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A CAPABILITY ASSESSMENT FOR THE UNIVERSITY OF MAURITIUS ELEARNING INITIATIVE USING THE ELEARNING MATURITY MODEL (EMM)

Final Report

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A Capability Assessment for the University of Mauritius eLearning Initiative using the eLearning Maturity Model (EMM)

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An Institutional Report

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SUMMARY

The University of Mauritius has been trying to position itself as a dual-mode institution since 1993 when it stepped into traditional print-based on-campus distance education through the development of self-instructional manuals for modules offered to large number of students through the Centre for Distance Learning. In 2001, it created the Virtual Centre for Innovative Learning Technologies to promote eLearning and to integrate ICT in its teaching and learning system. In 2014 it merged the two Centres to form the Centre for Innovative and Lifelong Learning, based on its strategic objectives and at the same time, symbolizing a level of maturity attained in the provision of online courses and eLearning programmes.

In this research, a capability audit of the eLearning initiative of the University of Mauritius is conducted using the eLearning Maturity Model (EMM) version 2.3 developed by Stephen Marshall. Assessing the eLearning maturity of an organization is mainly a qualitative exercise that is essentially based on a convergence of different trends or elements (that could also include quantitative data) towards a singular point or tendency, so that the assessor may come up with an appropriate and accurate judgment prior to deciding on a particular rating to be marked.

Based on the evaluation it was obvious that the University of Mauritius has key strengths in four of the five process areas namely Learning, Development, Support and Organization while there are gaps to be addressed in a majority of the Evaluation process area. It is safe to say that the institution has reached and completed major requirements to be pitched at Level 2 (Repeatable) of the Capability Maturity Model, and is operating at Level 3 (Defined) where there are still key actions and measures to be put in place.

INTRODUCTION

Quality assurance in higher education is still a key issue especially with the ever-growing influence of technology and the disruption that the Internet has caused with respect to eLearning and distance education. There is more and more less distinction between the types of universities because the trend is that traditional universities are embracing technology and eLearning at a growing pace. With technology getting ubiquitous in the teaching and learning system the concept of teaching and learning quality, usually measured by internal or external audits and based mainly on face-to-face teaching, has to be revisited.

Maturity models are valuable tools in any area of professional activity where an organization can benchmark its capabilities with respect to specific models and other similar organizations. The eLearning Maturity Model is one such model that has been devised and inspired from the software development industry model known as the Capability Maturity Model (CMM) and which later developed into the Capability Maturity Model Integration (CMMI). The eLearning Maturity Model (eMM) is based on the concept of Software Capability Maturity Model (CMM) and SPICE (Software Process Improvement and Capability Determination). The model has been conceived by Stephen Marshall in 2003 and has undergone a number of improvements. The current version in use of the eMM is version 2.3.

eLearning at the University of Mauritius is an initiative that dates back to 2001 with the setting up of the Virtual Centre for Innovative Learning Technologies (VCILT). This initiative came eight years after the initial establishment of the Centre for Distance Learning (CDL later renamed to Centre for Professional Development and Lifelong Learning, CPDL) in 1993, which operated, mainly on print-based campus-oriented distance education. In 2014 the University of Mauritius merged the two centres to form the Centre for Innovative & Lifelong Learning (CILL) with an enhanced and broader vision and objectives that were aligned with the strategic direction of internationalization and the provision of a high quality teaching and learning system at the University. From 2001 to the present date, the University of Mauritius has undergone two external teaching quality audits that laid emphasis on the need to strengthen the eLearning initiative and for the University to be more proactive in the integration of ICTs in teaching and learning.

In 2004 the VCILT launched the first online masters programme targeted to educators, with 10 students and since then the number of online programmes has increased with more than 1000 students at one point in time embarked on such programmes both in Mauritius and from the African continent. The ambition of

the University is to maintain this momentum and promote the growth of such initiatives so as to increase the international student population of the University. The aims are multifold in as much as the institution wishes to tap in a different market base, diversify its sources of revenue, and increase its visibility by internationalizing its curriculum to ultimately contribute in improving its overall ranking over Africa in a first instance.

Such an ambition cannot be sustained if the institution has not reached a maturity level that has can be validated against international guidelines, practices and benchmarks. The main objective of this project is therefore to conduct a capability assessment of the e-learning initiative of the University of Mauritius using the eLearning Maturity Model as a benchmark.

1. HISTORICAL EVOLUTION OF THE E-LEARNING INITIATIVE AT THE UNIVERSITY OF MAURITIUS

1.1 - The past: A recap of key milestones and events

The University of Mauritius launched its e-learning initiative in 2001 with the establishment of the Virtual Centre for Innovative Learning Technologies. The aim was to modernize the distance education model that was in place at the institution via the Centre for Distance Learning. That model relied mainly on print-based material (Santally 2013). According to the official documents leading to the creation of the Centre the mission statements read as follows:

- Promote innovative teaching and learning practices through the use of distance and flexible learning technologies.
- Experiment with new educational delivery systems.
- Establish a partnership with the academic staff to help them meet teaching and learning requirements which attains user satisfaction.
- Be forward looking and thus supporting a leadership role in the development of tele-learning.
- Be a leading edge, high quality provider of on-line web-based education and tele-learning.
- Provide means to develop an international standing.
- Help the university become a leading institution.
- Increase student intake and access to the university.

Figure 1: Mission Statements of the VCILT

The creation of such a Centre in 2001 was an example of foresight approach by the Institution to be better equipped to face the forthcoming scenario of transformation that the global education landscape was about to experience. The Centre started with prototype projects where a few academics that were willing to experiment multimedia learning were taken on board and a team of trainees in ICTs were recruited to work closely with them to develop animations and other multimedia materials to enhance their teaching. At the same time, the VCILT deployed an e-Learning platform called Virtual-U to migrate print-based materials online. One important tool that was being used at that time was the discussion forum to promote peer-to-peer and peer-to-teacher interaction online.

During its early years of operation (2002-2004), the VCILT embarked on two projects of scale, and one research project funded by the Mauritius Research Council (MRC). The first one was the re-designing of the module "Introduction to IT" (CSE1010e) to the online environment and the development of the interactive CD-ROM for the contents to be used under the Government's Mass Computer Literacy Programme (CPP). The research project that was funded by the MRC was an interactive CD-ROM for the teaching and learning of Geography in the primary education sector.

In 2004, the Lifelong Learning Cluster was established as a virtual entity that regrouped the Virtual Centre for Innovative Learning Technologies, the Centre for

Professional Development and Lifelong Learning (CPDL) and the Centre for Information Technology and Systems (CITS) that operated as a virtual Faculty through the Lifelong Learning Cluster Board (LLC Board) which had the same powers as a Faculty Academic Board. This was a highly innovative approach where the LLC was able to offer full courses on online mode as a means to scale up on the experimental projects that were initiated in the early stages (Santally 2013).

The first online programme of studies at Masters Level was launched in 2004 targeting in-service educators. The programme title was "MSc in Computer-Mediated Communication and Pedagogies". The programme was conceived using an innovative pedagogical method focusing on the concept of activity-based learning and competency development (Santally 2005). The philosophy was guided by the statement of Nichols (2003) that the web can be used in the following ways when it comes to online distance education:

- As a new medium for delivery of distance education materials
- As a medium that adds value to existing content through multimedia.
- As a means to reconceptualise the teaching and learning process.

While each of the above can be applied separately and independently from each other, the VCILT used principally a combination of them in its early institutional framework that consisted mainly of these four different components (Santally & Senteni 2005) namely,

- ***Institutional Framework and Resources***

    This component emphasizes the need for institutional policies to promote eLearning and adoption of technology-enhanced pedagogies. It is important to embed such practices in the mainstream education system for a broader application.

- ***Training and Knowledge Building***

    Training and knowledge (or capacity building) is an important element in any endeavor aiming at promoting technology-acceptance from its stakeholders. A number of initiatives were put in place to achieve this objective.

- ***Pedagogy and Student Support***

Learner support is a key pillar for quality assurance in eLearning projects, and a model of learner support was put in place to ensure that the transition to technology-enabled learning was as smooth as possible for the learners (Santally et al 2005).

- ***Content Development***

The aim is to produce high quality academic e-learning materials, online learning resources and other relevant materials in conjunction with the delivery of courses on a distance education and flexible learning mode (Santally & Senteni 2005).

The framework served as the baseline for the quality assurance provisions in terms of eLearning courseware development. However, from information gathered, there were no eLearning quality standards at that time that were in place to support the monitoring and evaluation process of such a framework in its implementation phase. The framework was implemented from 2005 to 2014 through a series of projects and new courses that were launched. The University adopted Moodle as its official eLearning platform and within the period 2009 - 2012 the following new online courses were launched

- BSc (Hons) Educational and Instructional Technologies (Top-Up)
- Diploma/BSc (Hons) in Web and Multimedia Development

The above programmes were developed with a blend of materials developed in-house as well as the integration of Open Educational Resources, under the EU-Funded project SIDECAP. The consequence of the mounting and launching of the two new programmes in addition to the MSc Computer Mediated Communications and Pedagogies (which was rebranded to MSc Educational Technologies) resulted in a boost in student intake on online programmes at the University (Santally 2011).
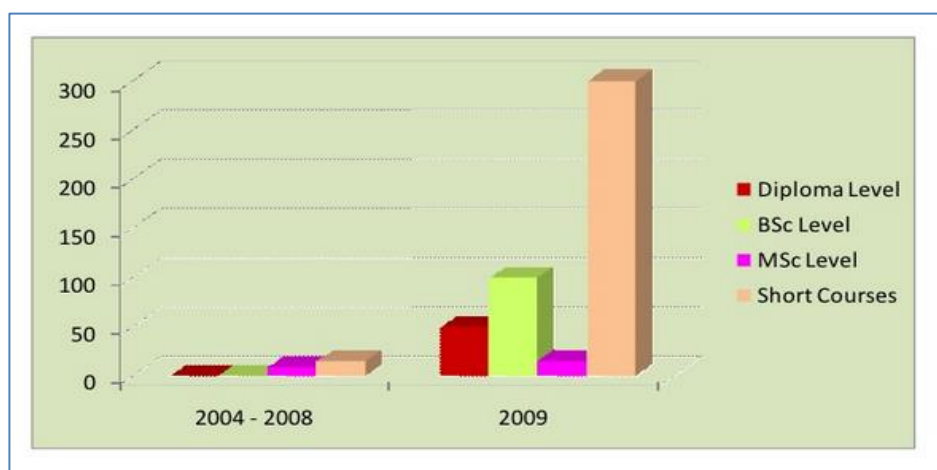
Figure 2: Student Intake 2004-2008 v/s 2009 onwards

1.2 - The present : Merging of the CPDL and VCILT into CILL

In 2014, the University authorities merged the Centre for Professional Development & Lifelong Learning (CPDL) and the Virtual Centre for Innovative Learning Technologies (VCILT) into the Centre for Innovative and Lifelong Learning (CILL). The CILL had a broadened mandate, which was closely coupled with that of the Lifelong Learning Cluster (LLC), which regrouped the CPDL, VCILT and CITS into a virtual faculty. The vision of the new Centre as per its website highlights that it "*aspires to establish itself as a regional Centre of Excellence and to become a global leader in eLearning and Education Technology*"[1].

