CREATING VALUE

IN

PROJECT MANAGEMENT

USING PRINCE2®

A research project undertaken by

Queensland University of Technology (QUT)

Sponsored by:

APM Group Ltd (APMG)

Office of Government Commerce (OGC)

TSO

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Forward by the Sponsors:

Best Management Practice

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This important research is published at a critical time in the history of PRINCE2. The world's project managers are under incredible scrutiny and pressure to ensure their projects deliver quality on time and on budget – and even more so during a world recession. The research shows that PRINCE2 goes a long way to helping them achieve these goals.

Although its origins began in the UK, PRINCE2 now has a truly international reach. We are delighted that the Queensland University of Technology (QUT) has undertaken this global, thorough and informative research project. While it highlights the strengths of the methodology itself, the report also looks at the challenges organisations face when using a project management method such as PRINCE2.

We're sure the challenges will resonate with project managers around the world. Securing executive support to champion the adoption of PRINCE2, creating a robust business case and prioritising project governance are key issues that all project managers will grapple with during their career.

The research also shows that to be thoroughly effective, organisations need to properly embed PRINCE2 and tailor it to suit their particular circumstances. Many successful organisations have sought the effective help of accredited consulting organisations to assist them in developing a programme to tailor and inculcate this method into their organisational culture. The latest version incorporates a whole chapter on tailoring PRINCE2.

We believe that the publication of PRINCE2 *Directing Successful Projects using PRINCE2* and the development of further support in the form of materials, mentoring and training for senior executives will be of significant benefit to contemporary project based organisations. The APM Group has already developed a qualification for sponsors in conjunction with the UK's Home Office to help with this.
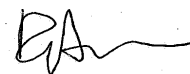
If you would like further advice or if you have feedback regarding this research please contact APMG: www.apmg-international.com for further details.

Jonathan Shebioba
Private Secretary to CEO
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Chairman
APM Group

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EXECUTIVE SUMMARY

Under the sponsorship of the APM Group UK Ltd working in conjunction with the UK Government Office of Government Commerce and TSO, a multi-disciplinary research team from the Queensland University of Technology (QUT) has undertaken one of the first empirical studies into the impact of PRINCE2®[1] on project performance. The research study was entitled *Creating Value in Project Management using PRINCE2*. For comparison, the study also conducted parallel research on the impact of other unspecified (non-PRINCE2) contemporary project management frameworks on project performance.

Study participants in the PRINCE2 and 'Other' research groups were all experienced project managers who have recently applied PRINCE2 or other project management frameworks respectively. The study participants were drawn from a diverse range of industries (including Information and Communications Technology, Construction, and Transport) across three major geographical regions (United Kingdom and Europe, United States, and Australia).

The study used a comprehensive mixed research methodology known as 'Concept Mapping'. Concept mapping combines the receptiveness of qualitative analysis to the unstructured and nuanced opinions of participants (including brainstorming, sorting and ranking), with the statistical rigour of quantitative analysis (including multi-dimensional scaling and cluster analysis) to extract and rank the latent concepts which structure participants' subjective perceptions. The results are conveniently illustrated in a concept map.

More specifically, the study focused on two critical questions:

- What problems or issues adversely affect the utility of PRINCE2 and other project management frameworks in successfully delivering projects?
- What existing or recommended features do or would mitigate (or resolve) these problems and issues?

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[1] PRINCE2® is a Registered Trade Mark of the Office of Government Commerce in the United Kingdom and other countries.

Collectively, the concept maps suggest that participants subjectively frame their perspectives on the two research questions around six major themes:

- *Framework/Manual*—the particular project management framework including its associated documentation
- *Project Boards/Sponsors Competency*—project sponsor and project board competency
- *Project Governance Competency*—organizational competency in project governance
- *Organizational PM Competency*—organizational competency in successfully introducing and implementing the particular project management framework
- *Project Team Competency*—project manager and project team competency
- *Tailoring/Embedding*—adapting the project management framework to the project context (tailoring) and to the corporate context (embedding).

The research found that PRINCE2 is perceived as a very robust, comprehensive and pragmatic project management framework, which underwrites project success. Indeed, existing features of the PRINCE2 framework and manual[2] ranked very high in mitigating perceived problems and issues.

Major strengths cited included:

- Role of the business case in assuring continuing project viability
- Extensive guidance offered on project governance
- Expansion of the tolerance concept to encompass six areas
- Comprehensive definition of roles and responsibilities
- Product-based planning and product-focussed delivery
- Delegation of responsibilities to the appropriate level
- New chapters on tailoring and embedding.

This was in marked contrast to responses from the non-PRINCE2 participants who submitted numerous and significant issues about project management frameworks currently in use, in areas such as: requirements management (including scope and change management), business case definition and maintenance, risk management, and ineffective initiation and commissioning.

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[2]*Managing Successful Projects with PRINCE2* & *Directing Successful Projects with PRINCE2*

Prima facie, the PRINCE2 framework and manual appears to cover many of the corresponding problems/issues and features submitted by the non-PRINCE2 participants. However further research is recommended to confirm this supposition.

Moreover, the benefits of an agreed set of project management concepts and a defined project management lexicon were very evident in the consistency of the PRINCE2 responses compared to the 'Other' responses.

Notwithstanding, the major area of improvement suggested to PRINCE2 framework and manual is expanded coverage of stakeholder management.

The dominant factors which participants believe constrain the success of PRINCE2 projects are demonstrably not methodological but organizational. Criticisms relate not to the PRINCE2 framework or manual, but rather to organizational shortcomings including poor project governance and the inability of organizations to successfully introduce and implement PRINCE2. Or more concisely—a lack of project leadership.

PRINCE2 participants were especially trenchant in their judgement of Project Board effectiveness. Project Board members were criticised for: not understanding their roles and responsibilities, lacking experience, or not possessing the necessary competency. Project Boards' membership was sometimes delegated to staff who had no decision-making authority. Project Boards were not using the Business Case to periodically verify the continuing viability of the project. Senior management was also chided for its lack of commitment and leadership, and a tendency to bypass the Project Board. More generally, organizations were not giving sufficient priority to project governance.

However, the problems with project governance do not lie with the PRINCE2 framework or manual. Indeed, the PRINCE2 participants ranked project governance features among the greatest strengths of the PRINCE2 framework and manual, cited above.

The non-PRINCE2 participants echoed similar sentiments about the poor quality of project governance including lack of or unclear accountabilities, poor leadership and commitment from the senior executive, culture clashes between stakeholder groups coupled with no means of resolving disputes, and inadequate integration between the project and other organizational levels.

On a more positive note, research participants' (and especially the PRINCE2 participants') emphasis on organizational project governance matters reflects a significant shift in mindset from operationally-focused to strategically focused project management.

PRINCE2 participants reported that organizations either did not know or did not possess the commitment to properly implement PRINCE2. This appears to be symptomatic of a broader quandary. Organizations are not recognizing and managing the introduction of PRINCE2 as a major organizational change initiative, taking into account both the 'hard' and 'soft' issues including the creation of a project management culture.

PRINCE2 participants were also concerned that many Registered PRINCE2 Practitioners have limited project management experience. To maintain and indeed extend the value of PRINCE2 certification, participants proposed that an award be developed to recognise experience in the application of PRINCE2. Similarly the non-PRINCE2 participants argued the primacy of experience (both diversity and depth) in recruiting project staff. They also stressed the critical importance of ongoing education and training in developing project management competency—not just in the classroom, but through workplace mentoring and coaching.

The benefit of the recent guidance on tailoring and embedding in the PRINCE2 2009 edition was acknowledged by the PRINCE2 group. However, PRINCE2 participants want that guidance expanded—extending current topics and adding new topics (e.g. for use with non-traditional development and delivery methodologies such as agile). In particular, guidance on embedding would assist organizations introducing and implementing PRINCE2. Currently, advice on embedding is excluded because it "focuses on the corporate organization – and not the individual projects" (Office of Government Commerce, 2009a, p. 97).

Recognition among practitioners of the imperative for tailoring and embedding is salutary. It reflects a clear break from the past "one size fits all" approach (Shenhar, 2001). It also indicates a growing awareness that greater flexibility and sensitivity to the project management environment makes a crucial contribution to competitiveness.

To combat these problems and issues, PRINCE2 participants offered the following recommendations which largely reflect a shift in emphasis from the project to the organizational context:

- Develop new initiatives to educate Project Sponsors, Project Board members and other
  senior executives about the importance of project governance, their collective and individual

responsibilities for effective project leadership, and more generally PRINCE2 processes and products. This might also include a certification process for Project Board members.

- Develop new and detailed guidance on how organizations can introduce PRINCE2, but treating the implementation as a significant organizational change initiative encompassing both 'hard' and 'soft' issues. This would also include developing guidance on embedding which is not currently addressed, because it targets the corporate level rather than projects.

- Extend the current PRINCE2 certification to recognise practitioners who both understand the framework and can proficiently apply it in managing actual projects.

Where possible, implementation of these recommendations should build upon existing offerings such as the Programme and Project Sponsorship and Change Management qualifications.

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4 August 2010

CHAPTER 1—INTRODUCTION

In the second half of 2009, the Queensland University of Technology (QUT) was awarded a research contract from the APM Group (UK) Ltd—in conjunction with the UK Government Office of Government Commerce (OGC) and TSO (formerly The Stationery Office)—to investigate the role of the PRINCE2 project management framework in successful project delivery. The research study was entitled *Creating Value in Project Management Using PRINCE2*. This report summarizes the study's research design, analysis, findings, conclusions, recommendations, and future research opportunities.

Research Goal

The goal of the research project was to "evaluate the impact of PRINCE2 on project performance". To assure the broadest possible applicability of the project outcomes, research participants were drawn from several continents/regions: United Kingdom, Europe, United States and Australia; and from similarly diverse industry sectors including: Information and Communications Technology (ICT), Construction, and Transport, Defence and R&D. Furthermore, as a basis for comparison parallel research was carried out on other but unspecified project management frameworks.

Structure

The Final Report comprises five chapters

- Introduction
- Research Design
- Discovery and Findings
- Conclusions
- Recommendations and Future Research Opportunities.

The scope of the research is deliberately very broad to ensure that the diversity of problems/issues and features is captured for analysis. Although the report considers both PRINCE2 and 'Other' findings, the primary analytical focus is on PRINCE2. 'Other' findings are described but are only analysed to the extent that they contribute to the investigation of PRINCE2. The research team may undertake follow-on studies which investigate selected PRINCE2 topics or the 'Other' findings in greater depth.

QUT Research Team

The research was undertaken by an interdisciplinary team drawn from the QUT Faculty of Business and the Faculty of Built Environment and Engineering (School of Urban Development).

The research team consisted of:

- Richard Sargeant MBE OAM (Chief Investigator), Faculty of Business (Staff) and Faculty of Built Environment and Engineering (PhD Candidate)
- Professor Caroline Hatcher PhD, Faculty of Business
- Associate Professor Bambang Trigunarsyah PhD, Faculty of Built Environment and Engineering
- Dr Vaughan Coffey DBA, Faculty of Built Environment and Engineering
- Dr Judy Kraatz PhD (Research Associate), Faculty of Business

Short biographies of the research members are given in Appendix 1.

CHAPTER 2—RESEARCH DESIGN

Selection of a Research Methodology—Concept Mapping

Criteria

The study's success depended in large part upon the selection of a research methodology which is compatible with both the nature of project management and the openness of the research goal.

Project management operates within a complex web of interactions between people, processes and technologies. Its practice seldom lends itself to either a simple or mechanistic formulation. As a result, it is impossible to determine in advance what factors the study must examine in fulfilling the research goal. Rather, the research must begin with an exploratory stage which is receptive to multiple and sometimes conflicting participant perspectives. Qualitative methods are best used to freely elicit the ideas of experienced project managers during this stage.

However, these ideas will neither stand alone nor have equal relevance. They will contain duplication and overlap. They will be inter-related around larger underlying or latent concepts which structure participants' subjective perceptions—concepts which the research must discover. Moreover, the relative importance of individual ideas to the research goal will differ.

Therefore, the research methodology must incorporate mechanisms which summarize these ideas, rank them according to their relative importance to the research goal, discern the inter-connecting structures, and identify the corresponding latent concepts. Here quantitative methods can add statistical rigour to the latter three activities and generalize the results. At the same time, qualitative methods will remain important in appraising the authenticity and credibility of the outcomes suggested by quantitative methods.

Concept Mapping

To satisfy these requirements, 'Concept Mapping' (Kane & Trochim, 2007) was chosen as the research methodology for this study. Concept mapping begins with a qualitative exploratory phase. Participants are encouraged to brainstorm (and following the usual rules of brainstorming withholding evaluation of) the diverse factors which may potentially affect the research or focus questions. These ideas are summarized to eliminate duplication or overlap. Participants are then invited to rank and identify the inter-relationships between the ideas through sorting. Quantitative statistical techniques, in conjunction with expert judgement, 'mine' the collective results of the ranking and sorting activities to extract the latent concepts which structure participants' subjective

perceptions. Importantly, concept mapping does not measure observable behaviours, but rather participants' perceptions of the effectiveness of project management frameworks within their project and organizational experience.

More specifically, concept mapping entails six major phases which are summarized in Table 1 (Kane & Trochim, 2007, pp. 7-23) below.

Phase	Description
Purpose	Develop the focus questions to be investigated using Concept Mapping
Participants Selection	Select an appropriate participant sample
Brainstorming	Generate and collect participants ideas
Ideas Analysis	Summarize the ideas into a manageable number
Structuring	Participants sort ideas into 'piles' according to their perceived 'similarity', and then rank the ideas by their importance to successful project delivery
Interpretation	'Similarities' and rankings identified by participants are analysed, using multi-dimensional scaling and cluster analysis, to extract and prioritise the key concepts

Table 1: 'Concept Mapping' Phases

These phases are considered in greater detail later in this chapter.

Research Groups

For comparison, two research groups were created:

- PRINCE2 group consisting of Registered PRINCE2 Practitioners with two or more years recent project management experience using PRINCE2, and
- 'Other Frameworks' group comprising project managers with two or more years recent project management experience using any other project management framework.

Major Focus Questions

To determine the extent to which PRINCE2 and 'Other' project management frameworks contribute to project performance, the team asked both research groups two major questions:

- **Problems and Issues:** What problems or issues adversely affected the utility of the particular project management methodology (PRINCE2 or 'Other') in successfully delivering project outcomes?
- **Existing and Recommended Features:** What existing or recommended features mitigate or would mitigate (if not resolve) these problems or issues?

Research Sample

Sampling Frame

The sampling frame for the PRINCE2 group comprised experienced PRINCE2 project managers located in the United Kingdom, Europe and Australia, and working across a diverse range of industry sectors including ICT, Construction, and Transport. The sampling frame for the 'Other' group consisted of experienced project managers using a project management framework other than PRINCE2, but in similar locations (plus the United States) and similar industry sectors. The major imperative in defining the sampling frame was to ensure geographic and industry diversity. However to limit the impact of cultural differences, the geographic spread was limited to three regions.

Sampling Strategy

A purposive sampling strategy was pursued within the sampling frames described above. More than 500 project managers were approached by the research team through:

- personal contacts,
- PRINCE2 accredited consultants and trainers,
- professional organizations,
- 'snowballing', and
- broadcasts through global web sites.

Sample Size

The target sample size for each survey was 20 (R. Rosas, Concept Systems Incorporated, personal communication, 13 January2010). The sample size was recommended by Concept Systems Incorporated whose principals include William Trochim and Mary Kane—pioneers in the application of Concept Mapping (e.g. (Kane & Trochim, 2007; Trochim, 1985, 1989a, 1989b, 1993; Trochim & Cabrera, 2005; Trochim & Linton, 1986). The sample size, however, is not sufficient to draw conclusions about individual regions or industry sectors—this is outside the research scope.

Sample Demographics

The composition of the sample along with a demographic summary—industry and region—for each survey round is listed in Table 2.

	Invited	Total	Australia	UK	US	Europe	Global	ICT	Construction	Transport	Other (R&D, Defence)
Survey Round 1: Participant Selection (Over 500 initial requests made)											
PRINCE2	119	38	19	8	0	8	3	13	3	22	1
Other		53	18	10	17	7	1	7	29	8	9
Survey Round 2 Participant Brainstorming											
PRINCE2	38	24	11	6	0	5	2	7	2	16	0
Other	54	44	14	8	14	8	1	8	22	7	8
Survey Round 3 Participant Structuring											
PRINCE2—Problems/Issues	24	19	9	3	0	4	1	4	1	11	1
PRINCE2--Features	20	19	10	3	0	4	2	4	1	12	2
Other—Problems/Issues	22	21	7	3	5	2	4	4	9	4	4
Other—Features	22	19	5	4	7	1	2	4	7	3	5

Table 2: Research Demographics

Surveys

Data was collected in seven participant surveys administered in three sequential 'Survey Rounds' described in Table 3.

Round	Survey	Group Surveyed	Type	Purpose
1	Survey 1	All	Participant Selection	Select appropriately qualified participants, allocate them to the PRINCE2 or 'Other' Groups, and collect related demographics and experience information.
2	Survey 2A	PRINCE2	Brainstorming	Identify problems or issues experienced by participants with PRINCE2 that adversely affect project delivery.
2	Survey2B	'Other'	Brainstorming	Identify problems or issues experienced by participants with 'Other' frameworks that adversely affect project delivery.
3	Survey 3A	PRINCE2	Structuring	Rank PRINCE2 problems or issues by their perceived impact on project delivery. Sort PRINCE2 problems or issues (derived from all participants) according to their perceived 'similarity'.
3	Survey 3B	PRINCE2	Structuring	Rank features by their perceived impact on project delivery. Sort PRINCE2 existing or proposed features (derived from all participants) according to their perceived 'similarity'.
3	Survey 3C	'Other'	Structuring	Rank PRINCE2 problems or issues by their perceived impact on project delivery. Sort 'Other' problems or issues (derived from all participants) according to their perceived 'similarity'.
3	Survey 3D	'Other'	Structuring	Rank features by their perceived impact on project delivery. Sort 'Other' existing or proposed features (derived from all participants) according to their perceived 'similarity'.

Table 3: Survey Conducted

Brainstorming and Ideas Analysis

The Brainstorming phase elicited a large number and diverse range of ideas on the two focus questions from both research groups. During the Ideas Analysis phase, these ideas were rationalized into a smaller number which research participants could comfortably rank and sort in less than one hour. The number of ideas submitted during the Brainstorming phase and the number of summarized ideas created during the Ideas Analysis phase are listed in Table 4 below.

	Research Group	
	PRINCE2	**'Other'**
Focus Questions: Problems & Issues		
Ideas Brainstormed	96	194
Ideas Summarized	85	68
Focus Question: Features		
Ideas Brainstormed	75	126
Ideas Summarized	65	85

Table 4: No of 'Problems & Issues' and 'Features' Submitted by PRINCE2 and 'Other' Groups

Structuring and Interpretation Phases

The Structuring and Interpretation phases of the 'Concept Mapping' methodology deserve elaboration because of their critical role in the methodology and their complex nature.

