Abstract

This paper describes the results of a qualitative study to develop a framework to help organisations to improve and embed project management (PM) practices in an effective way. While the literature on PM provides some advice, understanding how to facilitate embedment appears to be limited. However, research reported in the innovation literature provides a useful preliminary set of salient factors. A series of interviews with PM professionals sought to identify additional factors and the salience of the factors identified from literature review. Observations from the interviews lead to a modified set of pertinent improving and embedding factors.

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1. Introduction

In the past thirty years project management (PM) has developed substantially as a discipline and significantly increased in visibility [1]. There are a large number of ways in with organisations can improve PM practices. For example, the implementation of PM methodologies vary considerably, from the very ad hoc and informal to methodologies that are formally defined and consistently adhered to. Different approaches are adopted when introducing project support groups (such as PM offices), and these support groups can differ in focus, structure and influence [2]. However, there seems to be little empirical evidence of systematic paths to improve PM practices. While the literature on PM provides some advice, organisations need guidance on which PM improvement initiatives they should concentrate their efforts [2, 3]. In this research study PM improvement initiatives include the implementation in the organisation of specific PM practices, as tools and techniques that practitioners use to “do the job” to “execute a process”, such as work breakdown structure or earned value management; and the development of activities that would help to improve PM practices, such as the standardisation of PM processes, tools and techniques, or the designation of formal title and role for those in charge of projects, and their adequate training. Therefore, PM improvement initiatives are defined as not just specific tools, but a novel set of behaviours, routines, and ways of working that are directed at improving PM performance and that are implemented by planned and coordinated actions.

A related issue is how to facilitate the embedment of these PM improvement initiatives in an effective manner, for which there is limited understanding [4]. Organisations tend to focus their attention on the selection and implementation of PM improvements and give less attention to the embedment process of improvements in the organisation.

Research reported in the innovation literature offers potentially relevant insights. Therefore, to facilitate and support the embedment of a PM improvement initiative in organisations the study conceptualise PM improvement initiatives as innovations. The research borrows the concepts of diffusion, dissemination, implementation and routinisation, from other disciplines such as information & technology and health care services [5,6] to develop an understanding of the embedding process of PM improvement initiatives.

The research described in this paper aims to make some contribution in this field by developing a framework to help organisations to improve and embed PM practices in an effective way. More specifically, the framework: 1) identifies the priorities of organisations when they chose to invest in PM practice improvements; and 2) identifies the key factors that influence the embedding of PM improvement initiatives into organisations.

The research was undertaken in two phases, a literature review followed by a programme of interviews with a range of project management professionals. In the first phase an ‘initial framework’ of factors that can improve PM practice and facilitate embedment of improvements in PM practices was identified, based on an extensive literature review and on the researchers’ professional experience. In the second phase interviews with some thirty professionals from seven Portuguese companies were undertaken to explore new factors and also determine the salience of factors identified from the literature review.

2. Development of the ‘Initial Framework’ from a Literature Review

The ‘initial framework’ of salient factors was identified following an extensive literature review. However, most factors identified are drawn from three main theoretical foundations: 1) the framework Value Adding Path Map (VAPM) from Shi [3]; 2) the conceptual model for the spread and sustainability of innovation in service delivery and organisation from Greenhalgh [5]; and 3) the technology acceptance model3 (TAM3) from Venkatesh and Bala [6].

Their selection relied on several reasons, namely similitude of objectives, robustness (VAPM framework), empirical evidence obtained, multidisciplinary teams and multitude of organisational contexts (Greenhalgh model), but also on the relevancy of the variables being used, namely perceived usefulness and perceived ease
of use (TAM3).

The VAPM framework was constructed based on the research findings of Thomas and Mullaly [2] and 30 semi-structured interviews of PM professionals from a variety of industrial sectors. The conceptual model from Greenhalgh [5] is the result of extensive literature review to address the question posed by the UK Department of Health – How can we spread and sustain innovations in health service delivery and organisation? TAM is the most widely applied model of user acceptance and usage. TAM suggests that two specific believes – perceived ease of use and perceived usefulness determine one’s behavioural intention to use a technology [7]. TAM3 is a development of TAM, which presents a complete nomological network of the determinants of individuals’ IT adoption and use [6].

