The A.C.E Framework:
A model for e-learning implementations

Dr John Clayton

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Table 1: Recent Internet use by individuals for education: August 2006

Age Group	Recent Internet users [5]	% of total population[6]	Education or study
15 - 19		87.2	55.1
20 - 24	237,700		39.4
25 - 29	212,000	82.4	23.3
30 - 34	225,700	82.8	20.8
35 - 39	232,800	77.0	22.1
40 - 44	242,800	77.8	21.3
45 - 49	220,100	73.3	21.9
50 - 54	179,300	68.9	19.4
55 - 59	152,000	63.8	15.9
60 +	240,600	35.8	14.0
Total	**2,207,600**	**69.0**	**26.3**

[Source: Statistics New Zealand. (2007a) (p83)]

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Table 3: *Business use of computers and the Internet: By type: August 2006*

Industry	Businesses	% Using computers	% Using the Internet
Agriculture, forestry and fishing	3,122	82	77
Mining and quarrying		83	77
Accommodation, cafes and restaurants	3,465		82
Retail trade	5,886		89
Construction	3,549	98	92
Manufacturing	5,523	97	93
Health and community services	2,085	99	93
Transport and storage	1,524	98	94
Communication services	141	96	94
Cultural and recreational services	615	95	95
Education	585	98	96
Property and business services	5,055	98	96
Wholesale trade	3,198	99	97
Finance and insurance	582	99	99
Electricity, gas and water supply	18	100	100
Total	**35,436**	**93**	**91**

[Source: Statistics New Zealand. (2007a) (p98)]

Table 5: *Provision of training via the Internet by type: August 2006*

Industry	Number using the Internet	% of staff training via the Internet
Agriculture, forestry and fishing	2,403	7
Construction		8
Accommodation, cafes and restaurants	2,835	9
Manufacturing	5,157	12
Retail trade	5,259	16
Restaurants	1,428	20
Wholesale trade	3,099	21
Health and community services	582	21
Property and business services	549	24
Mining and quarrying	69	27
Education	1,935	30
Transport and storage	132	32
Finance and insurance	4,845	33
Communication services	579	34
Electricity, gas and water supply	18	50
Total	**32,157**	**22.9**

[Source: Statistics New Zealand. (2007a) (p102)]

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Capability

- *Effective*: impact on learning/training in the manner they were designed to do,

- *Efficient*: are cost effective in terms of "return of investment" on the resources consumed (i.e. time spent individuals engaging with the activity and time spent developing the activity)

- *Replicable*: others (institutions/individuals can duplicate events and obtain the similar results

Accomplishment

Action

Awareness

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The 3 As

- **Awareness:** Leadership reflects upon existing capacity, capability and use of ICT.

- **Action:** Policies and plans are generated to increase access, capacity and capability at a systemic level.

- **Accomplishment:** The impact of implementations are evaluated for effectiveness.
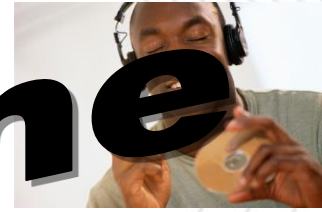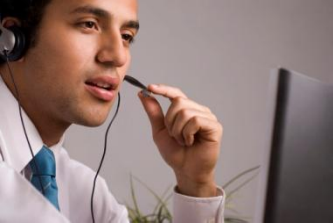
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How many colours

Context

Content

Capability

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Te Kuratini o Waikato
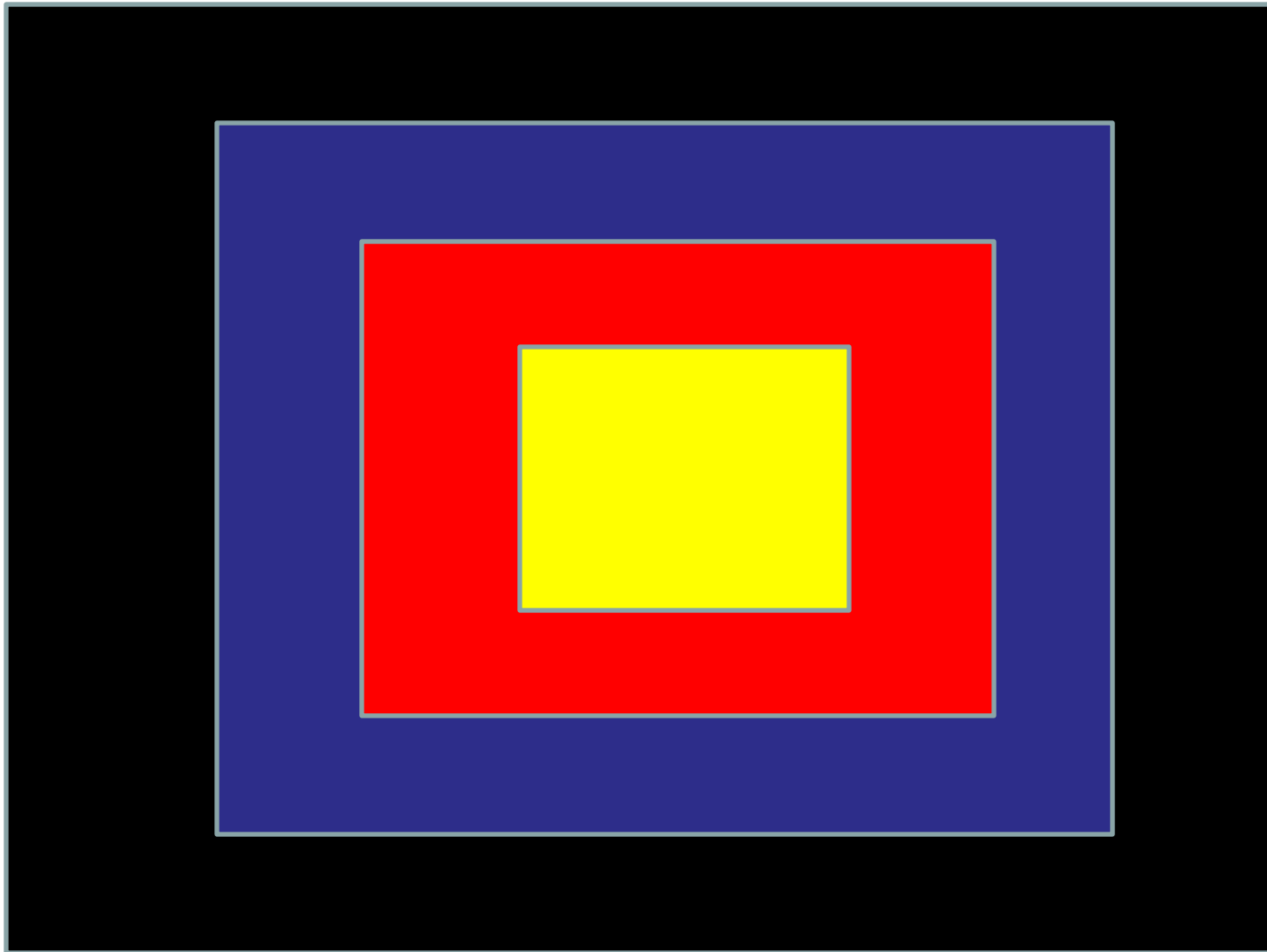
3 Cs

- **Context:** Infrastructural/technical factors shape and influence participant perceptions of ICT-enabled environments.