Ranking

A normalized ranking is determined for each idea as follows. Participants rank each idea according to its importance to project delivery. A 'raw ranking' is determined by calculating the mean of all

participants' rankings for that idea. Finally, the raw rankings for all ideas within a particular concept map are normalized on a scale of 1 (low) to 5 (high). Unless otherwise specified, the term 'ranking' will mean normalized ranking throughout this report.

Sorting

Participants then sort ideas (e.g. problems/issues or features) into piles according to their perceived 'similarity'. Ideas contained within the same pile are assumed to be related or 'similar'; ideas in different piles are assumed to be unrelated or dissimilar. Participants are free to sort the ideas in any way they choose. The 'similarities' identified by a participant are summarised in a participant similarity matrix. For example, the exposed participant similarity matrix on the left of Figure 1, indicates that the particular participant sorted ideas 1, 4 and 6 into the same pile—a '1' is recorded in the corresponding cells of the participant similarity matrix.

The participant similarity matrices are summed to form the group similarity matrix. The group similarity matrix records the number of participants who assessed each similarity, which is then used to measure the relative strength of a 'similarity'. For example in the group similarity matrix of Figure 1, nine participants assessed ideas 9 and 10 as 'similar'; whereas, only one participant considered ideas 3 and 7 as 'similar', and all participants regarded ideas 3 and 6 as dissimilar.

Group Similarity Matrix

	1	2	3	4	5	6	7	8	9	10
1	10	0	0	6	0	4	0	0	0	1
2	0	10	0	0	5	0	0	4	0	0
3	0	0	10	0	0	0	1	0	6	3
4	6	0	0	10	0	7	0	0	0	0
5	0	5	0	0	10	0	0	2	0	2
6	4	0	0	7	0	10	0	0	0	0
7	0	0	1	0	0	0	10	0	3	1
8	0	4	0	0	2	0	0	10	0	0
9	0	0	6	0	0	3	0	0	10	9
10	1	0	3	0	2	0	1	0	9	10

Participant Similarity Matrices   **Group Similarity Matrix**

Figure 1: Participant and Group Similarity Matrices

Clustering and Concept Interpretation

The group similarity matrix is converted into a two dimensional map using the statistical technique—multidimensional scaling. The distance between points reflects their perceived similarity. The multidimensional scaling map for the Figure 1 group similarity matrix is drawn in Figure 2. Using the same examples, ideas 9 and 10 which have a high group similarity of 9 are very close in distance; whereas ideas 3 and 7 which have a low group similarity of 1 are some distance apart.

Finally, the concepts which underpin the participants' perceptions are crystallized as 'clusters' of proximate points on the map. Clusters are identified using a combination of science and art (Guyon, von Luxburg, & Williamson, 2009), or more specifically statistics and expert judgement. An initial cluster configuration is determined using a statistical technique—cluster analysis. The cluster boundaries are then refined and translated into concepts, using expert judgement—say, in the form of an expert panel. Figure 2 illustrates the four clusters identified from the group similarity matrix. Clusters 1, 2 and 3 would be translated into their corresponding concepts. However, the interpretation of Cluster 4 would likely be deferred because of its singular content, until more information was collected. The relative ranking of each idea is indicated by the size of the corresponding point. The relative importance of a concept is measured by the concept's ranking, which is calculated as the mean of its ideas' rankings.
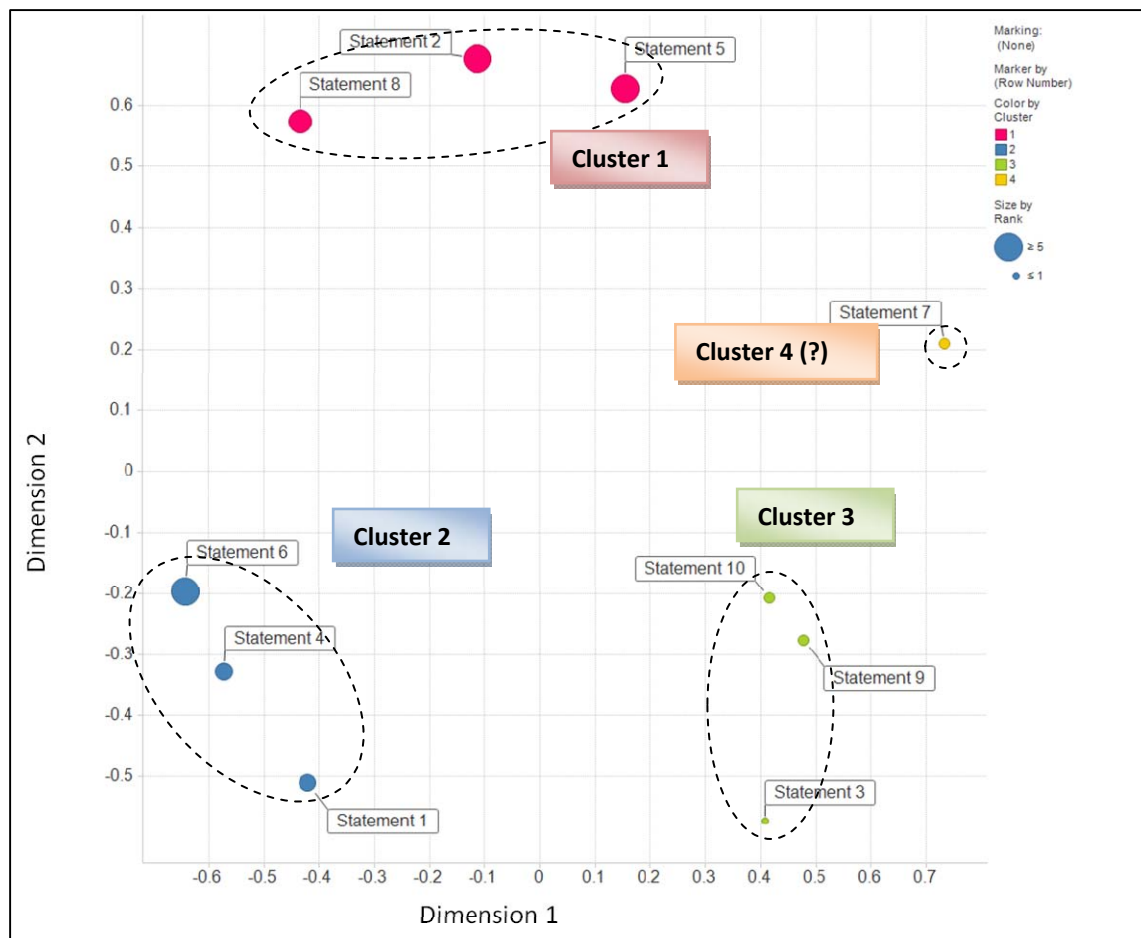
Figure 2: Multidimensional Scaling Map & Cluster Analysis

Data Collection and Analysis Tools

Data Collection

All data was collected online using:

- Zoomerang online survey (http://www.zoomerang.com/) for Survey 1

- Concept Systems Incorporated Global Software (http://www.conceptsystems.com/) for Surveys 2A, 2B, 3A, 3B, 3C and 3D (see Table 3).

Data Analysis

The data was analysed using:

- Concept Systems Incorporated Global Software (http://www.conceptsystems.com/) to create similarity matrices, and to carry out multidimensional scaling and cluster analyses

- IBM® SPSS® Statistics 18 (http://www.spss.com/) for multidimensional scaling (PROXSCAL), and cluster analysis K-means and hierarchical cluster analysis
- R language (http://www.r-project.org/) scripts for data manipulation and Trochim's (1993) concept mapping reliability statistics
- Tibco Spotfire® Professional (http://spotfire.tibco.com/) for data visualisation.

Multidimensional Scaling Map Assessment

In multidimensional scaling, 'stress' statistics measure the 'fit' between the multidimensional scaling map and the corresponding similarity matrix. Or more specifically, how closely the 'distances' between points in the multidimensional scaling map reflect the perceived similarity between the corresponding ideas (Borg & Groenen, 2005, pp. 38-42). In this research, the particular stress statistic 'Stress-I' is used and assessed in two ways. First, it must fall within the normative range established by Trochim (1993) and Rosas and Camphausen (2007). Second, it must not exceed the 1% cut-off threshold defined by Sturrock and Rocha (2000). Multi-dimensional maps with a Stress-I statistic falling below this threshold, have less than 1% probability of having no structure (that is being merely a random configuration).

Reliability

Formally, reliability is defined as the "portion of measurement that is due to permanent effects that persist from sample to sample" (Netemeyer & Sharma, 2003). Or in other words, reliability asks whether the same result would be reached if the research was repeated with other participant samples. However, reliability measures used in the traditional survey approach (which requires respondents to answer a series of closed test items) are not sufficient for the concept mapping methodology (Trochim, 1993). Instead, Trochim (1993) has developed a suite of reliability statistics specifically for concept mapping. Normative ranges for these reliability statistics have been derived from almost two decades of concept mapping experience (Rosas & Camphausen, 2007).

Validity

Because this study employs a mixed methodology (combining both qualitative and quantitative methods), the topic of validity must be approached from two standpoints. The qualitative research view of validity is different to that of quantitative research (Creswell, 2009, p. 190; Gloafshani, 2003; Neuman, 2006, pp. 196-197). In qualitative research, validity refers to the authenticity (Neuman, 2006, p. 196) trustworthiness and credibility (Creswell, 2009, p. 191) of the research findings. An important strategy is triangulation which draws from multiple sources or applies multiple data

collection and analysis methods—strengthening the credibility of the research findings (Creswell, 2009, pp. 443-453; Flick, 2008).

On the other hand, in quantitative research validity checks the correspondence between what is actually being measured and what is purported to be measured (Bryman, 2008, p. 151). Validity is generally divided into three types: content, construct and criterion (Abell, Springer, & Kamata, 2009, pp. 98-101; Neuman, 2006, pp. 192-194).

In assessing the validity of the research, both qualitative and quantitative definitions were put to use.

From the qualitative standpoint, the study made substantial use of triangulation. A significant number of independent participants with diverse experience were consulted, eliciting both convergent and divergent perspectives. Moreover data was collected using a variety of modes including brainstorming, sorting and ranking.

From a quantitative standpoint, the research must show that what is being measured—the problems/issues and mitigating features—is both relevant and comprehensive to the research questions. Several steps are needed.

First, the research must ensure that the measures encompass the relevant aspects of the research questions. This is referred to as 'content validity' (Neuman, 2006, p. 193) Although there can be no guarantee that all problems/issues and features have been discovered, the brainstorming activity coupled with the diversity of participants (e.g. geographically and by industry sector) ensured that a substantial set of contrasting ideas was unearthed. The relative importance of these ideas, with respect to the research questions, was established by the participants in the ranking activity.

Second, the research must determine if the measures operate in a consistent manner—termed 'construct validity'(Neuman, 2006, p. 194). Although this is more easily verified in purely quantitative rather than mixed research, the intent of construct validity was partially demonstrated. The inter-relationship between the problems/issues or features, again with respect to the research questions, was specified by the participants in the sorting activity. The underlying concepts which structure participants' perceptions were then extracted from both the ranking and sorting data using multivariate statistical techniques. The ideas which populate each concept are those which are believed by the participants to move in sympathetic or synergistic ways.

Content and construct validity were also strengthened by the periodic involvement of research team members who are experienced project managers, in round-tables during the Ideas Analysis and Interpretation phases.

Finally, criterion validity depends on agreement with other independent external measures, both in the present (concurrent validity) and the future (predictive validity) (Neuman, 2006, pp. 193-194). Concurrent reliability arises to a large extent from the common perspectives elicited from diverse but independent participants who have substantial experience in looking at current problems/issues or existing mitigating features. Predictive validity is a little harder to demonstrate given the limited duration of the research. However, again it is expected that participants' extensive experience contains substantial predictive value in identifying and assessing the efficacy of recommended features.

CHAPTER 3—DISCOVERY AND FINDINGS

PRELIMINARIES

Survey Statistics

The number of participants who took part in the ranking and sorting activities of each survey are listed in Appendix 5, Table 30. In both the PRINCE2-Issues and the 'Other'-Issues concept maps, the number of participants in the ranking and sorting activities was different. In each case, one of the sorts was not completed and was therefore excluded.

Concept Maps

Four concept maps, listed in Table 5, were developed covering responses to the two focus questions in each of the PRINCE2 and 'Other' groups.

Concept Map	Description	Reference
PRINCE2-Issues	Problems or issues which adversely affected the utility of PRINCE2 in successfully delivering project outcomes.	Appendix 3, Figure 5
PRINCE2-Features	Existing or recommended features which do or would at least mitigate, if not resolve, the PRINCE2 problems or issues.	Appendix 3, Figure 7
'Other'-Issues	Problems or issues which adversely affected the utility of other project management frameworks in successfully delivering project outcomes.	Appendix 3, Figure 10
'Other'-Features	Existing or recommended features which do or would mitigate, if not resolve, these other project management frameworks' problems or issues.	Appendix 3, Figure 12

Table 5 Concept Maps Developed

The four concept maps showing all ideas are depicted in Appendix 3, Figure 5, Figure 7, Figure 10, and Figure 12. The significant problems/issues (with rankings equal to or greater than 3) for the PRINCE2-Issues and 'Other'-Issues concept maps are separately broken out in Appendix 3, Figure 6 and Figure 11 respectively. The PRINCE2-Issues concept map is decomposed into two subordinate concepts covering existing features (Appendix 3, Figure 8) and recommended features (Appendix 3, Figure 9).

The number marked against each point in a concept map is the idea number that links to the corresponding data tables in Appendix 6. The concept structures vary amongst the concept maps because of differences in the focus question (Problems/Issues or Features) and the project management framework (PRINCE2 or 'Other').

Concept statistics for each concept map including number of ideas encompassed by the concept and the concept ranking are described in Appendix 4, Table 29.

Concept Themes

Collectively, these concept maps suggest that participants subjectively frame their perspectives on the two research questions around six major themes:

- *Framework/Manual*—the project management framework including its associated documentation
- *Project Boards/Sponsors Competency*—project sponsor and project board competency
- *Project Governance Competency*—organizational competency in project governance
- *Organizational PM Competency*—organizational competency in implementing the particular project management framework
- *Project Team Competency*—project manager and project team competency.
- *Tailoring/Embedding*—using the definitions in *Directing Successful Projects using PRINCE2* (Office of Government Commerce, 2009a, pp. 97-103), tailoring is adapting the project management framework to the project context ; whereas embedding is adapting the project management framework to the corporate context.

The relationships between these concepts and the concepts themes are mapped in Appendix 2, Table 28. Occasionally a concept relates to more than one theme.

Although the identification of these concept themes is only a preliminary result, it provides an intuitive, convenient and pervasive structure to analyse the specific findings.

Multidimensional Scaling Statistics

The stress statistics for the multidimensional scaling maps for each of the concept maps are shown in Appendix 5, Table 30. In all cases, the stress statistic Stress-I used in this study satisfies the two conditions defined under the heading 'Research Design'. The Stress-I statistic: falls within the normative range established by Trochim (1993) and Rosas and Camphausen (2007), and is less than the 1% cut-off threshold (Sturrock & Rocha, 2000) also listed in Appendix 5, Table 30.

Reliability

The reliability statistics defined by Trochim (1993) for all concept maps and are tabulated in Appendix 5, Table 31. In all cases, these fall within the normative ranges established by Trochim

(1993) and Rosas and Camphausen (2007). In other words, if the research were repeated under similar circumstances, there is a high probability that the results would be similar.

Validity

Because concept mapping is a mixed methodology, the research's validity was examined from qualitative and quantitative perspectives. The approaches adopted in this study to preserve qualitative and quantitative validity are described in detail under the heading 'Research Design' above.

One source which weakens the research validity is the apparent lack of awareness of some PRINCE2 participants of the significant changes made to PRINCE2 in the 2009 release. However, the result is most likely to be a more conservative evaluation in the areas affected. The research team recommends that the problems/issues and features suggested by the PRINCE2 participants be reviewed by an expert panel to identify those that have been resolved in the latest release.

Notwithstanding, the research design is deemed to exhibit an acceptable degree of validity.

Presentation of Findings

The findings presented below are grouped hierarchically in three levels:

- First level: Project management framework—PRINCE2 or 'Other'
- Second level: Concept Theme
- Third level: Research questions—Problems/Issues or Features

Interpretation of Idea Rankings

In formulating findings, only problems/issues or features which are ranked equal to or greater than 3 are considered significant. The PRINCE2-Issues and 'Other'-Issues concepts maps are also redrawn in Appendix 3, Figure 6 and Figure 11 respectively to show only 'significant ideas'.

Assumed Participant Knowledge

In analysing the survey responses, participants are assumed to be knowledgeable about the latest version of their chosen project management framework. This assumption could not be tested in the 'Other' group because of the range of frameworks encompassed. However, several responses received from the PRINCE2 imply that some PRINCE2 practitioners are unaware of updated or new topics in the PRINCE2 2009 release (e.g. expanded guidance on tailoring). The impact on the research validity is discussed above.

Prudent Comparison

The research does not attempt to compare the performance of PRINCE2 against that of any other specific project management framework. Moreover, such comparisons would be invalid because the 'Other' group does not represent users of a particular framework, but rather a broad class of unspecified frameworks.

Rather the 'Other' data offers an excellent comparative sample of the problems/issues being experienced, and the features sought, by practitioners in general project management practice using non-PRINCE2 frameworks.

PRINCE2

PRINCE2 Concept Maps

The PRINCE2-Issues and PRINCE2-Features concept maps are illustrated in Appendix 3, Figure 5 and Figure 7.

Relative Importance of PRINCE2-Issues Concepts

The relative ranking of the concepts within the PRINCE2—Issues concept map is illustrated in Figure 3 below. The higher the ranking, the more serious is the perceived concern of the PRINCE2 participants. At the extremes of this scale of perceived concerns are the Project Board/Sponsor issues at the high end and the PRINCE2 Framework and Manual issues at the low end.