In identifying pertinent factors it was necessary to make some judgments about how far to distinguish different factors and the range of PM improvement initiatives that are possible. In this initial study we adopt a reasonably high level of factor description: for example key factor identified, ‘Implement standardised/customised PM processes’, rather than distinguishing different kinds of process. This is a general problem in most research of this kind, and can arise in most areas of management analysis, including for example, analysis of project uncertainty and risk. For example, Chapman and Ward [8] argue that “…even the most decomposed structures which are viable still involve low level composites. Further decomposition to clarify a source may be possible, but in practice the limits to decomposition will be defined by what is useful. Further, the most effective and efficient decomposition structure is a matter of choice which is necessarily dependent upon the process objectives.”

2.1 Key Improving Factors - Useful PM Improvement Initiatives

The literature review first sought to identify a number of PM improvement initiatives (i.e. key factors for improving), beyond the implementation of specific tools and techniques, that have greatest impact on project performance. Under these PM improvement initiatives the researcher identified four main themes on improving PM practices [3]. Those identified from the literature are summarised in Table 1.

Table 1: Key improving factors in the ‘initial framework’

| Theme                              | Improving Factors                                                                                                                                 |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Process, Tools & Techniques        | 1. ‘Implement corporate standardised and tailored PM processes’ [2, 9, 10]                                                                            |
|                                    | 2. ‘Implement corporate standardised and tailored PM tools & techniques’ [2, 3, 10, 11]                                                             |
| People and Organisational Learning| 3. ‘Manage PM competences’ [2, 3, 9]                                                                                                               |
|                                    | 4. ‘Established PM career path for all PM roles’ [3, 12]                                                                                          |
|                                    | 5. ‘Develop a culture of learning’ [3]                                                                                                            |
| General Management System          | 6. ‘Integration of the PM system with the general management system’ [3, 13, 14]                                                                |
|                                    | 7. ‘Develop a supported infrastructure’, i.e. a project management office or a similar structure [3, 15, 16]                                        |
|                                    | 8. ‘Develop a project sympathetic organisation structure’ [3]                                                                                      |
|                                    | 9. ‘Empowerment of project managers’ [3, 17]                                                                                                         |
|                                    | 10. Develop project categorisation’ [18]                                                                                                           |
|                                    | 11. ‘Benchmarking to PM assess and continuous improvement’ [19]                                                                                   |
|                                    | 12. ‘Evaluation and assessment of PM performance’ [20]                                                                                             |
| PM Culture                         | 13. ‘Development of awareness of PM value amongst all staff’ [21, 22]                                                                             |
|                                    | 14. ‘Development of a basic understanding of organisational PM practices among all project stakeholders’ [2]                                     |
|                                    | 15. ‘Establish PM practices as internal standard’ [2, 3]                                                                                           |
2.2 Key Embedding Factors

The process of embedding a PM improvement initiative (an innovation) into organisations implies the diffusion, dissemination, implementation and sustainability of the PM improvement initiative. ‘Diffusion’ tends to imply the passive spread of innovations, whereas ‘dissemination’ implies active and planned efforts to convince target groups to adopt an innovation. ‘Implementation’ includes active and planned efforts to incorporate the innovation within an organisation. An innovation is ‘sustained’ if it is institutionalised and subsequently routinely used within an organisation [5, 23]. ‘Embedment’ implies a PM practice that is strongly contextualized (customised), integrated with other contextualised management practices in the organisation, and where there is a sense of ownership facilitated by staff involvement at all levels.

Through literature review the researcher identified several factors and six themes [5], listed in Table 2, which might have greatest impact on embedding PM practices.

