Can 'Soft' Organisational Problems be solved by 'Hard' Process Reference Models?

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Abstract. Process Reference Models (PRM) and their associated Assessment Models (PAM) are best known for their application to well-defined input-process-output work-flows in the Systems and Software Engineering domains. Model-based process improvement (MBPI) is now well-established as a discipline within that domain. Arguably though, MBPI can be applied successfully to multiple domains. The question has been to find a way. This paper discusses a mature Process Reference Model and Assessment Model for the leadership of complex virtual teams, developed in accordance with the recognized standards (ISO/IEC 15504 [8] and ISO/IEC 24774 [9]), yet which is applied to difficult 'soft' organisational problems. Earlier work on this topic focused on how to develop a PRM in soft, organisational contexts [1]. This paper focuses on the derived Process Assessment Model which has had a three-level Capability Dimension added to the existing Performance Dimension, and with associated work-products identified. It reports on preliminary trials at Griffith University.

Keywords: Process Assessment Model, Process Reference Model, Leadership, Reference Model of Organizational Behavior, ISO/IEC 15504, ISO/IEC 24774.

1 Introduction

Standardized approaches to process assessment are finding increasingly broad applications across domains. This paper outlines one such innovative assessment model for the leadership of complex virtual teams that has been developed and applied to good effect in the Australian setting. The benefit of using an assessment model like this is being able to solve difficult organisational problems, like how to transform managers into manager/leaders, in a systematic, comprehensive way.

Considering the nature of Process Reference Models, Feiler and Humphrey [4] define a process model as an abstract representation of a process architecture, design or definition. Process models in this broad sense can be seen as process elements at an architectural, design and definitions level. The abstraction inherent in process models serves to capture and represent the essential nature of processes. Any representation of the process can be said to be a process model. Process models can be analyzed, validated, and if enactable can simulate the modeled process [4].

Earlier work in the current project focused on the validity of calling a Process Reference Model (PRM) that describes organisation-level behavior a PRM in the proper sense, given that PRMs are generally understood to describe a process architecture, design or definition [2]. This earlier work concluded that a process model developed in accordance with ISO/IEC 15504 [8] and ISO/IEC 24774 [9]could properly be called a PRM. To avoid confusion though, it was proposed to describe this new category of PRM as a *Reference Model of Organisational Behavior* (RMOB) [1].

Since 2010, work has been ongoing with the Leadership of Complex Virtual Teams PRM (an instantiation of a RMOB), specifically to do with the elaboration of the Process Assessment Model (PAM) to now include a three-level Capability Dimension with associated work products. The PAM has been packaged into a user-friendly form suitable for use by project or line managers in any sector or discipline and distributed to willing participants.

This paper has three broad aims:

- outlines the project by which the PAM was elaborated to contain a three-level Capability Dimension and associated work products,
- shows a representative sample of the shape, form and content of the Leadership PAM, and
- gives representative feedback from participants on the usefulness or otherwise of the PAM in helping them to apply leadership skills in their management practice.

Note, contextual information on how the assessment model was derived can be found in earlier published work [1]. Space constraints do not permit their inclusion in this paper. Future work will include a detailed empirical study that extends the work of this paper.

2   Adding Capability Dimension to PAM

The project to develop a Leadership PRM began in 2006 and has proceeded through several stages, as discussed in Tuffley [1]. The current stage has focused on the development of a three-level Capability Dimension and associated work products to the basic PAM that hitherto contained only the Performance Dimension. This PAM was derived from a PRM for the leadership of complex virtual teams that had been developed earlier by the same researcher.

2.1   Project description

For the purposes of the Grant and the Ethical clearance process, the project was described in the following terms:

Project name: *Developing the Capability Dimension of a Process Assessment Model for the Leadership of Complex Virtual Teams.*

Project Objectives: to (a) identify a reasonably comprehensive list of work products, activities and artefacts associated with each of the process outcomes in the

Leadership Model, and (b) to allocate these work products, activities and artefacts to an appropriate Capability Level, as specified below.

Project team: David Tuffley and Jo-Anne Clark.

2.2   Criteria for Capability Levels

Consistent with the process capability measures prescribed in ISO/IEC 15504 [5] [8], the following criteria were applied:

- At Level 1, the process is performed, even at a rudimentary level. It is done, but there is no method behind it. The practitioner muddles through, getting the job done somehow. Next time around, it is done a little (or a lot) differently.
- At Level 2, the process is managed, progress is monitored and resources allocated, QA performed. Work products are managed (i.e. standard template and placed under configuration management).
- At Level 3, a defined process exists and it can be tailored and is routinely used in projects. Performance data is gathered in preparation for quantitative project management.