Note that in the PRINCE2-Issues concept map, the Project Team Competency theme is encapsulated in the Organizational PM Competency concept, and the Framework/Manual theme is collectively covered by the Framework and Manual concepts.
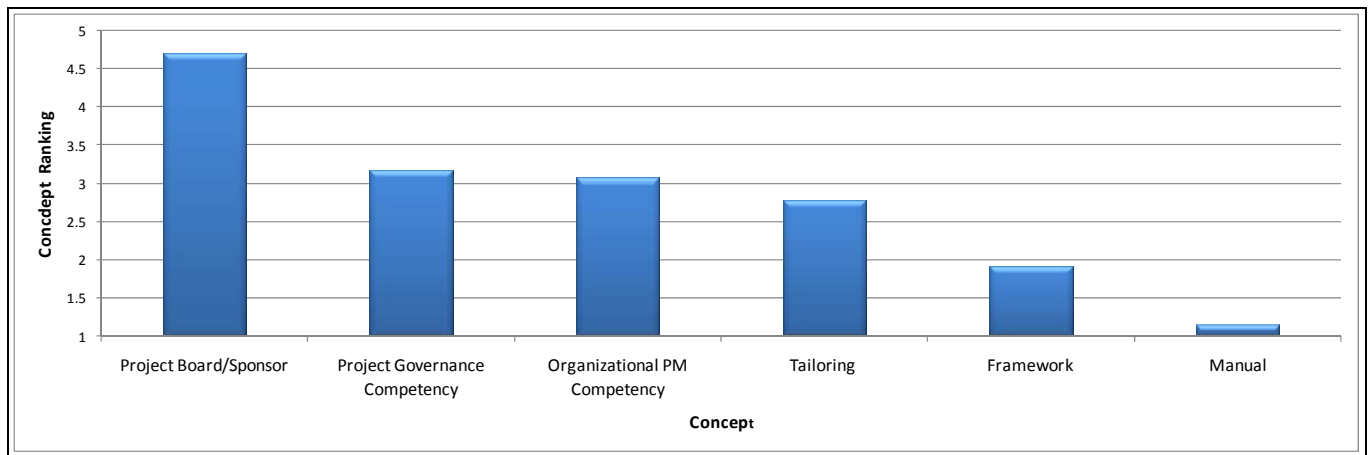
Figure 3: PRINCE2—Issues Concept Rankings

Framework/Manual Theme

Issues

Although the PRINCE2 participants raised many and distinct issues about the PRINCE2 Framework and Manual, the relative importance of these was very low with average rankings of 1.9 and 1.1 respectively (on a scale of 1 to 5). Unlike other concepts within the PRINCE2-Issues concept map, the Framework and Manual concepts contain no issues ranked above 3 and 2 respectively. This is a very significant finding, which persuasively exemplifies the general satisfaction of participants with the PRINCE2 framework and manual.

The perceived integrity of the PRINCE2 framework is similarly demonstrated pictorially in the contrast between the two variants of the PRINCE2-Issues concept map in Appendix 3, Figure 5 and Figure 6. The first map which includes all issues depicts well-populated Framework and Manual concepts (combined for convenience). Yet in the second map, which only includes significant issues (with rankings equal to or greater than 3), the combined Framework and Manual concepts are almost empty except for two issues, in sharp comparison to all other concepts. The only two issues in the combined Framework and Manual concept with the maximum ranking of 3 are listed in Table 6.

PRINCE Framework/Manual Issues	Ranking
Does not include a quality measurement framework e.g. KPIs	3
PRINCE2 lacks sufficient emphasis on the people issues	3

Table 6: PRINCE2 Framework/Manual Issues

Equally important are the PRINCE2 Framework/Manual issues raised by individual PRINCE2 participants but then effectively rejected by the PRINCE2 group as a whole by assigning a ranking of 1. These are described in Table 7 below.

Rejected Issues	Ranking
PRINCE2 is 'built in mid-air' - lacks foundation disciplines e.g. constructing schedules and motivating people	1
PRINCE2 exam focuses on rule over principle	1
PRINCE2 methodology too theoretical	1
PRINCE2 manual offers naive and shallow guidance--especially in risk and change management	1
Volume of PRINCE2 manual can distract project team from delivering practical/real outcomes	1
PRINCE2 manual difficult to read	1
PRINCE2 doesn't provide templates for management products (with guidelines), so organizations must create their own	1
Too many detailed acronyms to memorise, making it difficult to engage the organization	1
PRINCE2 manual mutates rather than evolves every 3 to 4 years creating disruption to project teams - requiring expensive updates to internal documentation	1
PRINCE2 manual repetitious and fragmented	1
Examples provided are largely limited to Information and Communications Technology	1
PRINCE2 manual has many gaps e.g. no direction on financial accounting for projects	1
PRINCE2 manual contains too many 'see other OGC document' references	1
PRINCE2 2005 and 2009 guidance creates two sets of advice	1
PRINCE2 2009 made some dumb changes like removal of sub-process id's to be populist	1
PRINCE2 manual too detailed	1

Table 7: Rejected Criticisms of the PRINCE2 Framework and Manual

Existing Features

Table 8 shows the existing PRINCE2 features which participants ranked highly (with a ranking of 3, 4 or 5 as discussed earlier). The PRINCE2 participants were generally of the opinion that the existing features of the PRINCE2 framework and manual not only resolve many of low-level Framework and Manual issues, but also contribute toward resolving other more highly ranked PRINCE2-'Issues' themes.

Existing PRINCE2 Framework/Manual Feature	Concept	Ranking
Emphasizes critical role of the Business Case in assuring the continuing project viability	Framework-Governance	5
Extensive guidance on project governance in P2-09	Framework-Governance	5
Comprehensively defines roles and responsibilities at all levels	Framework-PRINCE2	5
Avoids 'top heavy' management by delegating responsibilities to the appropriate level	Framework-Governance	4
Expansion of tolerances concept to six areas--time, cost, scope, risk, quality and benefits in P2-09	Framework-PRINCE2	4
Emphasizes product-based and product-focused planning and delivery	Framework-PRINCE2	4
Stage planning ensuring that work is not done without the necessary approvals	Framework-PRINCE2	4
Includes a project and quality assurance approach	Framework-Governance	4
Offers a prescribed and well-defined project management methodology	Framework-PRINCE2	4
New chapter on ''tailoring and embedding' in P2-09	Tailoring	4
Stages' assist budgeting	Framework-PRINCE2	3
P2 establishes a robust planning framework	Framework-PRINCE2	3
New companion volume 'Directing Successful Projects with PRINCE2' for P2-09	Framework-Governance	3
Replacement of complex sub-processes with simpler, more practical activities in P2-09	Manual	3
Greater focus on delivery supported by core documents in P2-09	Framework-PRINCE2	3
Broader range of examples in P2-09	Manual	3
Standard templates for management products	Tailoring	3
Is structured and controlled	Framework-PRINCE2	3

Table 8: Existing PRINCE2 Framework/Manual Features Which Resolve or Mitigate Significant Issues

Proposed Features

Nevertheless, the PRINCE2 group did propose several areas of improvement in the PRINCE2 framework and documentation. These are listed in Table 9. The major suggestion is to expand the treatment of stakeholder management.

Proposed PRINCE2 Framework/Manual Feature	Concept	Ranking
Expand coverage of stakeholder management	Manual	5
Put greater focus on benefits tracking and benefits management	Framework-Governance	4
Update supplementary guide ''People Issues and PRINCE2'	Manual	4
Redefine how project assurance adds value	Framework-Governance	4
Address PMO and Project Support responsibilities and interfaces in P2 manual	Manual	3

Table 9: Proposed PRINCE2 Framework/Manual Features

Problems and Issues—Organizational Not Methodological

The major problems and issues constraining success in projects using PRINCE2 are largely unrelated to the PRINCE2 framework or manual. The critical problems and issues are not methodological, but rather predominantly organizational in nature. Despite the perceived benefits of the PRINCE2 framework and manual, poor project leadership and lackadaisical implementation of PRINCE2 in organizations received trenchant criticism from the PRINCE2 group.

Project Boards/Sponsors Theme

Issues

In particular, the PRINCE2 group was exceptionally critical of the competence and effectiveness of Project Boards and Project Sponsors. In the PRINCE2-Issues concept map, the Project Boards/Sponsors theme was the highest ranked with a score of 4.6. Moreover, more than half of the top 30 PRINCE2 issues (with rankings of 4 and 5) target the competence or behaviour of Project Boards and Sponsors. The Project Boards/Sponsors issues submitted by the PRINCE2 group are listed in Table 10 and are self-explanatory.

PRINCE2 Project Sponsor/Board Issues	Ranking
Project Boards do not understand their roles and responsibilities	5
Project Board members not always competent to fulfil their role	5
Business Case is not used to periodically test and confirm project viability	5
Lack of commitment and leadership from senior management	5
Project Boards are not used effectively	5
Corporate management bypasses the Project Board	5
Project Boards constituted by delegates who lack authority to make decisions	5
Project Boards do not understand or apply management by exception	5
Project 'starting-up' and 'initiation' are rushed or missed because of pressure 'to get going'	5
Project Boards are inexperienced	5
Escalated issues (Exception Reports) are not resolved	5
Project Boards do not define the tolerances within which the PM must work	4
Projects have limited involvement or representation from the customer	4
Project Boards do not delegate sufficient authority to the PM	4
Project Boards are difficult to convene	4
Project Sponsor does not control the project funds	4

Table 10: PRINCE2 Project Boards/Sponsors' Issues

Project Governance

Issues

Nearly a third of the top 30 PRINCE2 issues (rankings of 4 or 5) relate to governance matters other than Project Boards and Sponsors. The issues expressed by the PRINCE2 group in Table 11 below emphasize the organization's ignorance of, or its inability to exercise, good project governance.

PRINCE2 Project Governance Issues	Ranking
Organization does not understand the role of the project governance process in decision-making	5
Organization has low respect for project governance	5
Organization focuses on project cost rather than benefits	4
Low organizational project management maturity	4
Benefits realisation is not managed beyond project close	4
Although requirements remain vague or unapproved, the project proceeds because of time pressures	4
Project accountabilities not enforced	4
Insufficient time allocated for planning and project approvals	4
Budget or resources not sufficient to satisfy project needs	4

Table 11: PRINCE2 Project Governance Issues

Project Boards/Sponsors and Project Governance Themes

Features

Several existing features of the PRINCE2 Framework and Manual identified by PRINCE2 participants in Table 8 already support improved performance of Project Boards/Sponsors and Project Governance, including the following. The PRINCE2 manuals volume *Directing Successful Projects with PRINCE2* (Office of Government Commerce, 2009a) and *Managing Successful Projects with PRINCE2* (Office of Government Commerce, 2009b) give extensive guidance on project governance (including Project Board membership and conduct) and comprehensively define all relevant roles and responsibilities. The Business Case plays a critical role in assuring the continuing viability of the project. Stage planning ensures that work is not done without the necessary governance approvals. The tolerance concept has also been expanded to encompass six areas to improve the potency of exception reporting.

To improve the effectiveness of Project Boards/Sponsors and Project Governance, the PRINCE2 group recommended several specific actions described in Table 12 below.

Recommended Project Boards/Sponsors and Project Governance Features	Ranking
Educating project board members on their collective and individual responsibilities	5
Increasing senior management awareness of PRINCE2 processes and management products	5
Explain how to achieve the senior leadership commitment needed to embed PRINCE2, in the PRINCE2 Manual	5
Prepare publication targeting the roles & responsibilities of Project Boards and executives	4
Develop course for Project Sponsors and Project Board Members	4
Introduce certification for project board members	3

Table 12: Proposed PRINCE2 Features to Mitigate Project Boards/Sponsors and Project Governance Issues

The PRINCE2 participants perceived a need for significant initiatives to educate Project Sponsors, Project Board members and other senior executives about the importance of project governance, their collective and individual responsibilities for effective project leadership, and more generally PRINCE2 processes and products. The PRINCE2 group suggested that this might include a certification scheme for Project Board members. Furthermore, the PRINCE2 group sought comprehensive guidance on how to solicit senior leadership commitment to implement PRINCE2 organizationally. The PRINCE2 participants did not appear aware of the existing Programme and Project Sponsorship qualification.

Organizational PM Competency and Project Team Competency Themes

Issues—Organizational PM Competency and Project Team Competency Themes

Interestingly, the PRINCE2 group primarily focussed on issues related to Organizational PM rather than Project Team Competency. This again may be a reflection of the perceived integrity and maturity of the PRINCE2 framework and manual. That the dominant Project Team Competency issue is the inexperience of some Registered PRINCE2 Practitioners supports this contention.

The three major Organizational PM Competency issues identified by PRINCE2 participants are:

- Organizations which either do not understand PRINCE2 or don't know how to implement and sustain PRINCE2 structures and processes. This is exemplified in the characterization "PRINCE2 in name only"
- Organizations which do not have sufficient PRINCE2 trained and experienced project managers
- Organizations which don't provide adequate support for PRINCE2 project managers.

More detail on the Organizational PM Competency issues is contained in Table 13 below.

Issues—Project Team Competency Theme

As already mentioned, the major Project Team Competency issue submitted by the PRINCE2 group is the perceived inexperience of "many" Registered PRINCE2 Practitioners. The term 'practitioner' is obviously interpreted in the market place as a project manager who can proficiently apply PRINCE2 in actual projects.

Organizational PM Competency Issues	Ranking
Organization does not know how to apply PRINCE2 processes	4
Organization does not know how to manage quality using product descriptions and customer quality expectations	4
Many so-called PRINCE2 Practitioners have never run a project, and so time and effort is wasted	4
PRINCE2 exception processes not followed in managing escalated issues	4
PRINCE2 used in name only - the Project Board and Project Manager think they are using PRINCE2, but not really.	4
Some team members struggle to apply product-based planning and to understand its relationship to scope and quality	3
Project managers do not receive adequate support in their initial use of PRINCE2	3
Project managers are treated as project coordinators	3
Lack of critical mass of those understanding PRINCE2 methodology in the organisation	3
Not enough people have been trained in PRINCE2	3
Issue management pile up - lack of clarity, worry, fear etc can be entered as an issue. Filtering these quite a task.	3
Stage processes are not strictly followed	3
Running the project 'by PRINCE2' can become more important than achieving project objectives	3

Table 13: Organizational PM Competency Issues

Features—Organizational PM Competency Theme

Earlier sections have already canvassed further features including:

- education initiatives for senior management,
- certification for Project Board members.

which would also improve Organizational PM Competency. However, these are really part of a much broader strategic feature which draws support from other themes including Project Governance and Tailoring/Embedding. Organizations must recognise and manage the introduction and implementation of PRINCE2 as a significant organizational change initiative. There is a collective sense which permeates several themes that PRINCE2 is often seen as a panacea or 'magic fix' which is imposed more by decree than persuasion and deliberate introduction and implementation.

Features—Project Team Competency Theme

The scope of the current PRINCE2 certification is seen as too limited. The PRINCE2 group recommended that certification be made more practically oriented or competency-based. Several suggestions were advanced. The PRINCE2 certification structure should be extended to recognize experience in the application of the PRINCE2 framework to actual projects. This could be offered as an additional accreditation, preserving the value of the existing certification. Although ranked slightly lower, the PRINCE2 group also proposed that PRINCE2 be aligned with a competency model which promotes teamwork, and that an accreditation scheme be introduced for PRINCE2 coaches. New features proposed by the PRINCE2 group about framework certification training are listed in Table 14 below.

Proposed PRINCE2 Framework Certification and Training Features	Ranking
Modify the practitioner exam to test competence in managing a project using PRINCE2 rather than just the PRINCE2 methodology	5
Run internal product-based planning workshops to demonstrate the technique's effectiveness	4
Make PRINCE2 certification more practically or competency-based	4
Update PRINCE2 training to reflect 'realities'	3
Map PRINCE2 to a competence model to help develop team capabilities	3
Implement accreditation scheme for P2 coaching	3

Table 14: Proposed PRINCE2 Framework Certification and Training Features

Tailoring/Embedding Theme

Issues

The distinction drawn between tailoring and embedding in the new companion publication *Directing Successful Projects using PRINCE2* (Office of Government Commerce, 2009a, pp. 97-103) has been adopted in this study. 'Tailoring' is adapting the PRINCE2 framework to match the particular circumstances of the project; whereas 'embedding' is adapting the framework to the requirements of the corporate organization.

Despite the expanded guidance on tailoring in the PRINCE2 2009 release, tailoring is still seen as a significant topic as the issues identified by the PRINCE2 group in Table 15 verify.

According to the PRINCE2 participants, some organizations are still adopting a "one size fits all" (Shenhar, 2001) in their approach to PRINCE2. Interestingly, one of the chief concerns is the problems caused by inexperienced project managers tailoring PRINCE2. This, coupled with the

recognition of the difficulties involved in tailoring, emphasises the need for comprehensive and easy to follow guidance.

PRINCE2 Tailoring Issues	Ranking
Tailoring by inexperienced PMs reduces the power of PRINCE2 by taking away essential stuff	5
PRINCE2 processes need to be tailored to size of projects, to suit organisational context	4
Change management process is effective but time consuming and very difficult to speed up	3
Structured processes are important but can sometimes lead to inflexibility in dealing with uncertainty	3
Tailoring PRINCE2 to match project size is difficult	3

Table 15: PRINCE2 Tailoring/Embedding Issues

Although many issues in Table 15 centre on tailoring, embedding issues are no less important. They are referred to, both explicitly and implicitly, in issues covered by other themes such as those expressed in Table 16 below.

Issues	Concept	Ranking
Organization has low respect for project governance	Project Governance	5
Corporate management bypasses the Project Board	Project Board/Sponsor	5
Organization does not know how to apply PRINCE2 processes	Organizational PM Competency	4
Benefits realisation is not managed beyond project close	Project Governance	4
Projects have limited involvement or representation from the customer	Sponsor/Board	4
PMs do not receive adequate support in their initial use of PRINCE2	Organizational PM Competency	3
PRINCE2 processes poorly integrated with other enterprise level processes e.g. business planning	Project Governance	3
PRINCE2 lacks sufficient emphasis on the people issues	Framework	3
Running the project 'by PRINCE2' can become more important than achieving project objectives	Organizational PM Competency	3

Table 16: Examples of Embedding Referenced in Other Themes

Together these and other references to the topic of embedding by the PRINCE2 group reinforce the earlier finding that organizations are failing to recognise and manage the introduction and implementation of PRINCE2 as a significant organizational change initiative. At the moment, though, the topic of embedding is deemed out of scope for PRINCE2 because it "focuses on the corporate organization – and not the individual projects" in *Directing Successful Projects using PRI*NCE2 (Office of Government Commerce, 2009a, p. 97).

Features

The important contribution to tailoring and embedding of:

- the new chapter entitled *Tailoring PRINCE2 to the project environment* in the PRINCE2 Manual 2009 edition (Office of Government Commerce, 2009b, pp. 213-231), and
- the new companion volume *Directing Successful Projects using PRINCE2* (Office of Government Commerce, 2009a, pp. 98-103)

was acknowledged by the PRINCE2 participants among the existing Framework/Manual features listed in Table 8.

Tailoring features recommended by the PRINCE2 participants are listed in Table 17. In some cases the tailoring guidance on current topics must be expanded; in other cases tailoring advice is sought on new topics such as non-traditional development and delivery methodologies (e.g. agile).