The main objective is to "*help the University to consolidate the position of the University as a pioneer in e-education in Mauritius and to establish the Institution as a leading regional dual-mode institution*". The mission statements of the Centre for Innovative & Lifelong Learning are according to its website oriented towards the consolidation of the university as a dual-mode institution, promote internationalization, and to become a high quality provider of online education amongst others.

In terms of its human resource structure, the Centre has recourse to a flat organizational arrangement with three units that report directly to the Officer-in-Charge. There is an administrative unit that looks at mainly student matters, an academic unit that looks at teaching, learning and research, and a eLearning support unit that looks after instructional design, eLearning courseware authoring and platform administration including technical support[2]. The Centre has its own academic board with the same powers as Faculty boards which promotes a high degree of autonomy towards achieving its roles and functions with respect to its mandate. There are academic representatives of each Faculty on the academic board.

1.2.1   Teaching & Learning

The Centre runs the following programmes of studies namely
- Diploma in Management (in collaboration with the Faculty of Law & Management)
- Diploma/BSc (Hons) in Web & Multimedia Development

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[1] Website of the Centre for Innovative and Lifelong Learning - http://vcilt.uom.ac.mu/cill/index.php/about/objectives

[2] Annual Report of the University of Mauritius 2015-2016

- BSc (Hons) Education Technologies (Top-Up)
- BSc (Hons) Management (Top-up) (in collaboration with the Faculty of Law & Management)
- BSc (Hons) Banking and Financial Services (in collaboration with the Faculty of Law & Management)
- Postgraduate Certificate in Rapid eLearning Methodologies
- Postgraduate Diploma in Quality Assurance in Higher Education (in collaboration with Commonwealth of Learning)
- MSc in Education Technologies
- MSc in Leadership Development in ICT and Knowledge Society (in collaboration with GESCI)
- MA Educational Leadership (in collaboration with Commonwealth of Learning)

All the above programmes are offered via the Moodle eLearning platform with varying degree of eLearning implementation for the promotion of self-learning and with different pedagogical structures and approaches. There are three different instances of the Moodle eLearning platform (Figure 3) nicknamed mainly as the LCMS, iLearn, and EdTech.
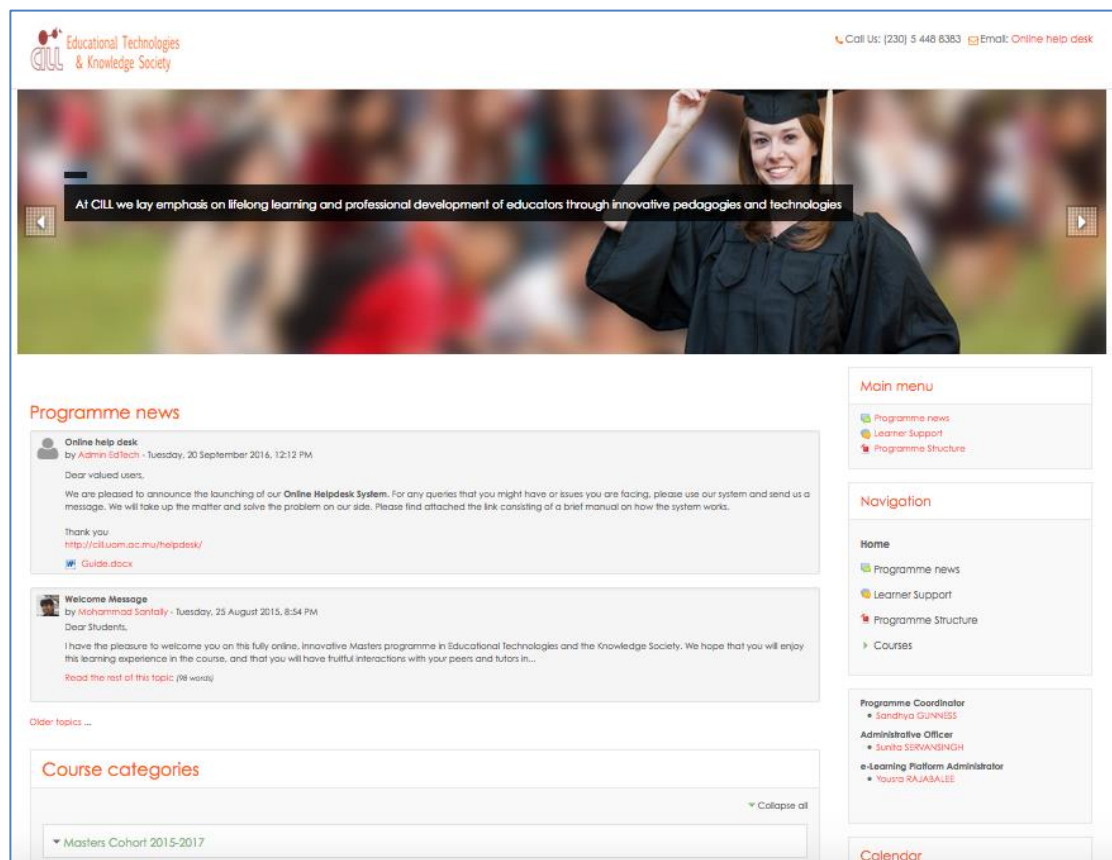

Figure 3: Moodle eLearning Platform at the University of Mauritius

The LCMS instance contains all blended modules offered within the different faculties, whereas the iLearn instance is reserved to the Web and Multimedia courses and EdTech instance reserved for Education Technologies programmes. The iLearn and the Edtech platforms therefore host CILL in-house programmes and adopt either content or activity-based approach (Figure 4a) or a blend of content and activity based (hybrid) approaches (Figure 4b) depending on the nature and pedagogical conception of the module in question by the academic (Santally et al. 2012).
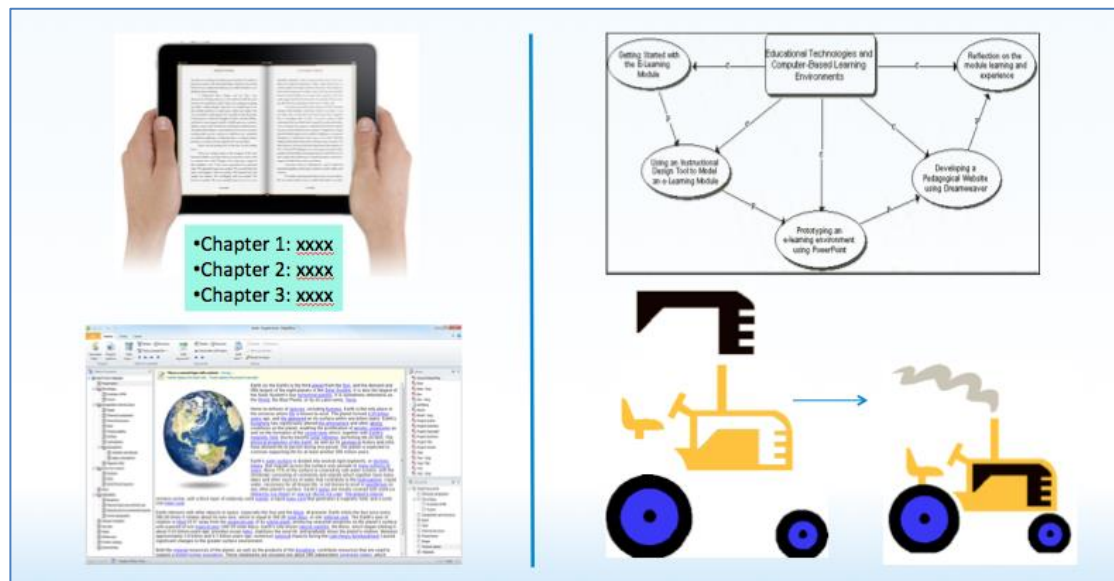

Figure 4a: Content-based approach (left) v/s Activity-based approach (right)

Figure 4b: Hybrid courseware design approaches

1.2.2   Research & Development

The Centre has been constantly engaged in research and development activities in the field of education technologies and multimedia learning since 2003 onwards when it embarked on a funded research by the Mauritius Research Council for the use of interactive multimedia for the teaching and learning of History and Geography at primary level (Cooshna-Naik & Teelock 2006).

Action research was one of the preferred philosophies guiding R & D activities at the Centre as evidence by a number of publications using the innovative online programmes of the Centre as case-studies mainly looking at pedagogical design for e-learning and the reconceptualization of teaching and learning through computer-mediated frameworks (Santally & Raverdy 2006; Santally & Senteni 2005; Santally & Ponnusawmy 2008; Santally et al. 2012).

Since 2009 the Centre worked on a project researching how to integrate text-to-speech technologies to create presentation-based video lectures to provide students with the flexibility to access their lectures on MP4 players, mobile phones and through YouTube. The research led to the development of the rapid eLearning method for the development of interactive learning materials (Rughooputh & Santally 2009; Rajabalee et al. 2016). The Centre also secured funding from the Australia Africa University Network (AAUN) to develop an online curriculum for capacity-building of education practitioners on the rapid eLearning methodology (http://vcilt.uom.ac.mu/rapide).

Another research thrust of the Centre has been Open Educational Resources (OERs) since the early years when the subject was centered on the concept of learning objects. A Learning Object Repository was developed. The Learning Object concept later evolved with the trend to Open Educational Resources when the Centre embarked on a big project, SIDECAP which was funded by EU-ACP, and led by the Open University of UK with partners such as the University of West Indies, South Pacific and University of Highlands and Islands. A number of courses were developed using OERs, and a methodology for the reuse of OERs was elaborated during the project (Santally 2011; Gunness 2014).

The Centre has also engaged itself with the support of the University of Reunion Island into a Living Lab project in Innovative Learning and Teacher Education (Santally et al. 2014; Santally et al. 2015). It had achieved accredited status with the European Network of Open Living Labs in 2014. This is an emerging thrust, still at an exploratory stage, two new areas namely Learning Analytics and Virtual/Augmented Reality in Education (Greller et al. 2017; Rajabalee et al. 2016).

1.2.3   eLearning Support Services

The Centre has also a key mandate of promoting the adoption of technology in teaching and learning and to provide relevant support to staff and students through the following:

- Operation of an online helpdesk for eLearning Platform support services, such as creation of accounts, password retrieval and other related activities.
- Capacity building of academics to use the eLearning platform and to develop interactive materials.
- Support for online examinations for university-based courses.