- **Content:** National factors emphasise the 'uniqueness' of individual institutions and shape the direction and focus of ICT-based implementations.

- **Capability:** Individual factors building the competence, confidence and understanding of individuals and determine the successful integration of ICT in institutions.

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Low bandwidth
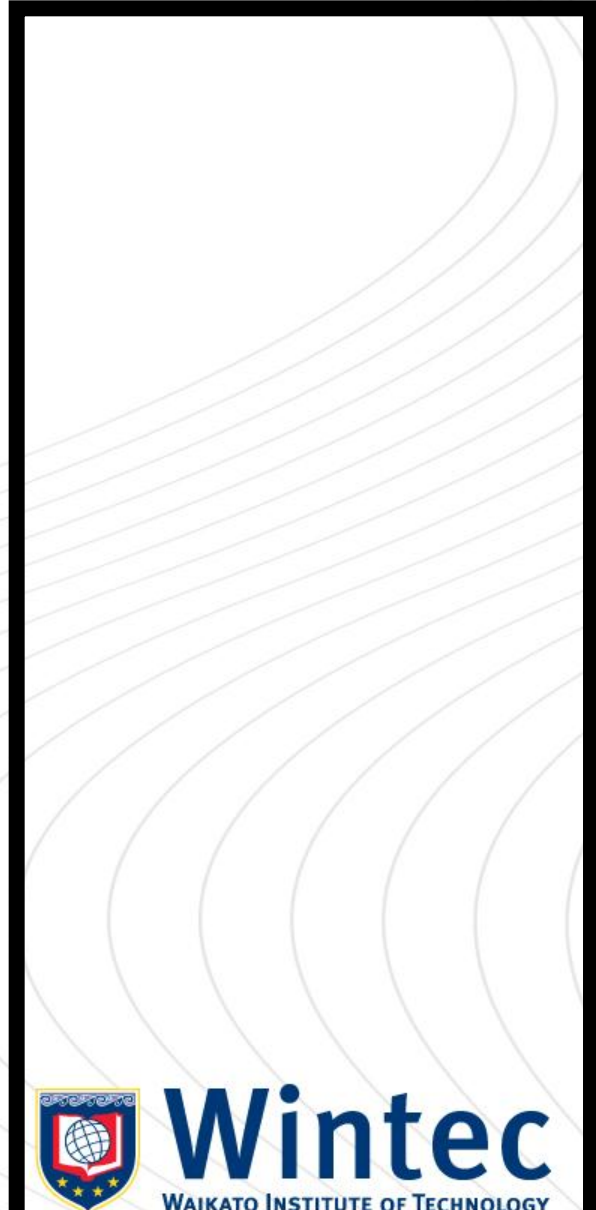Low Capacity
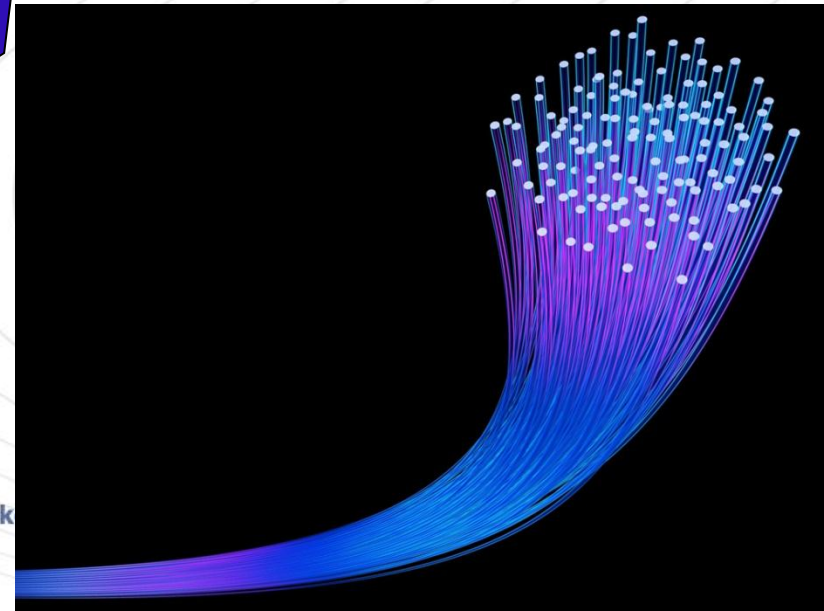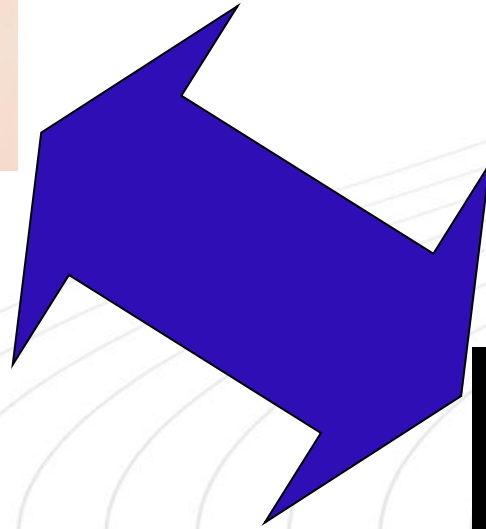
Increased bandwidth
Increased Capacity

Ki te whakakaha i te iwi mā te ara mātauranga, te rangahau umanga whanak

Context

Content

Capability

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3 Es

- **Enabled:** Initiatives measured on how they have enabled users to participate in ICT enhanced environments.

- **Engaged:** Initiatives can be measured on how they have initiated and maintained engagement in the ICT communities established.

- **Empowered:** Initiatives can be measured on how they have ensured all participants are capable of participation.

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Enable

Engage

Empower

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The A.C.E Model

ICT Accomplishment (Measure)

Assess   Assess   Assess

Enabled

Connections are reliable and robust.

Access policies are designed to facilitate delivery of ICT facilitated teaching and learning events.

Purchase of peripheral devices and software are aligned with school policies and procedures

Context

Engaged

Learners are actively engaged with course resources deployed.