Table 2: Key embedding factors in the ‘initial framework’

| Theme | Embedding Factors |
|-------|-------------------|
| PM Improvement Initiative Attributes | 1. ‘Relative advantage’ [5, 24] |
| | 2. ‘Compatibility’ with the values, norms and perceived needs of intended adopters [5, 24] |
| | 3. ‘Complexity’ rather than complex to deploy [4, 24, 25] |
| | 4. ‘Trialability’. PM improvements that can be experimented with by intended users on a limited basis will be more easily embedded [5, 24] |
| | 5. ‘Observability’ visibility of benefits [5, 24] |
| | 6. ‘Re-invention’ - capable of adaptation, refinement or modification [5, 24] |
| | 7. ‘Causal ambiguity or uncertainty’ - Low uncertainty about outcomes’ [5, 26, 27] |
| | 8. ‘Proven track record’ [26, 27] |
| Adopter and Adoption Process | 9. ‘Adopter motivation’ - adopters need to be convinced that PM activity will help them to meet their objectives, both directly and indirectly through enhanced organisational performance [5, 28] |
| | 10. ‘Perceived usefulness’ Technology Acceptance Model (TAM3) posits that adopter acceptance is determined by only this key factor or adopter’s believe and the next one [6] |
| | 11. ‘Perceived ease of use’ [6] |
| | 12. ‘Beliefs of similarity or difference from other adopters’ [29] |
| | 13. ‘Gender and age differences’ [30, 31] |
| | 14. ‘Nature of adoption decision’ which could be optional, collective, authoritative or contingent [5,24] |
| Communication & Influence | 15. ‘Demonstrating the PM improvement initiative value’. Effective communication of the value of the PM improvement initiative across structural boundaries within the organisation prior to its implementation [5, 6] |
| | 16. ‘Homophily’. The adoption of a PM improvement initiative by individuals is more likely if they are homophilic, in other words if the members involved in the process of change are similar in certain attributes [5, 24, 25] |
| | 17. ‘Interpersonal channels’. In communication mass media are important for creating awareness, but interpersonal channels are vastly more influential [5]. The embedment of PM improvements by individual is powerfully influenced by the structure and quality of their social network [24, 25] |
| | 18. ‘Opinion leaders’. The existence of influencers who can encourage the take up and embedment of PM improvement initiatives [5, 24, 25, 32] |
| | 19. ‘Use of rhetoric’ to give a strong compelling and sustained motive for embedding a PM improvement initiative [33] |
| | 20. ‘Adopter involvement’ earlier in the implementation process [5, 25, 34, 35] |
| | 21. ‘Motivation of knowledge holders’. If the source has fear of losing ownership of the knowledge, they would not be motivated to support the embedment of the PM improvement initiative [26] |
| | 22. ‘Credibility of the source of the knowledge’, i.e. credible and trusted change agents [5, 26] |
| | 23. ‘Relationship between the source of the knowledge and the adopter’, i.e. stability and trust in the relationship between change agents and adopters’ [5, 26] |
| | 24. ‘Feedback on improvement impacts’ in the project and organisation performance [5] |
### Inner Context

25. ‘Structure of the organisation and resources to support change’ [5, 25]

26. ‘Absorptive capacity for new knowledge’. Organisations with a learning organisation culture, and a proactive leadership directed toward sharing knowledge are more likely to adopt and embed PM improvements [5, 26, 27]

27. ‘Receptive context for change’. With features such as strong leadership and support [32, 36], clear strategic vision, good managerial relations, visionary staff in key positions, a climate conducive to experimentation and risk-taking [5]

28. ‘Readiness for change’ [5, 25]

### Outer Context

29. ‘Informal interorganisational networks’. An important influence on an organisation’s decision to adopt is whether a threshold proportion of comparable (homophilous) organisations have implemented or plan to implement improvement initiatives [5, 23]

30. ‘External mandates’ (political ‘must-dos’) increase the predisposition, which is the motivation of an organisation to adopt a new PM practice [5]

### Implementation

31. ‘Effective change agents’ [5, 24]

32. ‘Specific training’ in associated new tasks and working methods [23]

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### 3. Development of the ‘Revised Framework’ from the Interview Study

In the second phase of the research, semi-structured interviews and qualitative data analysis were conducted in order: 1) to identify new factors, 2) to confirm the key factors to improve and embed PM practices in the ‘initial framework’ and 3) to remove less important factors. As a result a ‘revised framework’ was constructed.

