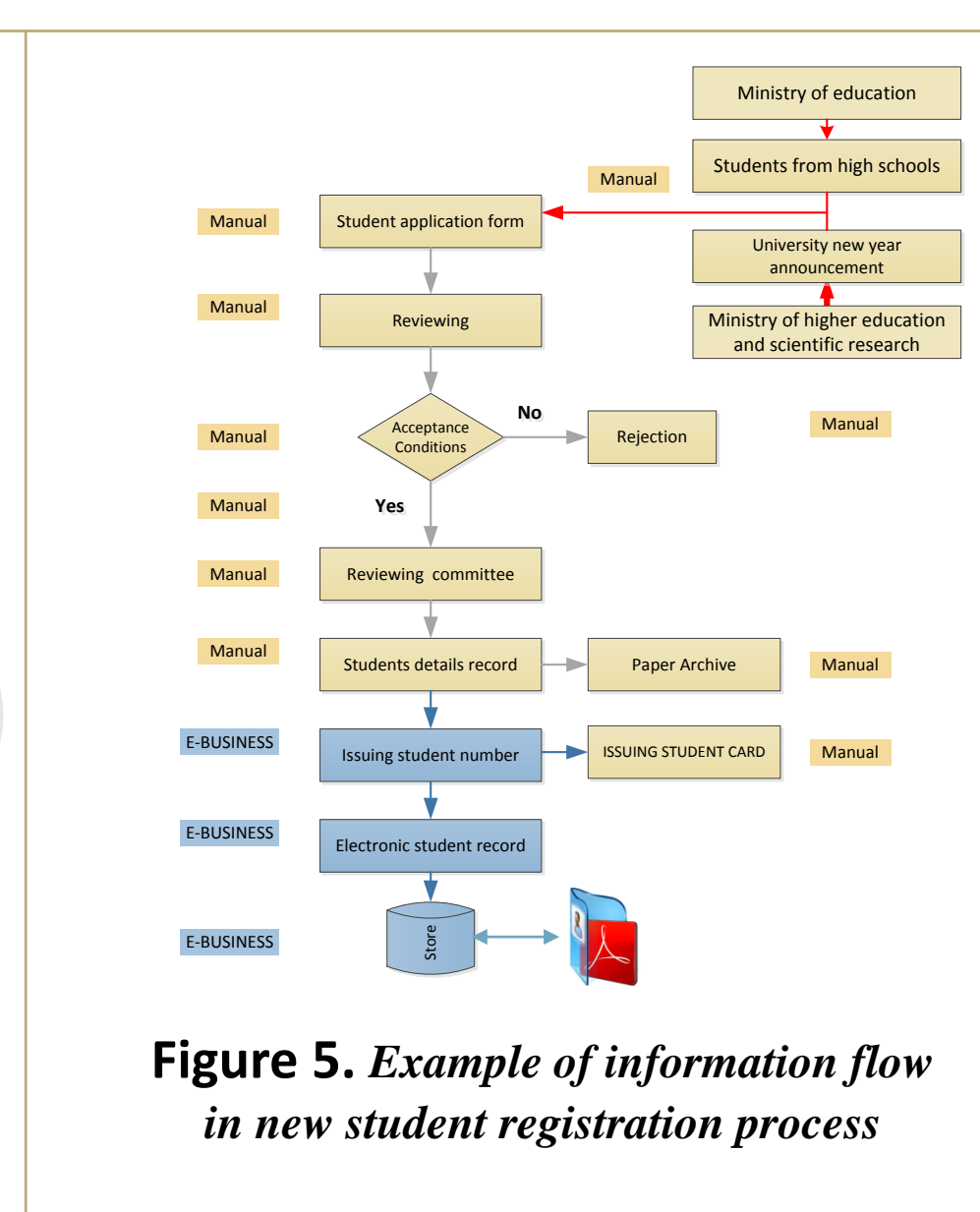


Figure 5. Example of information flow in new student registration process

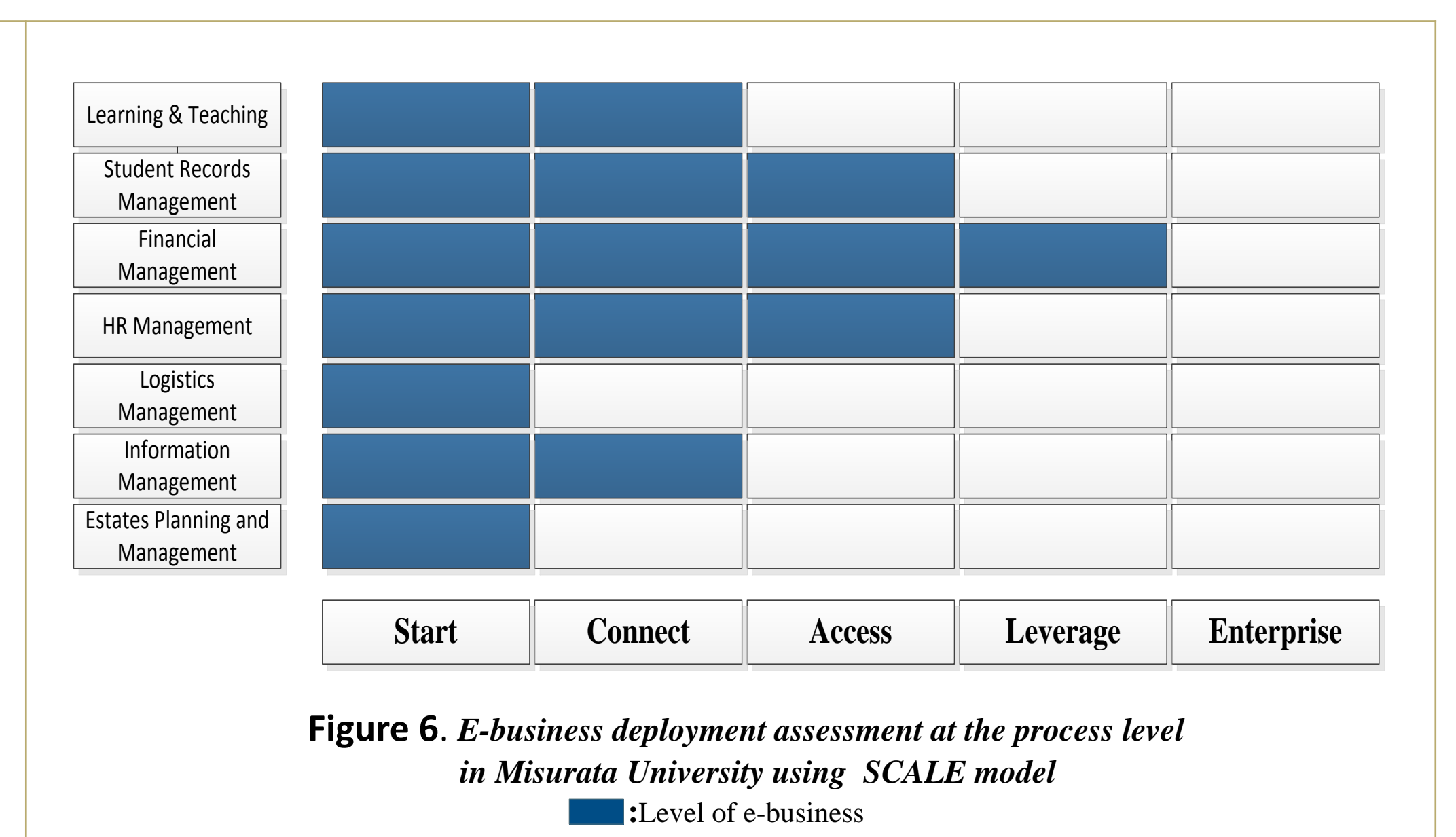


Figure 6. E-business deployment assessment at the process level in Misurata University using SCALE model

## CONCLUSION

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A clear e-business strategy is needed now for Libyan Universities, aligned with the overall university business plan. The use of the SCALE model has helped identify where progress has been made and where opportunities exist at individual process level. The results of this research will be fed into the future business planning and operational delivery of new e-business systems in the Libyan universities, linked to the Libyan government initiative to develop e-business infrastructure across its university's campuses. SCALE model will be further applied at other Libyan universities and will act as a yardstick for comparing and progressing the operational implementation of e-business in these organisations.

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