UA^5 Maturity Scale

Version 1.0, August 2019

Assessity

Contents

1 Introduction

Maturity models are a useful aid for developing capability, informing management on capability strengths and weakness and providing assurance.

A maturity model consists of two fundamental ingredients:

- A requirements framework
- A maturity scale

A requirements framework is a set of required elements that form a best practice system, process, standard or concept.

A maturity scale is a sequential series of defined, distinct states of developmental capability.

The UA[5] Maturity Scale is a sequential series of six defined, distinct states of developmental capability described in broad terms.

The name of the scale is based on the first letter of each of the states presented – Unaware, Aware, Adopting, Aligned, Adapting and Advanced (UAAAAA) – with the repeated letter A that appears five times represented by A[5].

2 Purpose and Objective

The purpose of the UA[5] Maturity Scale is to provide a comprehensive, versatile and easy to understand scale that can be used to assess any entity's capability maturity against any set of requirements.

Many maturity models with their own maturity scales exist. Typically, the maturity models and their associated maturity scales are focused on specific subjects and are available commercially. It is not the aim of the UA[5] Maturity Scale to replace such maturity scales, although if desired it can be substituted in.

The key objective of the UA[5] Maturity Scale is that the states named are immediately understandable, requiring zero technical understanding and minimal explanation to be grasped, making the scale accessible to a wider audience.

3 Research and Development

In developing the UA[5] Maturity Scale a selection of maturity scales – stand-alone or that are included within existing maturity models – were reviewed, including:

- **Dreyfus model**; The Dreyfus model of skill acquisition is a model of how learners acquire skills through formal instruction and practicing, used in the fields of education and operations research.[1]
  Levels: novice, competence, proficiency, expertise, and mastery.
- **Institute of Asset Management's Asset Management Maturity**; The Asset Management Maturity Scale and Guidance is an introduction to asset management maturity, and how it can be defined, scaled and recognised.[2]
  Levels: innocence, awareness, developing, competence, optimisation, excellence.
- **Capability Maturity Model (CMM)**; The model's aim is to improve existing software development processes, but it can also be applied to other processes.[3]
  Levels: initial, repeatable, defined, managed (capable), optimising (efficient).
- **Capability Maturity Model Integrated (CMMI)**; The CMMI is a process level improvement training and appraisal program[4]. It is claimed the CMMI can be used to guide process improvement across a project, division, or an entire organization[5].
  Levels: initial, managed, defined, quantitatively managed, and optimising.

Amongst the maturity scales reviewed, a number of positive traits were identified:

- The number of states totalled five to six, providing a sufficiently granular breakdown demonstrating a clear path of development.
- Levels alternated between 'being' and 'doing' states, reflective of the natural phases and cycles entities take along their development journey, from being unaware of a requirement, to aligning with it, through to being advanced in its application. In between there are states of 'doing' that cover adopting and subsequent to aligning, adapting.

However, there were factors found amongst some of the maturity scales reviewed that supported a new, stand-alone, open maturity scale, including:

- Ambiguous terminology used to name states, leading to difficulty intuitively understanding their essence, requiring a full read of the accompanying definitions.
- Unfamiliar terminology used to name states, making recollection difficult until fully familiar.
- Insufficiently distinct state names neighbouring each other, leading to confusion for those unfamiliar with the definitions.
- Subject matter specific definitions, restricting the application of the maturity scale to other subjects.
- Cost to purchase the maturity model within which the maturity scale is embedded, prohibiting some parties from benefiting from a structured approach to assessing capability maturity.