Recommended PRINCE2 Tailoring Features	Ranking
Produce a 'lite' version for simple applications	4
Explicitly address the linkages to programme and portfolio management	4
Define project sizing and classification model to guide tailoring	4
PMs must be willing to deviate from the methodology to resolve issues	4
Demonstrate (with examples) how PRINCE2 can be used with non-traditional development and delivery methodologies (e.g. agile)	4
Improve and expand guidance on tailoring PRINCE2 to different contexts	4
Show how to better manage tolerances (e.g. with earned value analysis)	3
Specify pre-defined processes for small, medium and large projects	3
Include more checklists	3
Identify short cuts and non-essential steps	3
Include more and broader range of case studies	3
Incorporate a standard set of templates for all PRINCE2 products rather than each organization developing their own	3
Demonstrate how to integrate PRINCE2 and enterprise level processes	3
Create a PRINCE2 tool to capture lessons learned	3

Table 17: Recommended PRINCE2 Tailoring Features

Many features suggested in Table 17 focus on tailoring. However, features proposed under other themes are intended to improve embedding. Several examples are shown in Table 18.

Issues	Concept	Ranking
Educating project board members on their collective and individual responsibilities	Project Governance	5
Increasing senior management awareness of P2 processes and management products	Project Governance	5
Explain how to achieve the senior leadership commitment needed to embed P2 in manual (R)	Project Governance	5
Update supplementary guide *People Issues & PRINCE2*	Framework	4
Place greater emphasis on 'people issues'	Project Governance	3

Table 18: Example Features Supporting Embedding

OTHER' PROJECT MANAGEMENT FRAMEWORKS

'Other' Concept Maps

The 'Other'-Issues and 'Other'-Features concept maps are illustrated in Appendix 3, Figure 10 and Figure 12. A variation of the 'Other'-Issues concept map showing only significant issues (ranked 3 or more) is shown in Appendix 3, Figure 11.

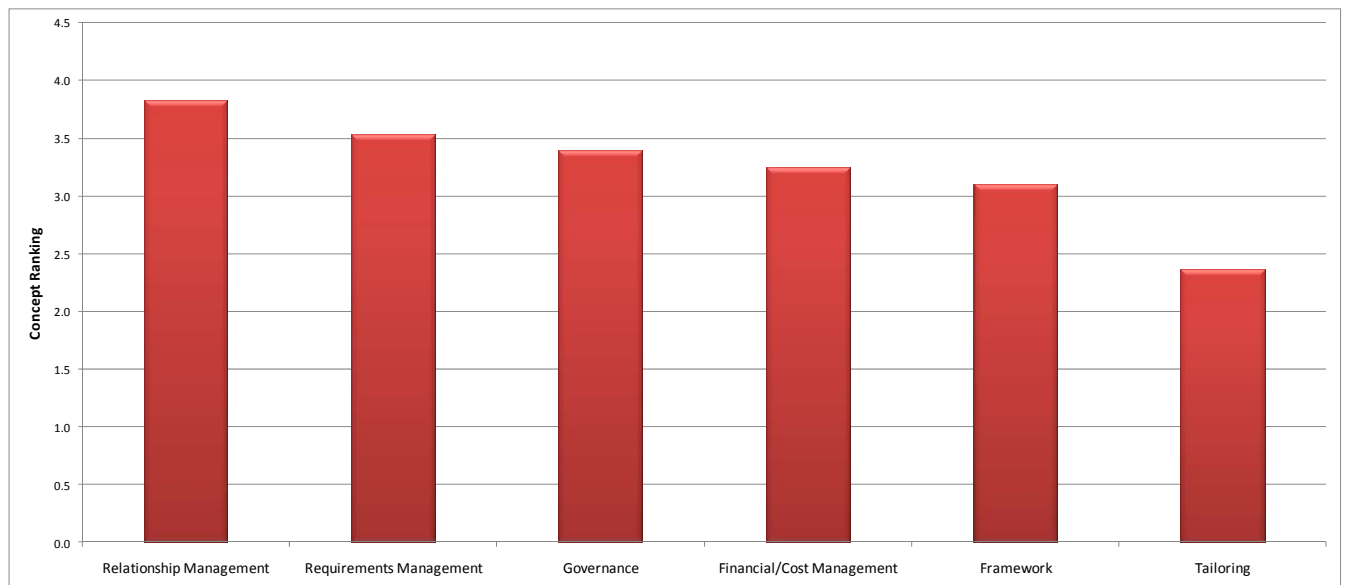## Relative Importance of 'Other'—Issues Concepts

Figure 4: 'Other'—Issues Concept Rankings

The relative ranking of the concepts within the 'Other'—Issues concept map is illustrated in Figure 4. At the extremes of this scale of perceived concerns are Relationship Management concept at the high end and Tailoring at the low end.

The relationships between concepts and themes for the 'Other' group are not as simple as the PRINCE2 group. As Appendix 2, Table 28 demonstrates, several concepts in the 'Other'-Issues and 'Other'-Features concept maps relate to two or even three themes. This is not surprising. Unlike the PRINCE2 group, the 'Other' group embraces multiple project management frameworks and a correspondingly greater divergence of issues and features. For convenience, the issues or features contained within these concepts are reviewed under a single theme designated in Appendix 2, Table 28. For example, the Requirements Management concept overlaps the Framework/Manual, Organizational PM Competency and Project Team Competency themes. An issue which forms of the Requirements Management concept could result from either a shortcoming in the project management framework or the absence of the corresponding competency at the organizational or project level. It is difficult in many cases to determine the particular cause; consequently the Requirements Management concept is covered under the Framework/Manual theme.

Although the analysis is more complex, the 'Other' findings offer an extraordinarily rich comparative sample of significant issues and features experienced in general project management practice outside PRINCE2.

Existing versus Recommended Features

The distinction between existing and recommended features is not investigated in the discussion of 'Other' findings below because the distinction is not relevant to the assessment of PRINCE2. Whether existing or recommended, any feature ranked as significant by the 'Other' group, is germane to the evaluation of PRINCE2. Moreover, the distinction between existing and recommended features blurs in the 'Other' findings because of the multiple frameworks. An existing feature in one framework might be a recommended feature in another.

Framework/Manual Theme

Issues

The Framework/Manual issues identified by 'Other' participants are covered by the Framework and Requirements Management concepts, and are listed in Table 19 below.

'Other' Framework Issues	Concept	Ranking
Poor change control and scope creep due to customers/user demands (cost of variations not properly considered)	Requirements Management	5
No formal risk planning - risks not properly managed or quantified thus unforseen issues during project execution	Framework	5
Poor business case, project definition, ill-defined scope, unclear goals, priorities and objectives - change with leadership	Requirements Management	5
Not enough importance given to good start up/commissioning only execution	Framework	5
Design information insufficient i.e. poor project brief	Requirements Management	4
Difficulty aligning project goals with goals of key stakeholders	Requirements Management	4
Lack of project boundaries and too many activities/tasks	Requirements Management	4
Conflicting or unbalanced departmental/project interests (lack of understanding of requirements)	Requirements Management	4
Lack of attention to defining and monitoring risks so no 'early warning system',	Requirements Management	4
Highly process rather than strategically driven - PM not strategically engaged	Framework	4
Plenty of 'how' and 'what' but no understanding of 'why' - root causes of problems not tackled	Requirements Management	4
Inadequate control and timely reporting mechanisms.	Framework	3
Difficulty in understanding intangible client requirements for commissioning and hand-over	Requirements Management	3
Inadequate focus on commissioning and handover to owner issues	Requirements Management	3
Proposal timeframe too short for all stakeholders to input	Requirements Management	3
Poor action register with insufficient importance placed on 'lessons learned'	Framework	3
No real recognition of site specific requirements for safety, quality and other temporary activities	Requirements Management	3
Project success definition/criteria based upon project objectives, does not consider effects of the projects on others (internal/external) or on culture/processes	Requirements Management	3
No 'lessons learned' from operating project management framework	Framework	3
Planning too detailed, more focus on milestones and logics	Framework	3

Table 19: 'Other' Framework and Requirements Management Issues

The key areas criticised by 'Other' participants include:

- Poor scope and change management

- Ambiguous project boundaries

- Misalignment between project and stakeholder goals

- Inadequate business case

- Lack of formal risk management (both planning and monitoring)

- Ineffective initiation and transition (or commissioning)
- Pre-eminent focus on process rather than strategic engagement.

Features

The features suggested by the 'Other' group to mitigate these issues are captured by the Requirements Management and Project Systems and Controls concepts. These features are outlined in Table 20 below.

'Other' Framework Features	Concept	Ranking
Formal change management system introduced	Project Systems and Controls	5
Implementing better communication & project reports for change control	Project Systems and Controls	5
Ensuring stakeholder agreement to project objectives and resulting allocation of responsibilities	Requirements Management	5
Established formal process for project definition incorporating site specific requirement in scoping the project	Requirements Management	5
Defined process for owners' involvement in decision making and change management	Requirements Management	5
Better understanding, clarification and documentation of owner requirements and specific goals and objectives prior to start of projects	Requirements Management	5
Provide sufficient contingency for unexpected events	Project Systems and Controls	4
Intensify estimating process; introduce basic cost reports for estimating; unify cost control system and incorporate value metrics	Project Systems and Controls	4
Process for tracking introduced	Project Systems and Controls	4
Established formal process for implementing performance acceptance criteria	Project Systems and Controls	4
Defined process with owner for commissioning and handover	Project Systems and Controls	4
Better logical structure required for control mechanisms for start-up and documented change controls	Project Systems and Controls	4
Provision of sufficient time/budget to assess changes; clear decision from client on acceptance/rejection; and associated time problems alleviated by use of heuristic estimates and accurate reporting	Requirements Management	4
Using launch workshops and value engineering with design/contractor stakeholders to understand requirements and understand that PM value-add metrics are different to engineering metrics	Requirements Management	4
Greater emphasis placed on outcomes (effectiveness) rather than just efficiency (time, cost, performance)	Requirements Management	4
Better outcome definition required to improve decision-making	Requirements Management	4
Acceptance of life-cycle approach for all project investment decisions	Requirements Management	4
Better determination of Work Break-down Structure decomposition; and standardisation of WBS software tools required across projects	Project Systems and Controls	3
Consideration of commercial as well as financial management and tailored guidelines required	Project Systems and Controls	3
Using detailed stage modelling in programme to prevent resource conflicts	Project Systems and Controls	3
Better reviews based upon key documents	Project Systems and Controls	3
Using centralised web-based Electronic Document Control system for greater traceability, efficiency and ease of use	Project Systems and Controls	3
New project pricing form to be reviewed and signed-off before sending to customer	Project Systems and Controls	3
Fully electronic contract documentation process introduced	Project Systems and Controls	3
IT application for PM Framework/process operating	Project Systems and Controls	3
Further use of enhanced risk tools to quantify risk and manage contingency and better 'reading between the lines' to fully capture all possible risks	Requirements Management	3
Commissioning arrangements improved with greater policy making involvement	Requirements Management	3
Explicit steps taken to select activities up-front	Requirements Management	3
Risk aversion and the non-sharing of risks with those that benefit from new approaches	Requirements Management	3

Table 20: 'Other' Framework and Requirements Management Features

In broad terms, the key features proposed are:

- Developing formal processes for
    - scope definition and management
    - change management and change control
    - customer/stakeholder/owner involvement especially in scope definition
    - cost estimation
    - product acceptance
    - initiation, commissioning and handover
- Including adequate contingency for unknown unknowns
- Allocating sufficient time and budget to assess and approve changes
- Launch and value-engineering workshops
- Improving cost estimation and value metrics
- Greater emphasis on outcomes (effectiveness) rather than just efficiency (time, cost and performance)
- Adopting a life-cycle approach to project investment decisions.

Project Governance Theme

Issues

Because of the close relationship between the Project Governance and Relationship Management concepts (reflected in the proximity of the corresponding clusters) in the 'Other'-Issues concept map, they are treated collectively under the Project Governance theme. The issues identified by the 'Other' group are catalogued in Table 21.

'Other' Project Governance Issues	Concept	Ranking
Unclear lines of authority and no real team commitment	Project Governance	5
Lack of governance, poor stage gates, lack of accountability;	Project Governance	5
No defined chain of command and complacency.	Project Governance	5
Culture clashes between different stakeholders and poor dispute resolution	Relationship Management	5
Inadequate communication	Relationship Management	5
Lack of leadership and top-management support and buy-in to standardised PM processes and methodology - inconsistent project practices	Project Governance	4
PM not responsible for schedule	Project Governance	4
Excessive time-consuming effort required to monitor/control suppliers/contractors - no power to enforce 3rd parties to deliver	Project Governance	4
Poor project execution	Project Governance	4
Lack of PM training to staff, clients and work package owners and poor understanding of project management framework	Relationship Management	4
Lack of ownership and system integration amongst all levels of project	Project Governance	4
Poor stakeholder management and conflicting objectives	Relationship Management	4
Too much faith in IT, not enough support for 'management skills' (people side underplayed)	Project Governance	3
Lack of commitment to provide relevant expertise and HR resources to project recruitment based on availability	Project Governance	3
Client and project team members unfamiliar with PM framework/methodology	Relationship Management	3
Meddling by sponsors with time/cost causing 'churn'	Project Governance	3
Lack of PM process maturity - non-construction skilled consultants driving PM for high fees low service quality	Project Governance	3
Killing projects i.e. 'no-/go' solutions not an option	Project Governance	3
Management focus on time/cost, hence low quality/high cost delivery	Project Governance	3
Untimely PM appointment	Project Governance	3
Low PM resources	Project Governance	3
Project management framework problems unresolved despite reviews	Project Governance	3

Table 21: 'Other' Project Governance Issues

In a nutshell, the dominant project governance issues are:

- Absence of defined project governance structures, processes and roles/responsibilities/accountabilities

- Culture clashes between stakeholder groups

- Poor communication

- No mechanisms to resolve stakeholder disputes

- Lack of leadership and senior executive support

- Poor commitment and even complacency

- Little awareness of the project management framework among key stakeholders

- Inadequate integration between the project and other organizational levels.

So, the responses not only criticise the lack of structure and process, but also equally assail the neglect of 'soft' issues created by poor project leadership, and unresolved fractious relationships between stakeholder groups.

Features

Features which the 'Other' group identified as mitigating Project Governance issues are recorded in Table 22.

'Other' Project Governance Features	Concept	Ranking
Educating client of the risks of proceeding with unresolved issues	Project Governance	5
Proper formalised, comprehensive and mandatory risk-identification and management process in place	Project Governance	5
Weekly progress reporting on milestones at team meetings	Project Governance	5
Keeping executives fully informed of goals, process and issues to receive direction	Project Governance	5
Leadership recognizes PM value	Project Governance	5
More timely decision making observed	Project Governance	4
Agreed and executed new governance including effective gateway process	Project Governance	4
Leadership prioritising PM investment	Project Governance	4
Periodic review of business case to ensure ongoing viability relative to alternate investments	Project Governance	3
Safety culture program instigated	Project Governance	3
Leadership behaviour changing for better	Project Governance	3
Involving soft disciplines (e.g. Systems thinkers, psychologists) to improve PM culture	Project Governance	3

Table 22: 'Other' Project Governance Features

In brief, crucial features suggested by 'Other' participants to mitigate Project Governance issues include:

- Active leadership which recognises the organizational value of project management
- Portfolio management which prioritises project management investment
- Periodic review of the business case
- Formalized project governance structures and processes including an effective gateway process
- Formal risk management processes
- Changing leadership behaviour
- Greater emphasis on softer disciplines to improve project management culture.

Again, the dual need for both better structure and process, and improved project leadership was recognised—although the latter, interestingly, was ranked the lower of the two.

Organizational PM and Project Team Competency Themes

Issues

Although containing only a few issues, the Financial/Cost Management concept demanded separate recognition because of its location on the concept map. These issues, listed in Table 23 reflect a general failure to manage costs at the project level including estimation, budgeting and expenditure tracking.

'Other' Financial/Cost Management Issues	Concept	Ranking
Poor budgeting, cost control system and project estimates (lack of formal 'modelling')	Financial/Cost Management	4
Not able to physically control budget	Financial/Cost Management	3
Unsuitable finance policy designed for large projects but not small projects within a large portfolio	Financial/Cost Management	3
No cost - only time monitoring considered important for tracking and analysis - progress measurement not measuring the real progress	Financial/Cost Management	3

Table 23: 'Other' Financial/Cost Management Issues

Features—Organizational PM Competency Theme

Features which the 'Other' group judged important in mitigating Organizational PM Competency issues are listed in Table 24 below.

'Other' Organizational PM Competency Features	Concept	Ranking
Developing knowledge management data base of lessons learned	Organizational PM Competency	4
Partnering and developing supplier relationships rather than depending solely upon contract provisions	Organizational PM Competency	4
Conduct post-project review on PM methodology	Organizational PM Competency	4
Sharing of best practice contractual requirements communicated between contractors	Organizational PM Competency	4
Managing communication of key living documents to be given accurate facts on program rollouts	Organizational PM Competency	4
Managing communication of key living documents to show real project status among key stakeholders (project participants and political)	Organizational PM Competency	4
Specific programme introduced to improve project management maturity across organization	Organizational PM Competency	4
Training and tailored guidelines introduced to improve organizational awareness and respect for schedules as a control mechanism	Organizational PM Competency	4
Education and provision of new manual of PM methodology (process) for key stakeholders (including users, project leaders & project administrators	Organizational PM Competency	3
Align PM framework templates with new financial policies; provide adequate resources & training to introduce & support this; & adopt real options approach to make it a system selling point	Organizational PM Competency	3
Using best practice framework agreements with contractors and suppliers together with procurement schedules including risk register and visit factories	Organizational PM Competency	3
Developing post-implementation review tools for PMs	Organizational PM Competency	3
Using methods and tools that help highlighting PM (and team's) roles and responsibilities	Organizational PM Competency	3

Table 24: 'Other' Organizational PM Competency Features

The chief features include:

- Application of knowledge management to lessons learned

- Greater emphasis on relationship based rather than 'black-letter' contracting with suppliers

- Sharing of 'best practice' contract management practices

- Post-project reviews of the effectiveness of the project management framework

- Responsive performance management systems which give all stakeholders up-to-date project information

- Specific program to improve organizational project management maturity

- Training to improve awareness of project management.

Features—Project Team Competency Theme

'Other' group participants advanced numerous features, shown in Table 25, which they believe would enhance the Project Team Competency theme.

'Other' Project Team Competency Features	Concept	Ranking
Recruiting reliable team members and making PM experience a 'must' requirement	Project Team Competency	5
Organization providing effective development, training and management of suitable resources	Project Team Competency	5
Developing PM as a profession with proper training and formalised performance standards	Project Team Competency	5
Coaching and mentoring to overcome cultural resistance to introduction of project management framework	Project Team Competency	4
Incorporation of achievement of project goals in employee appraisals	Project Team Competency	4
Implement project mentoring; workplace training and training of clients and stakeholders in project management framework	Project Team Competency	4
Organisation now seeking mature and experienced project managers with a sense of perspective	Project Team Competency	4
Improve experience diversity in teams and management	Project Team Competency	4
Emphasis being placed on 'management' education	Project Team Competency	3
Introduce training workshops with case studies focusing on project delivery rather than management as a core competency	Project Team Competency	3

Table 25: 'Other Project Team Competency Features

The major features include:

- Primacy of project management experience (both depth and diversity) in recruiting project managers and project team staff
- Critical role of education both academic and in the workplace including coaching and mentoring. The focus of this education should include not only project management disciplines but leadership more broadly
- Recognising project management as a profession.