A total of thirty semi-structured interviews were conducted in seven Portuguese companies in different industries (information & technology, Telecommunications, Engineering and Construction and Business services) and size. The subjects had different roles in the organisation - managers (20%), portfolio, programme managers (27%) project managers (57%) and team members (7%).

The interviews were conducted between July and September 2012. Each interview lasted between one and three hours, the average was one hour and half.

The interview protocol consisted of the following requests to interviewees: 1) Outline your experience in PM to date; 2) Characterize your organisation in terms of business strategy and type of projects; 3) Tell stories of your organisation initiatives to improve PM; 3) Identify the most useful PM practices that you use or have used; 4) Identify the most useful PM improvements initiatives, in terms of improving PM performance; 5) Identify the factors that might make it easier or more difficult to achieve embedment, of PM improvement initiatives in your organisation; 6) Where appropriate, supplementary questions were used to prompt more detailed responses to the above questions.

Interview data were analysed through thematic analysis and application of Nvivo software. The coding process used as a basis the themes/factors identified in the ‘initial framework’. However, new themes/factors for both improving and embedding PM practices emerged and others achieved more significance. The coding process was revisited several times, to ensure that themes identified from the literature and not identified in the interviewee responses were effectively not implicit in the responses.

#### 3.1 Modifying the Framework for Improving PM Practices

When faced with the question about the most useful PM improvement initiatives, a large number of factors were identified by interviewees. This is not surprising, as there can be several different types of PM investments made by organisations, depending for example on the type of projects undertaken, industry, size or strategic orientation [2, 12].

After analysing the responses about the most useful PM improvement initiatives (key improving factors), the initiatives identified were compared with those initially identified from the literature review (Table 1). The set of initiatives were then modified to reflect: 1) identified new factors/themes that emerged and others that
achieved more significance; 2) removal of some factors because interviewees put slight emphasis on them; and 3) merging of some factors into other factors because interviewees did not distinguish between them and.

Table 3 summarises the results. Most of the improving factors were confirmed and none of the factors identified from literature were discredited, however some have been merged in other factors.

3.2 Modifying the Framework for Embedding PM Practices

The invitation to identify the factors that might make it easier or more difficult to achieve the diffusion, dissemination, implementation and sustainability, i.e. the embedment, of PM improvement initiatives in their organisation (key embedding factors) also prompted interviewees to mention a large number of factors, even more than the factors for improving performance.

After analysing the responses about key embedding factors, the results were compared with those initially identified on literature review (Table 2). Using the same process of the improving factors, the set of the key embedding factors in the ‘initial framework’ were then modified and summarised in Table 4.

Table 3: Key improving factors in the ‘revised framework’

| Improving Factors                                                                 | Interview Analysis Results                                                                 |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1. ‘Implement corporate standardised and tailored PM processes’                   | Confirmed by 93% of interviewees. It was the most stated factor.                             |
| 2. ‘Implement corporate standardised and tailored PM tools & techniques’          | Confirmed by 80% of interviewees.                                                           |
| – ‘Implement corporate standardised and tailored project management information system (PMIS)’ | New factor recognised by 80% of interviewees. The strong emphasis put by almost all interviewees, on a mechanism for storage, retrieval, dissemination, and reporting of PM information led to the separation of this factor from the general factor ‘Implement corporate standardised and tailored PM tools & techniques’ |
| 3. ‘Manage PM competences’                                                       | Confirmed by 63% of interviewees.                                                           |
| 4. ‘Established PM career path for all PM roles’                                 | Confirmed by 17% of interviewees.                                                            |
| 5. ‘Develop a culture of learning’                                               | Confirmed by 30% of interviewees.                                                            |
| – ‘Provide PM training’                                                          | New emerged factor. It was the second most stated factor by 90% of interviewees. Similarly it was separated from the more general factor of ‘Manage PM competences’. |
| – ‘PM professionalisation’                                                       | New. 33% of interviewees affirmed the relevance of the professionalisation of the project manager’s role, i.e., the project manager dedicates almost 100% of his/her work to PM activities. |
| 6. ‘Integration of the PM system with the general management system’             | Confirmed by 37% of interviewees.                                                            |
| 7. ‘Develop a supported infrastructure’                                          | Confirmed by 63% of interviewees.                                                            |
| 8. ‘Develop a project sympathetic organisation structure’                         | Confirmed by 63% of interviewees.                                                            |
| 9. ‘Empowerment of project managers’                                             | Merged. ‘Empowerment of project managers’ was merged into ‘Develop a project sympathetic organisation structure’, because this factor was highlighted by few interviewees (20%) and with minor emphasis. |
| 10. ‘Develop project categorisation’                                             | Merged. It was merged with the factors ‘implement corporate standardised and tailored: i) PM processes, ii) tools & techniques, and iii) the project management information system (PMIS)’. During the interview analysis, the researcher realised that the interviewees’ concern was not the projects’ categorisation per se, but with the tailoring to different projects that categorisation may facilitate. |
11. ‘Benchmarking to PM: assess and continuous improvement’  
**Confirmed** by a third of interviewees.