[1] https://en.wikipedia.org/wiki/Dreyfus_model_of_skill_acquisition
[2] https://theiam.org/knowledge/Knowledge-Base/asset-management-maturity-scale-and-guidance/
[3] https://en.wikipedia.org/wiki/Capability_Maturity_Model
[4] https://en.wikipedia.org/wiki/Capability_Maturity_Model_Integration
[5] https://en.wikipedia.org/wiki/Capability_Maturity_Model_Integration

4 Maturity Levels

State	Definition	Similar words to describe awareness and activities at this state
Unaware	The entity is *unaware* of the requirement; there is no evidence recognising the need for the entity to align with the requirement and committing to working towards alignment, nor is there evidence confirming that it is not applicable.	Ignorant, Innocent, Naive, Oblivious
Aware	Evidence confirms the entity is *aware* of the requirement and is intending to adopt the critical success factors relevant to its objectives and operating context.	Ad-hoc, Basic, Chaotic, Elementary, Reactive
Adopting	Evidence confirms the entity is in the process of *adopting* the critical success factors of the requirement in order to align relevant to its objectives and operating context.	Developing, Emerging, Evolving, Incorporating
Aligned	Evidence confirms the entity is *aligned* with the critical success factors of the requirement relevant to its objectives and operating context.	Capable, Competent, Established, Integrated, Managed, Planned, Proactive, Procedural, Proficient, Repeatable, Standardised
Adapting	Evidence confirms the entity is aligned with the critical success factors of the requirement, whilst concurrently *adapting* them in an effort to attain a leading-edge advantage relevant to its objectives and operating context.	Enhancing, Innovating, Mastering, Optimising, Predicting, Refining
Advanced	Evidence confirms the entity is *advanced* in its capability to execute the critical success factors of the requirement such that it has achieved an aligned, leading edge advantage relevant to its objectives and operating context.	Efficient, Excellent, Exceptional, Exemplar, First Class, Innovative, Mastered, Optimised, Predictable, Refined

5 Critical Success Factors

Critical success factors are the elements critical to the success of any system, process, standard or concept.

Dr Harold Leavitt developed what became known as Leavitt's Diamond, which presented and discussed the relationship between people, tasks, structure and technology as the four critical components whose interrelationship ultimately determine the fate of an organisation.

Over time, the *tasks* and *structure* components have been replaced by *process*.

With *data* now ubiquitous and demonstrably a factor that provides those who master it a leading advantage over those who don't, its status as a critical success factor is beyond argument.

People, process, technology and data are the four critical success factors that individually and in concert underpin the requirements of best practice systems, processes, standards and concepts.

Prior to rating, entities assessing capability maturity using the UA[5] Maturity Scale should take time to fully understand what the critical success factors are that are required to be fulfilled, how and to what extent in order to successfully align with a requirement. This understanding should be articulated giving full consideration to the entity's objectives and operating context.

6 Objectives and Operating Context

An entity's objectives and operating context are critical considerations when rating maturity.

Objectives are the desired result or results that an entity aims to achieve through the performance of its activities.

Operating context includes both internal factors arising from a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, as well as external factors including Political, Economic, Social, Technological, Legal and Environmental (PESTLE).

Prior to performing an assessment, it is beneficial for an entity to understand and articulate its objectives and operating context (i.e. perform SWOT and PESTLE analyses) and include a summary within any assessments performed to ensure others who participate in the assessment or review of outputs have a full understanding of the entity's status in these areas.

Example. Whilst the requirements to operate a heritage steam train service successfully may be similar to the requirements for operating a public train service, the objectives and operating context of one will most likely be different to the other.

In this example, take for instance a requirement for train operators to *develop and publish a timetable*. If the operator of the public service develops one and distributes it in paper format at stations, online via their website and integrates it with Google Transit, they may consider themselves *aligned* with the requirement as these are expected channels that the majority of others in their equivalent operating environment use. However, if the steam train operator uses similar distribution channels, they may consider themselves *advanced* given their objectives and operating context, which may include very few others in their market sector utilising such channels.

7 Performing a Maturity Assessment

Performance of a maturity assessment consists of preparation and execution. The following sections outline how to perform both stages.

7.1 Preparation

Understanding an entity's objectives and operating context are critical to determining an accurate and relevant rating when assessing capability maturity against a requirement. Determine current objectives and operating context by following the steps in the following sub-sections.