Tailoring/Embedding Theme

Tailoring received the lowest concept ranking in both the 'Other'-Issues and 'Other'-Features concept maps.

Issues

Several significant tailoring issues were targeted by the 'Other' group. These are described in Table 26.

'Other' Tailoring Issues	Concept	Ranking
Project management framework used as non-flexible prescriptive process - too much focus on templates as an 'end' not as a 'means'	Tailoring	3
New project management framework has discarded proven existing tools and techniques without considering worth i.e. repackage of old versions lacking adaptation and flexibility to change culture	Tailoring	3
PM tools not integrated into standard processes	Tailoring	3
Standard rather than tailored solutions applied	Tailoring	3

Table 26: 'Other' Tailoring Issues

Organizations are still adopting the "one size fits all" approach to project management (Shenhar, 2001), without allowing sufficient flexibility to accommodate the project's real character. Moreover, project management frameworks are operating in isolation from other organizational or enterprise processes. Presumably as a result of project management failures, new project management frameworks are being introduced with little attention being given to decisive organizational change issues such as culture.

Features

Features which 'Other' participants proposed to engage these issues are outlined in Table 27.

'Other' Tailoring Features	Concept	Ranking
Tailoring guidelines/methodology to suit individual projects rather than 'one size fits all'	Tailoring	4
Project ownership now part of PM framework	Tailoring	4
Apply simple and concise PM methodology	Tailoring	4
Ensure adequate flexibility in project management framework	Tailoring	3
Worker input into processes which are being more standardized / refined / defined i.e. project start-ups	Tailoring	3

Table 27: 'Other' Tailoring Features

Participants reject the prescriptive or doctrinaire approach to project management. Rather, they are seeking methodologies (or guidelines to existing methodologies) which enable them to tailor the approach is to match the unique characteristics of the project and its context. Consequently participants want project management frameworks which are concise and straightforward, and so provide opportunity for flexible responses to changing circumstances. But to assure the successful introduction and implementation of a project management framework, organizations must address the 'softer' people issues, according to participants. Project ownership (and presumably project governance) is also increasingly seen as a core element of a project management framework.

CHAPTER 4—CONCLUSIONS

CONCLUSIONS

As discussed earlier under the heading 'Prudent Comparison', the comparison between the PRINCE2 and 'Other' findings should be interpreted as an evaluation of the performance of PRINCE2 against general project management practice represented by 'Other ' findings. It should not be seen as a comparative evaluation of PRINCE2 against any other particular project management framework.

Concept Mapping

The concept mapping approach proved highly successful in eliciting and analysing a large number and a diverse range of issues covering:

- the 'problems and issues' affecting the utility of PRINCE2 and the other project management frameworks,
- existing and recommended 'features' to resolve or at least mitigate these problems and issues.

Reliability and Validity

The research results are deemed to exhibit an acceptable level of reliability and validity.

Concept Themes

Collectively, the concepts which emerged from the analysis suggest that participants frame problems/issues and features around six broad but inevitably overlapping themes:

- *Framework/Manual*—the project management framework including its associated documentation (e.g. the PRINCE2 manual),
- *Project Sponsors/Boards Competency*—project sponsor and project board competency,
- *Project Governance Competency*—organizational competency in project governance,
- *Organizational PM Competency*—organizational competency in implementing the particular project management framework,
- *Project Team Competency*—project manager and project team competency, and
- *Tailoring/Embedding*—adapting the project management framework to the project context (tailoring) and to the corporate context (embedding).

Framework/Manual Theme

In remarkable contrast to the 'Other' project management frameworks, the PRINCE2 framework and manuals are perceived to have almost no significant problems or issues. This is a crucial finding.

PRINCE2 (framework and manual) is perceived as a very robust, comprehensive and pragmatic project management framework which underwrites project success. Although numerous problems and issues were suggested, overall PRINCE2 participants ranked these very low. Conversely, participants ranked many existing PRINCE2 features as very effective in mitigating serious problems in other themes.

Some of the highest ranked existing features included:

- Role of the business case in assuring continuing project viability
- The extensive guidance offered on project governance
- Expansion of the tolerance concept to encompass six areas
- The comprehensive definition of roles and responsibilities
- Product-based planning and product-focussed delivery
- Delegation of responsibilities to the appropriate level
- New chapters on tailoring and embedding.

The few areas where change was proposed were: expanded coverage of stakeholder management, greater focus on benefits management, broader definition of the role played by project assurance and updating the supplementary guide *People Issues and PRINCE2*.

The 'Other' findings, on the other hand, demonstrated significant dissatisfaction in the broader project management community stemming from an extensive range of shortcomings, especially in the areas such as:

- Poor scope and change management
- Inadequate business case management
- Ineffective initiation and commissioning (transition)
- Lack of formal risk management processes
- Pre-eminent focus on process rather than strategic engagement.

The benefit of standard project management concepts and language was exemplified in the PRINCE2 survey responses. Issues and features submitted by PRINCE2 participants were almost always

understandable, accessible to interpretation, and required little translation during the 'Ideas Analysis' phase. This was not the case with 'Other' frameworks. The comparative meaning of survey responses from 'Other' participants was often confounded by inconsistency in both concepts and language.

The nature of the survey responses collected from the PRINCE2 and 'Other' groups also differed substantially in diversity. In comparison to the 'Other' group, significant PRINCE2 responses were qualitatively more focussed. This may be a reflection of the breadth and cohesive organization of the PRINCE2 framework. Because the fundamental project management processes are comprehensively defined, users may be able to focus on specific issues without being distracted by routine concerns.

Problems and Issues—Organizational versus Methodological

The major problems and issues which PRINCE2 participants believe impede the success of projects using PRINCE2 are demonstrably not methodological, but rather organizational. The 'Other' participants echoed the similar organizational concerns, but the importance of these was offset by the broad range of framework related issues identified by them.

Project Boards/Sponsors and Project Governance Themes

The PRINCE2 group directed trenchant criticism toward the Project Sponsor and Project Board competency. In striking contrast to the PRINCE2 framework and manual issues with an average ranking of 1.46, problems and issues with Project Sponsor/Project Board Competency theme scored an average ranking of 4.6. Project Boards were criticised for numerous reasons including:

- Project Board members not understanding their roles and responsibilities, lacking experience or otherwise not possessing the necessary competence to fulfil their roles
- Minimal commitment from senior management and lack of authority
- Corporate management that bypasses the Project Board
- Failing to periodically revalidate the business case
- Rushing initiation because of pressure to show immediate progress.

Problems and issues related to the related Project Governance theme were significant, but ranked somewhat lower with an average of 3.2. The crux of the PRINCE2 participant concerns was the low priority which organizations give to project governance—whether through lack of understanding or an absence of commitment.

Very importantly, the source of project governance problems in organizations using PRINCE2 is organizational and not the framework. In fact, many of the highest ranked strengths of the PRINCE2 framework (cited above) directly address project governance, including:

- Emphasising the critical role played by the Business in assuring continuing project viability
- Extensive guidance on project governance in the PRINCE2 2009 editions
- Comprehensive definition of role and responsibilities at all levels.

The non-PRINCE2 participants echoed similar sentiments about: the poor quality of project governance including lack of or unclear accountabilities, poor leadership and commitment from the senior executive, culture clashes between stakeholder groups coupled with no means of resolving disputes, and inadequate integration between the project and other organizational levels.

Overall, the sentiments expressed by both the PRINCE2 and 'Other' participants are not just about lack of governance and structure and process within organizations, but perhaps more significantly about lack of project leadership. The business environments described by both PRINCE2 and 'Other' participants where senior executive support is sometimes tepid and project governance is weak, confirm other research (Shenhar, 2007; Stefanovic & Shenhar, 2007) that projects are not being managed strategically.

Although the literature on strategic alignment or "fit" between strategy and projects has been characterised as "vague" (Shenhar, Milosevic, Dvir, & Thamhain, 2007, p. 6), "scant" (Milosevic & Srivannaboon, 2006) and "limited" (Srivannaboon, 2005, p. 37), the limited research suggests that strategic alignment is a necessary if not sufficient condition for business success (Stefanovic & Shenhar, 2007). Persistent and substantial strategic misalignment, particularly in volatile environments, will diminish an organization's ability to both influence and adapt to, its changing environment.

Notwithstanding, research participants'—and especially PRINCE2 participants'—emphasis on organizational project governance matters reflects an emerging shift in mindset from operationally focused to strategically focused project management (Shenhar, 2007). Indeed, the distinct difference in the ratio of organizational to framework issues between the PRINCE2 and 'Other' groups is interesting. It suggests that a project management framework such as PRINCE2 which is perceived as both comprehensive and flexible may be a significant factor if not a pre-requisite in developing this strategic focus.

Organizational PM Competency and Project Team Competency Themes

Organizational PM Competency and Project Team Competency problems and issues were ranked only slightly behind those of Project Governance. The PRINCE2 participants' critique highlighted two areas.

First, organizations either do not know how, or do not possess the commitment, to properly implement PRINCE2. This is symptomatic of a pervasive strategic issue which permeates not just this theme but other themes including Project Governance and Tailoring and Embedding.

The introduction and implementation of PRINCE2 in an organization demands much more than management merely designating PRINCE2 as the standard project management framework, and running training courses. The introduction and implementation of PRINCE2 in an organization must be recognised and managed as a significant organizational change which addresses both hard and soft issues including the development of a supporting project management culture.

Second, the PRINCE2 group was concerned that many Registered PRINCE2 Practitioners have limited project management experience. The value of the current PRINCE2 certification in developing a sound understanding of the PRINCE2 framework including a common project management language was uncontested. But to maintain and extend the value of PRINCE2 certification, the PRINCE2 participants want the certification process extended to recognise proficiency in applying PRINCE2 to actual projects. This could be offered as an additional accreditation, preserving the value of current certification.

Like their PRINCE2 counterparts, the 'Other' Group argued the primacy of experience (both diversity and depth) in recruiting project staff. They also emphasised the critical role of education and training in developing Organizational and Project Team Competency. Both groups saw coaching and mentoring in the workplace playing an important role in the education of project managers. The PRINCE2 group further proposed that accreditation be introduced for PRINCE2 coaches.

Organizations were also encouraged to recognise and promote project management as a profession.

Tailoring/Embedding Theme

Although PRINCE2 participants acknowledged the importance of the new guidance on tailoring and embedding in the PRINCE2 2009 edition, their feedback suggests this guidance needs to be expanded, especially for embedding. However, recognizing the importance of an organizational approach to the introduction of PRINCE2, embedding should no longer be deemed out of scope

because it "focuses on the corporate organization – and not the individual projects" (Office of Government Commerce, 2009a, p. 97).

The 'Other' participants also rejected the "one size fits all' approach (Shenhar, 2001). They value project management methodologies which: are simple and concise, embody flexibility, cover the project ownership and provide tailoring guidelines.

Calls for expanded guidance on tailoring and embedding are salutary. It reflects the trend away from historic "one size fits all" (Shenhar, 2001) approach to project management. It also suggests that projects will be pressured to progressively exhibit greater flexibility and sensitivity to environmental changes—whether internal or external to the organization. Both pressures will contribute to strategic alignment particularly in fast-moving business sectors.

PRINCE2—Learning from the 'Other' Experience

In comparing PRINCE2 with the 'Other' project management frameworks, prima facie PRINCE2 appears to either cover off many reported problems and issues, or incorporate many proposed features. As 'Other' problems/issues and features characterises a broad cross-section of general project management practice not using PRINCE2, further investigation of this suggested finding would add substantially both to the scope and validity of this research. The research team has already developed a draft survey instrument. Desirably this would be undertaken by an expert panel of approximately 10-20 PRINCE2 consultants/trainers—who have not been involved in this research to minimise any bias. The same expert panel could also judge the extent to which PRINCE2 problems/issues and features were addressed by the PRINCE2 2009 release.

CHAPTER 5—RECOMMENDATIONS AND FURTHER RESEARCH OPPORTUNITIES

The recommendations resulting from this study are largely based on analysis of features recommended by PRINCE2 participants to mitigate problems and issues previously identified. For the most part, recommendations have been restricted to features ranked greater than 3 on a normalized scale of 1 (low) to 5 (high).

The greatest priority should be given to resolving problems and issues with Project Boards/Sponsors.

Substantial initiatives are needed to educate Project Sponsors, Project Board members and other senior executives about the importance of project governance, their collective and individual responsibilities for effective project leadership, and more generally PRINCE2 processes and products. These initiatives could be supported by a formal certification program for Project Board members, similar to that currently operating for PRINCE2 practitioners. These same recommendations would contribute markedly to establishing effective project governance. The education initiatives for senior executive and project board members could also build upon the existing Programme and Project Sponsor qualification.

To improve Organizational PM Competency, organizations need detailed guidance on how to introduce, implement and sustain PRINCE2 from an organizational perspective.

This guidance should:

- emphasise treating the introduction of PRINCE2 as a significant organizational change initiative,
- outline the steps to solicit senior leadership support,
- address the gamut of implementation issues including the softer issues such as the creation of the project governance/management culture, and
- provide an implementation plan outline.

This guidance could potentially extend the current Change Management qualification.

Related to this recommendation, the guidance on tailoring and embedding should be expanded. Moreover, it is clear that embedding can no longer be considered out of scope (Office of Government Commerce, 2009a, p. 97). Nevertheless, the additional topics to be covered in tailoring, and the topics to be addressed in a new embedding section require further research.

The whole subject of organizational implementation of PRINCE2, including embedding, could become another significant offering within the OGC product portfolio.

To further increase the value of PRINCE2 certification in the market place, additional accreditation should be introduced which indicates that the practitioner both understands the methodology, and can apply it proficiently in managing projects. Further guidance should also be offered on how to implement PRINCE2 mentoring and coaching in the workplace.

Although the quality and serviceability of the PRINCE2 framework and manual has been demonstrated, other potential areas of improvement suggested are: expanded coverage of stakeholder management, greater focus on benefits management, broader definition of the role played by project assurance and updating the supplementary guide *People Issues and PRINCE2*.

An expert panel consisting of approximately 10 PRINCE2 consultants/trainers should be convened to determine the extent to which the PRINCE2 2009 release:

- accommodates the issues and features identified by the 'Other' group, and
- satisfies the problems/issues and features raised by the PRINCE2 group.

To support this activity, the research team has already prepared a draft survey instrument.

FURTHER RESEARCH OPPORTUNITIES

In summary, the conclusions and recommendations above suggest several avenues of profitable research targeting areas such as:

- Determining the major factors affecting the introduction of PRINCE2 into organizations and then developing flexible and inclusive guidance on the organizational implementation of PRINCE2
- Identifying the competencies which project board members and sponsors must possess to satisfactorily fulfil their project governance roles within PRINCE2
- Extending this study to assess the impact of the OGC's Portfolio guidance/MSP/PRINCE2 product portfolio on strategic alignment within an organization.

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Appendix 1: QUT Research Team

Mr Richard Sargeant (Chief Investigator): Richard helped develop and now teaches in QUT's Executive Masters in Complex Project Management. Richard is also pursuing PhD research studying the critical factors affecting strategic alignment between organizational strategy and projects. Richard has almost thirty years experience in Defence acquisition, portfolio/programme/project management, ICT, and aerospace engineering. He has received an MBE and an OAM for services to Defence. Richard is also a Chartered Professional Engineer, a Certified Practising Accountant, a Fellow of the Royal Statistical Society and a Fellow of the Australian Institute of Project Management.

Professor Caroline Hatcher: Professor Hatcher is a Professor in the Faculty of Business and Course Co-ordinator of the QUT Executive Masters in Complex Project Management. Professor Hatcher is an active researcher in the area of organizational and leadership communication with a special focus on communication in project and complex environments. In particular, Professor Hatcher is a major contributor to one of Australia's largest funded research projects investigating the contribution of project leader behaviours to processes and outcomes in large scale projects. Professor Hatcher is also President of the World Communication Association. Professor Hatcher has published very widely including several books and 20 refereed journal articles in the last decade.

Associate Professor (A/Prof) Bambang Trigunarsyah: A/Prof Trigunarsyah is Associate Professor of Project Management in the Faculty of Built Environment and Engineering. Before joining QUT, A/Prof Trigunarsyah was Head of the Department of Civil Engineering and Associate Professor in Construction Project Management at the University of Indonesia. A/Prof Trigunarsyah had many years experience in the construction and oil development industries. A/Prof Trigunarsyah has published widely in construction management and road construction, co-authoring two books and over sixty technical papers.

Dr Vaughan Coffey: Dr Coffey is a Lecturer in Construction and Project Management. Dr Coffey is also a major presenter on project management to several large companies and organizations—both internationally and domestically—including Shell Petroleum, the Australian Urban Development Institute and AUSENCO (one of Australia's largest providers of engineering and project management services in the resources and energy sectors). Dr Coffey has more than 30 years experience in the construction industry especially in Asia. Dr Coffey's major research interests are organizational

culture, project management, strategic fit linking organizational strategy to projects, and project quality management. Dr Coffey has recently published a new book with Taylor and Francis in the UK (distributed by Palgrave Macmillan in Australia) entitled *Understanding Organisational Culture in the Construction Industry*.

Dr Judy Kraatz: Dr Judy Kraatz's recent doctoral studies investigated how project objectives can be better aligned with an organisation's corporate objectives and responsibilities. The outcome of this research is a value-mapping framework which tracks project performance back to existing organisational objectives, outcomes and values. This research builds upon twenty years of professional activity as a practicing architect and academic in the built environment. This includes experience as Group Manager (Architecture) with Brisbane City Council and various roles in the Commonwealth Government's building procurement groups, as design architect, change agent, and senior manager. Judy's academic experience includes appointment as the Program Director for building courses at Central Queensland University.   A key focus of Judy's professional and research activity for the past decade has been embedding sustainability - in education, business and project delivery and research.