12. ‘Evaluation and assessment of PM performance’  
**Merged.** It was mentioned by only 13% of interviewees, and where mentioned, past PM performance was cited in order to encourage project managers to improve their PM competences. Therefore, this factor was merged in the more general factor ‘Manage PM competences’.

13. ‘Development of awareness of PM value amongst all staff’  
**Confirmed** by 27% of interviewees.

14. ‘Development of a basic understanding of organisational PM practices among all project stakeholders’  
**Confirmed** by 10% of interviewees.

15. ‘Establish PM practices as internal standard’  
**Confirmed** by 10% of interviewees.

| Table 4: Key embedding factors in the ‘revised framework’ |
|---|
| **Embedding Factors** | **Interview Analysis Results** |
| 1. ‘Relative advantage’ | **Merged** in the factor ‘perceived usefulness’. |
| 2. ‘Compatibility’ | **Merged** in the new factor ‘integration with the existent practices’. |
| 3. ‘Complexity’ | **Merged** in a more general factor ‘perceived ease of use’. |
| 4. ‘Trialability’ | **Merged** in the factor ‘piloting’. |
| 5. ‘Observability’ | **Merged** in the factor ‘demonstrating the PM improvement initiative value’. |
| 6. ‘Re-invention’ | **Confirmed** by 33% of interviewees. But, it was slightly rephrased to ‘adaptation/re-invention’ and re-categorised under the theme ‘implementation’. |
| 7. ‘Causal ambiguity or uncertainty’ | **Discredited** **** |
| 8. ‘Proven track record’ | **Discredited** **** |
| 9. ‘Adopter Motivation’ | **Confirmed** by only 17% of interviewees. |
| 10. ‘Perceived usefulness’ | **Confirmed** by 47% of interviewees. |
| 11. ‘Beliefs of similarity or difference from other adopters’ | **Confirmed** by 40% of interviewees. |
| 12. ‘Gender and age differences’ | **Discredited** **** |
| 13. ‘Nature of adoption decision - mandatory’ | **Confirmed** by 20% of interviewees. |
| 14. ‘Predisposition for change’ | New. It was mentioned by a third of interviewees. Two interviewees strongly emphasised it, stressing the importance of People’s attitude to change, that unfortunately, there are many professionals who are simply averse to change. |
| 15. ‘Demonstrating the PM improvement initiative value’ | **Confirmed** by 97% of interviewees. It was the most stated factor. |
| 16. ‘Homophily’ | **Discredited** **** |
| 17. ‘Interpersonal channels’ | **Discredited** **** |
| 18. ‘Opinion leaders’ | **Confirmed** by 27% of interviewees. However, it was slightly rephrased to ‘opinion leaders and key support facilitators’, including ‘key support facilitators’ which would help on the routine use of new PM practices. |
| 19. ‘Use of rhetoric’ | **Discredited** **** |
| 20. ‘Adopter involvement’ | **Confirmed** by only 20% of interviewees. |
| 21. ‘Motivation of knowledge holders’ | **Discredited** **** |
| 22. ‘Credibility of the source of the knowledge’ | **Discredited** *** |
| 23. ‘Relationship between the source of the knowledge and the adopter’ | **Discredited** **** |
| 24. ‘Feedback on improvement impacts’ | **Confirmed** by 53% of interviewees. But, it was re-categorised under the new theme created ‘routinisation’. |
25. ‘Structure of organisation and resources to support change’ **Confirmed**/ **Discredited**. Part of the factor was confirmed ‘resources to support change’ by 60% of interviewees, but part ‘structure of the organisation’ was discredited. ‘Structure of the organisation’ includes several characteristics, but only ‘PM maturity’ was strongly emphasised from the interviewees. Therefore, this factor was highlighted and ‘structure of the organisation’ was removed.

