The Impact of Organizational Design on the Effectiveness of Project Management:

A Case Study from the UAE Public Sector

الآثار المترتبة للهياكل التنظيمية على كفائة أدارة المشاريع:

دراسة لحالة من القطاع الحكومي بدولة الامارات

By

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Abstract:

The research on project management effectiveness has been extensive and controversial infused by the pragmatic need for project management (PM) to achieve tangible and predictable results in practice. The notion that organizations of all sorts can realize their goals by using project management in their businesses, increase the challenge for project-based organizations (PBO) to succeed in project management using project management. This study provides an example on how to investigate the status of project management effectiveness in PBOs in order to enhance their performance.

To approach the first part of the problem, the five processes of project management were identified from prevailing PM standards, being PMBOK and OPM3, to determine the subject of effectiveness – which is the effective succession of projects through the phases of initiation to closing. Then a theoretical process maturity model (PM²) was used to articulate the descriptive characteristics of PM effectiveness for each process. The finding was that comparing the process maturity level (PML) to actual project performance can reveal the status of effectiveness for each of the processes, which opens the door to questioning the organizational factors affecting such status.

In the second part of the problem, the complexities of the organizational phenomenon was reduced to a single research-based definition i.e. organizational design, to allow for the pluralization of the structural and social characteristics accentuating the organization's reality. Five organizational structure dimensions and their substantiated attitudes and behaviours were identified to study, through them, the impact of organizational design on project management effectiveness in the organization selected for study (ABC).

Data was collected from eight members of the organization using a detailed case-study methodology. The 'expert interview' questions were aligned with, and backed by, the theoretical findings of the literature review and organized into five groups, firstly, to identify the organization's state of effectiveness and, secondly, to identify the structural and behavioural characterises associated with the current PM effectiveness.

The study culminate by concluding that organizational design and PM effectiveness are correlated based on the findings confirming that as much as the organizational factors control people's behaviour, they also make the people develop reversed behaviours that either impair or enhance the status of effectiveness, in return.

Key words: Project Management Effectiveness, Organizational Design, Organizational Characteristics, Structural Dimensions, Attitudes and Behaviours

الـــــــخـــــــص:

إن البحث العلمي في كفاءة إدارة المشاريع مستفيض ومتعارض النتائج مشحوذاً بالحاجة العملية لإدارة المشاريع لأن تحقق نتائج ملموسة ويمكن التنبؤ بها على أرض الواقع. إن المفهوم الشائع بأن مؤسساتنا بجميع أنواعها يمكن أن تحقق أهدافها من خلال ممارسة إدارة المشاريع في أعمالها المختلفة, يضع المؤسسات القائمة على إدارة المشاريع أمام تحدي كبير للنجاح في إدارة المشاريع باستخدام إدراة المشاريع. هذه الدراسة تعطي مثالاً لكيفية التحري حول مستوى الكفاءة للمؤسسات العاملة بإدراة المشاريع لرفع أدائها.

للوصول الى حل الجزء الأول من موضوع الدراسة, تم تعريف الإجراءات الخمسة الخاصة بعملية إدارة المشاريع باستخدام المراجع القياسية الشائعة في هذا المجال حتى نحدد معنى "الكفاءة" — وهو ما اتضح بأنه التعاقب المتسلسل والناجح للمشاريع عبر بوابات البدء وحتى النهاية. كما تم استخدام نموذج لقياس درجة جودة الاجراءات الخاصة بإدارة المشاريع وذلك حتى نتمكن من تعريف المواصفات الدالة على الدرجة التي يحققها الإجراء في كل مستوى من مستويات النموذج حيث وجد أن المقارنة بين مستوى الجودة المتحقق وبين الأداء الحقيقي للمشاريع على الأرضو تفضي الى الكشف عن مدى الكفاءة المتحققة.

أما بالنسبة للجزء الثاني من موضوع الدراسة, فقد تم تلخيص التعقيدات المتعلقة بالظاهرة التنظيمية للمؤسسات في تعريف واحد مدعوم بحثياً , ألا وهو "التصميم المؤسسي"و وذلك للجمع بين الخصائص الهيكلية والإجتماعية التي تبرز الواقع المؤسسي. وعليه تم تعريف خمسة أبعاد هيكلية مع السلوكيات المرتبطة بها ليتم دراسة أثر التصميم المؤسسي على كفاءة إدارة المشاريع من خلالها في المؤسسة المختارة.

تم جمع المعلومات من عدد (8) العاملين بالمؤسسة باستخدام طريقة علمية مفصلة لدراسة الحالة. كما تم إعداد Hسئلة لإجراء المقابلات بطريقة تتماشى مع, ومدعومة, بالمراجعات الأدبية التي تم القيام بها في هذا البحث وذلك بتقسيم الأسئلة الى خمسة اقسام تستخدم في ,أولاً, معرفة المستوى الحالي لكفاءة إدارة المشاريع بالمؤسسة و , ثانياً, معرفة الخصائص المميزة للابعاد الهيكلية والسلوكيات المؤثرة على مستوى الكفاءة.

انتهت الدارسة بالوصول الى أن العلاقة بين التصميم المؤسسي وكفاءة إدارة المشاريع هي علاقة متبادلة التأثير لما وجد من أن مقدرة المؤسسات في التحكم بسلوكيات افرادها تقابلها في الناحية الأخرى مقدرة هؤلاء الأفراد ايضاً على تطوير سلوكيات تدهور أو تحسن من درجة الكفاءة لتلك المؤسسة.

الكلمات المفتاحية بالبحث: كفاءة إدارة المشاريع, التصميم المؤسسي, الخصائص المؤسسية, الأبعاد الهيكلية, السلوكيات والانماط السلوكية

Acknowledgements:

…

To the time that brings out the best in us

To the dear ones who make the time worth being

And to the power that makes it all happen.

Chapter 1:

Introduction:

The basics of the project management practice dictate the integrative and holistic nature of its process (Turner & Muller, 2003; Baiden, Price & Dainty, 2006). Its widely acclaimed ability to methodologically improve and sustain corporate competitiveness has long transformed from the traditional view of being a proven set of tools for managing the cost, time and quality constraints of single projects. Today, project management is used across industries of great variety to deploy strategies, launch new products, expand business globally or even implement change programs within organizations (Bryde, 2003; Srivannaboon & Milosevic, 2006; Hauc & Kovac, 2000; McElroy, 1996; Longman & Mullins, 2004).

The subject of project management effectiveness is one of the areas that, despite extensive research, still remain controversial due to the lack of an agreed upon construct and the existence of the multi-dimensional perspectives debating this area of research (Morrison & Brown, 2004). When studying effective, or successful, project management, the problem seems to be rooted in the very definition of the term which has been subjective to individual research point of view since the 1960's (Cooke-Davies, 2002). Morrison & Brown (2004) highlighted that the scholars' preference to use terms such as project effectiveness, project success, project productivity and project performance depended on their research background belonging to either project management or organizational theories and that the term 'effectiveness' is more inclusive of the objectives sought after in both sides of research – hence the adoption of the term "project management effectiveness" in this study.

Despite the fact that project management and organizational effectiveness can be conceptually linked (Cooke-Davies, 2002), the concept of project management effectiveness (PME) remains an elusive one with many ramifications in theory and practice.

Cooke-Davies & Arzmanow (2002) explain how process maturity migrated from its origins in Total Quality Management (TQM) into project management (PM) and, with the movement in organizations to use more of the project management processes, project management effectiveness found its way into a number of models assessing the quality of the business process including PM processes "as a part of the organization's overall assessment" – and hence this intertwine between PM effectiveness and organizational effectiveness which was reflected in (i) a number of excellence models such as the Baldridge National Quality Award (BMQA), the European Forum for Quality Management (EFQM) and, (ii) organizational PM maturity models such as the Project Management Institute's (PMI) Organizational Project Management Maturity Model (OPM3).

The question rising here is how could the PME process associated with project-based organizations be identified from the literature of project management? And more importantly, what characterizes the effectiveness of the PM process in the project-based organization? These questions represent the first challenge faced in this dissertation.

However, the greater concern of this dissertation is the gap in project management literature where the relationship between project management effectiveness and the interacting structural and behavioural characteristics of the organization (Bennis, 1969; Inkid, 1968; Herman & Hulin, 1972), require further research as indicated by similar views from Zheng, Yang & McLean (2009) who stated that the literature is lacking an understanding of what influence these organizational characteristics have on organizational effectiveness. Therefore, A UAE government institution devoted to the delivery of construction, infra-structure and special nature projects i.e. a project-based organization following PMBOK terminology, will be investigated to evaluate such an impact.