Digital learning objects are indexed, stored, retrieved and presented

Participants have access to course materials they need, when they need them

Content

Empowered

Teachers are provided with professional development in ICT enabling them to participate fully in ICT environments.

Learners provided with ongoing support enabling them to participate fully in ICT environments

Capability

Action   Action   Action

ICT Awareness (Plan)

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Accomplishment

Assess

Enabled

Connections generated by codes are reliable and robust.

Infrastructure facilitates the transfer of information between disparate information platforms and systems to mobile devices.

Context

Action

Awareness

Project	*Midwifery Delivery*	**Project Update: Number 2**	
Stream 1	*Technical Infrastructure*	**January 18th**	
Owner	*Grant Tyson*		
	Key Tasks	**Resolved**	**Action Gates**
1	**Identified room(s) established for VC delivery**	1.a. Delivery of all Video Conferencing confirmed: • Wintec: City Campus: CG17 • EIT: • Tairawhiti: • BOP: 1.b. Video Conference schedule • Mornings 8.30 am – 10.00 am • Afternoons 1.00 pm – 2.30 pm 1.c. Video Conference sessions will be recorded to provide a "back-up" if technical failures occur at distributed sites.	1.i Review scheduled times in conjunction with • Demand for BSocSci (e.g. Wednesday 2.00 pm from 17th Feb) • The demands/requirements of external sites and make required adjustments 1.ii Establish if a permanent VC deployment is warranted for CG17. 1.iii Review costs of VC delivery and actively investigate alternatives (for example "Broadcast-Record" functionality of Panopto and Live Meeting).

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Project	Conferencing and Midwifery	
Stream 2	Online	
Owner	Chris Wyborn	**Completion Date: January 18th**
	Key Tasks	**Dependencies**
1	RSS feeds deployed (Journals, news …..)	Library provides appropriate links to journals
2	Key events entered in calendar	BM Programme Leader provides time-table
3	Search blocks (Digital NZ, Wiki …) deployed	Moodle Admin enables blocks
4	Panopto Moodle Block deployed	ITS release Panaopto block
5	Intute training help files/links deployed	Library provides links to Intute and other help resources
6	Course materials uploaded	BM tutors have material available
7	Staff comfortable and confident using Moodle	Moodle Admin deploys help files (technical and learning)
8	Learners comfortable and confident using Moodle	Moodle Admin deploys help files (technical and learning)
9	Support services identified	Moodle Admin deploys "help block" with contact details for learner and technical support

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Accomplishment

Assess

Empowered

Participants are competent, confident and capable of using QR/MT.

Ongoing support in QR/MT learning applications provided to learners and tutors.

Capability

Action

Awareness

Project	Conferencing and Midwifery	
Stream 4	Preparation: Tutors	
Owner	John Clayton	**Completion Date: January 22nd**
	Key Tasks	**Dependencies**
1	Moodle Sites Reviewed (Monday-Friday: Flexible)	• All Moodle sites functional and tutors assess rights granted (Melanie/Michelle) • Moodle support, both group and individual, available (John/Colin) • Midwifery team members informed of support available and training times confirmed (John/Liz). • Support staff members available (John/Colin)
2	VC delivery demonstrated (Full Demonstration: Tuesday 10.00 am).	• CG17 is available for VC training (Times TBC) (Bruce/Les/John/Liz/Colin). • CG17 fully functional for Live Demo Tuesday 19th at 10.00 (Bruce/Les) with connections to remote sites confirmed (Bruce/Les) • Midwifery team members informed of training sessions (John/Liz). • Support staff members available (John/Colin/Bruce/Les) **NB: Tauranga TBC (Jan)**
3	Live Meeting and /or Panopto demonstrated (Full demonstration Thursday 10.00 am) **(NB: Review of preferred option still in progress)**	• Panopto Recorder available and/or Live Meeting accounts available) (Grant) • Demonstrator portable system available (i.e demonstrate potential) this could include Flexible Camera mount, Microphone, Data show (Bruce) • Panopto/Live Meeting support, both group and individual, available (John/Colin) • Live Meeting room (?) available for demo (D-Block?) (Les) • Midwifery team members informed of training sessions (John/Liz). • Support staff members available (John/Colin/Bruce/Les)

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Project	Conferencing and Midwifery	
Stream A	Example Index Cards	
Owner	Varied	**Completion Date: March 1st**
	Key Tasks (From Action Gates)	**Dependencies**
1	**Example 1 (Stream: Technical Infastructure)** 2.i Review Live-Meeting equipment and connectivity at distributed locations. 2.ii Test QoS of full LM delivery 2.iii Review LM delivery as a cost effective alternative to VC. 2.iv Establish if a permanent LM deployment is required for Wintec and distributed locations.	Internal and External LM connection endpoints and room allocations confirmed. External endpoints connect successfully to LM and all LM functions are operational Confirm costs of LM endpoints and CF VC endpoints Live meeting is a cost effective alternative to VC.
2	**Example 2 (Stream: Online)** 3.i Review standards for creation and publication of course materials. 3.ii Review process and procedures for the evaluation of course materials used. 3.ii Review process and procedures for the re-use of learning objects created.	Standards for the creation of course materials readily available to tutors Perceptual measures / Best Practice Check list available for tutors to review content used Storage space and search procedures for learning objects developed are readily available to staff.

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Accomplishment

Assess

Enabled

Connections generated by codes are reliable and robust.

Infrastructure facilitates the transfer of information between disparate information platforms and systems to mobile devices.

Context

Assess

Engaged

Learners have open access to interactive content at any time from anywhere.

Learners have ready access to the contextualised content they need when they need it.

Content

Assess

Empowered

Participants are competent, confident and capable of using QR/MT.