7.1.1 Review Current Business Plans

Any formal plans an entity has recently prepared help to build a picture of its overall objectives. Plans come in many forms and can cover a wide range of subjects. Plans that should be considered include:

- Strategic plans
- Corporate plans
- Business plans
- Asset management plans
- Sales plans
- Risk management plans
- Marketing plans

7.1.2 Perform SWOT and PESTLE Analyses

Performing both a *Strengths, Weaknesses, Opportunities and Threats* analysis and a *Political, Economic, Social, Technological, Legal and Environmental* analysis will assist those performing an assessment to understand an entity's current objectives and operating context.

For further information and guidance on how to conduct SWOT and PESTLE analyses, refer to *Module 9 – Business Planning* of the Australian Government's Department of Jobs and Small Business's *Business adjustment modules* at https://docs.jobs.gov.au/documents/module-9-business-planning-0.

7.2 Execution

Further to understanding current objectives and operating context, as determined during the preparation stage, executing a maturity assessment is the combination of:

- Collating sufficient, relevant evidence that demonstrates how and to what extent each requirement is satisfied.
- Ascertaining a level of maturity for each given requirement, typically by consensus and further to reviewing the collated evidence.
- Identifying deficiencies and underperformance in current capabilities related to requirements and logging within a gap closure plan.
- Performing risk assessments on areas of underperformance where appropriate.

For each requirement, these steps will typically be performed in a back and forth fashion, as evidence informs ratings, reveals gaps, new evidence emerges and critical thinking evolves.

7.2.1 Gather Evidence

Record evidence that is appropriate to a requirement and will support a selected rating.

Evidence of execution (outputs) is as relevant as evidence of intent (inputs), if not more so.

Lack of either type of evidence should be considered a gap in procedure.

Evidence should be in a format that allows it to be seen and analysed by other parties.

Anecdotal evidence is not an acceptable form of evidence.

Inputs can include:

- Plans
- Policies
- Terms of references and charters
- Manuals, procedures and work instructions

Outputs, that demonstrate inputs are adhered to and applied, can include:

- Meeting minutes
- Survey results
- Invoices
- Receipts and financial statements
- Log files
- Media, including videos, audio recordings and photographs

7.2.2 Rate

Requirements should be reviewed and addressed as separate, stand-alone items.

For each requirement, determine the critical success factor(s) necessary to achieving alignment with the requirement.

Consider and articulate what alignment looks like, giving consideration to the entity's objectives and operating context.

Ascertain to what extent critical success factors are being met and how evidence supports this.

Supporting evidence should clearly indicate how it underpins the individual requirements and relates to a maturity level descriptor.

All things considered, select the most appropriate rating on the maturity scale, remembering that it needs to be justifiable and backed up with supporting evidence.

Where capability is determined to be less mature than *aligned*, consider performing a risk analysis.

Not all requirements are suitable for adapting or transition to advanced state.

'Not Applicable' is a valid response when considering a requirement, but should only be used following thorough consideration and not as a reason to by-pass indicating a low level of capability.

Assumptions that reviewers will consistently review an entire assessment, including all requirements and associated supporting evidence should not be made; summarising and

cross-referencing evidence supplied for another requirement is discouraged, but where deemed necessary and appropriate should be done explicitly and clearly to aid readability and comprehension.

7.2.3 Develop Gap Closure Plan

During the course of performing an assessment and sourcing evidence to support a maturity rating, gaps in capability may be identified.

Without exception, where a requirement is applicable to an entity, gaps in capability will exist where any level less than *aligned* has been determined as an entity's level of maturity; i.e. gaps will exist if a state of *unaware, aware* or *adopting* has been determined.

Where an entity aspires to achieve an *advanced* level of maturity but at the time of assessment assesses themselves at any level below the aspirational level, gaps in capability relative to the magnitude of anticipated capability that is achievable exist.

It is also possible that when an entity is *aligned* or *advanced*, additional efforts to strengthen a position may be identified and these efforts can be considered gaps too.

All gaps in capability identified should be recorded during the process of executing an assessment and sourcing of evidence.

Recorded gaps should be reviewed subsequent to completion of any assessment and be prioritised, assigned owners and addressed in a systematic fashion in order that they are closed accordingly.

7.2.4 Perform Risk Assessment

It may be prudent to perform a risk assessment on any requirement where the assessed level of capability maturity is determined to be below a desirable level.