Also, one of the challenges this dissertation was exposed to during the literature review, was the lack of a general term describing the aforementioned relationship between the distinctive organizational characteristics and their substantiated behaviours, as will be explored. Such term should not be descriptive of only the hierarchal attributes of the organization (such as the term 'organizational structure') but also the social structures these organizations encompass. The term "organizational design" (OD) was elected for this purpose due to its sociological implications in organizational theory (Rainey, 2009 – P.56), supported by three reasons:

1. James & Jones (1976) echoed Katz & Kahn's (1966) emphasis that understanding the relationship between organizational situations and individual attitudes must be done through the investigation of both the micro and the macro aspects of the inner organization. In our study, the features of the organizational structure will represent the macro aspect of the organization while the individual attitudes, influenced by it, will represent the micro aspect. The term organizational design will serve combing the two aspects.
2. Combing the two aspects of the organization under one term correspond to the notion that organizational structure is a significant contributor in creating and shaping organizational culture and subsequently the said influence on the attitudes of the people (Jones, 2013 – p196) which, not only repeat echoes from the first point, but also implies the mutual interplay and impact the two elements have on each other (Janicijevic, 2013) (Lichtenstein & Brain, 2006).

3. The "design" part of the terminology establishes for the process-based nature of the subject and the possibility of change through the continuous review and improvement of the different organizational choices thus linking this choice of terminology to the part of discussion where organizational excellence and maturity processes, in relation to effectiveness, were mentioned. The term will then bear the qualities of an ongoing process that depicts the organizational characteristics as continuously interacting with the process of PM effectiveness.

In brief, if the relationship between the hierarchal and social structures of the organization (namely its organizational design), is identified from one side, and, the nature of the project management process in the project-based organization is also identified, from the other side, then the impact of the collective aspects of 'organizational design' on 'project management effectiveness' in the selected PBO, can be studied.

Dissertation overview:

In general, this dissertation will seek to, firstly, prepare the stage for the identification of the theoretical relationships highlighted in the above introduction by dedicating a two-part literature review chapter for reviewing (a) the nature of project management as an organizational process and its identifiable characteristics, and (b) organizational design combing the different organizational characteristics that collectively affect the functioning of the organization. The dissertation will subsequently select a methodology to investigate the impact of the latter on the former.

Part A of the literature review will begin by positioning the study within the mosaic of project management literature by reviewing the different approaches and backgrounds of PM research and then allocate the study accordingly. The review will then move into the area of PM process application in practice and the development of the normative PM methodologies which can be explored by reviewing the prevailing project management standards. The Project Management Institute standards, namely PMBOK and OPM3, will be justifiably selected out of the other institutions reviewed, to determine the main PM processes through which PM effectiveness can be achieved.

During this task, the academic critiques of these standards will be addressed and commented. Furthermore, the relation between organizational project management and the practicing organization will be illuminated before identifying the concept of project management effectiveness using two different approaches from the literature. Eventually, one approach will be selected to use in identifying the characteristics of the effective PM process in the PBO.

In Part B, the position of this study from the latest directions in organizational theory research will be explored by briefly looking into the historical development of the organizational theory. The historic review will hint, what will eventually be consistent with the findings in the following part of the review, that the research into the organization's structural dimensions is fundamentally based on the criticism of the bureaucratic system. Nevertheless, the review will proceed with the identification of the different organizational dimensions, addressing their configurational relationships and their direct influences on individual's attitudes and organizational behaviour through a conceptual model from the literature. An exemplary list of the behaviours affected by structural dimensions will be extracted from different articles for guidance during the investigation.

With the above relationships identified, the tailored definition of 'organizational design' will be suggested to accommodate the needs of this research. The implications of this definition will be articulated to highlight the significance of its contribution to concepts identified by this study.

Finally, the second part of the review will clarify the distinctive characteristics of the PBO selected for investigation in terms of structure, life-span and public ownership. An observation about permanent and temporary PBOs will lead to the identification of common area for *organizational* and *project* governance in our organization.

The dissertation will then draw the conclusions researched in the review chapter and proceed to the methodology chapter where the philosophical assumptions made about the social world will support the adoption of a subjective research approach, which brings a need to make a case for the qualitative research and its appropriateness for the objectives sought in this dissertation. Also, the appropriateness of the 'case-study' approach for research on organizational theory will be demonstrated. In addition, it will be shown that using 'expert interviews' as a data collection method combined with the premises of the 'symbolic interactionism' (out of the subjective view of the social world) is the appropriate methodology for collecting the data necessary for investigating the relationship between organizational design and project management effectiveness by comparing (i) expert feedback about the selected PBO status of effectiveness, (ii) their subjective views about the related organizational characteristics, and (iii) the findings of the literature review. Of course, the interview questions and structure of the selected sample will be provided.

The dissertation will then be concluded by a final chapter showing the research results, findings and conclusions using a presentational set of the analysed data.

Significance:

The significance of this study can be attributed to its "field of study", which was defined by Flick (2009 – p. 106) as the institution or group on which the study will be undertaken. Public organizations or government institutions, like the one we will be examining, seem to possess somewhat challenging characteristics that would create exceptional conditions for the application and practice of project management. Studies have shown that public organizations tend to be more bureaucratic, unproductive and change resistant due to a major distinction, between them and the private sector organizations, which is being subjected to the institutional control of government and not that of the dynamics of economic markets (Perry & Rainey, 1988). Rainey (2009 – p. 11) cited many prominent works concluding the same; like Barton (1980), Berton & Winttrobe (1982) and Downs (1967). This author, therefore, assumes the findings of this study may gain significance in both PM literature and PM practice in terms of the following:

Significance to the literature:

1. Packendorff (1995) defended the view that research in the project management field needed the employment of other theoretical perspectives to overcome the shortcomings of viewing PM as a "theory of its own right". This study adopts Packendroff's aforementioned view giving the complexity of its case. The theoretical significance of this study, therefore, lies in applying concepts from organizational theory to project management theory in an attempt to understand a complex phenomenon where a gap in literature is observed.

2. The above signifies the importance of this gab to PM literature because of the considerable research that has been built within organizational theory based on early works associating organizational characteristic with individual attitudes {such as Bennis (1969) on bureaucratic systems and behaviour, Indik (1968) on systems' classification, which theorizes for such linkage, and James and Jones 1976 review calling for an integrative model approach for researching this relationship}. However, a limited number of research could have been found to have attempted to bridge this part of organizational theory with project management theory and investigate its impact on PM effectiveness, particularly in public organizations, and how their inherent bureaucratic characteristics may impact PM process and effectiveness.

3. The study is undertaken in UAE context, thus, forming a new addition to the relatively modest amount of research originating from the Gulf region.

4. The study is carried out on a UAE public organization which is potentially an additional factor of rareness and attractiveness to researchers interested in cases from the Gulf region.

5. The scope and findings of this study are hoped to inspire further research in the same area to further bridge the identified gap.

Significance to PM practice:

1. UAE officials responsible for structuring and managing government and semi-government project-based organizations may find this study useful for contextualizing effectiveness related issues in their organizations.

2. The professional views external stakeholders may develop about public PBOs can be provided, through the findings of this study, with a third person's view about the dimensions underlying their interactions with such organizations.

Scope of study:

This dissertation is limited to understanding how the organizational setting of the public project-based public organization may affect its ability to perform effectively in order to provide useful insights on how to increase the organization's project management effectiveness.

Research aim and objectives:

This study is aimed at encouraging the promotion of PM effectiveness in UAE public PBO organizations through the adoption of an analytical approach by these organizations, not necessarily limited to the one used in this study, to determine the organizational characteristics inhibiting, or promoting, their practice of project management in order to realize their organizational goals effectively.

This study is also set to meet the following objectives:

1) Exploring the organizational factors affecting the technical and the human aspects of PM process (Cooke-Davies & Arzmanow, 2002).

2) Identifying, from the literature, the processes and characteristics of an effective project management (kwak & Ibbs, 2002)

3) Identifying the structural dimensions impacting individuals' attitudes and behaviours in the organization (James and Jones, 1976).