Appendix 2—Cross-Reference between 'Concept Themes' and Concept Map 'Concepts'

Concept Theme	Concept Map			
	PRINCE2-Issues Concepts	**PRINCE2-Features Concepts**	**Other-Issues Concepts**	**Other-Features Concepts**
Framework/Manual	Framework and Manual	Framework-PRINCE2 Framework-Governance Manual	Framework Requirements Management*	Requirements Management* Project Systems and Controls*
Project Governance Competency	Project Governance	Certification & Training-Project Governance	Project Governance Relationship Management	Project Governance*
Project Boards/Sponsors Competency	Sponsor/Board	Certification & Training-Project Governance*	Project Governance	Project Governance
Organizational PM Competency	Organizational PM Competency*	Certification & Training-Project Governance	Financial/Cost Management* Requirements Management	Organizational PM Competency Requirements Management Project Systems and Controls
Project Team Competency	Organizational PM Competency	Certification & Training-PRINCE2 Framework	Requirements Management Financial/Cost Management	Project Team Competency
Tailoring/Embedding	Tailoring	Tailoring	Tailoring	Tailoring

Table 28: Relationships between Concepts and Concept Themes in each Concept Map

* indicates the particular theme under which the concept issues or features are discussed

Appendix 3—Concept Maps
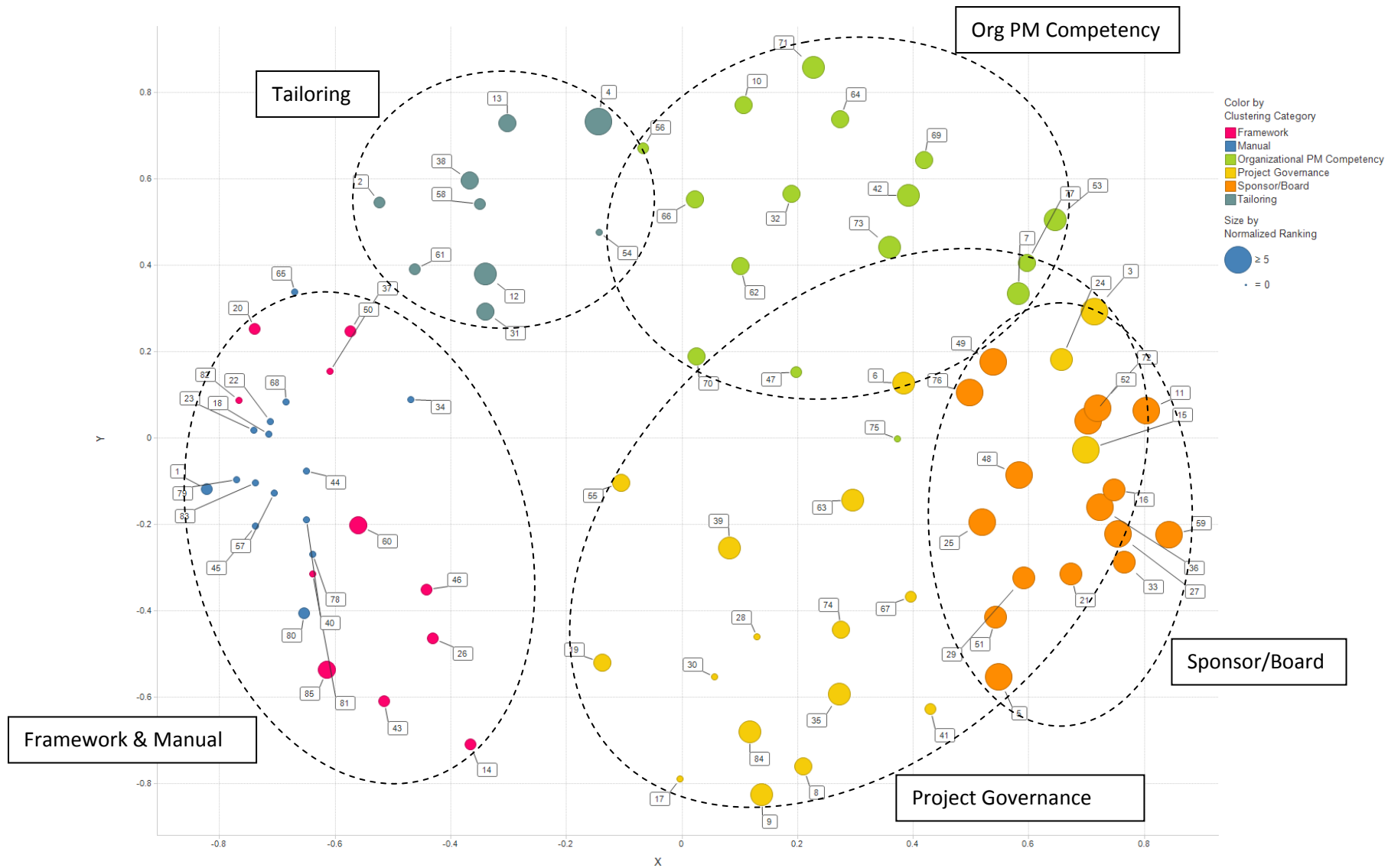
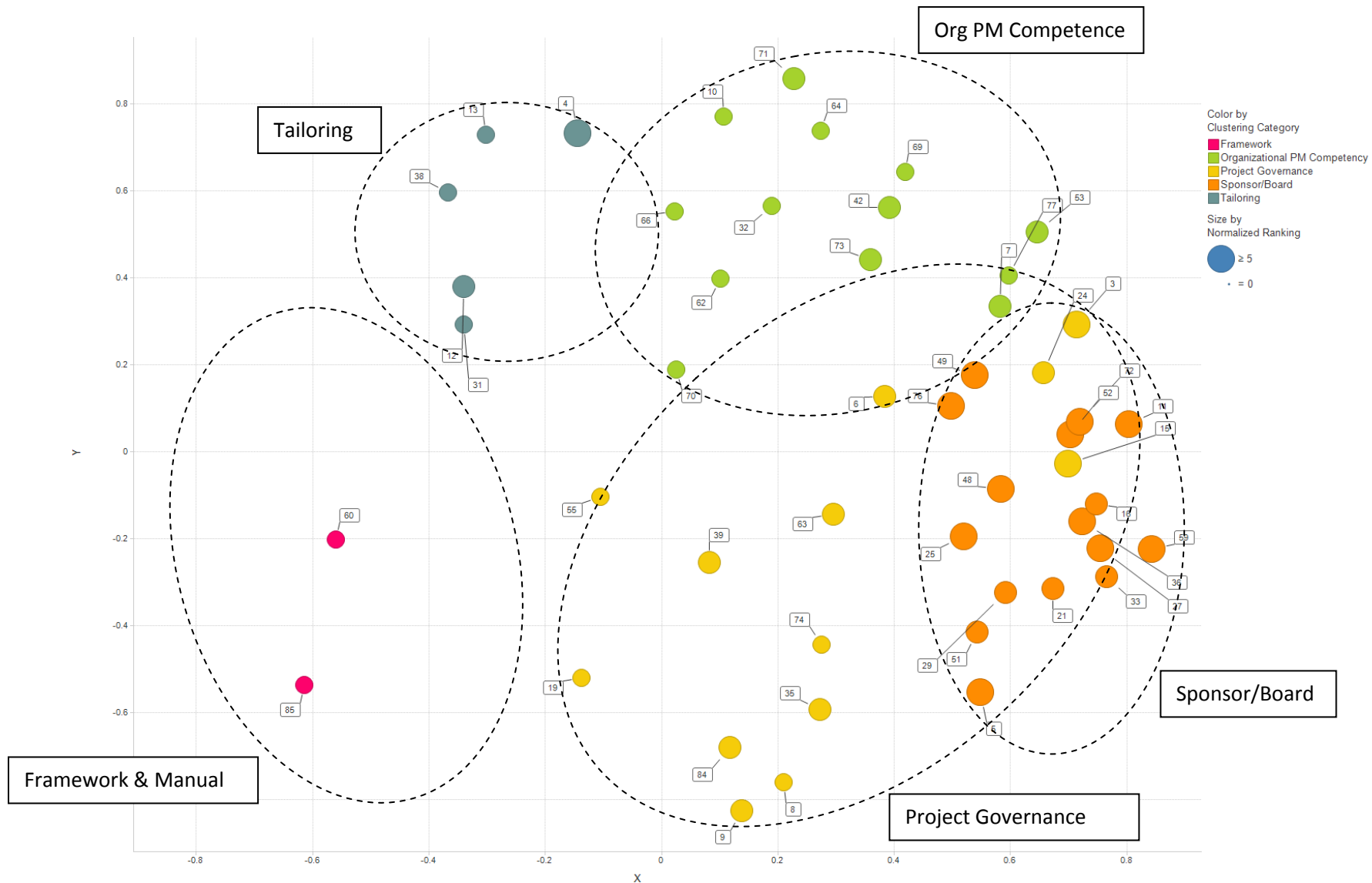**Figure 5: PRINCE2-Issues Concept Map—All Ideas**

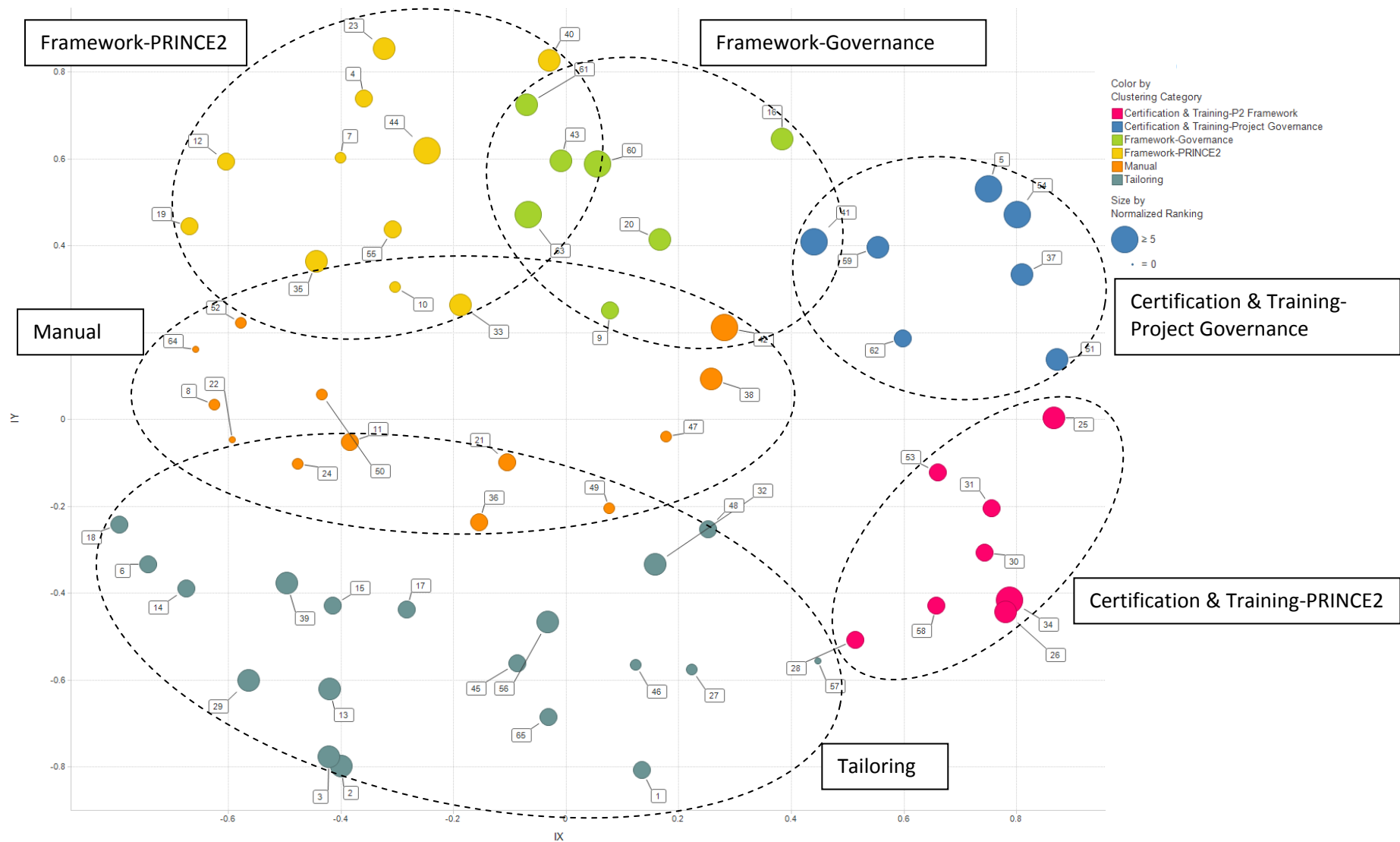**Figure 6: PRINCE2-Issues Concept Map—Significant Ideas (Ranking >=3)**

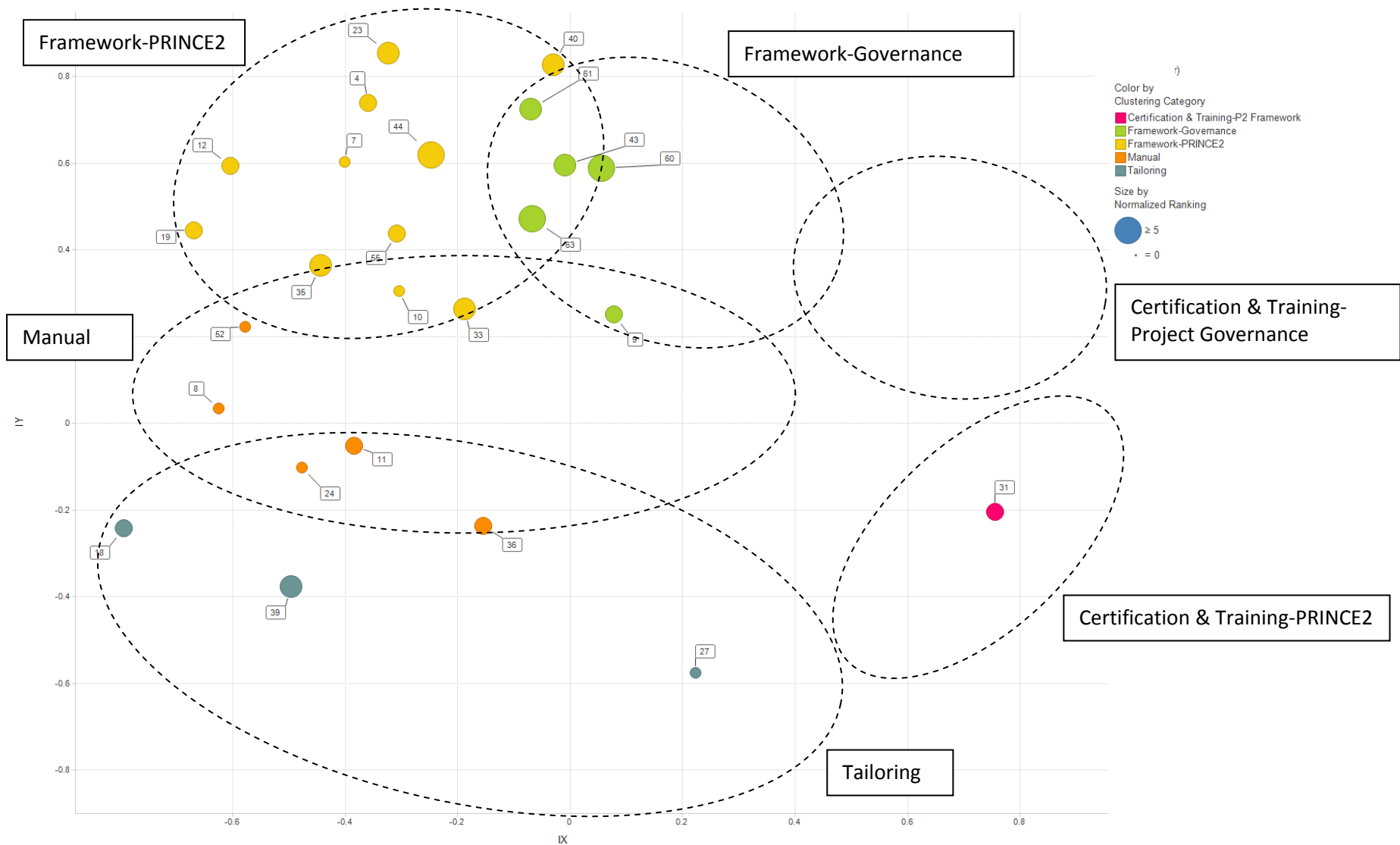**Figure 7: PRINCE2-Features Concept Map—All Ideas**

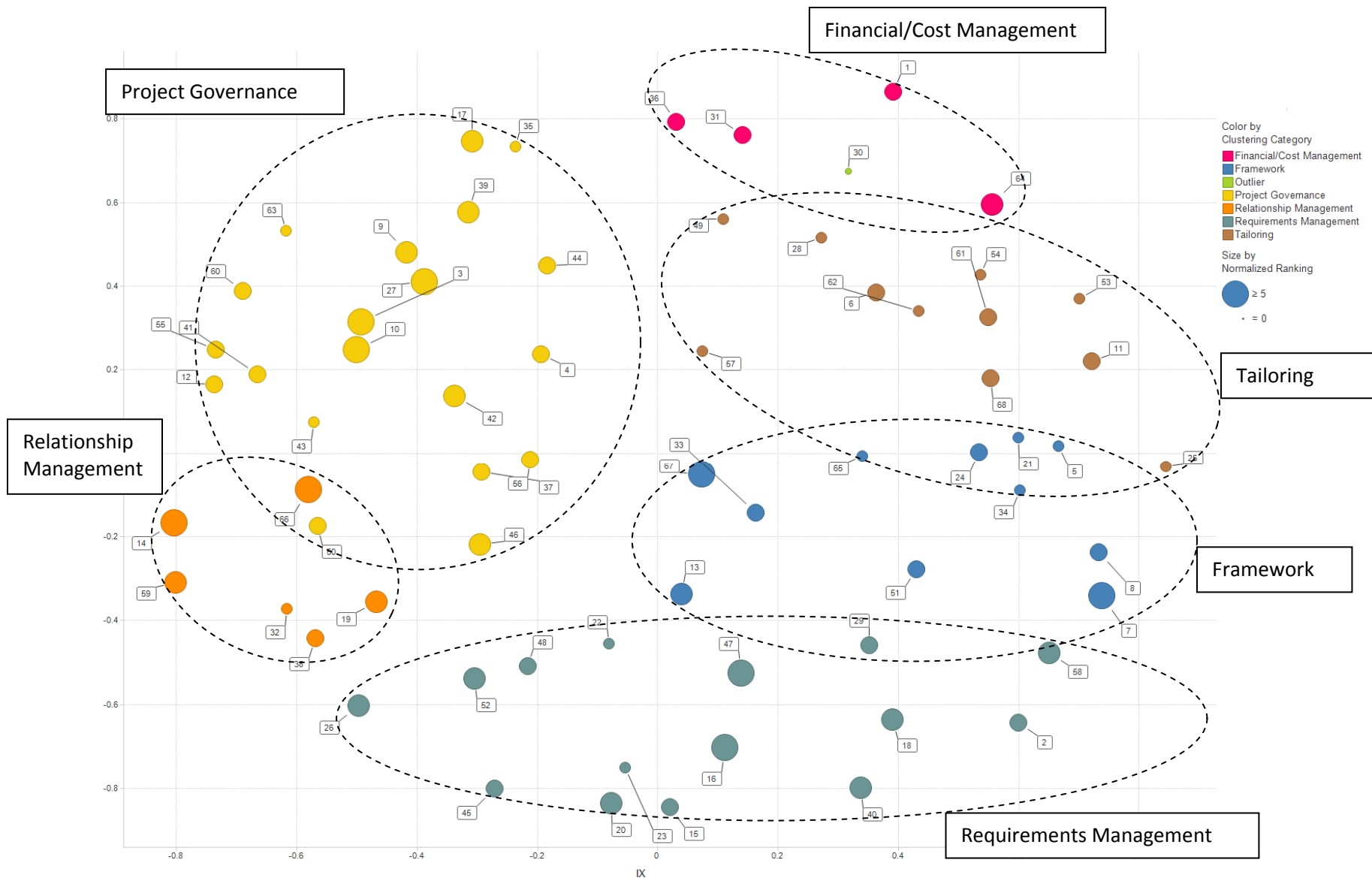**Figure 8: PRINCE2-Features Concept Map—Existing Features**