1.3 - Future Plans and relevance of this research

Universities throughout the world are facing new challenges due to a number of changes and transitions that the higher education sector has experienced. The changing business landscape due to globalization, and the widespread access to the Internet have completely disrupted the traditional model of education. In this new configuration, public universities in developed and developing countries alike have been facing unprecedented cuts in Government grants, more competition from private institutions on a global scale due to the rise of cross-border higher education provision, and increased critics from the private sector over the so-called skills mismatch problem. The University of Mauritius is at a junction where it has to envisage the future in this changing landscape of higher education both locally and globally.

In September 2017, the University authorities approved the Internationalization Strategy, which lays emphasis on the role of the Centre for Innovative & Lifelong Learning to support the University in this endeavor. In October 2017, as a follow-up strategy the University has reviewed down the fees for postgraduate studies for online programmes by about 35% and aligned the fees to be paid for by international students with that of local students. In line with the strategy to promote eLearning and technology-enabled learning, the University Senate approved a new eLearning policy in November 2017. The Technology-Enabled Learning policy has the following objectives:

1. To consolidate the position of the University of Mauritius as a dual-mode institution.
2. To integrate e-learning and ICT-based pedagogies as a mainstream delivery mode in the education system of the University.
3. To promote access to quality higher education and lifelong-learning.
4. To help the University address existing budgetary, human resources and infrastructural constraints such as limited funding, part-time lecturing costs and physical space.

The policy caters for the setting up of an open educational resources platform to be hosted at the University of Mauritius but that will serve as a means to increase the visibility of the institution over the African Region. The aim is to have a model which is a blend of the University of London external programme concept and the OERu model where full modules are available online as OERs and MOOCs but where students over the region or who want to study on a flexible basis can earn and accumulate credits after completing a set of official exams administered by the University or verified third-parties, recognised by the University for transferability of credits. Furthermore there are plans to work on an innovative capacity-building model for in-service educators using an open-badge framework for accrediting continuous professional development.

The Centre is working to expand the reach of the University through three key initiatives as from the year 2018. A Memorandum of Understanding (MoU) has been signed with the Bindura University of Science Education of Zimbabwe to jointly offer, in the first instance, the Masters in Education Technologies of the University to the African region. To further strengthen its regional presence a MoU has been signed with the University of Seychelles to offer jointly the MA Educational Leadership, in a first instance to 20 educators of Seychelles. This programme has been fully mounted from Open Educational Resources from the Commonwealth of Learning VUSSC platform. The University is furthermore signing an agreement with the DUCERE business school to offer the online programme in Social Media and Digital Design, a futuristic course that aims to train the youth for the jobs of the future. Finally the Centre for Innovative and Lifelong Learning is working closely with the Global eSchools and Communities initiative to host the Leadership Network for Sustainable Development at the University for the next three years and to work on the accreditation of the current on-going African Digital Schools Initiative project which aims at training of more than 1000 educators from Tanzania and Kenya over the next three years.

2. ELEARNING CAPABILITY AND MATURITY

2.1- Capability Maturity Model

The Capability Maturity Model (CMM) originates from the software engineering field when researchers and practitioners realized that the software industry was not as established compared to the hardware industry which was already defined by a set of well-established guidelines and standards. The CMM was developed by the Software Engineering Institute (SEI) of the Carnegie Mellon University as a response to address a number of software failures that was termed as the *software crisis[3]* which resulted in delays, software which were not up to specifications, well over budget and simply not useful after years of development and huge investment. The five defined levels of the Capability Maturity Model were (1) Initial; (2) Repeatable; (3) Defined; (4) Managed or Capable and (5) Optimizing. The Capability Maturity Model has since its inception and application, evolved into the Capability Maturity Model Integration (CMMI) that takes CMM one-step further to integrate a process-level training and appraisal program, rather than just benchmarking an organization's capability for software development on the maturity scale. CMMI operates within a broadened framework that includes three sub-models namely Development (CMMI-DEV), Services (CMMI-SVC) and Acquisition (CMMI-ACQ)[4]. Capability Maturity Models do not apply only in the software industry. For example, it has been applied in eLearning and in areas like Operations Management and in fields like Architecture, Systems Security and Lifecycle Management. In this project, the main interest is on the eLearning Maturity Model developed by Stephen Marshall from the Victoria University of Wellington, is supported by the Ministry of Education in New Zealand.

2.2 – The e-Learning Maturity Model (eMM)
eMM as any benchmarking tool is not destined to be used as a ranking method for institutions. It is mainly a tool that has its place in the auditing process of

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[3] Software Crisis - https://en.wikipedia.org/wiki/Software_crisis
[4] The Capability Maturity Model Integration explained – What is CMMI? - http://dthomas-software.co.uk/resources/frequently-asked-questions/what-is-cmmi-2/

eLearning facilities and practices to identify strengths and locate areas where there are gaps and where improvement is needed.

2.2.1 Process Areas

Learning

This process area has as its goal the attainment of the highest quality learning outcomes possible for students. The individual processes are directed at preserving the essential aspects of an effective learning environment that apply regardless of the technologies used, the pedagogical approaches incorporated or the disciplinary domain.

Development

The goal of this process area is efficient and effective use of resources in the creation and maintenance of eLearning materials and courses. The individual processes are directed at informing the development of resources and ensuring that this is done in a way that builds capability based on experience and success of e-learning deployment in the institution.

Support

The goal of this process area is ensuring the efficient and effective day-to-day management of eLearning delivery so that students and teaching staff can focus on the educational aspects of the course rather than peripheral issues. The individual processes are aimed at ensuring that students are best placed to succeed in their studies using eLearning and are not hindered by lack of information, support or technology.

Evaluation

This process area has as its goal the encouragement of reflection and the building of capability to deliver eLearning informed by evidence from previous success and failure. The individual processes are directed at ensuring the evidence collected is robust and able to provide a reliable base of knowledge for future strategy and development.

Organization

This process area has as its goal the maintenance of organizational processes that ensure eLearning is well managed and planned to deliver the strategic and operational outcomes required by the institution. The individual processes are directed at ensuring the administrative and organizational aspects of e-learning are high quality, efficient and effective as they transition from face-to-face processes.

2.2.1 Process Area Dimensions

The current eMM model has endorsed the concept of dimensions to describe capability in each of the five processes. For each of the process areas, there are five process dimensions for which the specific process statements (within process areas) will be assessed. The five process dimensions are: delivery, planning, definition, management, and optimization (figure 5).
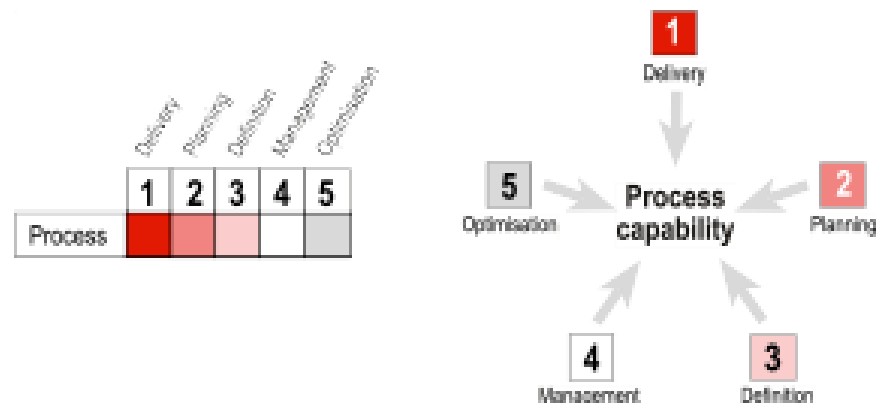
Figure 5: The Five Dimensions

The current version of the eMM (Marshall, 2006b) divides the capability and deliver e-learning into thirty five processes grouped into five major categories or process areas (Table 1) that indicate of institutions to sustain a shared concern. It should be noted however that all of the processes are interrelated to some degree, particularly through shared practices and the perspectives of the five dimensions. Each process in the eMM is broken down within each dimension into practice statements that define how the process outcomes might be achieved by institutions. The practice statements attempt to capture directly measureable activities for each process and dimension. The practices are derived from an extensive review of the literature, international workshops and experience from their application (Marshall 2008).

2.2.3 Ratings
When conducting an assessment each practice is rated, with reference to the exemplars, for performance from 'not adequate' to 'fully adequate'. The ratings at each dimension are done on the basis of the evidence collected from the institution and are a combination of whether or not the practice is performed, how well it appears to be functioning, and how prevalent it appears to be.

Fully Adequate	■
Largely Adequate	■
Partially Adequate	□
Not Adequate	□
Not Assessed	■

eMM Capability Assessments (based on Marshall and Mitchell, 2003)

2.3 - THE EMM V2.3 Instrument

		Delivery	Planning	Definition	Management	Optimization
Learning: Processes that directly impact on pedagogical aspects of e-learning
L1	Learning objectives guide the design and implementation of courses					
L2	Students are provided with mechanisms for interaction with teaching staff and other students					
L3	Students are provided with e-learning skill development					
L4	Students are provided with expected staff response times to student communications					
L5	Students receive feedback on their performance within courses					
L6	Students are provided with support in developing research and information literacy skills					
L7	Learning designs and activities actively engage students					
L8	Assessment is designed to progressively build student competence					
L9	Student work is subject to specified timetables and deadlines					
L10	Courses are designed to support diverse learning styles and learner capabilities					
Development: Processes surrounding the creation and maintenance of e-learning resources
D1	Teaching staff are provided with design and development support when engaging in e-learning					
D2	Course development, design and delivery are guided by e-learning procedures and standards					
D3	An explicit plan links e-learning technology, pedagogy and content used in courses					
D4	Courses are designed to support disabled students					
D5	All elements of the physical e-learning infrastructure are reliable, robust and sufficient					
D6	All elements of the physical e-learning infrastructure are integrated using defined standards					
D7	E-learning resources are designed and managed to maximize reuse					

Support: Processes surrounding the support and operational management of e-learning					
S1	Students are provided with technical assistance when engaging in e-learning				
S2	Students are provided with library facilities when engaging in e-learning				
S3	Student enquiries, questions and complaints are collected and managed formally				
S4	Students are provided with personal and learning support services when engaging in e-learning				
S5	Teaching staff are provided with e-learning pedagogical support and professional development				
S6	Teaching staff are provided with technical support in using digital information created by students				
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle					
E1	Students are able to provide regular feedback on the quality and effectiveness of their e-learning experience				
E2	Teaching staff are able to provide regular feedback on quality and effectiveness of their e-learning experience				
E3	Regular reviews of the e-learning aspects of courses are conducted				
Organization: Processes associated with institutional planning and management					
O1	Formal criteria guide the allocation of resources for e-learning design, development and delivery				
O2	Institutional learning and teaching policy and strategy explicitly address e-learning				
O3	E-learning technology decisions are guided by an explicit plan				
O4	Digital information use is guided by an institutional information integrity plan				
O5	E-learning initiatives are guided by explicit development plans				
O6	Students are provided with information on e-learning technologies prior to starting courses				
O7	Students are provided with information on e-learning pedagogies prior to starting courses				
O8	Students are provided with administration information prior to starting courses				
O9	E-learning initiatives are guided by institutional strategies and operational plans				

3 - THE RESEARCH FRAMEWORK

3.1 - The Research Questions

The main objective is to conduct a capability assessment of the e-learning initiative of the University of Mauritius using the eLearning Maturity Model as a benchmark. The main research questions are as follows:

1. What is the eLearning capability of the University of Mauritius using the EMM v2.3 as benchmark?
2. What are the identified strengths and gaps in the current eLearning model of the University?
3. How does the University of Mauritius fare with respect to other institutions that were benchmarked under EMMv2.3?
4. What are the actions to be taken and strategies to be put in place to improve the eLearning capability of the institution?