4) Investigate the impact of various organizational characteristics on project management effectiveness in a predetermined public organization by obtaining the views of practitioners working in the organization using qualitative research methods elected by the particulars of the dissertation's research objectives and schedule.

5) Capturing the behaviours that the practitioners develop under the influence of their organizational design and how these behaviours impact the effectiveness of project management practice in the organization.

6) Exploring organizational and PM process attributes which could be identified as particular to the context of the UAE's public PBO.

Research methodology:

A qualitative case-study approach will be followed to conduct the research using the 'expert interview' technique for which a greater level of detail will be provided in Chapter 3. However, the following generalities should be pointed out:

1. The adoption of a qualitative research, using interpretative methods , was found to be widely encouraged in PM literature; to articulate the problem of PM practice (Cooke-Davies, 2004) by distancing the theory from the many rationalistic assumptions prevailing in the objectivist research (Ivory & Alderman, 2005, p. 5), and in order to obtain a much needed, and wished for, understanding of the project organization (Breson, Goussevskaia & Swan, 2005 – p. 39) and its people (Brediller, 2005 – p. 5).

2. The lack of validated constructs, dimensions and variables based on which the complexities of the researched relationship can be otherwise studied quantitatively, puts more weight on the qualitative approach side.

3. The predetermination of the studied organization and limited size of sample also limits the generalizability requirements sough in quantitative research.

4. The limited time and resources available for this study.

The limitations of the study:

The limitations of this study can be summarized as follows:

1. The case is limited to a single organization within the UAE and therefore the findings of this study cannot be generalized. Instead, the chosen methodology is epistemologically bound (Morgan & Smircich, 1980).

2. The time constraint dictated by the schedule of this dissertation allows only for a glimpse at the situation under study whereas other sets of data could be further validated using other approaches such as longitudinal studies by revisiting the sample at different times.

3. The interviews will be conducted in the Arabic language which requires a careful interpretation of the information in order to preserve the original meanings expressed by the participants.

Research questions:

Main research question:

RQ: what is the impact of organizational design on the project management effectiveness?

Sensitizing Research questions:

RQ1: how can the state of effectiveness in the project-based organization be identified?

RQ2: what organizational characteristics can be associated with such state?

RQ3: what do the people in the organization think about the organizational choices affecting their performance?

RQ4: how do these people react to the influences resulting from the organizational conditions they perform under?

RQ5: what is the effect of the people's reactive behaviour on organization's ability to perform effectively?

It is believed that answering the above sensitizing questions using a well-devised interview, as will be detailed in the methodology chapter, will provide sufficient empirical data for analysis and comparison with the findings of previous research in organization and project management theory.

Dissertation Strategy:

The strategy envisaged for this dissertation entails the following steps:

1. Maintain a cohesive approach throughout the dissertation by carefully positioning the study in the project management field and checking its alignment with the latest

developments in organizational theory. This will be done in the literature review's relevant parts.

2. Simplify the complex relationships under investigation by (i) allocating the central function of a project-based organization to directly identify its status of effectiveness, and (ii) reducing the organization's structural and behavioural characteristics to a single term i.e. organizational design, in order to deflect the otherwise confusing elongations.

3. Make use of the available resources, namely the limited time and sample size, by selecting the most appropriate research methodology without compromising the research objectives.

4. Facilitate a straight forward means for data validation by (i) sharply identifying the processes and characteristics to be investigated as much as the findings of the literature review allow, and (ii) cutting the interview questions to size in a manner to contrast the literature findings.

Structure of the dissertation:

This dissertation will be organized into four chapters taking the following structure:

Chapter 1 – dissertation overview: in this chapter an introduction will be given to illustrate the gap identified in project management literature followed by an overview of how the dissertation will proceed to reach its goals. Also, the research significance, scope, aims, mythology, limitations, questions and strategy will be given in addition to the chapter structure.

Chapter 2 – the literature review: this chapter will comprise two parts. Part A will be dedicated to the project management effectiveness element of the research question while Part B will be dedicated for the organizational design element. The chapter will be subdivided into identifiable sections with informative introductions and summaries aimed at focusing the attention of the reader on the main points. At the end of the chapter, a chapter summary including the two parts will be provided following a concise chapter conclusion.

Chapter 3 –: research methodology: the chapter will demonstrate the appropriateness of a subjective and interpretative approach to this dissertation leading to the development of a list of questions for an 'expert interview' and a sample structure table accompanied with an explanation of how the data will be analysed.

Chapter 4 – the research findings, conclusions and recommendations: this chapter will articulate the findings of the research by showing how the collected data were used and analysed. The research conclusions will be drawn and the recommendations stated.

Chapter 2:

Part A – project management effectiveness:

Part A introduction:

The distinctiveness of project management (PM) as a discipline has been a subject for intellectual disagreement between scholars who regard PM as an amalgam of separate disciplines (such as management, organization and behaviour) and others pointing to the uniqueness of the project life cycle (PLC) as the underlying essence of the project management discipline (Morris, 2006). However, if this dissertation is to put forward a case for the importance of project management effectiveness (PME), the subject of project management must be broadly introduced to allocate the theoretical basis underpinning the concept of PM effectiveness.

Therefore, this first part of Chapter II shall be dedicated to:

1. Positioning the study within the theoretical mosaic of project management by introducing the different theoretical perspectives, epistemologies and schools of thought in project management theory.
2. Shedding the light on the discipline of PM as a profession and the implications of the subsets of the project management body of knowledge recognized as "good practice" based on available academic critiques.
3. Identifying aspects of the process of project management in the normative and standardized methodologies of PM practice in order to (i) comment on the aforementioned critiques and (ii) determine the processes to be observed in the case study.
4. Reviewing the theoretical perspectives of organizational project management to match the level of the PM practice under investigation.
5. Review the concept of project management effectiveness as (i) a theoretical construct to explore the proposed dimensions, and as (ii) a maturity process to identify the characteristics of OPM effectiveness.

Part A will then conclude by stating the findings of this review and listing the process aspects which will be observed, in assessing the impact of the studied organization on project management effectiveness.

PM theoretical perspectives and trends in literature:

No intent shall be made in this section to cite the different definitions of what projects and project management are as much as it will be an attempt to explore the different approaches and trends displayed by researchers and practitioners in the past to theorize for and

recognize the fundamentals of PM in order for us to clarify the concerns addressed in this dissertation, i.e. the impact of the organization on project management, first hand. This clarification will be attempted by reviewing the main PM research approaches, epistemologies and schools of thought.

<u>Practice-based vs Process-oriented Approaches</u>*:*

Based on the harsh critiques for management theories, such as those given by Ghoshal (2005), it was claimed by Blomquist et al (2010) that the general models of management were irrelevant descriptions of the organizational realities which do not qualify for establishing management actions in real practice.

In terms of project management, part of the research problem could be found in treating projects as typical, single and isolated phenomena when they are basically forms of open-system organizations variant in their contextual dependencies and individual variations (Engwall, 2003) which substantiates the need to look at project organizations subjectively. The research approach used by researchers such Engwall can be classified as pertaining to the process-oriented tradition of research concentrating on analysing projects by considering the behavioural frameworks affecting the actuality of practice. Conversely, the engineering/industrial mechanistic approach looks into ways to apply the "best practices" in a systematic top-down fashion while controlling the predicted behaviours of its practitioners (Blomquist et al, 2010) (Turner & Keegan, 2000). In other terms, that the practice-oriented approach assumes a universal model for PM practice while the process-oriented approached recognizes the implications of the project organization on people and processes.

it is therefore said that the mechanistic approach results in the many professional publications promoting instrumental models for the practice of project management and the development of PM bodies of knowledge (Soderlund, 2004) – which nevertheless might be advocated as a good sign for a well-established profession (Koskela & Howell, 2002). However, Soderlund's questions about how the project organization works, remain persistent in today's research and it should make us wonder about the value of the vast spread of the standardized models of practice, such as PMI's and IPMA's, cultivating an optimized task-oriented perspective for understanding projects and project management instead of providing a deeper analysis of the project organization so that PM practitioners can achieve success at levels beyond the evident similarity of the profession-wide processes (Andersen, 2006) (Soderlund, 2004). To say the least, it is evident that this division between the 'hard-system' theorists and, if you may, the *contextualist* theorists has caused some tension in literature (Blomquist et al, 2010) (Engwall, 2003).