2.3   Research method

This was a small-scale project involving the researcher and a research assistant. The project followed these steps, adapted from Denscombe [6]:

1. Establish project terms of reference.
2. Establish project schedule.
3. Allocate tasks.
4. Give public lecture to interested parties to identify interviewees.
5. Collect data through (a) literature review, and (b) interviews with managers.
6. Collate findings.
7. Review findings
8. Incorporate findings into PAM
9. Do sanity check on the enhanced PAM
10. Make preliminary enquiries about possible test sites.
11. Publicize results (as per Grant conditions).

3   Representative sample of the Leadership PAM

This PAM was developed in strict accordance with ISO/IEC 15504:2004 Parts 1 and 2. A description of how the PAM was developed can be found in Tuffley [1] [3]. Space restrictions do not permit its inclusion here.

3.1 High-level structure of the Leadership Process Assessment Model (PAM)

The structure of the PAM followed that of the PRM. In the earlier development of the PRM it became clear that the various process areas could be differentiated into individual attributes of a leader, factors relevant to the team or project, and those relating to the organisation as a whole. Segmenting the process areas into these three levels was a rational decision, but one which also made intuitive sense.

Table 1. High-level structure of the Leadership Process Assessment Model (PAM).

Leadership Process Assessment Model	
Individual Process Group (IND)	
IND.1	Vision*
IND.2	Objective(s)
IND.3	Integrity
IND.4	Action-orientation
IND.5	Intelligence
IND.6	Individualized consideration
IND.7	Management-by-exception
Team Process Group (TEM)	
TEM.1	Team structure
TEM.2	Team requirements
TEM.3	Team recruitment
TEM.4	Team environment
TEM.5	Team formation
TEM.6	Team roles
TEM.7	Team rules
TEM.8	Team authority
TEM.9	Team performance management
TEM.10	Team development
Organisation Process Group (ORG)	
ORG.1	Team boundaries
ORG.2	Team collaboration
ORG.3	Team & home organization balance

* The Vision process is shown in detail in next section.

3.2 Representative process area content: IND.1 - Vision

In accordance with the requirements of ISO/IEC 15504:2004 Parts 1 and 2, each of the process areas in the PAM was developed and formatted in the manner shown in

Table 2 below. The other 19 processes have also been elaborated in the way shown below.

An earlier review of the PAM conducted in 2010 (which at that time contained only the Performance Dimension) established that such a PAM was viable. This conclusion was based on the results from a four person focus group comprised of project managers [3].

Table 2. Representative process area content: IND.1 - Vision.

Process ID	IND.1
Process Name:	Vision
Process Purpose:	The purpose of the vision process is to create and communicate a shared vision in ways that inspires people to realise that vision.
Process Outcomes:	As a result of successful implementation of the vision process: 1) A vision of the goal(s) is created. 2) The vision of the goal(s) is communicated to the team 3) Commitment by team to the shared vision is gained
Base Practices:	**IND.1.BP1: Create the vision**. The leader envisions a desirable future condition [Outcome 1]
	IND.1.BP2: Communicate the vision. The leader communicates the vision in a way that creates positive expectation in the team members [Outcome 2].
	IND.1.BP3: Commitment to vision by team. The leader obtains commitment from the team members for the realisation of the vision, making it a shared vision [Outcome 3].

Work Products / Activities / Conditions

Inputs	Outputs
Outcome 1:	*Vision is created*
Capability Level 1: Performed	*Process is performed with some degree of competence, but without systematic planning.*
	Vision is formulated through recognizing the current pattern of trends and extrapolating on these to envisage where the world will be in 5 to 10 years. Being proactive, not reactive.
	Vision is formulated through observation, reflection, and discussion with wide variety of stakeholders.
	Vision is formulated through analysis of available