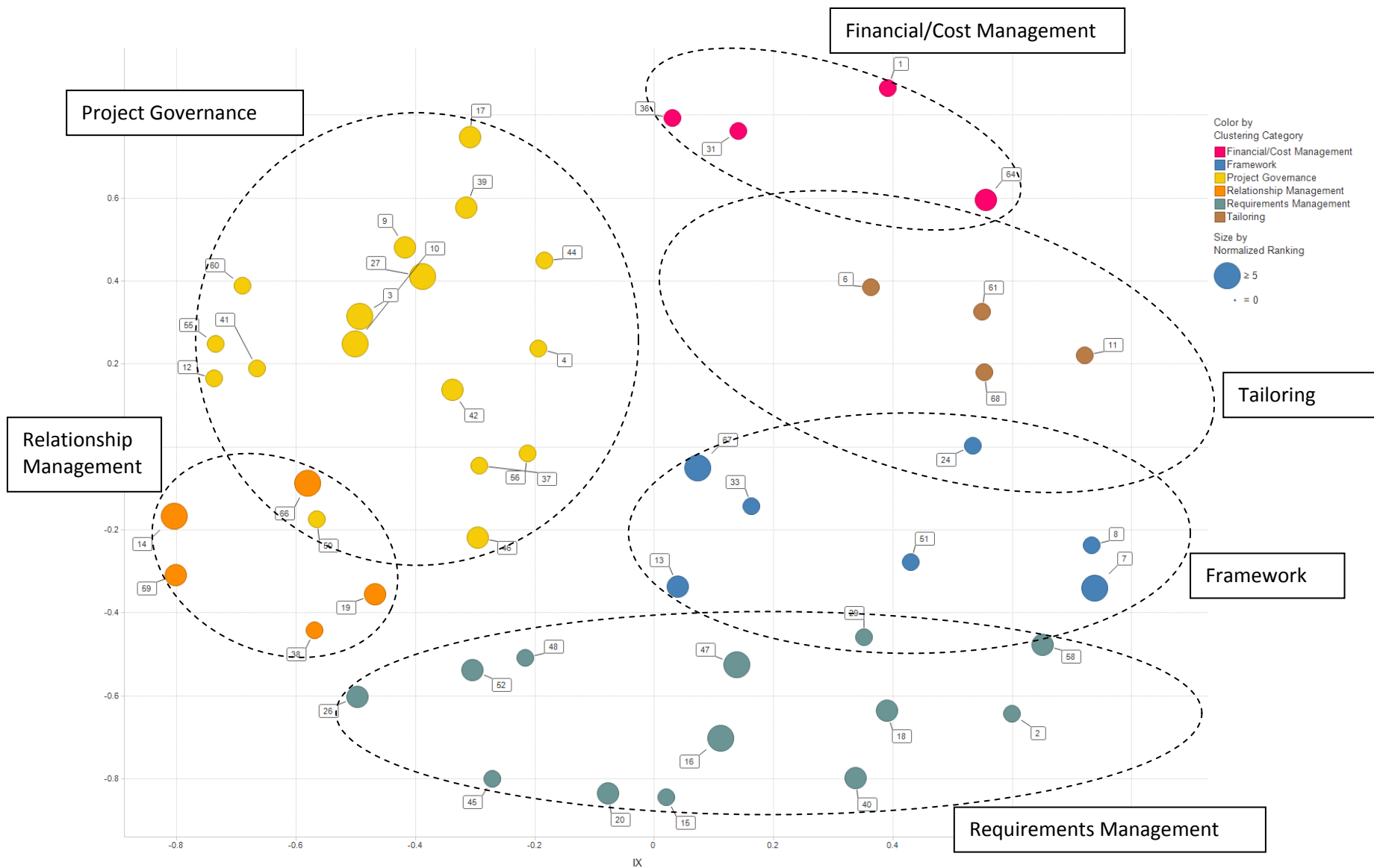**Figure 9: PRINCE2 Features Concept Map—Recommended Features**

Figure 10: 'Other'-Issues Concept Map—All Ideas

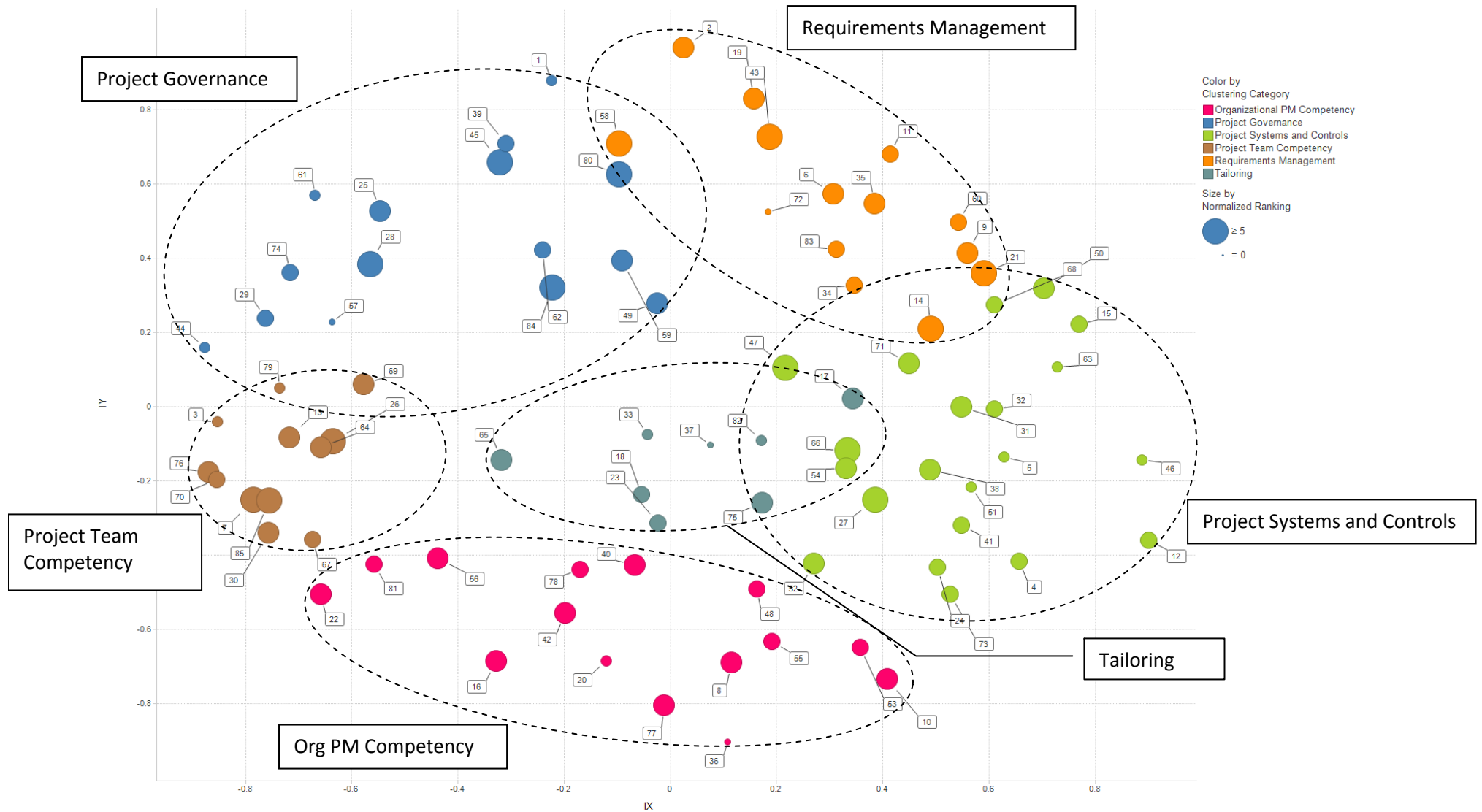**Figure 11: Other--Issues Concept Map—Significant Ideas (Ranking>=3)**

Figure 12: Other-Features Concept Map—All Ideas

Appendix 4—Concept Statistics

Concept Map	Concept Name	No of Ideas	Concept Ranking
PRINCE2-Isses	Sponsor/Board	16	4.67
	Project Governance	18	3.17
	Organizational PM Competency	16	3.06
	Tailoring	9	2.78
	Framework	11	1.91
	Manual	15	1.13
PRINCE2-Features	Certification & Training-Project Governance	7	4.29
	Framework-Governance	7	4.14
	Certification & Training-PRINCE2 Framework	8	3.50
	Framework-PRINCE2	11	3.36
	Tailoring	19	3.16
	Manual	13	2.46
'Other'-Issues	Relationship Management	6	3.83
	Requirements Management	15	3.53
	Governance	20	3.40
	Financial/Cost Management	4	3.25
	Framework	11	3.09
	Tailoring	11	2.36
Other' Features	Requirements Management	14	3.79
	Project Team Competency	12	3.75
	Project Governance	15	3.40
	Project Systems and Controls	20	3.38
	Organizational PM Competency	15	3.33
	Tailoring	8	2.88

Table 29: Concept Statistics

Appendix 5—Concept Map Multidimensional Scaling and Reliability Statistics

	Survey Statistics			Multidimensional Scaling Statistics			
Concept Map	No of cases	No of participants--Sorting	No of Participants-Ranking	MDS Stress 1% Left Tail Cutoff (Sturrock & Rocha, 2000)[3]	Normalized Raw Stress	Stress-I	Stress-II
PRINCE2-Issues	85	18	19	0.390	0.086	0.292	0.688
PRINCE2-Features	65	19	19	0.380	0.097	0.311	0.751
'Other'-Issues	68	20	21	0.382	0.114	0.337	0.819
'Other'-Features	85	19	19	0.390	0.099	0.315	0.749

Table 30: Multidimensional Scaling Statistics

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[3] Any 'Stress-I' value less than the cutoff parameter defined by Sturrock and Rocha (2000) has a probability of less than 1% of resulting from a random configuration

Concept Map Reliability Statistics[4]							
Concept Map	Internal Consistency-- Cronbach's Alpha (α)	Average Individual-to- Total Reliability (r_{IT})	Average Individual-to-Map Reliability (r_{IM})	Average Individual-to- Individual Reliability (r_{II})	Inter-Rater Correlation Coefficient (ICC) 2-Way Random (r_{RR})	Split-Half Total Matrix Reliability (r_{SHT})	Split-Half Map Reliability (r_{SHM})
PRINCE2-Issues	0.947	0.938	0.907	0.776	0.911	0.791	0.673
PRINCE2-Features	0.798	0.931	0.887	0.735	0.528	0.804	0.535
Other'-Issues	0.955	0.930	0.872	0.726	0.742	0.786	0.364
Other'-Features	0.928	0.927	0.876	0.710	0.781	0.774	0.538

Table 31: Concept Map Reliability Statistics

[4] Concept Map reliability statistics defined by Trochim (1993)

Appendix 6—Concept Map Data

Idea No	Normalized Ranking	Issue	Concept
		PRINCE2-Issues Concept Map	
1	2	PRINCE2 manual contains internal contradictions -known for several version but not corrected	Manual
2	2	PRINCE2 defines many detailed activities which organizations do not use	Tailoring
3	5	Organization does not understand the role of the project governance process in decision-making	Project Governance
4	5	Tailoring by inexperienced PMs reduces the power of PRINCE2 by taking away essential stuff	Tailoring
5	5	Project 'starting-up' and 'initiation' are rushed or missed because of pressure 'to get going'	Sponsor/Board
6	4	Low organizational PM maturity	Project Governance
7	4	PRINCE2 exception processes not followed in managing escalated issues	Organizational PM Competency
8	3	Difficult requirements deferred and retrofitted later	Project Governance
9	4	Insufficient time allocated for planning and project approvals	Project Governance
10	3	PMs do not receive adequate support in their initial use of PRINCE2	Organizational PM Competency
11	5	Project Board members not always competent to fulfil their role	Sponsor/Board
12	4	PRINCE2 processes need to be tailored to size of projects, to suit organisational context	Tailoring
13	3	Change management process is effective but time consuming and very difficult to speed up	Tailoring
14	2	Assumes a linear or waterfall approach to delivery - this does not cope well with project change	Framework
15	5	Organization has low respect for project governance	Project Governance
16	4	Project Boards do not define the tolerances within which the PM must work	Sponsor/Board
17	1	Approvals to install new equipment delayed due to lack of technical understanding of changes required by project	Project Governance
18	1	PRINCE2 manual too detailed	Manual
19	3	Project lessons learned are not adequately captured or actioned	Project Governance
20	2	Little guidance offered on processes to manage suppliers	Framework
21	4	Project Sponsor does not control the project funds	Sponsor/Board
22	1	PRINCE2 manual contains too many 'see other OGC document' references	Manual
23	1	PRINCE2 manual repetitious and fragmented	Manual
24	4	Organization focuses on project cost rather than benefits	Project Governance
25	5	Business Case is not used to periodically test and confirm project viability	Sponsor/Board
26	2	How cross-organisational activity occurs is not clearly defined in PRINCE2 processes	Framework
27	5	Project Boards constituted by delegates who lack authority to make decisions	Sponsor/Board
28	1	Financial system is not able to deliver actual fiscal information for reports	Project Governance
29	4	Project Boards are difficult to convene	Sponsor/Board
30	1	Demands for extra reports outside of the Prince2 framework methodology	Project Governance
31	3	Structured processes are important but can sometimes lead to inflexibilty in dealing with uncertainty	Tailoring
32	3	Some team members struggle to apply product-based planning and to understand its relationship to scope and quality	Organizational PM Competency
33	4	Project Boards do not delegate sufficient authority to the PM	Sponsor/Board
34	1	Too many detailed acronyms to memorise, making it difficult to engage the organization	Manual

PRINCE2-Issues Concept Map

Idea No	Normalized Ranking	Issue	Concept
35	4	Although requirements remain vague or unapproved, the project proceeds because of time pressures	Project Governance
36	5	Escalated issues (Exception Reports) are not resolved	Sponsor/Board
37	1	PRINCE2 methodology too theoretical	Framework
38	3	Tailoring PRINCE2 to match project size is difficult	Tailoring
39	4	Benefits realisation is not managed beyond project close	Project Governance
40	1	PRINCE2 manual offers naive and shallow guidance--especially in risk and change management	Manual
41	2	Financial and HR delegations get changed causing project delays	Project Governance
42	4	Organization does not know how to apply PRINCE2 processes	Organizational PM Competency
43	2	Does not define an interface to Procurement activities	Framework
44	1	Examples provided are largely limited to Information and Communications Technology	Manual
45	1	PRINCE2 2009 made some dumb changes like removal of sub-process id's to be popularist	Manual
46	2	PRINCE2 says little about the linkage between projects and programmes	Framework
47	2	Differing interpretations across the organization about exact content required in PRINCE2 management products	Organizational PM Competency
48	5	Project Boards are not used effectively	Sponsor/Board
49	5	Corporate management bypasses the Project Board	Sponsor/Board
50	2	Rules-based - lacks underlying principles	Framework
51	4	Projects have limited involvement or representation from the customer	Sponsor/Board
52	5	Project Boards do not understand their roles and responsibilities	Sponsor/Board
53	4	PRINCE2 used in name only - the Project Board and PM think they are using PRINCE2, but not really.	Organizational PM Competency
54	1	PRINCE2 zealotry	Tailoring
55	3	PRINCE2 processes poorly integrated with other enterprise level processes e.g. business planning	Project Governance
56	2	Tendency to think that because PRINCE2 says something must occur, it does occur	Organizational PM Competency
57	1	PRINCE2 manual mutates rather than evolves every 3 to 4 years creating disruption to project teams - requiring expensive updates to internal documentation	Manual
58	2	Too labour and time intensive if implemented 'by the book'	Tailoring
59	5	Lack of commitment and leadership from senior management	Sponsor/Board
60	3	PRINCE2 lacks sufficient emphasis on the people issues	Framework
61	2	PRINCE2 methodology too comprehensive, leading to 'bureaucratic' behaviour	Tailoring
62	3	Issue management pile up - lack of clarity, worry, fear etc can be entered as an issue. Filtering these quite a task.	Organizational PM Competency
63	4	Project accountabilities not enforced	Project Governance
64	3	Lack of critical mass of those understanding PRINCE2 methodology in the organisation	Organizational PM Competency
65	1	PRINCE2 doesn't provide templates for management products (with guidelines), so organizations must create their own	Manual
66	3	Running the project 'by PRINCE2' can become more important than achieving project objectives	Organizational PM Competency

PRINCE2-Issues Concept Map

Idea No	Normalized Ranking	Issue	Concept
67	2	Projects closed prematurely and poorly	Project Governance
68	1	Volume of PRINCE2 manual can distract project team from delivering practical/real outcomes	Manual
69	3	Not enough people have been trained in PRINCE2	Organizational PM Competency
70	3	Stage processes are not strictly followed	Organizational PM Competency
71	4	Many so-called PRINCE2 Practitioners have never run a project, and so time and effort is wasted	Organizational PM Competency
72	5	Project Boards do not understand or apply management by exception	Sponsor/Board
73	4	Organization does not know how to manage quality using product descriptions and customer quality expectations	Organizational PM Competency
74	3	Budget is 'locked in' when little is known about the project	Project Governance
75	1	Senior management demands documentation be supplied in their formats and templates	Organizational PM Competency
76	5	Project Boards are inexperienced	Sponsor/Board
77	3	PMs are treated as project coordinators	Organizational PM Competency
78	1	PRINCE2 manual has many gaps e.g. no direction on financial accounting for projects	Manual
79	1	PRINCE2 2005 and 2009 guidance creates two sets of advice	Manual
80	2	PRINCE2 methodology has too rigid a structure - can stifle innovation and creativity	Manual
81	1	PRINCE2 is 'built in mid-air' - lacks foundation disciplines e.g. constructing schedules and motivating people	Framework
82	1	PRINCE2 exam focuses on rule over principle	Framework
83	1	PRINCE2 manual difficult to read	Manual
84	4	Budget or resources not sufficient to satisfy project needs	Project Governance
85	3	Does not include a quality measurement framework e.g. KPIs	Framework