Ongoing support in QR/MT learning applications provided to learners and tutors.
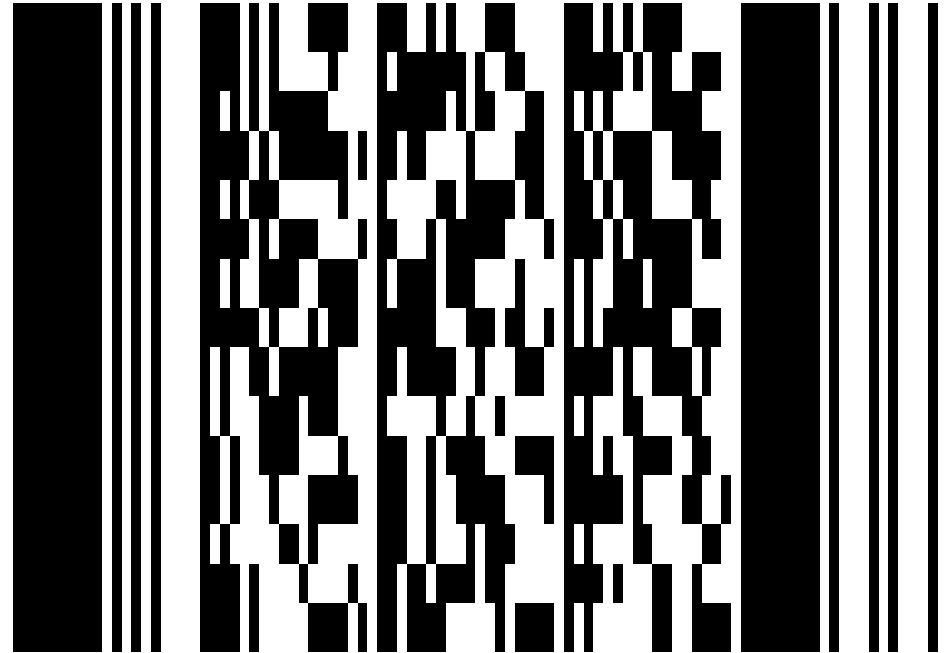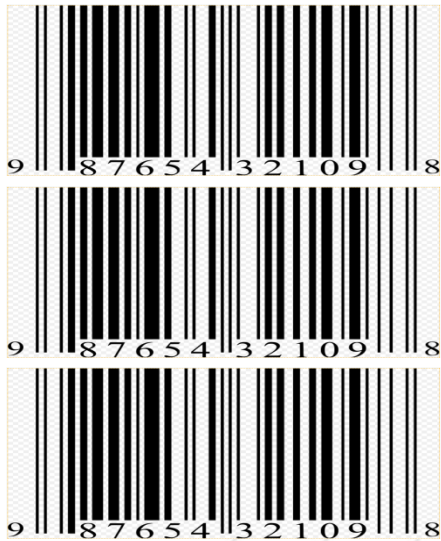
Capability

Action   **Action**   **Action**

Awareness

One Dimensional

Stacked

Two Dimensional

- QR code is presented in both the vertical and horizontal dimension (direction)

QR Code: Wintec

DATA

DATA

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Ki te whakakaha

Accomplishment

Assess

Enabled

Connections generated by codes are reliable and robust.

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Context

Action

Awareness

Mobile Learning Engine: MLE

MyMLE - End Users
For private persons

MyMLE is for everyone, who wants to use mobile learning for himself. It allows you to create your **own mobile learning content** and to pack it to a mobile phone application, which you can use on your phone.

ENTER

MyMLE
🏠 menu
MyMLE
📁 Local content
📄 Install & Update
🔧 Settings
❓ Help
📇 Contact
⏻ Exit

MyMLE is a stand-alone PC application (for Windows and Linux) which is easy to use. The mobile phone application it creates runs on nearly every mobile phone.

MLE-Moodle - End Users
For institutions/companies

An **out-of-the-box mobile Learning** system. Which contains everything you need to build a mLearning system. Easy to install and easy to use.

To use MLE-Moodle you need a web-server!

ENTER

MLE Moodle	1/1
🏠 menu	⭐
MLE Moodle	
📗 My Courses	
🎵 Media Pool	
💬 Messages	
📁 Local content	
👥 Community	
👤 Extras	
🔧 Settings	

MLE-Moodle is a plugin for **Moodle**, which adds mLearning functionallity to this open-source eLearning system. The mobile learning area can be accessed with the mobile **phone browser** or with a special mobile **phone application**, which is designed for mobile Learning.

MLE mobile application
framework - Developers

The mobile phone learning-application offers a very powerful **mobile application framework** for your own mobile projects. Extending the MLE is very easy due to a plugin-system.

For **developers only!**

ENTER

"Scapes"

My Maps

Create personalised, annotated, customized maps using Google Maps.

Your maps can contain the following:

- Placemarks
- Lines
- Shapes

Once you have created a map, you can:

- Add descriptive text, including rich text and HTML
- Embed photos and videos in your map
- Share your maps with others

To create or edit maps, you must be signed in to your Google Account. If you do not have an account, create one now.

Sunday in Central Park

Creating a Map

Creating a map is easy. Here are the basic steps:

1. Click **My Maps**
2. Click **Create new map**.
3. Add a title and description for your map.
4. Decide whether the map should be **public** or **unlisted**. Public maps are automatically included in Google Maps search.
5. Use the icons in the top left corner of the map. These include:

Selection tool. Use this to drag the map and select placemarks, lines and shapes.

Placemark tool. Use this to add placemarks.

Line tool. Use this to draw lines.

Shape tool. Use this to draw shapes.

You can return to your map at any time. Just go to Google Maps and click **My Maps**. Sign in to your Google Account and select the map from your list of maps.

Accomplishment

Assess

Empowered

Participants are competent, confident and capable of using QR/MT.

Ongoing support in QR/MT learning applications provided to learners and tutors.

Capability

Action

Awareness

eLearning in Industry
theory to practice

Going Mobile

The Emerging Technologies Centre has included a functionality, "Mobile Learning Engine", to this site. This functionality allows participants to engage with moodle courses from their phones. A QR code to access ETC - Mobile is provided below.

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theory to practice

ETC Moodle Link: http://etc.elearning.ac.nz/

ETC Manager: Dr John Clayton

Login

Username ctjfc

Password •••••••

Login

Lost password?

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Accomplishment

Assess

Assess

Assess

Enabled

Connections generated by codes are reliable and robust.

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Context

Engaged

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Content

Empowered

Participants are competent, confident and capable of using QR/MT.

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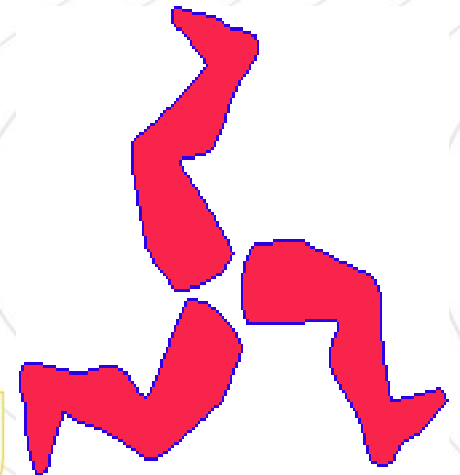
Capability

Action

Action

Action

Awareness

Issue

What has been created may not advance the institutions capability in the way we imagined