	intelligence in your field of interest.
	Vision is formulated through attending conferences, seminars, and industry events.
	Vision is formulated through being sharpening your intuitive understanding of the world, often the source of inspiration.
	Vision is formulated through unorthodox thinking; deliberately thinking in unorthodox ways about problems and not being controlled by the need for approval.
	Vision is formulated through seeking ideas that approach perfection, but which you do not expect will ever achieve absolute perfection.
Business goals	Team Charter
	Objectives that *must* be achieved
Customer requirements	Project Plan
	Requirements Specification
	Project launch presentation
	Planning session with senior management
Outcome 1:	*Vision is created*
Capability Level 2: Managed	*Process is managed, monitored against plan, resources allocated, QA performed.*
	Work products are managed (i.e. standard template and placed under configuration management)
	Any output done at CL1 that is being managed (not just performed) plus the following:
	A creativity incubator; a place that is conducive to creativity.
Outcome 1:	*Vision is created*
Capability Level 3: Defined	*Documented, customizable description of how to achieve the desired outcome.*
	Performance data is collected
	Any output done at CL2 that has a defined process (not just managed) plus the following:
	Description of how a creativity incubator can be created; what are the critical, underlying characteristics of such an incubator, how to create one for different projects.
Outcome 2:	*Vision is communicated*
Capability Level 1: Performed	*Process is performed with some degree of competence, but without systematic planning.*
	Has command of persuasive communication techniques; appeals to logic, reputation and/or emotion.

	Uses channels other than direct speech; video, audio, social media.
Briefings from Senior Management	Vision statement is communicated
	Roadmap (implementing vision statement)
	Yearly kick-off
Performance data	Quarterly review
Customer feedback	Team briefing
	Regular team meetings
Outcome 2:	*Vision is communicated*
Capability Level 2: Managed	*Process is managed, monitored against plan, resources allocated, QA performed.*
	Work products are managed (i.e. standard template and placed under configuration management)
	Any output done at CL1 that is being managed (not just performed) plus the following:
	Knows how to systematically go about constructing a persuasive communication strategy; appeals to logic, reputation and/or emotion.
New media	Innovative and compelling method of communicating the vision (i.e. social media, YouTube, other new media)
Outcome 2:	*Vision is communicated*
Capability Level 3: Defined	*Documented, customizable description of how to get commitment to vision from team.*
	Any output done at CL2 that has a defined process (not just managed) plus the following:
	Description of how to construct a persuasive communication strategy; how to adapt to the demands of different situations.
Outcome 3:	*Commitment to vision*
Capability Level 1: Performed	
	Give team members a compelling self-interested reason to want to be involved in the project. Tell them what will be in it for them, why should they make the effort. Appeal to both selfish and altruistic motives (i.e. you will be helping yourself, but also be part of something grand.
Commitment by team to the shared	Vision statement is communicated by management

vision is gained		
	Team buy-in exercises	
	Project vision communicated at launch and subsequently reinforced	
Outcome 3:	*Commitment to vision*	
Capability Level 2: Managed	*Process is managed, monitored against plan, resources allocated, QA performed.*	
	Work products are managed (i.e. standard template and placed under configuration management)	
	Any output done at CL1 that is being managed (not just performed) plus the following:	
	Have an established technique for obtaining commitment/buy-in.	
Innovative methods for motivating	Share options in new company	
	Create a sense of solidarity and united mission by defining a common enemy	
Outcome 3:	*Commitment to vision*	
Capability Level 3: Defined	*Documented, customizable description of how to get commitment to vision from team.*	
	Any output done at CL2 that has a defined process (not just managed) plus the following:	
	Have an defined and customizable technique for obtaining commitment/buy-in.	

The above table is a representative process area IND.1 - Vision, one of 20, from the Leadership Process Assessment Model. It conforms to the requirements of ISO/IEC 15504:2004 Parts 1 and 2.

4 Review feedback of the new Process Assessment Model (PAM)

A formal, empirically-based review is planned in the next 12 months. In the meantime, the following preliminary results summarize the results and indicate *potential* trends.

To solicit participation, a public lecture titled *From Management to Leadership: An Introduction to a Process Model for Managers* was presented. The lecture was promoted via the *Griffith News Online* service, a weekly bulletin circulated to 3,500 Griffith staff an interested outside parties. 37 people attended the lecture. These parties were self-selected and no demographic information on them is available. In all likelihood they were project or line managers interested in improving their skills, as this was what the seminar invitation offered. Five non-academic project managers

from Griffith University (male and female) eventually participated in an informal review of the updated Process Assessment Model.

The participants reported that (a) the model is somewhat helpful at improving their leadership capability, and (b) the additional capability level information is helpful in giving them an improvement direction. When asked what would make the PAM more useful, the general comment was that the PAM seemed unnecessarily complicated with its formal layout, acronyms and Software Engineering-specific terminology.