3.2 - The Research Design

The objects of the research are such that an inquiry-based approach is favored given that the EMMv2.3 is mainly an auditing technique. The researcher is at the Centre of the process in the role of an 'elearning quality auditor'. Therefore a mix of approaches such as qualitative techniques coupled with desk studies, and analysis of annual reports as well as a consultative approach with key stakeholders based on a consensus model to reach a rating for each element in the EMMv2.3 instrument. The theoretical framework was inspired from the Change Laboratory method (Engeström et al., 1996) and the concept of action research. The Change-Laboratory is a space that provides practitioners a wide variety of instruments and tools for analyzing gaps and challenges in the current work practices (Change Laboratory 2010). The key principles adopted here and which were extracted from Action Research approach are critical reflection, collaborative resource, plural structure and theory-practice-transformation (Winter 1989). In the change laboratory, the researcher who is normally an external person participates with the practitioners in a real-world problem context. In that session the practitioners will normally make abstraction of their work context, individual tasks and routines. In the current context, the practitioners were academics (full-time/part-time), students, and support staff. The officer-in-charge of the Centre represented the administrative staff and was also representative of the full time academic staff of the Centre. The three key principles of Action Research were used as key techniques for the researcher to get a reliable approximation of the issue at hand and to put a rating to each aspect being evaluated in a rational manner.

3.2.1 The Methods

Assessing the eLearning maturity of an organization is mainly a qualitative exercise that is essentially based on a convergence of different trends or elements (that could also include quantitative data) towards a singular point or tendency, so that the assessor may come up with an appropriate and accurate judgment prior to deciding on a particular rating to be marked.

The following methods were used during this study:

- **Desk studies**

  One of the key aspects of the assessment is to rely on official documents and readily available information such as the website of the University and the Centre, annual reports, blogs, and students' perceptions. The following documents/resources were consulted:
    - Ex-VCILT & CILL Websites
    - Annual Reports of VCILT & CILL (2004-2015)
    - External examiners reports for the following programmes
        - BSc (Hons) Web & Multimedia Development
        - BSc (Hons) Educational and Instructional Technologies
        - MSc Educational Technologies
    - University of Mauritius 2nd Quality Audit Report on Teaching and Learning.
    - University of Mauritius Rules and Regulations Handbook
    - CILL Research Publications
    - CILL eLearning Platforms

- **Focus Group Sessions**

  The focus group sessions were mainly carried out under the change laboratory model where the researcher covers line by line in the EMM process areas and dimensions, and requests for views from the participants, and questions them with respect to available evidence that is verifiable. A consensus approach was used in the focus group session, where the rating to be finalized is agreed as proposed by the researcher after synthesizing all the inputs and cross-verifications (figure 6 below). In case of a significant difference in opinion and where the divergence is not immediately solvable, the item is postponed, and the team moves on. Further verification and gathering of evidence is then conducted so as to resolve the issue in the next meeting of the working group.

L1	Learning objectives guide the design and implementation of courses		
	Assessment	**Delivery**	**Assessment Notes**
	Largely	**Course documentation includes a clear statement of learning objectives.**	Checking course on platform and going through MSS
	Partially	**Learning objectives are linked explicitly throughout learning and assessment activities using consistent language.**	There is no official guideline that is given to course developers/lecturers - only for manual development for Management programmes.It depends on the skills
	Largely	Learning objectives are linked explicitly to wider programme or institutional objectives.	Benchmark - web multimedia and EdTech
	Largely	Learning objectives support student outcomes beyond the recall of information.	Modules have practical component, critical analysis components
	Partially	Course workload expectations and assessment tasks are consistent with course learning objectives.	Student feedback on edtech programmes mention high workload, there is no student workload model/calculatoror process to estimate student expected
		Planning	
	Fully	**Course documentation templates require the clear statement of learning objectives.**	all templates / mss cover this aspect
	Largely	**Learning objectives guide e–learning design and (re)development decisions regarding content and activities.**	
	Partially	**Learning objectives guide e–learning design and (re)development decisions regarding technology and pedagogy.**	
	Largely	Institutional reviews monitor the linkages between course learning objectives and wider programme or institutional objectives.	External examiner system
	Largely	Institutional reviews are guided by course learning objectives when assessing course structure, learning design and content.	CILL board addresses these issues depending on courses e.g MSC ALICT

Figure 6: Sample working grid

- **Benchmark against other institutions who used EMM v2.3**

EMM assessments of other institutions in Jordan, New Zealand, Australia, UK and US were briefly reported in Section 3.3. After the assessment of the University of Mauritius was completed, it was broadly compared with the other reported assessments to get a high-level view of the current standing of the University of Mauritius. These institutions were not named in the research. Therefore they are far from being references that we can say, "this is the benchmark – lets see how we fare". However given that assessments were carried out in these countries, and which are in privileged position than Mauritius with respect to their location, size and development levels, it would provide the University a 'glimpse' of where it stands.

4. THE EVALUATION GRID & KEY FINDINGS

4.1 - The Learning Process Area

The main strengths of the eLearning initiative at the University clearly lie in the learning related processes. Documents such as the annual reports, the Centre's website, publication lists, workshops and content of its online courses clearly show that the Centre's staff expertise are highly coupled with online teaching and learning design. This is evidenced by the "Delivery" dimension column, where the most of the elements (L1, L4-L10) are marked as being largely addressed, with L2 being fully addressed while there are improvements needed in L3. There is a need to develop a student skills development framework within the institutional eLearning policy to address, in addition to staff needs, the students' skills gap for technology adoption to provide an improved environment for optimal learning to take place.

		Delivery	Planning	Definition	Management	Optimisation
Learning: Processes that directly impact on pedagogical aspects of e-learning						
L1	Learning objectives guide the design and implementation of courses					
L2	Students are provided with mechanisms for interaction with teaching staff and other students					
L3	Students are provided with e-learning skill development					
L4	Students are provided with expected staff response times to student communications					
L5	Students receive feedback on their performance within courses					
L6	Students are provided with support in developing research and information literacy skills					
L7	Learning designs and activities actively engage students					
L8	Assessment is designed to progressively build student competence					
L9	Student work is subject to specified timetables and deadlines					
L10	Courses are designed to support diverse learning styles and learner capabilities					

Figure 7: The Learning Process Area

In terms of the "Planning" dimension, we find that there are gaps within L3, L6 and L9. With respect to L6, there are two key aspects with respect to academic planning that need to be addressed namely,

- A formal approach and/or institutional policy to provide student with information literacy and research skills in all their courses.
- The use for assessment rubrics in lieu of the classic assessment criteria that is still prevalent in the current system.

In the "Definition" dimension, there are identified gaps in most of the elements except for L1, L2, L4 and L7 where the targets are largely met. In terms of the gaps that have been identified, these are described as follows:

- The need for a capacity building of staff, and the provision of relevant resources to them and the implementation of an appropriate policy to enable them to give effective feedback and in designing assessment instruments conducive for eLearning.
- The need to provide students with resources, guidelines and mentoring on how to effectively use feedback to improve their own learning.

From the figure above, it is clear that the main weaknesses in the Learning process areas lie in the "Management" and "Optimization" dimensions. Apart from L1 & L7 in the former, and L8 in the latter, the other processes are all marked as having been partially addressed so far within the institutional eLearning framework. It is important to note that in both the "Definition" and "Management" dimensions, L10 are not addressed formally through a training strategy to address the diversity of learning styles and preferences.

The key elements to be addressed are highlighted below:

- Monitoring and feedback collection from communication channels with respect to exchanges between students and staff to improve the teacher – student interaction.
- Monitoring of the use of support facilities by students and the impacts on their eLearning skills development.
- Monitoring of staff response times and student workload.
- The necessity to put in place a general Monitoring and Evaluation framework to enable optimization processes to be put in place.
- Introduction of diversity policies to address learning preferences and cultural bias issues that may arise.

4.2 - The Development Process Area

There is an obvious difference between the maturity levels in the Learning process areas as compared to the Development process areas. In the Development process areas, the main strengths lie in the "Delivery" dimension, except for D3 and D6 where gaps were identified. With respect to D4, it was found that courses were not explicitly designed to support disabled students, as there were simply no documents or guidelines, which existed with respect to the design and development processes.

		Delivery	Planning	Definition	Management	Optimisation
Development: Processes surrounding the creation and maintenance of e-learning resources						
D1	Teaching staff are provided with design and development support when engaging in e-learning	Blue	Light	Light	Light	Blue
D2	Course development, design and delivery are guided by e-learning procedures and standards	Blue	Light	Blue	Blue	Light
D3	An explicit plan links e-learning technology, pedagogy and content used in courses	Light	Blue	Blue	Blue	Blue
D4	Courses are designed to support disabled students		Light		Light	
D5	All elements of the physical e-learning infrastructure are reliable, robust and sufficient	Blue	Light		Light	Blue
D6	All elements of the physical e-learning infrastructure are integrated using defined standards	Light		Light	Light	
D7	E-learning resources are designed and managed to maximise reuse	Blue	Light	Light		Light

Figure 8: The Development Process Area

With respect to the "Planning" dimension, we find that there is work to be done in practically all of the elements except for D3, while D6 is not catered for in the present arrangement. While the eLearning platform in use adhere to standards such as SCORM and IMS, the use of standards within the eLearning infrastructure is neither documented nor monitored.

For the "Definition" dimension, D2 and D3 are particularly well addressed while D1, D6 and D7 are partially addressed. D4 is not addressed as mentioned above, while D5 is not really addressed for two key reasons. The first one is that the eLearning infrastructure is internally managed, and second many issues that have been persistent for quite a long period of time have not been adequately addressed, despite the growth of the eLearning initiative.