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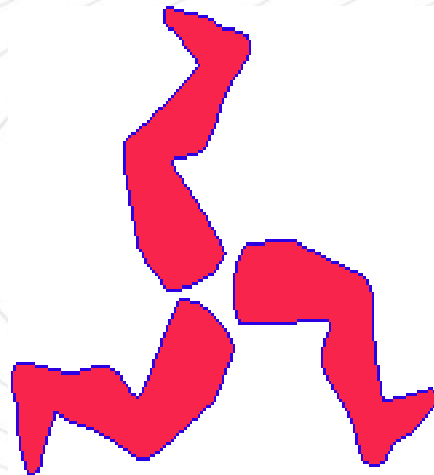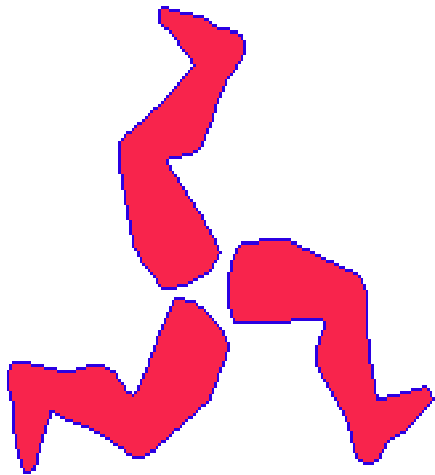
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Measuring Quality & Impact

Institutions and individuals need to be assured the e-activities designed and deployed are

- **effective** (do what they say they will do) and

- **efficient** and **cost-effective** (time and money invested bring maximum returns).

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Focus Areas

- Return on Investment:
  - Individual and organisational

- Quality:
  - the processes used in the creation of the training event
  - the experience of all participants in an e-learning environment

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http://www.jerryking.com/

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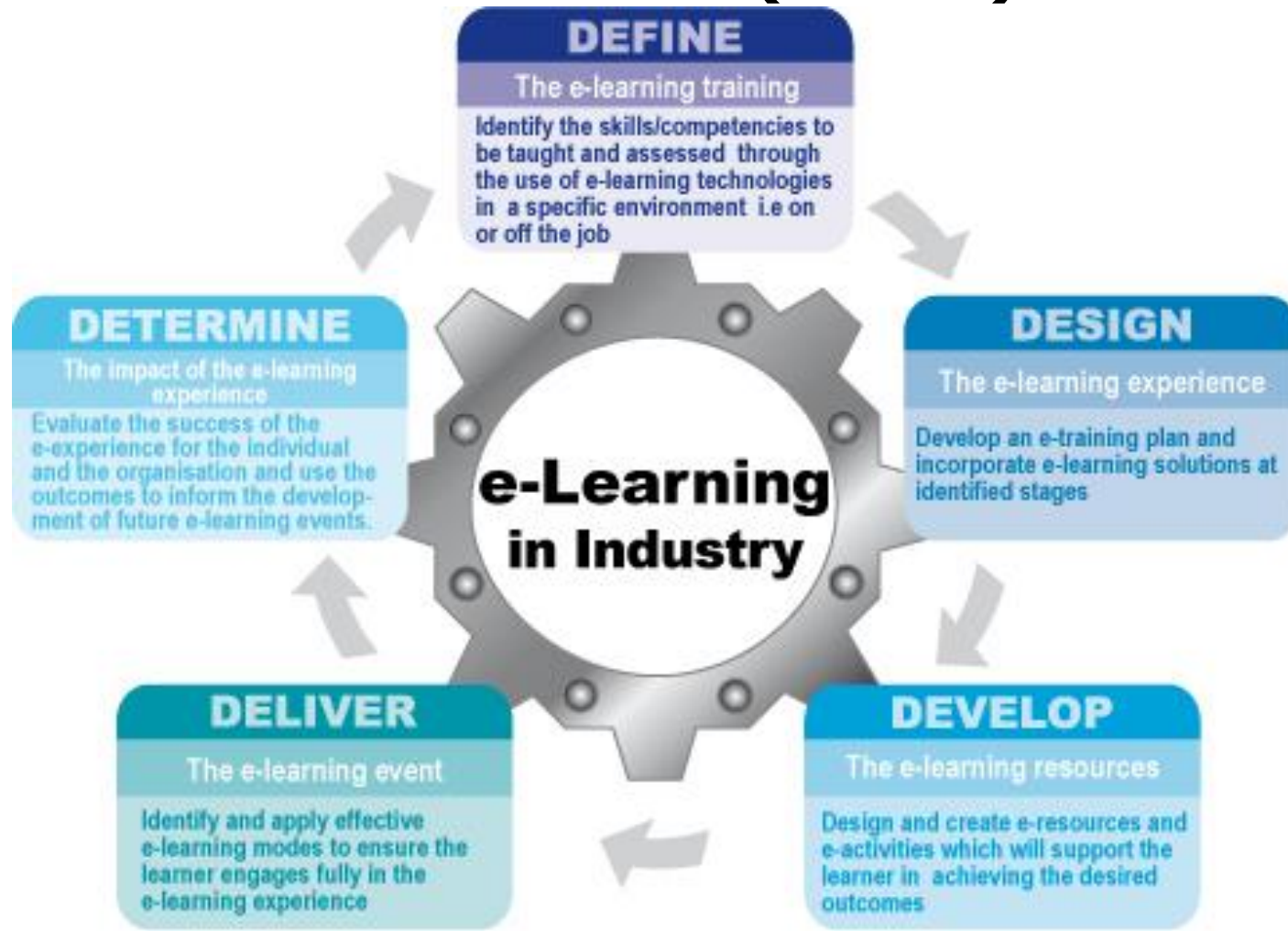003http://fno.org.

Quality Assurance

Hypothesis: *The quality of the any e-learning implementation is "directly attributed" to the quality of the all the processes used in the creation of that event.*

- creation of digital learning materials,
- tutoring/mentoring/ supporting of learners, and
- administration of the training event.

Five Ds (5Ds).

DEFINE
The e-learning training

Identify the skills/competencies to be taught and assessed through the use of e-learning technologies in a specific environment i.e on or off the job

DETERMINE
The impact of the e-learning experience

Evaluate the success of the e-experience for the individual and the organisation and use the outcomes to inform the development of future e-learning events.