The sections that follow provide more detail of the informal review. A formal, empirical review is planned in the near future.

4.1 Positive aspects

Review participants report that:
1. the model is somewhat helpful at improving their leadership capability, and
2. the additional capability level information is helpful in giving them an improvement direction.

On the first point, the participants liked the characterizations of the foundational personality factors that all leaders have in common. For example, all leaders have a compelling vision of the future and are able to communicate this vision in a way that creates enthusiasm. All leaders create trust, display integrity, are resilient in the face of frustration, and so on. Knowing what factors are true regardless of time, place and culture is particularly helpful. Participants also liked the purpose/outcome format of the model because it tells them *what* but not *how*. It credits them with being able to imagine the 'how'. Some would have liked more detail on how, but in general it was appreciated that the model was not too prescriptive, and does not assert a 'one-size-fits-all' solution. The model gives them the discretion to exercise their intelligence and imagination to determine how, in their particular case, a certain personality trait can be cultivated. The model paints an exemplary portrait of the basic leadership traits and gives them the freedom to imagine their own ideal self that they can grow towards.

On the second point, the participants liked the consistency and the growth path afforded by the three capability levels (performed, managed and defined). They also appreciated the inclusion of work products at each level because it provides specific examples to work towards. The question of whether the remaining two capability levels (quantitative management and optimizing) was desirable and feasible remained unanswered as the participants had insufficient understanding of these advanced levels. These questions will be the subject of further investigation.

The **Office of Human Resource Management** at Griffith University contacted the author to formally ask permission to include a pdf of the model in the HR Toolkit, an on-line resource for managers and other interested staff. A senior manager from OHRM had attended the lecture.

In addition to the review participants, the general feedback from others who attended the lecture and/or downloaded the model for their own use has also been uniformly positive if not complimentary.

4.2 Negative aspects

Review participants report that the:
1. formal tabulated layout was somewhat daunting
2. acronyms (eg. IND-BP1, CL etc.) were confusing
3. Software Engineering-specific terminology did not make sense

It was noted that the tabulated form, acronyms and terminology commonly used in Software Engineering creates the impression of a densely-packed body of technical information that is not readily understandable to the non-technical managers interviewed. The technical managers did not experience the same difficulty.

4.3 Future direction

The review comments clearly indicated the need to simplify the model so that it is accessible to non-technical managers. Given that a guiding objective of this project from its beginning in 2006 is to create a tool that is usable by the broadest possible range of managers, the need to simplify is a compelling one.

The next steps will therefore be to (a) simplify the presentation to be accessible to non-technical users, (b) conduct an empirical study involving technical and non-technical users to determine its efficacy and identify areas of improvement, and (c) investigate whether adding the remaining two capability levels (quantitative management and optimizing) is feasible.

5 Conclusion

The evolution of this model has been ongoing since 2006. The impetus to develop it came from the author's experiences in the IT industry between 1988 and 2000. As a contractor/consultant during that time, the author had reported to perhaps 30 managers across a variety of projects. Of these 30, in the opinion of the author only two could be described as leaders in the sense that they were able to *make people want to do what it was they wanted them to do*. The remaining 28 or so managers were unable to achieve this, needing to resort to more coercive methods, thus incurring resentment, lack of respect and other undesirable consequences. The leadership model's purpose is to help managers in the 'do as I say' category to become members of the leader category.

The leadership model recognizes that leadership is situationally-expressed. As long as one knows what the underlying traits are, the model enables a person to express leadership according to the demands of a particular situation.

The initial challenge was to determine whether (a) leadership was something that could in fact be learned, and (b) can be described as a Process Reference Model in the Software Engineering sense. Both of these questions were answered in the affirmative [1] [2] [3].

The next challenge was to develop a Process Assessment Model based on the Reference Model and determine whether it was feasible as a practical tool in the

hands of managers. The initial PAM contained on the Performance Dimension. Empirical studies established that such a PAM was in fact a practical tool [3].

The third challenge, addressed in this paper, was to add the Capability Dimension to the PAM and determine whether this enhance version of the PAM was a practical tool for managers. An informal review, a preliminary to an empirical review, as discussed in this paper indicates that the enhanced PAM is a practical tool. It points strongly to the conclusion that 'soft' organisational problems can be solved by 'hard' Process Reference Models and their associated assessment models.

Download model: http://www.ict.griffith.edu.au/~davidt/Full_Leadership_Model.pdf

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