In regards to the "Management" dimension, with the exception of D2, the other statements were marked as partially addressed while D7 is not being addressed at present. This has been explained during the evaluation process that the position of Manager, Innovative Learning Technologies has been vacant since 2007 and was due to the fact that eLearning was not institutionally adopted. The key gaps lie in the area of designing for reuse and ensuring metadata standards are met, although it is important to note that the Centre uses systems that are compliant.

With respect to the "Optimisation" dimension, we find that D1, D3 and D5 are largely addressed while D7 is partially addressed due to the fact that all the systems used are de-facto compliant with eLearning standards as mentioned in the paragraph above. D4 and D6 are however not addressed so far.

The key elements to be addressed with respect to the Development process areas are as follows:

- Students should be made aware of accessibility support mechanisms and encouraged to make use of the alternatives provided.

- Integrate accessibility elements into formal institutional e-Learning policies and engage into capacity-building of staff to support students with learning disabilities.

- Develop an integrated system infrastructure where the eLearning platforms are coupled with other key systems such as student information systems, financial software and admissions and student records.

- Develop eLearning implementation plans supported by Monitoring and Evaluation instruments that are put in place to improve the overall management for the "Delivery" process area.

4.3 - The Support Process Area

In the Support process areas, we confirm the strengths of the University's eLearning initiative with respect to the "Delivery" dimension where all the statements except S2 were marked as being largely addressed. However at the time of writing this report, the University has already launched its e-Library initiative where its students can access more than 20000 resources online.

		Delivery	Planning	Definition	Management	Optimisation	
Support: Processes surrounding the support and operational management of e-learning							
S1	Students are provided with technical assistance when engaging in e-learning						
S2	Students are provided with library facilities when engaging in e-learning						
S3	Student enquiries, questions and complaints are collected and managed formally						
S4	Students are provided with personal and learning support services when engaging in e-learning						
S5	Teaching staff are provided with e-learning pedagogical support and professional development						
S6	Teaching staff are provided with technical support in using digital information created by students						

Figure 9: The support process area

With respect to the "Planning" dimension, except in S3 and S6 the other statements are marked to be partially addressed. While most of the elements are covered within the activities of the Centre, it is found that there is a lack of formal planning exercise to identify, implement and monitor effectiveness of support processes that are put in place. While students' are regularly attended to when

they have technical issues either in person, via email or through the online helpdesk, there is a lack of formal approved processes and procedures to document student issues. There is no equivalent of a "service-level agreement" with respect to typical response time, and acceptable time frame for complete resolution of issues.

In the "Definition" dimension, gaps are identified in S2, S3 and S5 while S4 is marked as not addressed. With respect to S2, given that now e-Library facilities have been made accessible, there is a need to articulate the eLearning platform and its courses in line with library facilities within the course documentation. With respect to S4, this has now been addressed at the Macro level as the University has just approved the technology-enabled learning policy, and further progress along this line is expected when the implementation plan of the policy will be put in place.

All the statements in the "Management" dimensions were marked as partially addressed except S2, which was not yet addressed, as the e-Library facilities were not yet launched at the time. With time, when the assessment will be reviewed, the status will more likely evolve. With respect to management of the global student support processes, there are gaps that are identified in the monitoring aspect. In the "Optimisation" dimension, S4 to S6 are marked as being partially addressed while S1 and S2 are largely addressed. S3 is not marked as addressed at this stage, as it relates to the provision of e-Library facilities.

With respect to the "Support" process areas, the following are the key recommendations where the Centre has to put more emphasis:

- Formalize processes, documentation and acceptable quality of service levels related to student's support activities for eLearning.

- Interface the e-Library with the eLearning platform to embed e-Library resources within courses, including a proper monitoring and evaluation plan for determining usage levels, effectiveness and impact on learning experiences.

- Further the development of a full-fledged online student helpdesk with smart functionalities and proper logging mechanism to allow easy retrieval of documented cases of student issues and actions taken to resolve them.

- Develop an appropriate incentive and recognition mechanism to reward academics' involvement and commitment to the use of technology to improve teaching and learning.

4.4 - The Evaluation Process Area

The trend is similar in the Evaluation process areas where gaps are identified practically in all the dimensions, with the exception of the "Delivery" dimension where the strong aspect is the fact that student feedback mechanism is in place. The gap has however been identified in the feedback mechanism from teaching staff, whereby no formal process has been established. It has been marked as "partly addressed" as most of the feedback occur on ad-hoc basis from academics in informal settings or through email from time to time.

		Delivery	Planning	Definition	Management	Optimisation	
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle							
E1	Students are able to provide regular feedback on the quality and effectiveness of their e-learning experience						
E2	Teaching staff are able to provide regular feedback on quality and effectiveness of their e-learning experience						
E3	Regular reviews of the e-learning aspects of courses are conducted						

Figure 10: The Evaluation Process Area

In terms of the "planning" dimension, E1 is marked as being partly addressed because currently the feedback loop is not closed by providing information to the students about how their feedback has been used to bring any change or amendment in teaching and learning processes. The same applies for E2 that caters for feedback from the teaching staff perspective. E1 and E2 are inevitably linked to the E3 where it's clear that students and staff are not really provided with information on how reviews have been and will be used to modify and improve their e-learning experiences.

In the "definition" dimension, E1 is marked as being largely addressed while E2 and E3 are marked as "partly addressed". As explained in the paragraph above, while the institution has clear guidelines, rules and regulations governing the collection and administration of student feedback, there is no established mechanism for staff evaluations of the effectiveness of e-learning initiatives. With respect to E3, there is a lack of information on how the feedback loop is closed through provision to staff and students on how reviews have been or would be used to modify and improve their learning experiences.

In the "management" and "optimization" dimensions, E1, E2 & E3 are marked as partly addressed. While it has been established that the e-Learning initiative is subject to the same rigor when it comes to adherence to established university rules related to quality assurance, there is a lack of risk assessment procedures in

place in relation to the educational effectiveness, success or failure of e-learning initiatives.

In reference to the Evaluation process areas, the key recommendations to address the identified gaps are as follows:

- Establish a feedback mechanism for academics involved in e-Learning provision and delivery.

- Devise and implement a process model to report on actions taken further to analysis of student and staff feedback.

- Monitor and document actions taken and impact from feedback reports.

4.5 - The Organization Process Area

There are a number of positive points with respect to the "organization" process area, mainly in the "delivery" and the "planning" dimensions. As mentioned earlier in most of the process areas, the "delivery" dimensions was the one with less gaps and where most of the elements were largely addressed. The "planning" dimension is also well addressed in the Learning process area also.

		Delivery	Planning	Definition	Management	Optimisation	
Organisation: Processes associated with institutional planning and management							
O1	Formal criteria guide the allocation of resources for e-learning design, development and delivery						
O2	Institutional learning and teaching policy and strategy explicitly address e-learning						
O3	E-learning technology decisions are guided by an explicit plan						
O4	Digital information use is guided by an institutional information integrity plan						
O5	E-learning initiatives are guided by explicit development plans						
O6	Students are provided with information on e-learning technologies prior to starting courses						
O7	Students are provided with information on e-learning pedagogies prior to starting courses						
O8	Students are provided with administration information prior to starting courses						
O9	E-learning initiatives are guided by institutional strategies and operational plans						

Figure 11: The Organisation Process Area

In the 'delivery' dimension only O1, O3 and O6 were marked as partly addressed. While there are established processes for engaging in e-learning development and related initiatives, the decision-making criteria was not really defined as these were left to the faculties concerned to decide on which courses to be offered

through e-learning modalities, and consequently the Centre for Innovative and Lifelong Learning allocates resources accordingly. The same applies for O3 where there is no specific technology decision-making plan for eLearning but rather a plan at the level of the whole institution for ICT. It was highlighted that the institution has an IT Advisory Committee. However upon further analysis, it was found that the IT advisory committee has not really treated issues related to eLearning so far. With respect to O6 there is a gap with respect to promotional materials that do not explicitly provide first-hand information to students about requirements for eLearning.

In the "planning' dimension, gaps are identified in O1, O3, O5 and O9. The first two are related to the "delivery" dimension where O1 and O3 were also marked as being partly addressed. For O1, given that there was no formal establish criteria for the allocation of resources for the development of eLearning initiatives, the eLearning plans could therefore not be formally linked with such criteria. With respect to O3, it could not be established that institutional e-learning technology plans have clearly defined and empirically measureable objectives and milestones. As mentioned before, risk assessment elements were also missing from the eLearning plans.

With respect to the "definition" dimension, with the exception of O7 and O8 all the other statements are marked as partly addressed. While eLearning is accepted to be an important element of the broader teaching and learning framework of the university, there was a lack of information to establish that institutional policies require that the implications of e-learning are included when (re) developing new and existing policies. It was also observed that there was lack of evidence to demonstrate that eLearning strategies and plans are coordinated throughout the institution. While the Data Protection Act is in force in the country and the University has to comply with the law, with respect to the eLearning initiative, it was observed that staff was not well-informed about how to best use digital information, including compliance with Intellectual property laws and licenses.

As regards to the "Management" dimension, except for O1, O2 and O5, gaps have been identified in the other statements that were marked as partly addressed. This dimension concerns the monitoring aspects of systems and procedures that have been put in place. Therefore it is intrinsically linked with the other dimensions to quite some extent, where the effects on one would be visible on the other dimension. For e.g. it was not possible to confirm that there was compliance with institutional integrity plans for digital information.

In the "optimization" dimension, only O2 and O5 were marked as being largely addressed, and O4 was marked as not being addressed.

It was observed that previous successful eLearning projects and initiatives were not necessarily documented and used as baseline models prior to allocation resources for new e-learning projects. With respect to risk assessment the gap remains in the optimization dimension since no refinement or review of such a plan can be done given that it is not existent. There is a need to conduct full evaluation of student preparedness for eLearning so as to develop plans that ensures a smooth transition to this new learning culture and modality.

In reference to the Optimization process areas, the key recommendations to address the identified gaps are as follows:

- Develop and administer regular student readiness surveys for eLearning in particular with newcomers.

- Elaborate a technology development plan for eLearning including a well-defined set of criteria for the allocation of resources for the development of eLearning initiatives.

- Develop and implement a digital information integrity checklist for eLearning initiatives to ensure compliance with institutional standards, guidelines and the law.

- Revise course documentation templates to formally include information about eLearning modalities prior to enrolment and start of eLearning courses and programs.