Similarly, Cicmil et al (2006), in an argument for an enhanced research methodology have criticized the heavy reliance on the "instrumental view" of projects and project management processes as "pre-existing" knowledge objects. This is in reference to the mainstream research in PM being influenced by the normative rational approaches of the practitioners and the conventional prescriptions promoted by the project management professional associations. The downside of such approach could be reflected in narrowing project practitioners' role as implementers of time, cost & scope control techniques rather than social and political actors in the complex arrangements known as projects (Cicmil & Hodgson, 2006). This study, therefore, coincides with the process-oriented approach as it looks into the value of applying traditional PM methods to the complex project organization.

So far, it can be seen that the different approaches followed by researchers can be described in more contrasting terms (such as objective, mechanistic, instrumental & normative on one side and subjective, social, interpretative & behaviouristic on the other) but regardless of what title, these approaches will fall into either sides between, seemingly, the contradicting interests of the academics and the professional researchers studying project management. This dichotomy of interests seem to be infused by epistemological standpoints which interact in a way that can be explained by considering Morris et al (2006) who indicated that PM professional associations gain their prominence from their ability to (i) influence the industry's view of "competence, best practice, training and development", and subsequently (ii) trigger the interest of the practitioners in subscribing to their certification programs and association memberships. But as these associations tend to claim ownership of "discrete bodies of knowledge and related skills", it makes the academics begin to investigate the validity of the knowledge base of project management in terms of scope and epistemology.

So keeping in mind the important manifestations of the professional Bodies of knowledge (BOKs) on the practicing organization today, particularly their view on competence and best practice (such as in the organization under investigation in this study), we are ought to move into the following area where the subject of how we come to understand project management i.e. its epistemological views, will be touched upon.

Objectivist vs Subjectivist Epistemology:

Packendroff (1995) stated that the despite the abundance in experience-based advice and academic knowledge about how projects are executed, the handbooks of project management methodologies still cannot explain why projects continue to fail in great ratios and that further empirical research is needed to find out what is happening in the project organization. This type of enquiry could be the motive behind the increased scholarly interest in projects from an organizational point of view (Engwall, 2006) as it is believed to will eventually lead to the overall development of the project management field by combining the knowledge acquired from the objectivist epistemology in traditional systems i.e. how projects *should be* managed*,* with the knowledge acquired from the subjectivist epistemology focusing on understanding practices and processes within the project organization i.e. what projects are *being* in the organization (see the table below from Blomquist et al (2010) relating the different PM research systems to subjective and objective epistemologies).

	Focus	Empirical Approach	Ontological Status of Human Action	Epistemology	Dominating Methodological Commitment	Examples of Research Question
Traditional System	Focuses on rational structures and how they can be best managed	Top-down	Determined	Objectivist	Above all quantitative methods, to enable *Erklären* [explaining]	What are the success factors of planning?
Andersen (2006); Dvir and Lechler (2004); Pinto and Slevin (1989)						
Process	Focuses on describing the process and how the process relates to the structure	Past, Present, Future	Intersubjective	Objectivist/ subjectivist	Above all qualitative methods such as interviews, documents, etc., to enable *Verstehen* [understanding]	How could the process of planning be understood?
Legris and Collerette (2006); Lindkvist et al. (1998); Lundin and Söderholm (1995); Sutterfield et al. (2006)						
Practice	Focuses on describing the process through the identification of local situated actions	Bottom-up	Intersubjectively situated	Subjectivist	Above all qualitative methods such as ethnography, to enable *Konstruieren* [construction]	What are the actions that are building the activity of planning?
Hällgren and Wilson (2007); Hodgson (2004); Simon (2006)						

Table 1: Three approaches to project management research.

In a similar vein, Colari (2002) proposed a pragmatic epistemology joining organizational practitioners with researchers under one framework to co-produce pragmatic and contextualized knowledge. Borrowing this epistemology into project management can be fruitful in many ways, one of which is "making sense" of project management (Cicmil et al (2006) by filling the pragmatic desire to understand the 'lived experience" of projects by incorporating the reflective practitioners into research. Apparently, drawing on the different

epistemologies will eventually lead to the development of different paradigms and schools of thought in project management research as will be discussed next.

PM theory paradigms and schools of thoughts:

Soderlund (2001) categorized PM research into seven schools of thought by reviewing top journals and using data from previous reviews. Such categorization puts a frame around the group of previous scientific contributions this study belongs with and it also identifies the fit between the debates featured in this study and recent developments in fields related to it in management and organizational theory.

Briefly, these schools of thought were:

1. Optimization school: including studies interested in optimizing project implementation through logic-based perspective using planning and mathematical techniques to control, for instance, project cost and time.

2. Factor school: basically investigating critical success factors across the different project types, industries and geographical regions. This school was able to overcome criticism for limiting the definition of project success to time, cost and quality dimensions, and expand its area of research into value creation and capability building (Shenhar et al, 2001).

3. Contingency school: draws on organizational contingency theories where uncertainty and the project environment affect the design and structure of the project organization.

4. The behaviour school: a wide spread school in organization theory which inspired research on project organization, organizational behaviour (OB) and organizational processes. The school acknowledges the process and dynamic nature of projects and critiques the system focused view of project management.

5. Governance school: has two main streams; agency theory (the relationship between project owners and project executors) and transaction cost theory (the conditions under which projects are contracted and procured). It attempts to identify effective governance mechanisms for project administration and the management of complex project transaction.

6. Relationship school: stresses the relational view projects and its social dimensions by covering project marketing research and the relationship between buyers and sellers in relation to what project stage and the temporary nature of such interaction requiring appropriate managerial strategies.

7. Decision school: with a principle interest in early project phases, the school investigates project instigation and why and how they are terminated. It also

questions the basis of rational decision making and noticeably the writings of Ross and Staw, for example (Ross & Staw 1993) on the notion of 'escalated commitment' where organizations find it hard to withdraw from failing projects.

In confirmation of the literature gap claimed to have been identified in Chapter I, this study could not be placed entirely under one of the school labels categorized by Soderlund (2011). However, primary similarities with this study were found in both the contingency and behaviour schools of thought briefed above.

On one hand, the contingency school, which "draws on a long and strong tradition in organizational theory relating to a variety of contingency dimensions affecting organizational design and structure", makes relevance to the design questions posed in this study in relation to project management effectiveness. On the other hand, the behaviour school, which is "organization-theory inspired" with a primary focus on the nature of "social interaction in projects", also coincides with the attempt in this study to observe the behavioural influences on process effectiveness.

Based on the above, it was ought to utilize a larger perspective to capture the theoretical frame of this study. The study will therefore be labelled as the "organizational school" due to the fact that the two relevant schools of contingency & behaviour, mainly share grounds within the organizational theory.

Trends in the field of PM research:

Identifying research trends in project management is important for our understanding of the theoretical development directions in the field and its responsiveness to demands from the larger management community for new PM application areas (Crawford, Pollack & England, 2006). As far as this study is concerned, the implications of such broad analysis are important for strengthening the research directions adopted by the study and the area of application it serves. The importance of Crawford, Pollack & England (2006), covering years 1994-2003, lies in bringing the seemingly "contradicting results" of previous trend analyses under one framework with theirs. The interesting results from the study show, for example, that the trend for quality management studies has peaked, meaning that researcher interest is waning in this area, while a growing trend was found in project evaluation and improvement with an increasing significance in the field. Fortunately, this study is in line with the growing interest in studying improvement aspects of project management represented, in this case, in the improvement of PM effectiveness.

Additionally, Pollack (2006) explored the "undercurrents" of academic project management literature to find a shift in the mainstream hard-paradigm; associated with positivist

epistemology, towards a soft-paradigm as more theoretical frameworks are being applied to project management. Paradigm here is defined as a tendency for thought within a community regarding a commonly shared set of assumptions, values and concepts. The soft-paradigm was depicted by Pollack (see figure below) to be theoretically "interpretivist" with a tendency to structure problems of the practice. Indeed, this study fits within this realm.

	Hard	Soft
Theory	Positivist / realist	Interpretivist
Practice	Problem solving	Problem structuring

Fig. 2. The hard and soft paradigms in theory and practice.

Summary:

The previous topics were intended to acquaint the reader of this study with the general theoretical background it comes from. The different theoretical approaches, epistemologies, paradigms and trends offered by the literature were illustrated in order to position the study in hand within the field of project management research.