26. ‘Absorptive capacity for new knowledge’ **Confirmed** by 13% of interviewees.

27. ‘Receptive context for change’ **Discredited**. This broad factor includes several characteristics which defined a ‘receptive context for change’, as sponsorship, clear strategic vision, good managerial relations, etc. Only ‘sponsorship’ was strongly emphasised from the interviewees. Therefore, this factor was highlighted and ‘receptive context for change’ was eliminated.

28. ‘Readiness for change’ **Confirmed**. But slightly rephrased, ‘readiness for change’ was a more general factor. However, the aspect that 27% of interviewees emphasised was just ‘tension for change’.

### Embedding Factors Interview Analysis Results

| Factor                                  | Analysis |
|-----------------------------------------|----------|
| **Embedding Factors**                   | **Interview Analysis Results** |
| — ‘Sponsorship’                         | New emerged factor identified by 40% of interviewees. Therefore, it was separated from the more general factor ‘receptive context for change’. |
| — ‘PM maturity’                         | New emerged factor strongly emphasised by 20% of interviewees and so it was separated from the more general factor ‘structure and resources to support change’. The adoption of the new PM practice is more likely if the organisation already has a high level of PM maturity. |
| 29. ‘Informal interorganisational networks’ | **Confirmed**. Despite only identified by one interviewee (3%), when ‘interorganisational PM practices’ were mentioned by the interviewer, 54% of the interviewees agreed with its significance. One interviewee observed “If there are many people using, all people talk about, it because it works. At least, it will stimulate people’s curiosity to their use.” |
| 30. ‘External mandates’                 | **Confirmed** by 23% of interviewees. However, it was slightly rephrased to ‘external stakeholder requirement’. |
| — ‘Environmental culture’              | New. During the literature review environmental variables did not stand out as important factors. Nevertheless, 10% of the interviewees emphasised if the organisation is inserted in an external environment, where there is a PM culture, for example, as one interviewee observed “in Portugal we do not have a culture of planning, time management, and these is something that we should impress during childhood.” |
| — ‘Unstable economic environment’      | New. Although ‘unstable economic environment’ was not identified as a key factor from the literature review, 10% of the interviewees mentioned this. An unstable economic environment provokes a tension for change, in order to make the organisation more competitive. As such, an ‘unstable economic environment’ increases the likelihood of adoption of the new PM practice. |
| 31. ‘Effective change agents’          | **Confirmed** by 13% of interviewees. It was rephrased to ‘external collaboration’ |
| 32. ‘Specific training’                | **Confirmed** by 50% of interviewees. |
| — ‘Piloting’                           | New factor mentioned by 47% of interviewees. It is closely related to the factor ‘trialability’ identified in the ‘initial framework’. However, interviewees were not worried if the PM practice has the ‘trialability’ attribute, i.e. could be trial or not, but if the organisation made part of the implementation process, the piloting of the PM improvement initiatives. |
| — ‘Gradual implementation’             | New factor mentioned by a third of interviewees, who recognised that making change takes time and needs the ‘right time’. For example, one interviewee observed: “Gradual implementation [is necessary] in order to better manage the expectations and benefits of implementation.” |
| — ‘Integration with the existent practices’ | New factor mentioned by 17% of interviewees. It is closely related to the factor ‘compatibility’, an improvement initiative attribute previously identified from the literature. Interviewees were not worried if the practice has the ‘compatibility’ characteristic, but if in fact the organisation makes the integration of the PM ...
improvement initiative with the existent practices. This embedding factor is closely related to the improving theme ‘integrate the PM system with the general management system’, showings how close are the concepts of improving and embedding.