DESIGN
The e-learning experience

Develop an e-training plan and incorporate e-learning solutions at identified stages

DELIVER
The e-learning event

Identify and apply effective e-learning modes to ensure the learner engages fully in the e-learning experience

DEVELOP
The e-learning resources

Design and create e-resources and e-activities which will support the learner in achieving the desired outcomes

e-Learning in Industry

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R.O.I

The evaluation of the effectiveness and impact of e-learning should focus on two levels of analysis:

- **Individual level**: investigating competency and accomplishment and
- **Organisational level**: investigating strategic alignment and business impact

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Return on Investment

*RETURN ON INVESTMENT

Lewinian Formula

$$B = f (P, E)$$

B behavior   f function   P person   E environment

Update this Question

Print Blank   No

REVIEW OF WEEK 3

POTENTIAL SCALES AND ITEMS

NB: WHEN USING THIS TEMPLATE DESCRIBE THE PURPOSE HERE

*1 COURSE STRUCTURE

THESE QUESTIONS CONTAIN STATEMENTS ABOUT PRACTICES THAT TAKE PLACE IN YOUR ONLINE UNIT WHEN YOU USE THE SOFTWARE APPLICATIONS IN THIS COURSE,

YOU WILL BE ASKED HOW OFTEN EACH PRACTICE ACTUALLY TAKES PLACE IN THE COURSE. THINK CAREFULLY ON HOW EACH STATEMENT DESCRIBES WHAT THIS UNIT IS ACTUALLY LIKE FOR YOU. THERE ARE NO 'RIGHT' OR 'WRONG' ANSWERS. YOUR OPINION IS WHAT IS WANTED.

PLEASE USE THE SCALE BELOW TO "RATE" YOUR ANSWERS

1. ALMOST NEVER	2. SELDOM	3. SOMETIMES	4. OFTEN	5. ALMOST ALWAYS.

	1	2	3	4	5
THE INSTRUCTIONS PROVIDED TO USE THE TOOLS WITHIN THE SITE ARE CLEAR AND PRECISE.	○	○	○	○	○
THE SOFTWARE I USE IS SUITABLE FOR PARTICIPATING FULLY IN THE COURSE.	○	○	○	○	○
I AM ABLE TO INSTALL THE APPROPRIATE SOFTWARE NEEDED TO PARTICIPATE IN THIS COURSE WITH EASE.	○	○	○	○	○
ALL SOFTWARE APPLICATIONS NEEDED TO PARTICIPATE IN THIS COURSE ARE PROVIDED.	○	○	○	○	○
THERE IS LITTLE DELAY IN OPENING AND USING THE SOFTWARE APPLICATIONS USED IN THIS COURSE.	○	○	○	○	○

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Perceptual measures

2 Days of Classroom Training			Blended
Training Component	Cost per Learner	Total Cost	Total Cost
Training, Design, Project Mgmt	$250	$250,000	$50,000
Learner Materials	$275	$275,000	$175,000
Facilitation Services	$175	$175,000	$75,000
Travel/Accomodations/Meals	$500	$500,000	$0
Sub-Total: Hard costs	**$1,200**	**$1,200,000**	**$300,000**
Employee Time off the Job	$800	$800,000	$400,000
Total Cost of Investment	**$2,000**	**$2,000,000**	**$700,000**
Performance Improvement		2%	7%
Value of Increase in Productivity	($100k salary)	$2,000,000	$7,000,000
Return on Investment (ROI)		none	**10x**

ROI Calculator

The R.A.M. Model

- **Reflect** on their strengths and weaknesses in relation to the integration of e-learning

- Identify **action**(s) that will facilitate increased teacher competence, confidence and capability in e-learning applications

- **Measure** and report on the impact e-learning has had on teaching and learning activities and administrative practices.
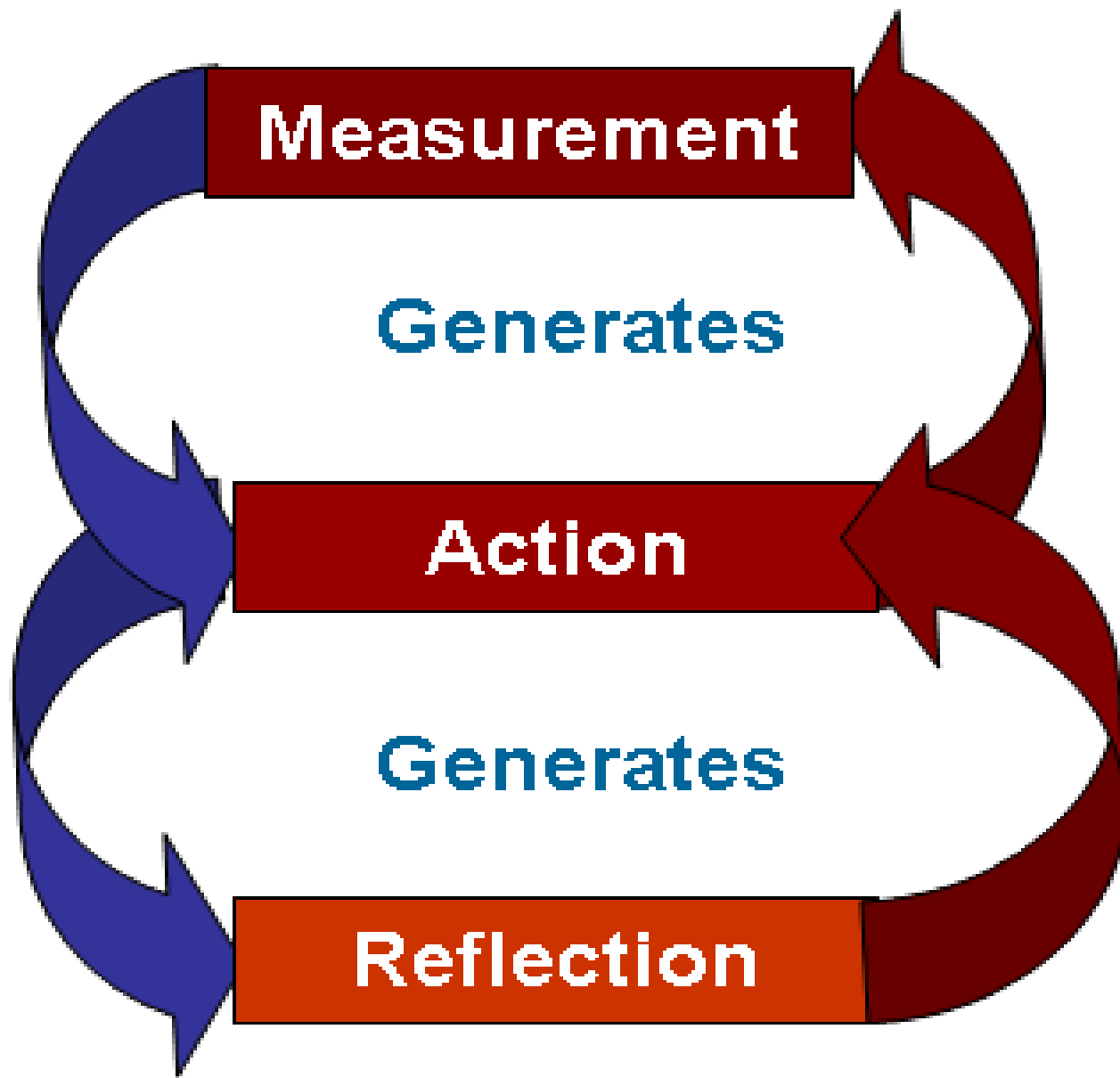
Benchmarking

- In evaluating an individual institution's capability a clear set of measurable indicators (teachers' satisfaction with software technologies used, students' competencies in ICT, and teacher and student satisfaction with the technical support provided), can be identified to measure:

    (a) an institution's performance against others in the same sector, or

    (b) the institution's performance in achieving their identified objectives for ICT implementation.