Risk assessments should follow an entity's defined risk assessment procedure.

For further information on performing a risk assessment and managing risk in general, refer to the excellent material provided publicly by the Victorian Managed Insurance Authority at https://www.vmia.vic.gov.au/risk/risk-tools/risk-management-tools.

8 Developing a Maturity Model

The UA[5] Maturity Scale can be combined with a requirements framework to produce a complete maturity model.

A requirements framework is a set of required elements that form a best practice system, process, standard or concept.

In order for a requirements framework to be applicable to as wide a range of entities as possible, it needs to articulate requirements in such a way that they state what is required, but not be so prescriptive that they dictate a single view.

Each required element should be succinctly articulated in such a way that a reader can ascertain what the critical success factors are that need to be present in order to align with the requirement, giving consideration to their entity's objectives and operating context.

In short, the requirement should say what is required not how.

Example requirement: *Appropriate resources should be allocated to staff with asset management responsibilities*.

The critical success factor for this requirement is that the right allocation *process* exists to enable a satisfactory outcome.

For Entity A, the process *may* consist of the need to periodically perform interviews across several department heads to ascertain their needs for a forthcoming financial year, planning financial and human resources further to the requirements determined as part of the interviews and then allocating funding and personnel accordingly.

For Entity B, the process *may* consist of reviewing a list of maintenance works required on a small portfolio of buildings and allocating financial resources to a single project manager.

8.1 Tips for Authoring a Maturity Model

1. Group related requirements together into themes, also referred to as sections.
2. Avoid overly complex requirement descriptors by aiming for each individual requirement to address one critical success factor.
3. Supplement each requirement with an example of what a typical entity typically looks like at each level of maturity for the given requirement; this helps entities reflect on their capability.
4. Develop a companion guide to accompany the maturity model that provides more in-depth discussion and examples of aligned implementations to assist those performing an assessment to ascertain how they measure up. The guide can highlight typical evidence expected at each level of maturity for each requirement.

9 Sample Publications

Various publicly available requirements frameworks and maturity models are available online. In addition to being good frameworks on their respective subjects, they serve as good examples for those wishing to develop their own maturity models.

Name: Information Management Maturity Measurement (IM3)
Publisher: Public Record Office Victoria, Australia
Type: Maturity Model
URL: https://prov.vic.gov.au/recordkeeping-government/learning-resources-tools/information-management-maturity-measurement-tool-im3

Name: Asset Management Accountability Framework (AMAF)
Publisher: Department of Treasury and Finance Victoria, Australia
Type: Requirements Framework only
URL: https://www.dtf.vic.gov.au/infrastructure-investment/asset-management-accountability-framework

Name: Software Assurance Maturity Model (SAMM)
Publisher: Open Web Application Security Project
Type: Maturity Model
URL: https://www.opensamm.org

Name: Essential Eight Maturity Model
Publisher: Australian Signals Directorate's Australian Cyber Security Centre
Type: Maturity Model
URL: https://www.cyber.gov.au/publications/essential-eight-maturity-model

10 Glossary

Term	Definition
Evidence	A body of facts or information contributing to the validation of a selected rating.
Gap Closure Plan	Issues and actions…
Maturity Model	The combination of a model requirements framework and a maturity scale.
Maturity Scale	A sequential series of defined, distinct states of developmental capability.
Objectives	The desired result or results that an entity aims to achieve.
Operating Context	The environment within which an entity exists and operates, taking into consideration external Political, Economic, Social, Technological, Legal and Environmental factors.
PESTLE	Political, Economic, Social, Technological, Legal and Environmental.
Requirements Framework	A set of required elements that form a best practice system, process, standard or concept.
SWOT	Strengths, Weaknesses, Opportunities and Threats.

11 Assessity Platform

Assessity is a web-based platform helping businesses and government measure and level-up capabilities using best practice maturity models and frameworks.

For more information and to see the platform for yourself, visit https://assessity.com.

12 Feedback

Feedback is openly sought to assist with further refinement of the UA[5] Maturity Scale to ensure it is relevant and applicable to as broad an audience as possible.

Feedback can be emailed to hello@assessity.com.