—’PM quality assurance process’  
**New factor** mentioned by 27% of interviewees. As one interviewee affirmed: “It is essential to support the use of PM practices, through coaching and also quality assurance, to guarantee that people are using the standardised practices.”

—’Adopter accountability’  
**New**. 23% of interviewees emphasised that if the project team does not use the standardised PM practices, they should suffer some penalty.

* Discredited does not mean that the factor does not have influence on the embedding process, but just that the influence might be relatively minor. One asterisk means factors just briefly mentioned, even when supplementary questions were asked, and which were identified by less than 10%, were removed.  
**Despite careful scrutiny of responses from the interviewees, no explicit or implicit responses were found connecting, with the factors identified from literature. Consequently, these factors were removed from the ‘revised framework’ of key factors.

In the ‘revised framework’ the theme ‘PM improvement initiative attributes’ was removed, because it was just composed by six factors merged in other factors and two more, not prompted by any interviewee: ‘causal ambiguity or uncertainty’ and ‘unproven knowledge. A new theme was created named ‘routinisation’. Two new strongly emphasised factors were raised by interviewees: ‘PM quality assurance process and ‘adopter accountability. These two factors fits in the process subsequently to the implementation process, which guarantees that a PM practice will be routinely used by adopters. In the ‘routinisation’ theme it was added the factor ‘feedback on improvement impacts’ identified initially under the theme ‘communication & influence’.

4. Conclusion

Table 3 and Table 4 present the pertinent factors, in the ‘revised framework’, divided by the ‘key themes and factors for improving’ and ‘key themes and factors for embedding’, respectively. The framework incorporates the initial factors listed in the ‘initial framework’ (Table 1 and 2), suitably modified to reflect the alterations suggested from the programme of interviews. For clarity, factors are categorized into themes based on the literature and on the researcher’s expertise during the interviewee responses analysis. The ‘initial framework’ of factors to improve and embed PM practices in an effective way, derived from the literature and the researcher professional experience, identified fifteen factors for improving and thirty two factors for embedding. The ‘revised framework’ constructed following the data interview analysis: 1) confirmed twelve improving factors (e.g. ‘develop a supported infrastructure’) and sixteen embedding factors (e.g. ‘external stakeholder requirement’); 2) identified three new factors for improving (e.g. ‘PM Professionalisation’) and ten for embedding (e.g. ‘adopter accountability’); 3) merged in other factors three improving factors (e.g. ‘develop project categorisation’), five embedding factors (e.g. ‘relative advantage’), and discredited eleven embedding factors (e.g. ‘gender and age differences’), resulting in a modified total of fifteen improving factors and twenty six embedding factors.

The theoretical contribution of this research is twofold: a) examining the problem of PM effective implementation using the success factor approach, to identify the key factors to improve PM practices and the factors that might affect the embedment of PM improvement initiatives in organisations; b) building knowledge in the area of embedding PM, addressing it with an “innovation lens” perspective, which, by itself, is a relatively novel approach.

A main limitation of the developed framework is the practical contribution to PM professionals. From the list of the fifteen PM improvement initiatives, what initiatives should organisations embed first and in what order? Organisations might select the initiatives that were emphasised by more interviewees, or select the ones that they feel more ‘comfortable’ to deal with faster. Under the same line of argument, professionals might be more aware of the embedding factors emphasised by more interviewees. For example, ‘demonstrating the PM improvement initiative value’ before the implementation process, have available the
necessary ‘resources to support change’ and during the use of the initiative, give continuous ‘feedback on improvement impacts’ on the organisation.

At the beginning of the research conceptualisation, the researcher was hoping to come up with a short list of relevant factors for improving and embedding, on which professionals should focus their attention. However, the results of the empirical work show that these two concepts of improving and embedding PM practices are complex. But it might be argued that even the present list of factors is not detailed enough.

Further research could be conducted on this subject through the use of case studies, which would highlight contextual factors, but might be of less general explanation.

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