Having showed interest in studying the phenomenon of project management by investigating the impact of the organizational design on its effectiveness, it can be summarized that this study belongs into the subjectivist epistemology of PM. It focuses on the processes of the practicing organization to approach the problem. The study follows a soft-paradigm in project management research where an integrative approach to improving the practice of project management through the deductive analysis of the applied normative methodologies, is adopted. The study in general can be classified under what has been labelled the "organizational" school of thought.

In the following, project management processes, functions, concepts of effectiveness and approaches to evaluating project management effectiveness (PME) will be reviewed.

PM methodology and standards:

Introduction:

The application of project management in practice, leading to the development of tailored methodologies, requires the delineation of its scope, functions and processes. However, it cannot be expected to be a straight forward task to set up and choose the "appropriate" component of such methodology. PMI's PMBOK (2013 – p 2) is very clear on this issue by declaring that: "Good Practice does not mean that the knowledge described (in this guide) should always be applied uniformly to all projects; the organization and/or project management teams is responsible for determining what is appropriate for any given project". Atkinson, Crawford & Ward (2006) concluded that the application of PM without considering some "fundamental' uncertainties could exacerbate the practice of project management. It is therefore important to examine the commonly known project management standards offering ready-to-used methodologies for the project management practitioners.

In this section, a selection of project management's most prevailing standards will be reviewed with the intent to 'zero in' the process of project management at the project-based-organization level, to match the process level targeted in this study.

Reviewing the different practice levels from a practitioner's point of view is necessary to (i) differentiate the targeted PM practice level from other levels, (ii) identify the most influential normative methodologies that are promoted by PM professional bodies as 'best practice' in addition to (iii) relating each standard to its designated practice level i.e. single-project, multi-projects and organizational PM levels, which, as will be uncovered, is instrumental to identifying the nature of PM process in the project-based organization, from a practitioner's point of view.

Standards overview:

There are many professional project management associations worldwide. However, there are three formal bodies of knowledge (BOKs) out of which standards extended and professional certifications, against those standards, are offered (Morris et al, 2006). These associations and their BOKs can be introduced as follows:

1. The Project Management Association (PMI) began to form in the late 1960s in the USA and was able to carry out its first professional certification in 1984 based on the recommendations of the association's Ethics, Standards and Accreditation report published in 1983. However, PMI's first PMBOK guide was published in 1996 – the fifth edition of which was published in 2013 (PMI, 2015). The association's website features a number of statistics; PMI has more than 700,000 members including more

than 650,000 certified professionals. PMI is by far the largest PM professional association as the statistics reveal in comparison with other well-known associations.

2. Association for Project Management (APM) was established in 1972 out of its origin known as the INTERnational NETwork (INTERNET UK) formed in the 1960s. APM's first BOK was issued in 1992. The sixth edition of APM BOK was issued in 2012. The association has over 21,000 individual and 550 corporate members (APM, 2015).

3. Japan Project Management Forum (JPMF) was established in 1998 as a division of the Engineering Advancement Association of Japan (ENAA) to promote project management in Japan. JPMF announced their knowledge system P2M in 2001. The forum completed a merger with the Japan's Project Management Certification Centre (PMCC) in 2005 under the name of the Project Management Association of Japan (PMAJ) with a total of 6,645 certified professionals (PMAJ, 2013).

Morris et al (2006) noted that the standards promoted by the three associations can be viewed as increasing in scope and breadth starting with PMI, being the most focused on firmly prescriptive PM processes, to APM's broader scope of project context and strategic planning, and finally the P2M knowledge "system".

Another important organization known for the development of a competence baseline for PM professionals is the International Project Management Association (IPMA) which standardization approach has been described by Eberle, Helga & Rosen (2011) as compatible with PMI's approach. The study suggests that IPMA's competence base (ICB) encompasses PMI's processes. This can be visualized when considering that ICB consists of 20 technical, 15 behavioural and 11 contextual competences where most of PMI "very prescriptive and normative" processes can be found mirrored in the technical competences group. Morris's previous observation about APM's scope flexibility can be confirmed here again by noticing that APM framework allows it to adopt IPMA's competence base too (APM, 2015). It is also worth noting that PMI did issue a competence framework for project managers (PMI website, 2015), however, the different competence areas described in the framework are not part of PMI's certification program as is the case with IPMA.

Selecting a standard:
After putting the main project management standards in perspective, it would be necessary to consider the reasons based on which one of them should be chosen for further investigation to identify aspects of the professional PM practice in contrast with such standard. It was accordingly found that PMI's PMBOK outline would be the most appropriate due to a number of positive and negative factual and academic reasons:

1. Krezner related project management as an "outgrowth of systems management" (Krezner, 2009 – p. 38). Systems management general approach is to unify information exchange across many fields of knowledge through integration, which cannot take place without a common language. Krezner stated therein that PMI's PMBOK "satisfy this need for project management". Creating a common lexicon for PM professionals is a stated objective is PMI (PMBOK, 2013 – p. 2). Given the wide spread of the standard, it seems like a good candidate for fulfilling such task and is therefore the right selection for the study.

2. The PMBOK recognizes the management level targeted in this study and dedicates a discrete standard for organizational PM, being the Organizational Project Management Maturity Model (OPM3). OPM3 "examines an enterprise's project management process capabilities" (PMBOK, 2013 – p. 18).

3. PMBOK endorses a controlled view of PM process by using "stage-gate reviews" (PMI, 2006 – p. 20) which, as mentioned by Moriss et al (2006), is a commonly adopted governance practice. Therefore, attributes of governance practices in PMI standards should present a good area for research on related project and organizational governance issues that can be observed in our selected organization.

4. Threaded from the previous point, Morris et al (2006) also pointed out that the PMBOK adopts a strong "project execution orientation" view, as part of a methodology evolving about a universal Project life Cycle (PLC) which many researchers disagree with and consider undermining to the extended function of project management (Engwall, 2003; Williams, 2005). Morris suggests that this orientation as a result renders the standard ineffective. The study shall then take into consideration the impact of such orientation when reviewing the practice on field.

5. Researchers also critique professional standards for ignoring the "front-end" scope of project management by isolating projects from the larger project development cycle which determine the ultimate project value and effectives (Morris, 2005). It is therefore important to (i) observe the scope of certain PMBOK knowledge areas dealing with exogenous project factors such as stakeholders and parts in the PMBOK standard where strategy and governance are referred and (ii) to see if the standards issued after the aforementioned paper by Morris, particularly standards issued in 2006 by PMI for program and portfolio management, secured this end.

PMI standards:

Today, PMI's published standards cover a number of "foundational standards" being the PMBOK Guide, program & portfolio management standards and the Organizational Project Management Maturity Model (OPM3), in addition to a number of technical practice guides for

various project management areas such as risk, earned value, estimation and scheduling management (PMI website, 2015). However, only the PMBOK and OPM3 will be featured in this review due to their relevance to the subject of study more than the program and portfolio management standards as they are considered an "expansion" of the PMBOK and OPM3 (PMI, 2006 – p. 1) which is self-evident since the selected two standards seem to include the interactions associated with programs and portfolios within their models.

The PMBOK:

PMBOK Guide fifth edition is the latest PMI standard for the management of "individual projects" (PMI, 2013 – p. 1). The standard contents can be classified under four categories:

a) Project definition and relationship with the larger project boundaries such as programs and portfolios and with the organization's strategy, operations and business value.
b) Project life cycle and the exogenous organizational factors influencing and interacting with the project life cycle such as organizational culture, communications and structure.
c) The five project management process groups; being the Initiation, Planning, Execution, Monitoring and Controlling and Closing process groups.
d) The ten knowledge areas of project management; being Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resource Management, Project Communications Management, Project Risk Management, Project Procurement Management and Project Stakeholder Management.

Important to this study is the PMBOk's recognition of the organizational influences of (i) culture, which may affect the "project's ability to meet its objectives", (ii) communications, since "project management success is highly dependent on an effective organizational communication style", and (ii) structure, for affecting "the availability of resources" and the "way projects are conducted". The standards recognizes the "projectized" structure as the one under which project managers have the greatest authority. The standard also recognizes mixed and composite organizational forms as an organization may choose to apply more than one form under its structure (PMBOK, 2013 - p. 25).