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Self-Review Framework

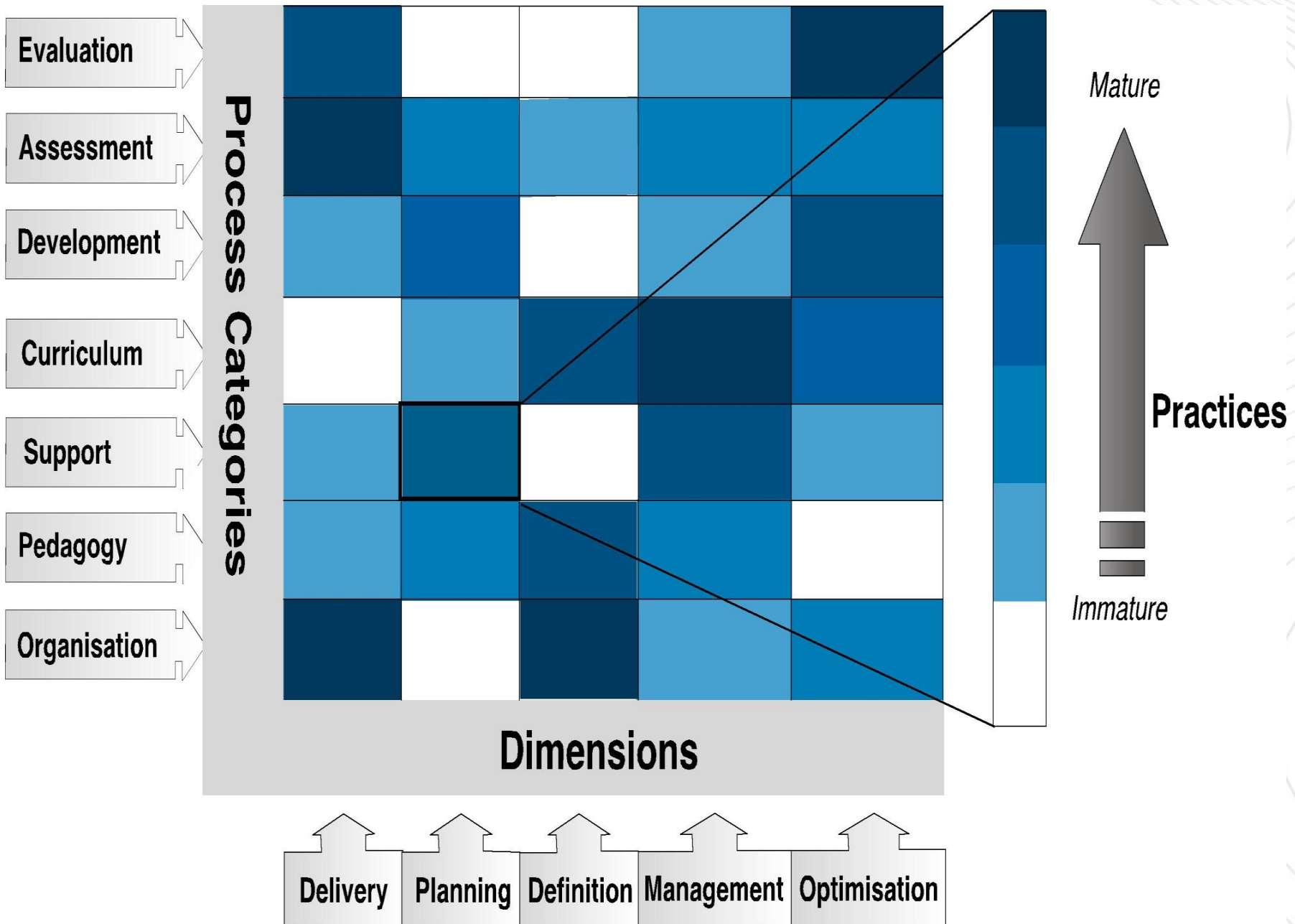**eLearning Maturity Model (eMM)**

The framework is based on categories, dimensions and practices
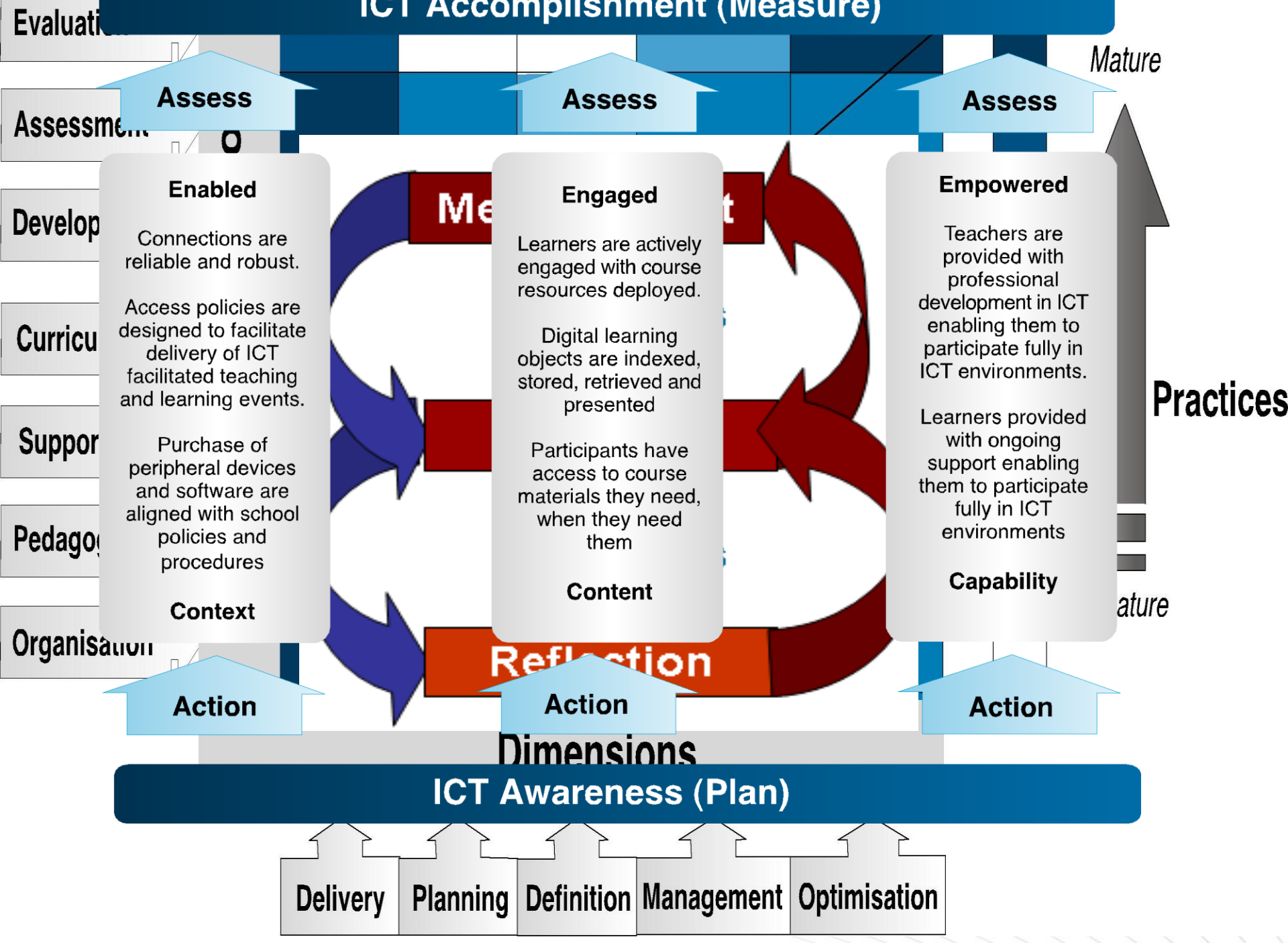
- **Categories:** identify the "processes" that support ICT development