		PRINCE2-Features Concept Map		
Idea No	**Normalized Ranking**	**Feature**	**Existing or Recommended**	**Concept**
1	3	Show how to better manage tolerances (e.g. with earned value analysis)	R	Tailoring
2	4	Define project sizing and classification model to guide tailoring	R	Tailoring
3	4	Improve and expand guidance on tailoring P2 to different contexts	R	Tailoring
4	3	P2 establishes a robust planning framework	E	Framework-PRINCE2
5	5	Increasing senior management awareness of P2 processes and management products	R	Certification & Training-Project Governance
6	3	Include more checklists	R	Tailoring
7	2	Well-defined project life-cycle in P2	E	Framework-PRINCE2
8	2	Less documentation in P2-09	E	Manual
9	3	New companion volume 'Directing Successful Projects with PRINCE2' for P2-09	E	Framework-Governance
10	2	Principles-based project management introduced in P2-09	E	Framework-PRINCE2
11	3	Replacement of complex sub-processes with simpler, more practical activities in P2-09	E	Manual
12	3	Stages' assist budgeting	E	Framework-PRINCE2
13	4	Produce a 'lite' version for simple applications	R	Tailoring
14	3	Incorporate a standard set of templates for all P2 products rather than each organization developing their own	R	Tailoring
15	3	Specify pre-defined processes for small, medium and large projects	R	Tailoring
16	4	Put greater focus on benefits tracking and benefits management	R	Framework-Governance
17	3	Identify short cuts and non-essential steps	R	Tailoring
18	3	Standard templates for management products	E	Tailoring
19	3	Greater focus on delivery supported by core documents in P2-09	E	Framework-PRINCE2
20	4	Redefine how project assurance adds value	R	Framework-Governance
21	3	Address PMO and Project Support responsibilities and interfaces in P2 manual	R	Manual
22	1	Re-write P2-09 manual	R	Manual
23	4	Stage planning ensuring that work is not done without the necessary approvals	E	Framework-PRINCE2
24	2	Make no significant changes to P2 methodology	E	Manual
25	4	Run internal product-based planning workshops to demonstrate the technique's effectiveness	R	Certification & Training-P2 Framework
26	4	Make P2 certification more practically or competency-based	R	Certification & Training-P2 Framework
27	2	Implementation and deployment supported by the P3M3	E	Tailoring
28	3	Map P2 to a competence model to help develop team capabilities	R	Certification & Training-P2 Framework
29	4	PMs must be willing to deviate from the methodology to resolve issues	R	Tailoring
30	3	Introduce certification for project board members	R	Certification & Training-P2 Framework
31	3	Availability of P2 Certified Training	E	Certification & Training-P2 Framework
32	4	Explicitly address the linkages to programme and portfolio management	R	Tailoring
33	4	Expansion of tolerances concept to six areas--time, cost, scope, risk, quality and benefits in P2-09	E	Framework-PRINCE2
34	5	Modify practitioner exam to test competence in managing a project using P2 rather than just P2 methodology	R	Certification & Training-P2 Framework
35	4	Offers a prescribed and well-defined project management methodology	E	Framework-PRINCE2
36	3	Broader range of examples in P2-09	E	Manual
37	4	Success of P2 critically dependent upon the extent of the PMs experience	R	Certification & Training-Project Governance
38	4	Update supplementary guide ''People Issues & P2'	R	Manual
39	4	New chapter on ''tailoring and embedding' in P2-09	E	Tailoring
40	4	Emphasizes product-based and product-focused planning and delivery	E	Framework-PRINCE2
41	5	Explain how to achieve the senior leadership commitment needed to embed P2 in manual	R	Certification & Training-Project Governance
42	5	Expand coverage of stakeholder management	R	Manual
43	4	Includes a project and quality assurance approach	E	Framework-Governance
44	5	Comprehensively defines roles and responsibilities at all levels	E	Framework-PRINCE2

Idea No	Normalized Ranking	Feature	Existing or Recommended	Concept
		PRINCE2-Features Concept Map		
45	3	Include more and broader range of case studies	R	Tailoring
46	2	Make greater use of project management maturity models (e.g. P3M3)	R	Tailoring
47	2	Explain how to introduce P2 into an organization in the manual	R	Manual
48	3	Demonstrate how to integrate P2 and enterprise level processes	R	Tailoring
49	2	Incorporate supplier management processes in manual	R	Manual
50	2	Remove extensive activity detail from the P2-09	R	Manual
51	4	Develop course for project sponsors and project board members	R	Certification & Training-Project Governance
52	2	P2-09 is more readable	E	Manual
53	3	Update P2 training to reflect 'realities'	R	Certification & Training-P2 Framework
54	5	Educating project board members on their collective and individual responsibilities	R	Certification & Training-Project Governance
55	3	Is structured and controlled	E	Framework-PRINCE2
56	4	Demonstrate (with examples) how P2 can be used with non-traditional development and delivery methodologies (e.g. agile)	R	Tailoring
57	1	Split foundation and practitioner knowledge into separate publications	R	Tailoring
58	3	Implement accreditation scheme for P2 coaching	R	Certification & Training-P2 Framework
59	4	Prepare publication targeting the roles & responsibilities of project boards and executives	R	Certification & Training-Project Governance
60	5	Emphasizes critical role of the Business Case in assuring the continuing project viability	E	Framework-Governance
61	4	Avoids 'top heavy' management by delegating responsibilities to the appropriate level	E	Framework-Governance
62	3	Place greater emphasis on 'people issues'	R	Certification & Training-Project Governance
63	5	Extensive guidance on project governance in P2-09	E	Framework-Governance
64	1	Remove quality review and change control topics- (organizations often have equivalent processes)	R	Manual
65	3	Create P2 tool to capture lessons learned	R	Tailoring

		'Other'-Issues Concept Map	
Idea Number	**Normalized Ranking**	**Issue**	**Concept**
1	3	Unsuitable finance policy designed for large projects but not small projects within a large portfolio	Financial/Cost Management
2	3	No real recognition of site specific requirements for safety, quality and other temporary activities	Requirements Management
3	5	No defined chain of command and complacency.	Project Governance
4	3	Too much faith in IT, not enough support for 'management skills' (people side underplayed)	Project Governance
5	2	Work breakdown structure methodology not standardised	Framework
6	3	New PMF has discarded proven existing tools and techniques without considering worth i.e. repackage of oldversions lacking adaptation and flexibility to change culture	Tailoring
7	5	No formal risk planning - risks not properly managed or quantified thus unforeseen issues during project execution	Framework
8	3	Poor action register with insufficient importance placed on 'lessons learned'	Framework
9	4	Lack of leadership and top-management support and buy-in to standardised PM processes and methodology - inconsistent project practices	Project Governance
10	5	Unclear lines of authority and no real team commitment	Project Governance
11	3	Standard rather than tailored solutions applied	Tailoring
12	3	Management focus on time/cost, hence low quality/high cost delivery	Project Governance
13	4	Highly process rather than strategically driven - PM not strategically engaged	Framework
14	5	Culture clashes between different stakeholders and poor dispute resolution	Relationship Management
15	3	Difficulty in understanding intangible client requirements for commissioning and hand-over	Requirements Management
16	5	Poor business case, project definition, ill-defined scope, unclear goals, priorities and objectives - change with leadership	Requirements Management
17	4	Excessive time-consuming effort required to monitor/control suppliers/contractors - no power to enforce 3rd parties to deliver	Project Governance
18	4	Lack of project boundaries and too many activities/tasks	Requirements Management
19	4	Lack of PM training to staff, clients and work package owners and poor understanding of PMF	Relationship Management
20	4	Difficulty aligning project goals with goals of key stakeholders	Requirements Management
21	2	No standard process	Framework
22	2	Time dominates probabalistics and no real-option inclusion	Requirements Management
23	2	Quality expectation too high	Requirements Management
24	3	Inadequate control and timely reporting mechanisms.	Framework
25	2	Technical and IT interface control needs integrating with existing framework (user interface not user-friendly)	Tailoring
26	4	Conflicting or unbalanced departmental/project interests (lack of understanding of requirements)	Requirements Management
27	5	Lack of governance, poor stage gates, lack of accountability;	Project Governance
28	2	Policies and procedures designed for external customer rather than own internal organisational projects	Tailoring

Idea Number	Normalized Ranking	Issue	Concept
		'Other'-Issues Concept Map	
29	3	Inadequate focus on commissioning and handover to owner issues	Requirements Management
30	1	Current legal framework (US) is constraining innovation in PM	Outlier
31	3	Not able to physically control budget	Financial/Cost Management
32	2	Difficulty in giving client bad news	Relationship Management
33	3	No 'lessons learned' from operating PMF	Framework
34	2	Poor document control and filing	Framework
35	2	Safety performance based on stakeholder corporate cultures and not compliance based	Project Governance
36	3	No cost - only time monitoring considered important for tracking and analysis - progress measurement not measuring the real progress	Financial/Cost Management
37	3	Lack of PM process maturity - non-construction skilled consultants driving PM for high fees low service quality	Project Governance
38	3	Client and project team members unfamiliar with PM framework/methodology	Relationship Management
39	4	PM not responsible for schedule	Project Governance
40	4	Design information insufficient i.e. poor project brief	Requirements Management
41	3	Lack of commitment to provide relevant expertise and HR resources to project recruitment based on availability	Project Governance
42	4	Lack of ownership and system integration amongst all levels of project -	Project Governance
43	2	No support provided to help manage day to day focus	Project Governance
44	3	Killing projects i.e. 'no-/go' solutions not an option	Project Governance
45	3	Proposal timeframe too short for all stakeholders to input	Requirements Management
46	4	Poor project execution	Project Governance
47	5	Poor change control and scope creep due to customers/user demands (cost of variations not properly considered)	Requirements Management
48	3	Project success definition/criteria based upon project objectives, does not consider effects of the projects on others (internal/external) or on culture/processes	Requirements Management
49	2	PMF too advanced for current organizational capability	Tailoring
50	3	Low PM resources	Project Governance
51	3	Planning too detailed, more focus on milestones and logics	Framework
52	4	Plenty of 'how' and 'what' but no understanding of 'why' - root causes of problems not tackled	Requirements Management
53	2	PMF and methodologies too prescriptive with not enough tailored strategies - silver bullets only sought	Tailoring
54	2	Cumbersome linear process e.g. lengthy project initiation relied on a 5 stage approval system before project commencement (prevents proper handling of dynamic issues)	Tailoring
55	3	Untimely PM appointment	Project Governance
56	3	PMF problems unresolved despite reviews	Project Governance

Idea Number	Normalized Ranking	'Other'-Issues Concept Map	Concept
		Issue	
57	2	PMF not used consistently/universally across organisation (e.g. PMs tendency to reuse own best practice materials rather than 'standard' materials	Tailoring
58	4	Lack of attention to defining and monitoring risks so no 'early warning system',	Requirements Management
59	4	Poor stakeholder management and conflicting objectives	Relationship Management
60	3	Meddling by sponsors with time/cost causing 'churn'	Project Governance
61	3	PMF used as non-flexible prescriptive process - too much focus on templates as an 'end' not as a 'means'	Tailoring
62	2	PMF predominately paper based causing delays in obtaining signatures and thus delays in commencing projects	Tailoring
63	2	Difficult to improve processes while organizational change ongoing	Project Governance
64	4	Poor budgeting, cost control system and project estimates (lack of formal 'modelling')	Financial/Cost Management
65	2	Freeform PM methods used inappropriately	Framework
66	5	Inadequate communication	Relationship Management
67	5	Not enough importance given to good start up/commissioning only execution	Framework
68	3	PM tools not integrated into standard processes	Tailoring

Statement No	Normalized Ranking	Feature	Concept
		'Other'-Features Concept Map	
1	2	Enhanced management direction for when contract completion is really agreed	Project Governance
2	4	Greater emphasis placed on outcomes (effectiveness) rather than just efficiency (time, cost, performance)	Requirements Management
3	2	Personnel being rotated through business to 'shake up cultural norms'	Project Team Competency
4	3	Fully electronic contract documentation process introduced	Project Systems and Controls
5	2	Mechanism in place to get more environmental controls in place on projects	Project Systems and Controls
6	4	Using launch workshops and value engineering with design/contractor stakeholders to understand requirements and understand that PM value-add metrics are different to engineering metrics	Requirements Management
7	5	Developing PM as a profession with proper training and formalised performance standards	Project Team Competency
8	4	Conduct post-project review on PM methodology	Organizational PM Competency
9	4	Acceptance of life-cycle approach for all project investment decisions	Requirements Management
10	4	Sharing of best practice contractual requirements communicated between contractors	Organizational PM Competency
11	3	Risk aversion and the non-sharing of risks with those that benefit from new approaches	Requirements Management
12	3	New project pricing form to be reviewed and signed-off before sending to customer	Project Systems and Controls
13	4	Incorporation of achievement of project goals in employee appraisals	Project Team Competency
14	5	Established formal process for project definition incorporating site specific requirement in scoping the project	Requirements Management
15	3	Consideration of commercial as well as financial management and tailored guidelines required	Project Systems and Controls
16	4	Developing knowledge management data base of lessons learned E)	Organizational PM Competency
17	4	Tailoring guidelines/methodology to suit individual projects rather than 'one size fits all'	Tailoring
18	3	Ensure adequate flexibility in PMF	Tailoring
19	4	Better outcome definition required to improve decision-making	Requirements Management
20	2	Minimize propensity for blame from management by improving project documentation	Organizational PM Competency
21	5	Defined process for owners' involvement in decision making and change management	Requirements Management
22	4	Training and tailored guidelines introduced to improve organizational awareness and respect for schedules as a control mechanism	Organizational PM Competency
23	3	Worker input into processes which are being more standardized / refined / defined i.e. project start-ups	Tailoring
24	3	Better reviews based upon key documents	Project Systems and Controls
25	4	Leadership prioritising PM investment	Project Governance
26	5	Recruiting reliable team members and making PM experience a 'must' requirement	Project Team Competency
27	5	Implementing better communication & project reports for change control	Project Systems and Controls
28	5	Leadership recognizes PM value	Project Governance

		'Other'-Features Concept Map	
Statement No	**Normalized Ranking**	**Feature**	**Concept**
29	3	Involving soft disciplines (e.g. Systems thinkers, psychologists) to improve PM culture	Project Governance
30	4	Implement project mentoring; workplace training and training of clients and stakeholders in PMF	Project Team Competency
31	4	Intensify estimating process; introduce basic cost reports for estimating; unify cost control system and incorporate value metrics	Project Systems and Controls
32	3	Better determination of Work Break-down Structure decomposition; and standardisation of WBS software tools required across projects	Project Systems and Controls
33	2	Develop simple project approach aligned to industry practices to enable better on-boarding and improve maturity	Tailoring
34	3	Explicit steps taken to select activities up-front	Requirements Management
35	4	Provision of sufficient time/budget to assess changes; clear decision from client on acceptance/rejection; and associated time problems alleviated by use of heuristic estimates and accurate reporting	Requirements Management
36	1	Providing bonus for not amending designs	Organizational PM Competency
37	1	More R&D introduced	Tailoring
38	4	Process for tracking introduced	Project Systems and Controls
39	3	Periodic review of business case to ensure ongoing viability relative to alternate investments	Project Governance
40	4	Managing communication of key living documents to be given accurate facts on program rollouts	Organizational PM Competency
41	3	IT application for PM Framework/process operating	Project Systems and Controls
42	4	Managing communication of key living documents to show real project status among key stakeholders (project participants and political)	Organizational PM Competency
43	5	Ensuring stakeholder agreement to project objectives and resulting allocation of responsibilities	Requirements Management
44	2	Industry reacting and adapting to our PM framework	Project Governance
45	5	Educating client of the risks of proceeding with unresolved issues	Project Governance
46	2	Financial penalty for delay in contract completion introduced	Project Systems and Controls
47	5	Proper formalised, comprehensive and mandatory risk-identification and management process in place	Project Systems and Controls
48	3	Using methods and tools that help highlighting PM (and team's) roles and responsibilities	Organizational PM Competency
49	4	Agreed and executed new governance including effective gateway process	Project Governance
50	4	Provide sufficient contingency for unexpected events	Project Systems and Controls
51	2	Improving quality assurance system link into other high level company systems	Project Systems and Controls
52	4	Established formal process for implementing performance acceptance criteria	Project Systems and Controls

Statement No	Normalized Ranking	Feature	Concept
		'Other'-Features Concept Map	
53	3	Using best practice framework agreements with contractors and suppliers together with procurement schedules including risk register and visit factories	Organizational PM Competency
54	4	Better logical structure required for control mechanisms for start-up and documented change controls	Project Systems and Controls
55	3	Developing post-implementation review tools for PMs	Organizational PM Competency
56	4	Specific programme introduced to improve project management maturity across organization	Organizational PM Competency
57	1	Holistic planning introduced but 'blame' culture still apparent for any project failures (E/R)	Project Governance
58	5	Better understanding, clarification and documentation of owner requirements and specific goals and objectives prior to start of projects	Requirements Management
59	4	More timely decision making observed	Project Governance
60	3	Commissioning arrangements improved with greater policy making involvement	Requirements Management
61	2	High level value-based behaviours being observed replacing pure mission statements	Project Governance
62	3	Safety culture program instigated	Project Governance
63	2	Mock up testing; construction interfacing materials; incremental field testing field specific requirements introduced	Project Systems and Controls
64	4	Improve experience diversity in teams and management	Project Team Competency
65	4	Project ownership now part of PM framework	Tailoring
66	5	Formal change management system introduced	Project Systems and Controls
67	3	Introduce training workshops with case studies focusing on project delivery rather than management as a core competency	Project Team Competency
68	3	Using detailed stage modelling in programme to prevent resource conflicts	Project Systems and Controls
69	4	Organisation now seeking mature and experienced project managers with a sense of perspective	Project Team Competency
70	3	Emphasis being placed on 'management' education	Project Team Competency
71	4	Defined process with owner for commissioning and handover	Project Systems and Controls
72	1	Poor risk management partially mitigated by PM escalation to client (E/R)	Requirements Management
73	3	Using centralised web-based Electronic Document Control system for greater traceability, efficiency and ease of use	Project Systems and Controls
74	3	Leadership behaviour changing for better	Project Governance
75	4	Apply simple and concise PM methodology	Tailoring
76	4	Coaching and mentoring to overcome cultural resistance to introduction of PMF	Project Team Competency
77	4	Partnering and developing supplier relationships rather than depending solely upon contract provisions	Organizational PM Competency

Statement No	Normalized Ranking	'Other'-Features Concept Map	Concept
		Feature	
78	3	Align PM framework templates with new financial policies; provide adequate resources & training to introduce & support this; & adopt real options approach to make it a system selling point	Organizational PM Competency
79	2	Training on how to say 'no' and retain customer relationship being instigated	Project Team Competency
80	5	Weekly progress reporting on milestones at team meetings	Project Governance
81	3	Education and provision of new manual of PM methodology (process) for key stakeholders (including users, project leaders & project administrators)	Organizational PM Competency
82	2	More 'agile' PM framework / methodology being applied	Tailoring
83	3	Further use of enhanced risk tools to quantify risk and manage contingency and better 'reading between the lines' to fully capture all possible risks	Requirements Management
84	5	Keeping executives fully informed of goals, process and issues to receive direction	Project Governance
85	5	Organization providing effective development, training and management of suitable resources	Project Team Competency