Also, the standard distinguishes between project lifecycle (PLC) and product lifecycle and between project management processes and product-oriented processes, and declares both the product lifecycle and product oriented processes, to be out of its scope. However, the interaction between the two lifecycles and processes is lightly addressed (PMBOK, 2013 – p.

48). Here it is noticed that a similarity with the concerns raised by (i) Engwall (2003) and Williams (2005), in terms of the PLC limiting the greater role of project management, and (ii) Morris et al (2006), in terms of the PMBOK adopting a strong project-execution orientation, does exist. However, the question remains whether other levels of project management standards such as program, portfolio and organizational project management cover such concern.

Finally, the standard separates between organizational governance, which "establish strategic direction and (organizational) performance parameters", and project governance, which aligns the project with stakeholder's requirements and fits within the larger program and portfolio context (PMBOK, 2013 – p. 34). This is important because the standard also indicates the necessity of aligning the governance of the project management office (PMO), defined as a compliance and standardization structure, with the organization's governance. Therefore, it would be keen to briefly explore the role of the PMO, an existing structure in the actual organization under study, plays with governance from an organizational point of view to further understand their impact on the effectiveness of project management. This will be done in the second part of this review.

OPM3 (Organizational Project Management Maturity Model):
(OPM3, 2006 – p. 5) defines Organizational Project Management (OPM) as "the application of knowledge, skills, tools and techniques to organizational and project activities to achieve the aims of an organization". In other words, it is the application of project management processes to organizational activities in order to "align" its operations with the "overall business strategy". Nevertheless, the PMBOK (2013 – p. 07) provides a more purposive definition, rather than a descriptive one, where OPM is seen as; "a strategy execution framework utilizing project, program and portfolio management as well as organizational enabling practices to consistently and predictably deliver organizational strategy producing better performance, better results and a sustainable competitive advantage". The later definition is particularly useful for this study as it coincides with previously quoted PM effectiveness definitions provided by the academic research.

The standard also defines OPM maturity as the "degree to which an organizational practices OPM" through the application of "best practices" within project, program and portfolio domains. The maturity measures the organization's progression in "best practices" using three dimensions:

i.   Applying process development stages of standardization, measurement, control and continuous improvement.

ii. Applying single project processes, multi-project (program) processes & high-level (portfolio) processes (namely, PPPM dimension).

iii. The increase of organizational capabilities leading to achieving the best practices associated with the two previous dimensions.

The standard guides organizations into systematically achieving best practice by (i) being self-aware of whether or not their current level of OPM maturity is satisfactory by positioning the organization in a maturity continuum, (ii) planning for and implementing the change required to obtain the needed capabilities and best practice outcomes and (iii) continuously improving the position of the organization on the maturity continuum by entering new cycles of reassessment and the identification of new areas to implement the best practices.

It should be noted that the model requires the organization to use its directory of best practices (there is about 600 of them) after the "first phase of assessment step". The directory contains; the capabilities directory and the improvement planning directory (OPM3, 2006 – p. 32).

Reviewing this standard, the author's attention was drawn towards four issues;

1. The standard highlights the broad meaning of the term "organization" which may refer to the entire form of business or a subset from it i.e. a unit or a department, and that any category of the various organizations can use the standard to improve their measured maturity. However, this segregation is made without any reference to the potential impact it may have on the applicability of the standard. For example, explaining how the application of the *PPPM* dimension (noted above) will be affected if the subset organization implementing the maturity standard is too small to hold programs or portfolios and how this will limit the organization's best practice progression on the maturity continuum i.e. would the model lose its three dimensionality subsequently?

2. The process through which the standard developed the lists of best practices reveals the relation the PMBOK and OPM3 have as main standards with the with program and portfolio standards since they are regarded by PMI (in the introduction of both standards) as an "expansion" of the former two. OPM3 explains how the categorization of the best practices and the capabilities leading to them have led to the association of certain processes to portfolios and program and hence the extension of the PMBOK process groups (of initiation, planning, executing, controlling and closing) onto program and portfolio process levels. This relation supports the limitation set by the author for reviewing only PMBOK and OPM3 standards.

3. It has been noticed that the terms effectiveness and success have been used alternatively in the standard to associate organizational project management to achieving overall organizational objectives which replicates the same synonym issue in academic research, raised in introduction of this dissertation, only this time the case applies in professional literature as well.

4. The standard conditions any best practice to have at least two capabilities (OPM3, 2006 – p. 15). The degree to which a capability is achieved is measured by its tangible outcome, which in turn requires the creation of "quantifiable" key performance indicators (KPIs). At this point, linking project management as an organizational capability to the business excellence models mentioned in the overview in Chapter I, becomes clearer as both operational and change processes become combined through organizational project management to achieve the overall business objectives.

Discussion:

Having demonstrated the main components of the selected standard, it can be said that the project management process groups of initiation, planning, executing, controlling and closing, can be identified as the central concept in PMI standards. PMBOK (2013 – p. 47) clearly states that the application of project management "requires the effective management of the project management **processes**". At the same time, the maturity model shows that maturing in the five process groups through the model's stages of 'process improvement' lead to an increased degree of the organizational project management (OPM3, 2006 – p. 28). In other words, the process groups have dominance over knowledge areas (of cost, time, quality …etc.) which can always by seen distributed and mapped (fitted within) the process groups (see PMI's process mapping figure in the appendix). This dominance is also evident in PMI's recognition for the organization's role in determining which processes, tools and techniques to apply from the knowledge areas but not the process groups which are global and independent of the application area (PMBOK, 2013 – p. 52).

The implication of this finding is that the studying project management effectiveness in the practicing organization should be focused on studying the effectiveness of the project management processes within and between the different process groups. It also implicates that the knowledge areas processes are selectable and case-dependant while the process groups are structural to the process of project management and globally fixed.

Summary:

In this section, the most known project management professional bodies of knowledge were introduced; PMI's PMBOK, APM's BOK and PMAJ's P2M, in addition to IPMA's competence base which can be regarded as larger framework for contextual, technical and behavioural competences in project management. However, only PMI standards were selected for study for reasons which not only justify such selection but also question the breadth and the prescriptive nature of the standards.

On reviewing both the PMBOK and OPM3, it was noticed that organizational project management is promoted by the standard as a framework for the delivery of the "enterprise" objectives more consistently and predictably successful, which connects with the concept of project management effectiveness presented in this study.

It was also noticed that OPM3 targets project management at an organizational level and that the multi-dimensional concept of maturity aims at increasing the organization's overall PM effectiveness through the progression of its PM processes of initiation, planning, execution, controlling and closing, through the different process development stages of standardization, measurement, control and continuous improvement.

Also, some of the concerns raised by researchers about PM standards were addressed to find out that an updated review of these concerns is required taking into consideration recent developments in PMI publications. An integrative view of these standards could reveal a greater responsiveness towards the holistic nature of project management beyond the execution phase of single projects as has been indicated above.

Now that the above view about OPM in professional standards has been established, the subject of organizational project management should be reviewed in literature as well to make the necessary observations.

Organizational project management in literature:

The concept of OPM in literature:

Aubry, Hobbs & Thullier (2007) reviewed the preceding themes of OPM in literature to find that none of them provided "a global approach to organizational project management". The authors proposed a definition viewing OPM as a new sphere of management within the field of management and organizational theory where projects are the structuring components of complex organizations. The authors suggested that in order for OPM to emerge as a global organizational outlook, it should be defined using five founding fields; strategic alignment, program & portfolio management, the project-based organization (PBO), the project

management office (PMO) and the organizational performance – thus making a link between the use of OPM and the strategic objectives.

Reviewing the PBO field, the authors pointed out a limitation in research where a "tendency to focus strictly on the structural problem instead of seeing structure as part of a global organizational process". This observation should be kept in mind during our review of the project-based organization in Part B of this chapter.

Crawford (2006) presented OPM as the current state of evolution in project management concepts, which has developed from firstly, the development of tools and techniques for the management of major projects in the 1960s to, secondly, the vast emergence of many project management standards in the mid-1990s focusing on single projects to, thirdly, the concept of project management as an organizational capability and the emergence of the project management office (PMO) as a theme of OPM. Here it should be noted that Aubry, Hobbs & Thullier (2007) have also emphasized the role of the PMO as one of the "dynamic" structures used to perform OPM. Being of interest to this study, the PMO roll in the project-based organization will also be explored in Part B.