4.6 - The overall evaluation of EMM Process Areas for UoM

		Delivery	Planning	Definition	Management	Optimisation
Learning: Processes that directly impact on pedagogical aspects of e-learning						
L1	Learning objectives guide the design and implementation of courses					
L2	Students are provided with mechanisms for interaction with teaching staff and other students					
L3	Students are provided with e-learning skill development					
L4	Students are provided with expected staff response times to student communications					
L5	Students receive feedback on their performance within courses					
L6	Students are provided with support in developing research and information literacy skills					
L7	Learning designs and activities actively engage students					
L8	Assessment is designed to progressively build student competence					
L9	Student work is subject to specified timetables and deadlines					
L10	Courses are designed to support diverse learning styles and learner capabilities					
Development: Processes surrounding the creation and maintenance of e-learning resources						
D1	Teaching staff are provided with design and development support when engaging in e-learning					
D2	Course development, design and delivery are guided by e-learning procedures and standards					
D3	An explicit plan links e-learning technology, pedagogy and content used in courses					
D4	Courses are designed to support disabled students					
D5	All elements of the physical e-learning infrastructure are reliable, robust and sufficient					
D6	All elements of the physical e-learning infrastructure are integrated using defined standards					
D7	E-learning resources are designed and managed to maximise reuse					
Support: Processes surrounding the support and operational management of e-learning						
S1	Students are provided with technical assistance when engaging in e-learning					
S2	Students are provided with library facilities when engaging in e-learning					
S3	Student enquiries, questions and complaints are collected and managed formally					
S4	Students are provided with personal and learning support services when engaging in e-learning					
S5	Teaching staff are provided with e-learning pedagogical support and professional development					
S6	Teaching staff are provided with technical support in using digital information created by students					
Evaluation: Processes surrounding the evaluation and quality control of e-learning through its entire lifecycle						
E1	Students are able to provide regular feedback on the quality and effectiveness of their e-learning experience					
E2	Teaching staff are able to provide regular feedback on quality and effectiveness of their e-learning experience					
E3	Regular reviews of the e-learning aspects of courses are conducted					
Organisation: Processes associated with institutional planning and management						
O1	Formal criteria guide the allocation of resources for e-learning design, development and delivery					
O2	Institutional learning and teaching policy and strategy explicitly address e-learning					
O3	E-learning technology decisions are guided by an explicit plan					
O4	Digital information use is guided by an institutional information integrity plan					
O5	E-learning initiatives are guided by explicit development plans					
O6	Students are provided with information on e-learning technologies prior to starting courses					
O7	Students are provided with information on e-learning pedagogies prior to starting courses					
O8	Students are provided with administration information prior to starting courses					
O9	E-learning initiatives are guided by institutional strategies and operational plans					

4.7 - Visual Comparison with other Universities

In this section, the capabilities of the university as established by this evaluation exercise will be visually compared with those reported previously.

4.7.1 The Learning Process Area

New Zealand Universities

Figure 12(a) below illustrates how the five Universities in New Zealand fared in the Learning process area, and the five dimensions while figure 12(b) represents the performance of the University of Mauritius in the Learning Process Area.
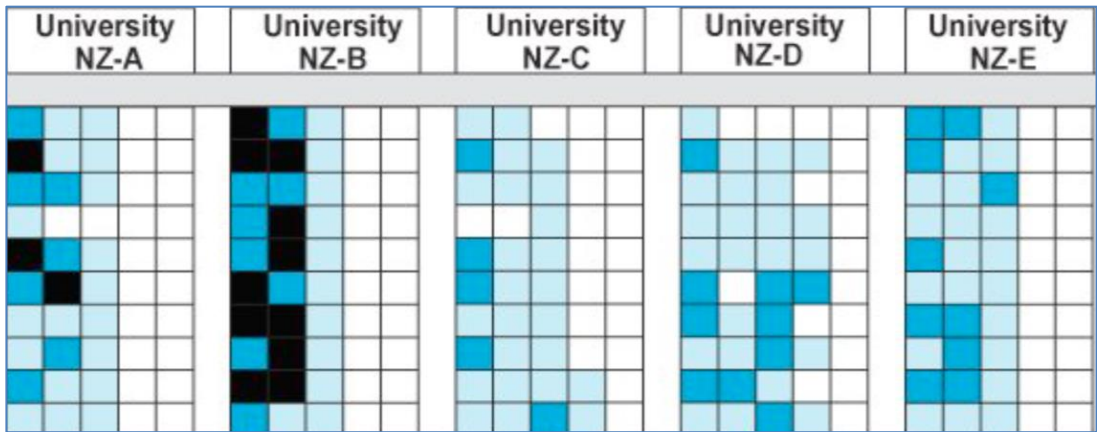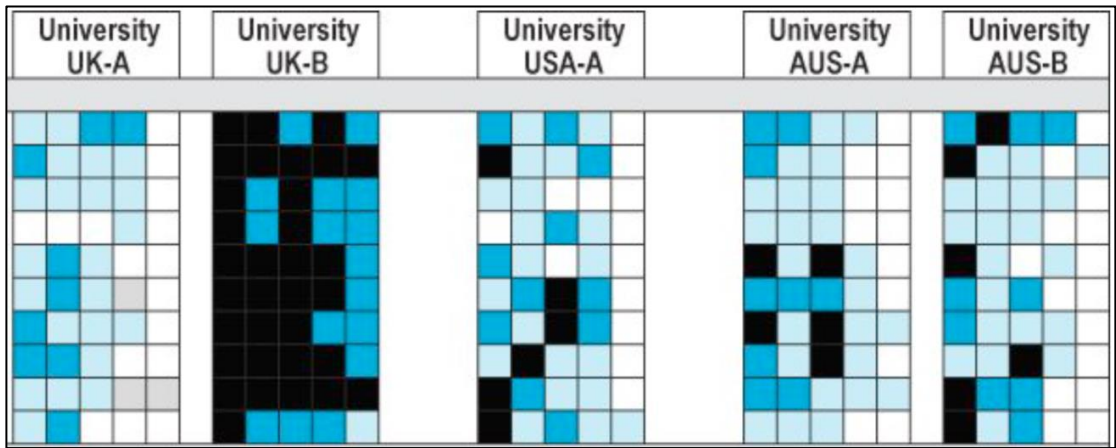

Figure 12 (a). The Learning Process Areas for the 5 NZ Universities
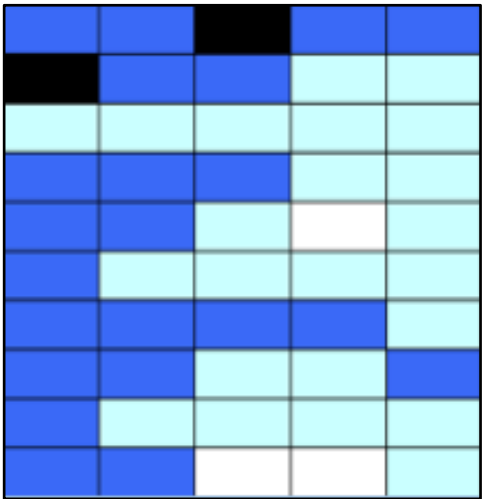
Figure 12 (b). The Learning Process Area for the UoM

It is obvious from the figure above that, from a holistic perspective the UoM fares better in the Learning Process Area including the dimensions when compared to

the New Zealand Universities. University NZ-B seems however to have a slightly stronger component in Delivery and Planning dimensions than the UoM.

UK, US & AU Universities

Figure 13(a) below illustrates how the five Universities in UK, US and Australia fared in the Learning process area, and the five dimensions while figure 13(b) represents the performance of the University of Mauritius in the Learning Process Area.

Figure 13 (a). The Learning Process Areas for the 5 NZ Universities
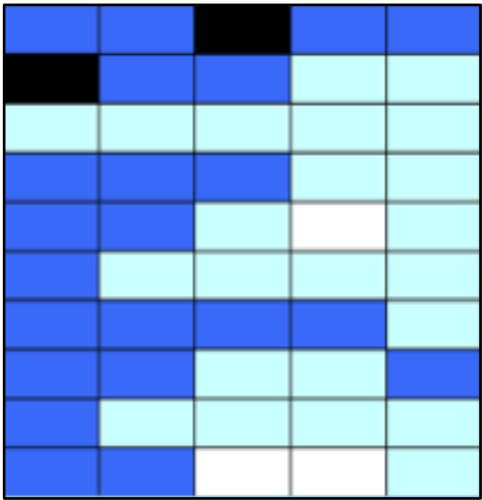
Figure 13 (b). The Learning Process Area for the UoM

While University UK-B can be categorized as a highly mature organization when it comes to the Learning process area, it can reasonably be argued that the UoM is better than UK-A, while being comparable with USA-A, AUS-A, and AUS-B.

4.7.2 The Development Process Area

Figure 14(a) below illustrates how the five Universities in New Zealand fared in the Development process area, and the five dimensions while figure 14(b) represents the performance of the University of Mauritius in the Development Process Area.

New Zealand Universities
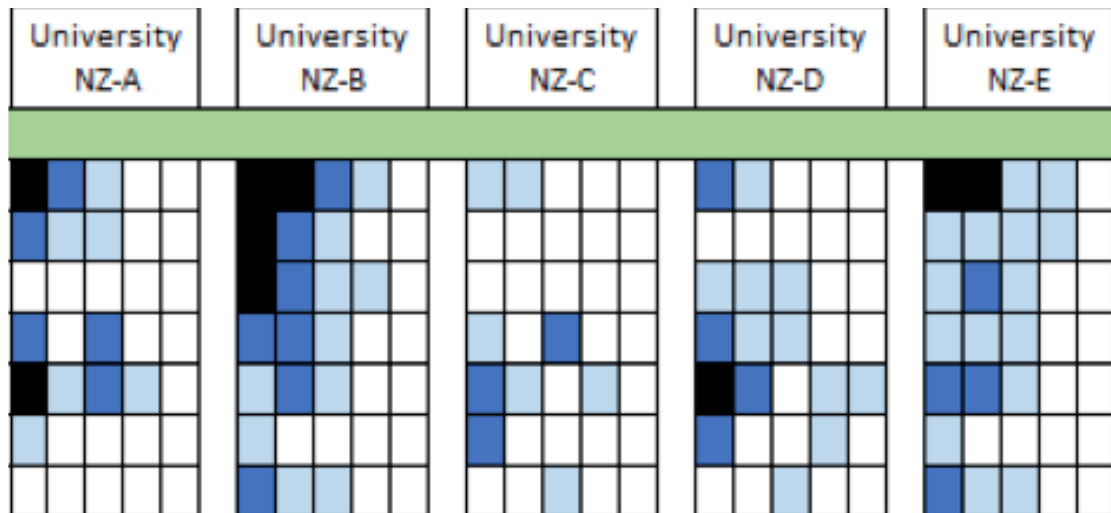
Figure 14 (a). The Development Process Areas for the 5 NZ Universities
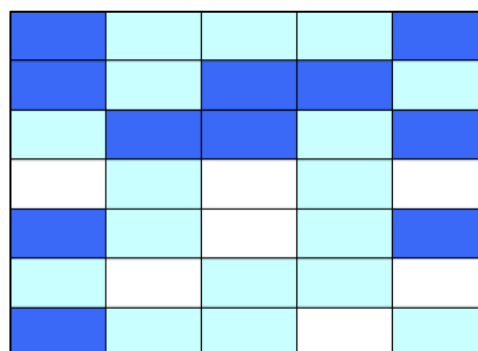
Figure 14 (b). The Development Process Area for the UoM

Despite the Development process area looking to present a few weaknesses from the University of Mauritius with a number of statements marked as not being addressed, it is still faring better in this process area too, as compared to the NZ Universities. Universities NZ-A, NZ-C and NZ-D clearly are below par when compared to the UoM.