- **Dimensions:** serve to break down the processes into examinable aspects

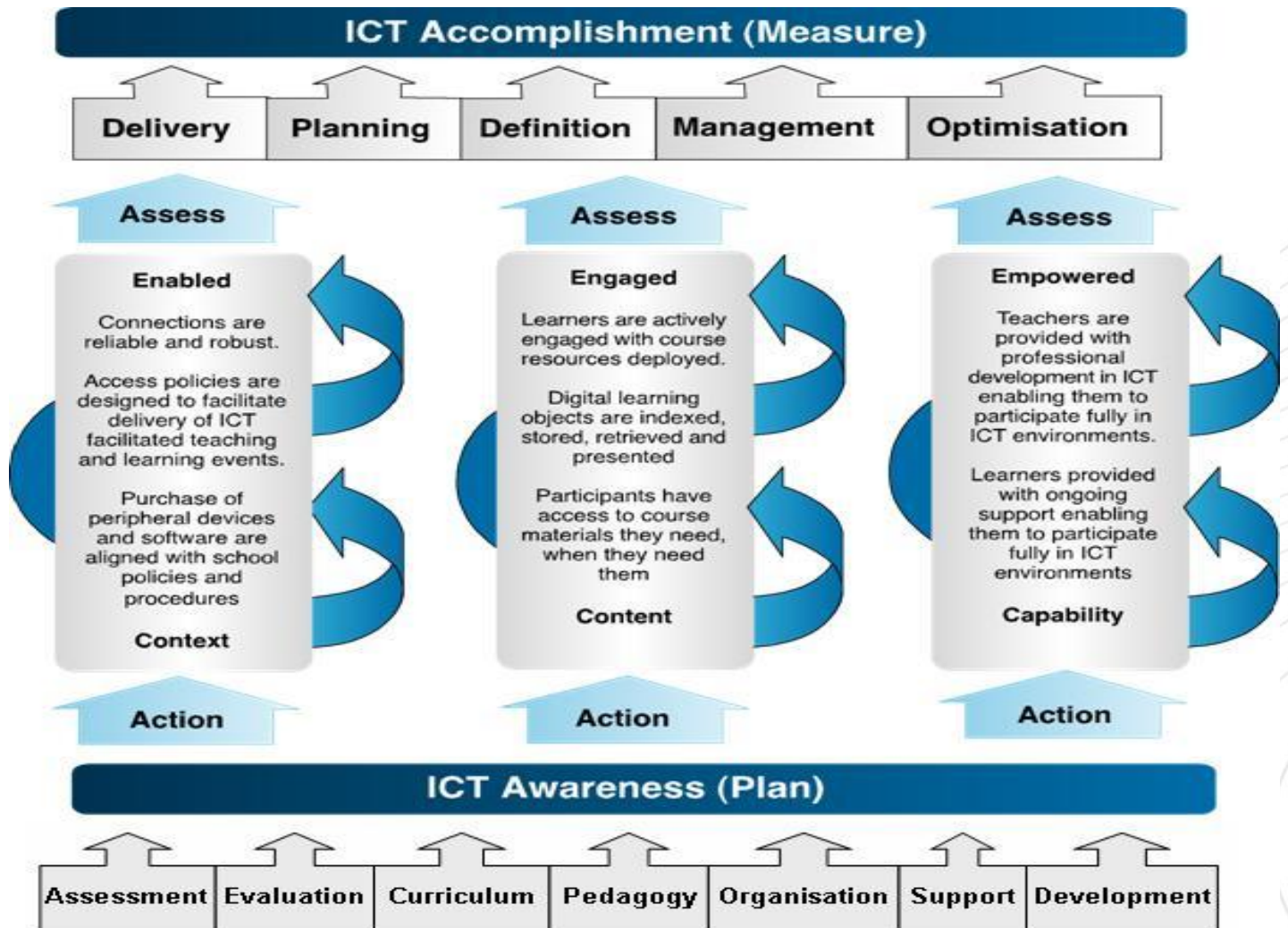- **Practices:** serve to measure the organisation's actual practices

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ICT Accomplishment (Measure)

Evaluation

Assessment

Develop

Curricu

Suppor

Pedago

Organisation

Assess

Enabled

Connections are reliable and robust.

Access policies are designed to facilitate delivery of ICT facilitated teaching and learning events.

Purchase of peripheral devices and software are aligned with school policies and procedures

Context

Assess

Engaged

Learners are actively engaged with course resources deployed.

Digital learning objects are indexed, stored, retrieved and presented

Participants have access to course materials they need, when they need them

Content

Assess

Empowered

Teachers are provided with professional development in ICT enabling them to participate fully in ICT environments.

Learners provided with ongoing support enabling them to participate fully in ICT environments

Capability

Me...

Reflection

Mature

Practices

ature

Action

Action

Action

Dimensions

ICT Awareness (Plan)

Delivery | Planning | Definition | Management | Optimisation

Conclusion

For organisations iteratively to improve their e-learning capability they need **systematically** to plan for improvement.

They need to obtain:

from the **Right** people

at the **Right** time

the **Right** information

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