Noticeably, the two articles, supported by many studies reviewed therein, refer to an organizational context where OPM serves as a process to adapt the strategic dynamics of a complex organization. The attempt to levitate OPM to the general theory of management and the theory of organizations, indicate a new shift to focus on organizations in general rather than project-based organizations like the one being examined in this study.

In all cases, the concept of OPM in literature seem to implicate an embedded approach to managing the organizational need to apply and coordinate projects without affecting its organizational setting. Organizational project management can therefore be considered applicable to both project management and non-project management organizations. It can be therefore concluded that OPM3 processes reviewed above, are applicable to our investigated organization.

The OPM discourse:
After comparing two discourses in literature between practitioners with espoused theories of OPM and researchers in the reality of OPM in practice , the findings of Crawford suggest that the second team "show little interest" in themes such as time, cost and quality which usually pertain to stand-alone projects. Instead, they have focused on the *larger* organizational perspective. This finding supports the conclusion reached in the standards review section above about choosing to focus on the global processes, contained within the

process groups, rather than the knowledge areas which were neglected by the researchers interested in the reality of OPM.

The results also suggest that the same team overlooked the ethical issues related to the development of the project management capability due to senior management interest in delivering the desired outcome. Conversely, this study, although can be generally classified as part of the reality-of-practice discourse, take key interest in (i) individuals and the impact of organizational PM processes on their attitudes and how they behave under such influences, from one side, and (ii) governance as a mechanism for ethical control and its impact on process effectiveness (which is covered in the second part of the review). Indeed, the way this study correspond to the different gaps in research is multi-faceted.

Summary:

In summary the subject of organizational project management in literature is relatively plentiful. However, in comparing the observations made about OPM in literature and practice (by reviewing PM standards and academic research), it was found that:

  i.   OPM is generic in nature and is therefore applicable to the different organizational types.
  ii. Adopting PMI's five process groups (of initiation, planning, execution, controlling and closing), as the area for investigating organizational processes in the project-based organization, is supported by the two approaches and is therefore a valid conclusion.

Project management effectiveness (PME):

Introduction:

In this section, two articles will be used to demonstrate two different approaches to defining the concept of project management effectiveness.

The first study, by Morrison and Brown (2004), attempted a holistic approach to defining the broader context of PME by, firstly, linking the different effectiveness models in organizational theory literature to the project management organizations through the identification of shared similarities and, secondly, by extracting a wide range of variables and characteristics of successful project management identified in previous research and then categorizing, scoring the characteristics using expert feedback and rationally grouping the results into a dimensional PME construct. The study was selected for its broad scope and claimed applicability of the construct across the different industries.

Conversely, a very deterministic model for pinpointing the organization's current PM maturity state and, subsequently, improving its project management effectiveness, was selected to

demonstrate how academic research articulates the characteristics which an organization with effective PM practices should bear to assume a given level of process maturity. This study by Kwak and Ibbs (2002) builds on previously suggested process and project maturity theoretical models as well as it does adopt PMI's widely spread knowledge areas and process groups, thus, providing a joint researcher/practitioner methodology to practically identify PM effectiveness in the practicing organization.

Project management effectiveness as a construct:

Morrison and Brown (2004) is perhaps the only article dedicated to the sole purpose of defining a construct of project management effectiveness (PME). The study confirms the fact that project management researchers "could not" find an "objective" measure for project management effectiveness as a "dependent variable". For this reason, the study was found to directly respond to the need in research to identify the dimensions of PM effectiveness which, in absence of such work by Morrison and Brown, would have been a hefty task for any dissertation-level student. The benefit of such conceptualization of the construct of PME could be realized by comparing the dimensions identified therein with the information and observations made so far in this review to reach a verified conclusion on the suitability of such dimensions for the context of this study.

However, prior to introducing the identified PME dimensions, if should be highlighted that the study concluded that:

1. The growth of project management as an organizational capacity necessitate the need for researchers to study the multi-dimensional nature of PME.
2. There is enough material in literature to support construct conceptualization.
3. PME concepts in PM literature share remarkable similarities with prominent models in organizational effectiveness.
4. Researchers should therefore be encouraged to "expand" empirical research in project management using an organizational perspective.

The above points signify the research approach adopted in this study.

Methodologically speaking, the study sets an example for research subjects where the general theoretical foundation of a broad subject is used to draw a conceptual framework, extract a definition and propose theoretical dimensions. In this case, the broad literature of "project success" was used to derive a conceptual framework of project management effectives. The study therefore serves as a theoretical sample to support the research approach used in this study where a much needed definition of the term "organizational

design", from a project management point of view, will be sought in Part B of the literature review.

However, the selection of this article may be opposed for two reasons:

1. The project success literature used in the study is based on single project studies as noted in the article itself, while this dissertation is concerned with organizational project management leading to the assumption that the demonstration of the dimensions extracted by Morrison and Brown is intrusive or irrelevant. However, it has been well established in this review that all project PM levels (namely; single, program and portfolio project management domains) are combined through cycles of interactions, inputs and outputs, under the organizational management process construct populated in the OMP3 standard. Single project success literature therefore present descriptive criteria of the larger organizational project management issue.
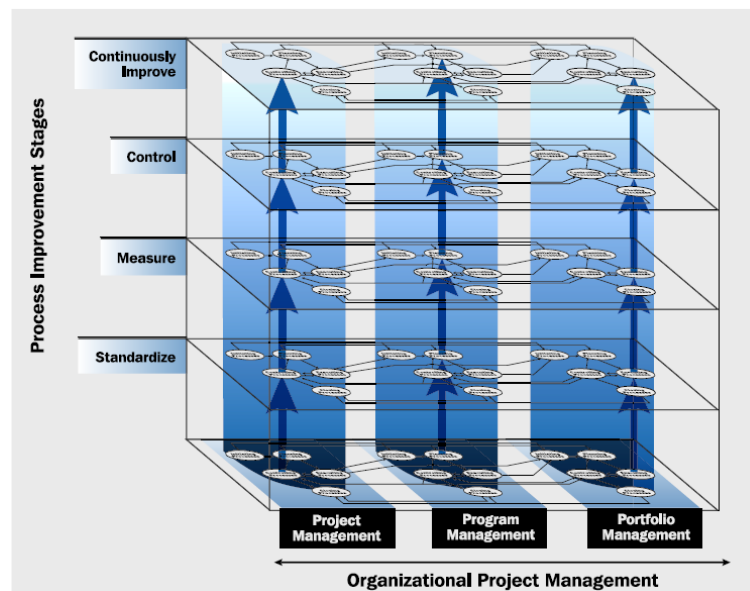
2. It could be claimed that since (i) the study done by Morrison and Brown was based on the synthesis and theoretical categorization of measured success variables and success predictors found in previous academic research, and (ii) the *relativeness* between such findings and the organizational project management in practice, as suggested by this author, could be taken for confusing two methodologies (i.e. empirical and normative) to establish an unfounded link between the two. However, such marriage between practitioner and researcher knowledge corresponds with opinions posed by Colari (2002) and Cicmil et al (2006) – see the epistemological part of this review, to "contextualize" and "make sense" of the subject under study.

Finally, being unable to find sufficient support in the literature for a specific factor structure, the authors suggested four dimension groups, being;

1. Organizational input to project management dimensions group.
2. Project management process and execution dimensions group.
3. Meeting the project management objectives dimensions group.
4. The larger organizations benefit from PM dimensions group.

However, based on examining the individual dimensions included in each group, it was found that the broadness of approach pursued by the researchers did make the construct more generic to different sorts of organizations practicing OPM. However, the same quality makes the scope of construct unsuitable to the specific focus in this study towards project-based organizations (PBO) which exist as a standalone entity and not as a subset or a unit within an encompassing organization.

In fact, the second dimensions group, comprising factors measuring the effectiveness of tools and systems, communications, resource adequacy …etc., can be distinguished from the other groups by referring to the distinction mentioned earlier in the PMBOK standard between project lifecycle (PLC) and the project process groups where the latter is concisely constrained to the boundaries of execution phase of the PLC. Nevertheless, assuming this association between the role of the PBO and a specific phase of the PLC may seem a bit inductive at this stage of research but shall be verified in the second part of literature when more light is shed on PBOs scope and relatedness to the overall project lifecycle.