UK, US & AU Universities

Comparing now to the other 5 Universities, it can be concluded that save UK-B and AUS-B, the UoM's ability is comparable with the others and even better than UK-A.

Figure 15 (a). The Development Process Areas for the 5 other Universities

Figure 15 (b). The Development Process Area for the UoM
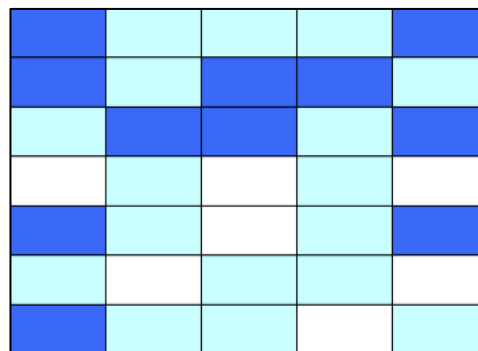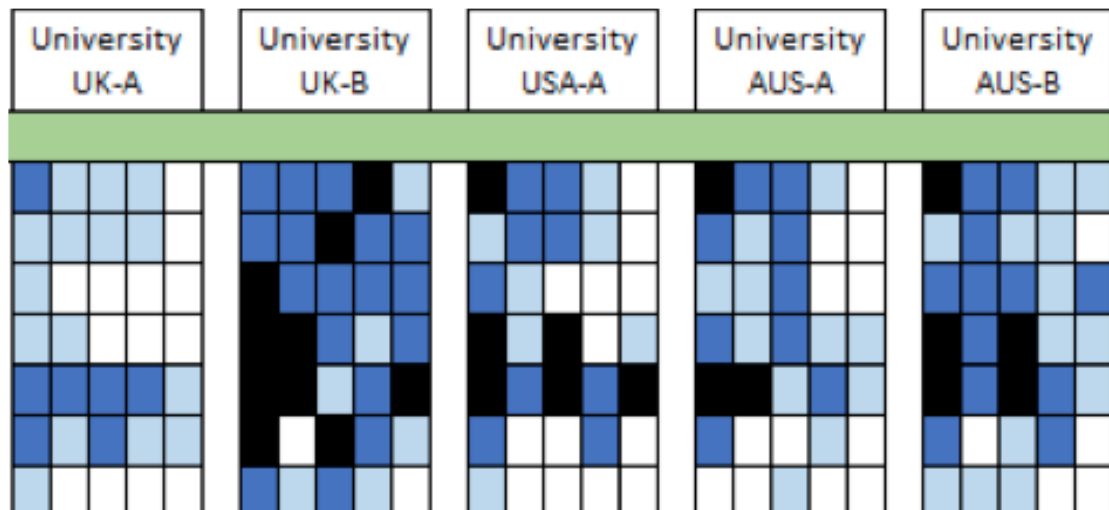
4.7.3 The Support Process Area

Figure 16(a) below illustrates how the five Universities in New Zealand fared in the Development process area, and the five dimensions while figure 16(b)

represents the performance of the University of Mauritius in the Development Process Area.

New Zealand Universities
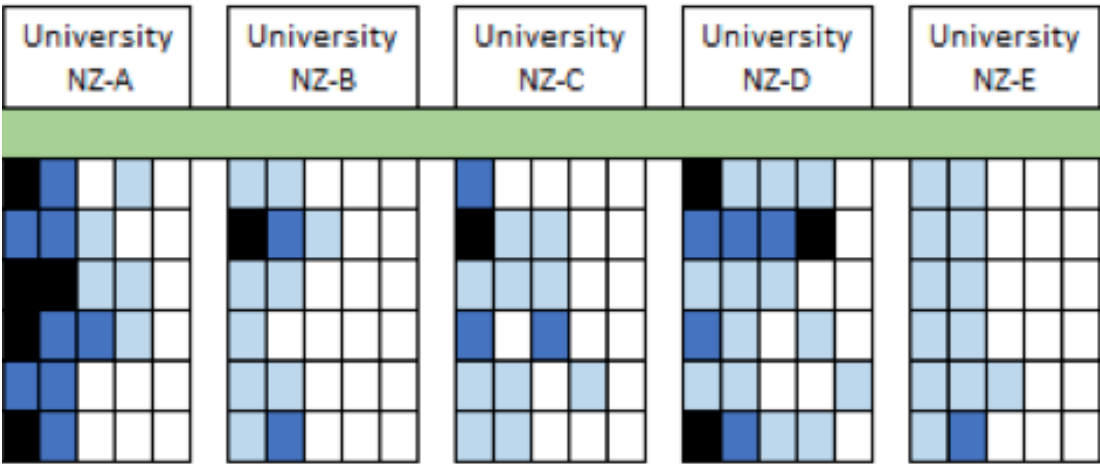
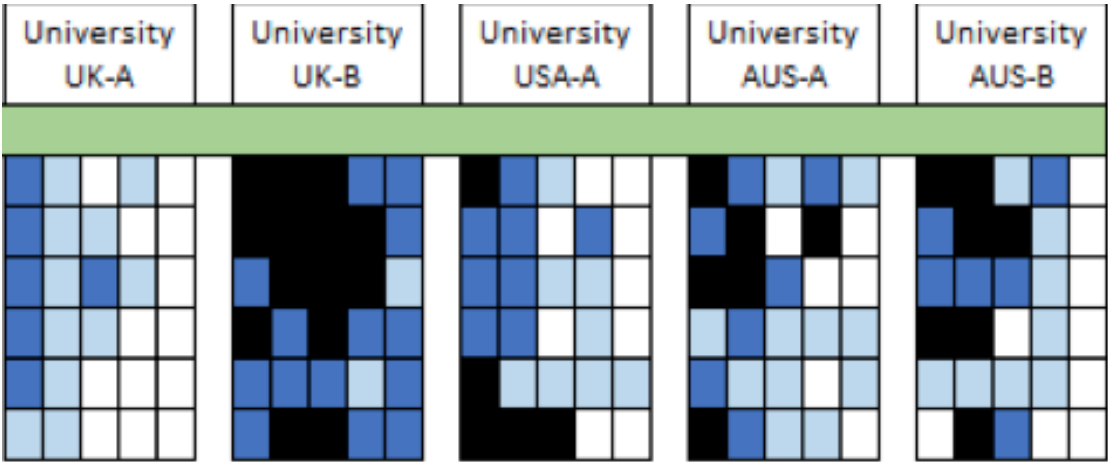*Figure 16 (a). The Support Process Areas for the 5 NZ Universities*
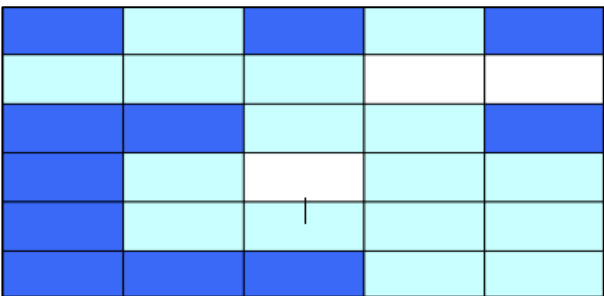
Figure 16 (b). The Support Process Area for the UoM

From the figures above, the pattern that has been observed in the previous process areas are visible. The UoM capabilities in the support process area look superior than all universities except for NZ-A which has stronger elements in the delivery and planning dimension than the University of Mauritius.

UK, US & AU Universities

As regards to the five other universities, UK-B is clearly above the lot again and outperforms the University of Mauritius in all dimensions. As regards to UK-A, the

UoM still fares better. It can be postulated though the UoM is comparable with the other universities, although in a few specific areas, those universities have largely met the requirements as compared to UoM.

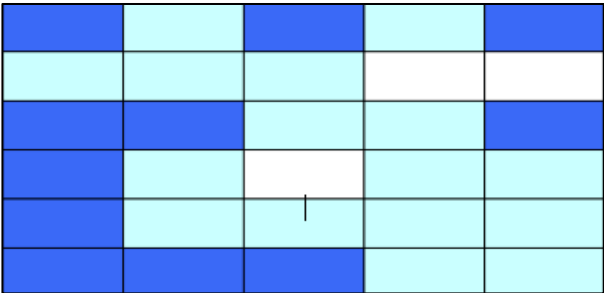*Figure 17 (a). The Support Process Areas for the 5 other Universities*

Figure 17 (b). The Support Process Area for the UoM

It can be deduced for e.g. that USA-A, AUS-A and AUS-B are generally stronger than UoM in the delivery and planning dimensions, while in the other two dimensions of definition and management, the capabilities are comparable. In the optimization dimension, however, UoM is better than all the three institutions.

4.7.4 The Evaluation Process Area

The data for the evaluation process area speak for itself, as the University despite having only partly addressed the dimensions in this area, is better than the NZ universities.
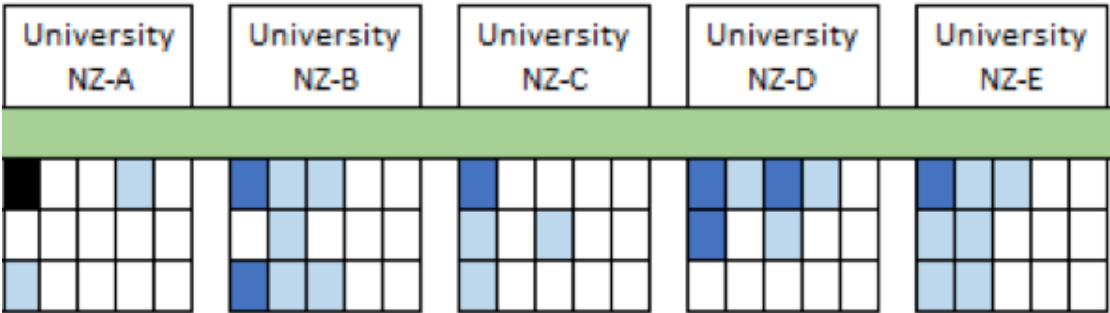
New Zealand Universities

Figure 18 (a). The Evaluation Process Areas for the 5 NZ Universities
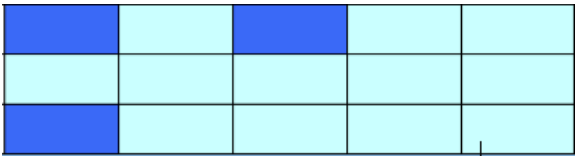

Figure 18 (b). The Evaluation Process Area for the UoM

UK, US & AU Universities

With respect to the other Universities, UK-B is clearly better than the UoM although overall, the evaluation process area seems the weaker point of UK-B when compared to the other process area scores of the same institution. The evaluation process area is in general the weakest link of all the institutions that have been assessed. As can be seen from Figure 19 (a) UK-A has clearly no defined mechanisms to address the dimensions of defined, management and optimization for the evaluation process area.
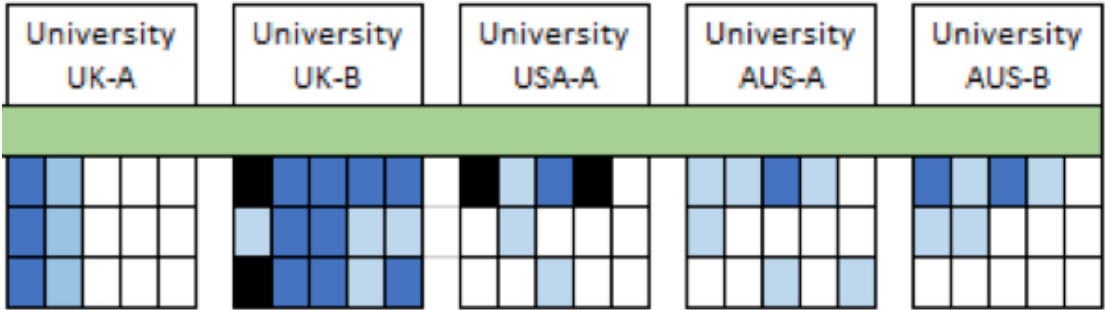

Figure 19 (a). The Evaluation Process Areas for the 5 other Universities

*Figure 19 (b). The Evaluation Process Area for the UoM*

For Universities USA-A, AUS-A and AUS-B, the assessments show a horizontal compliance with the requirements for the first statement of the evaluation process area across dimensions rather than within dimensions.

4.7.5 The Organization Process Area

Figure 20(a) below illustrates how the five Universities in New Zealand fared in the Organization process area, and the five dimensions while figure 20(b) represents the performance of the University of Mauritius in the Development Process Area.

All the NZ universities have major gaps to be addressed in the organization process area in all dimensions, save NZ-B and NZ-E that have addressed mainly the delivery and planning dimensions. In the organization process area the UoM is better than the NZ universities in practically most aspects.

New Zealand Universities

Figure 20 (a). The Organisation Process Areas for the 5 NZ Universities

Figure 20 (b). The Organisationn Process Area for the UoM
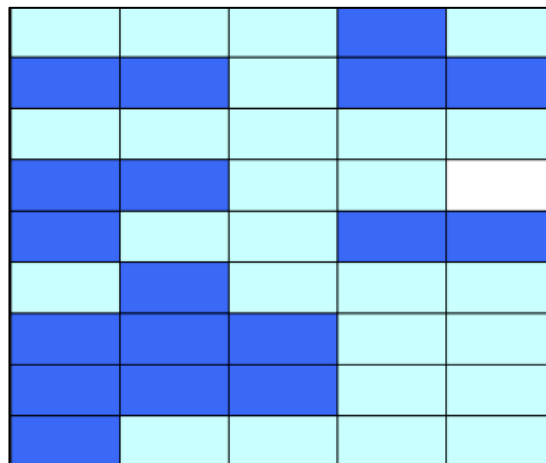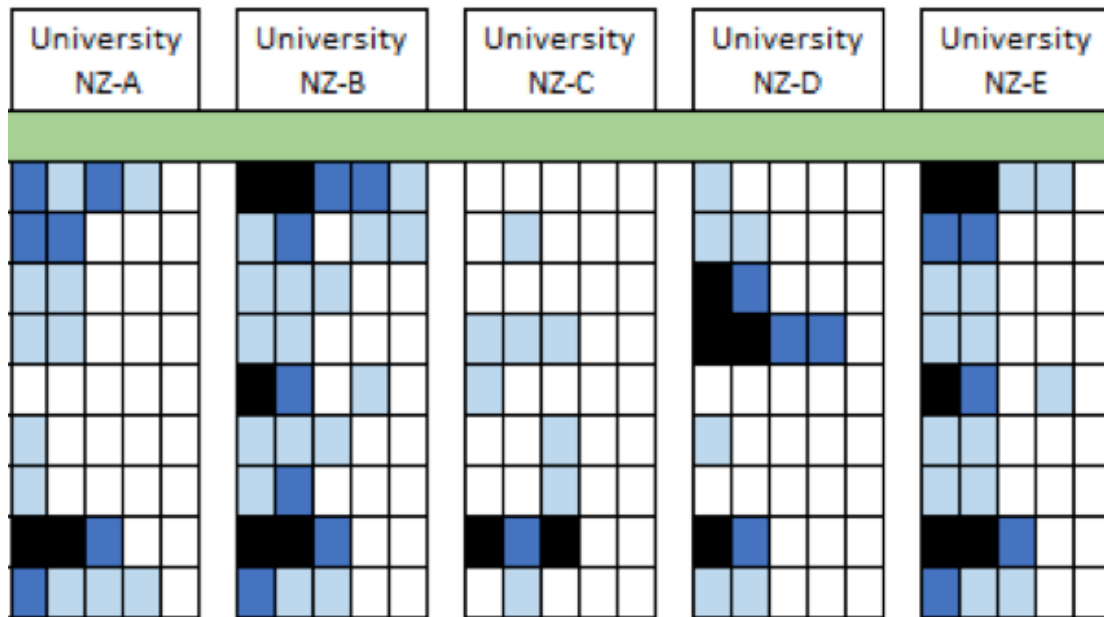
UK, US & AU Universities

When the UoM's capabilities in the organization process area are compared to the other five universities, it outperforms UK-A in practically all aspects, while UK-B is still the superior institution. USA-A and AUS-B only outperform the UoM in the delivery and planning dimensions while they are comparable in the other dimensions. Overall AUS-A is more or less on the same level of the University of Mauritius in terms of coverage, save for a few elements in the optimization dimension. In the Optimization dimensions UK-A, USA-A are the weakest.
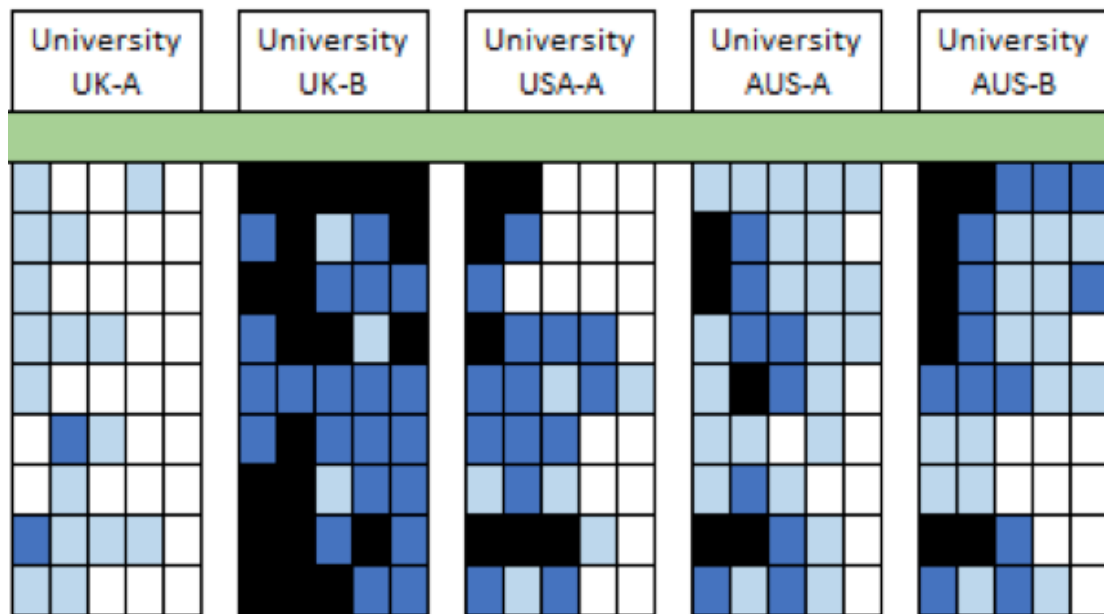
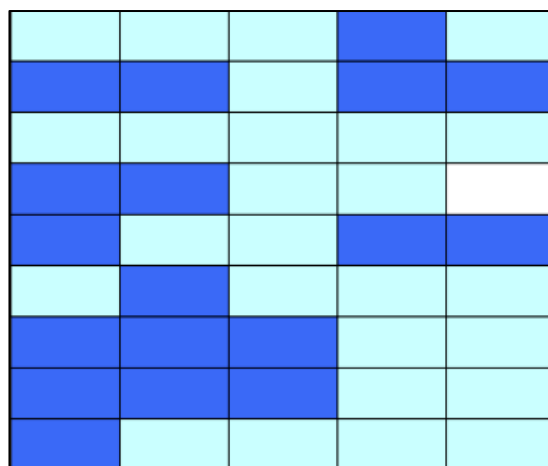*Figure 21 (a). The Organisation Process Areas for the 5 other Universities*

Figure 21 (b). The Organisationn Process Area for the UoM

CONCLUSION

It can reasonably be argued based on the outcome of this EMM assessment of the University of Mauritius, that the institution has a strong eLearning initiative,

which is well established, and which operates within a well-defined quality assurance framework. However, this framework has mainly been conceived to support the traditional teaching and learning system and the eLearning initiative has adapted itself to the existing model. With respect to the other universities that have undergone an EMM assessment, except with one UK University that came out of the lot, the UoM has fared considerably well as compared to the others, where the major gaps were in terms of optimization. For the UoM, it has been shown that the optimization and management elements of eLearning have been addressed to some extent. The common element in all the universities that have undertaken the assessment is the strength of their eLearning delivery dimension as compared to the other dimensions. A strong QA mechanism already in place at the University of Mauritius including the ICT infrastructure has contributed positively to the maturity observed during the course of this project. If the key recommendations are implemented in a phased, coherent and timely manner, the eLearning initiative will no doubt reach a higher maturity level within a reasonable timespan and to ensure that quality of the service is improved. The eLearning Capability Model can also be extended nationally as a benchmarking tool to compare different institutions, identify weaknesses and strengths where mutual sharing of resources, expertise and experience can be leveraged upon to collectively improve the overall capabilities of tertiary institutions in Mauritius, thus maintaining at all times a high quality of eLearning delivery.

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