Project management effectiveness as a maturity process:
In the second article, Kwak & Ibbs (2002) propose a PM maturity process (PM)² to "integrate previous PM practices, processes and maturity models to improve PM effectiveness". The writers confirm what has been mentioned in this dissertation's overview about the PM process maturity originating in quality management theory (Cooke-Davies & Arzmanow, 2002). A number of previous PM maturity models were referenced such as McCauley's (1993) maturity map, Remy's (1997) PM capability analysis framework and Fincher & Levin's (1997) organizational maturity model. What is of importance to this author is the following:

1. Kwak and Ibbs preceded their listing of the models by stating the common purpose of these models being to "improve organizations project management effectiveness", which is identical to the purpose of this study.
2. Kwak and Ibbs model shares a common foundation with Fincher and Levin (1997) in basing their model on PMI's standards which shows another case for researcher-practitioner integration as mentioned above.

3. The (PM)² offers a more comprehensive coverage, than Fincher & Levin's model which adopts the knowledge areas alone, by extending the assessment criteria to both the PMBOK knowledge areas and the process groups. This coverage reflects a greater alignment with the findings in this study from reviewing PMI standards and concluding with the process groups being a central theme in all of the standards. Therefore, the selection of this model will provide a practical interpretation of the project management effectiveness understanding conceptualized in this study for project-based organizations.
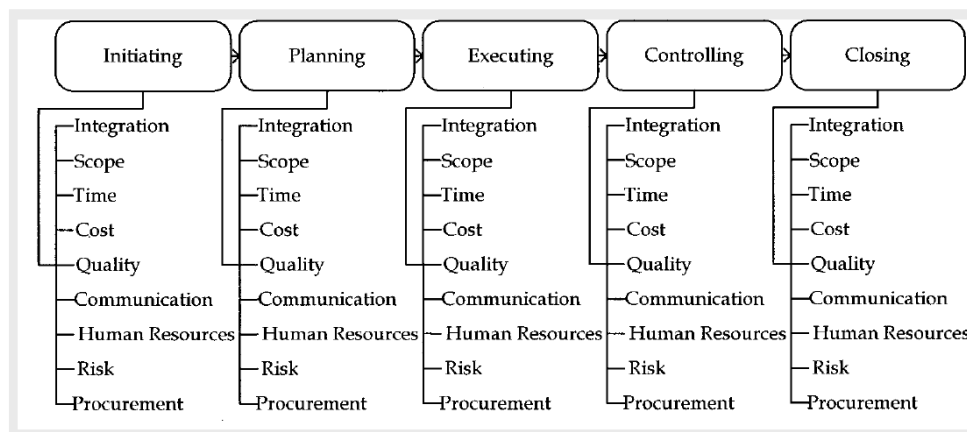
One observation could be made with regard to the structure of the model. Since PMBOK 2013 recognized stakeholders as a distinctive knowledge area, an updated version of the model would be required to address a new set of relative maturity criteria for this new knowledge area. Until the date of writing this dissertation, this 2002 model remains the current version of (PM)². It is also worth noting that the model can be viewed as complementary to PMI's organizational project management maturity model (OPM3) since the latter delineates the processes necessary to achieve best practices using five steps while this (PM)² describes the characteristics an organizational shall assume at each maturity level i.e. the five process maturity steps (see below) and the characteristics of the
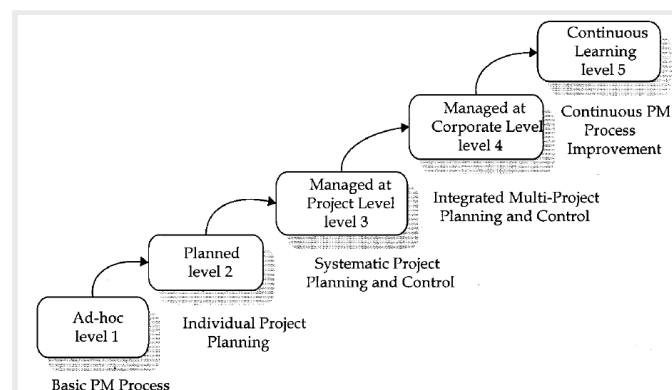
five maturity levels can be matched and integrated.

The (PM)² framework:

The models ranks organizational PM practices into five maturity levels from a state where project management processes are ad-hoc (level 1). The organization then starts to apply basic project planning in individual projects (level 2). At (level 3) a more systematic approach to project planning and project control is applied for all projects. (Level 4) suggests that organization-wide project controls are integrated while (level 5) views the organization's PM capability at its highest as it becomes able to sustain a continuously improved status of PM practice.

Despite the sufficient degree of detail provided for each knowledge area's maturity level, this study will focus only on the five levels of process maturity described for the "project processes", adopting PMI's main process groups of initiation, planning, execution, controlling and closing, for the following reasons:

1. As explained in the standards section of this review, the process mapping provided by the PMBOK reflects the dominance of process groups over the knowledge area as the latter must *progress* through these five stages, or between them since no specific order is dictated by the standard (PMBOK, 2013 – p. 50). This leads to the conclusion that focusing on the model's "project processes" reveals more about project management progress stages in the organization than the knowledge area levels which are discipline focused, not progress focused. The focus of this study stems from its approach to PM effectiveness as *organizational processes* for replicable success over different projects which requires a consistent level of process excellence (Kresner, 2009 – p. 8) and maturity (Kwak & Ibbs, 2000).

2. The criticism discussed earlier for the staged review nature of the project phases in the PMBOK (Engwall, 2003) (Williams, 2005) (Morris et al, 2006), provide a good opportunity to investigate the impact of the organizational arrangement in facilitating the advancement of the project processes from initiation, planning and so on taking into consideration the findings to come in the second part of this review.

The model's five project processes, including the maturity levels, were listed in the table below for later utilization in the investigation. A legible version can be found in the appendix.

A final remark about the model could be made with regard to its generality of application to a wide range of industries (Kwak & Ibbs, 2000) which can be noticed in the descriptions of its processes and maturity levels. However, these descriptions were checked against the descriptions of these carried out in the selected project-based organization and were still found to be relative and applicable. However, these descriptions were slightly modified in the aforementioned table to reflect the organization's processes more precisely.

PM Process Maturity Levels - from the PM² Model						
PM Process	Process Description	Process Maturity Levels				
		Level 1	Level 2	Level 3	Level 4	Level 5
Initiation	the process recognize a project or a phase is authorized, initiate the teams, produce initial project plans	no project initiation process available, thus no teams or units are committed to the project.	projects are initiated based on informal plans and proposals.	project plans are formally reviewed and approved.	project proposal development processes are integrated to manage multiple projects.	an initiation process is optimized and sustained for continuous PM process improvement.
Planning	includes defining overall scope, WBS, project costing and scheduling, risk planning ...etc.	no formal planning. Scope, time, cost, quality, procurement ....etc. plans oftentimes not available	informal scheduling and costing. Informal PM practice area training.	planning is managed by using formal PM tools and techniques. Project team provide input into the planning process.	key PM knowledge areas are integrated into planning process.	the planning process is optimized and sustained for continuous PM process improvement.
Execution	the process coordinates the organization executing the project.	project execution plan is unavailable. Project scope is not verified and project team is not organized.	informal execution plans are defined. Contract administration and informal distribution processes are informally defined.	quality assurance process manages the execution. Project teams actively review the execution progress.	scope plan, scope verification, team development, QA and contract administration processes are integrated into the execution process.	the execution process is optimized and sustained for continuous PM process improvement.
Control	ensures project objectives are met by measuring progress and taking corrective action. It collects progress status, analyze variances and communication status.	project controlling process is not defined or established. change control system is not available. As a result, project progress status is not collected.	project change control and progress data collection is informal.	project plans and adaptive actions control project performance. Project team provide actions and corrections to the controlling process.	project performance data collection, variance analysis and status updates are integrated. All PM knowledge areas' project status communication is integrated.	the controlling process is optimized and sustained for continuous PM process improvement.
Closing	the process ensures formalizing acceptance of the project or phase and brings it to an orderly end. Includes contract close-out, lessons learned and administrative closure.	no formal closing process. Project records are not consolidated, classified and stored.	informal closing is defined. Key technical learning and quality of overall PM process is informally reviewed.	all closing activities are completed and the project files are stored and managed. Best practices are documented with project team.	contract close out, administrative closure and documentation of project file are integrated.	closing process is optimized and sustained for continuous PM process improvement.

Discussing maturity and effectiveness:

The above provides well-defined descriptions for the identification of the organization's current maturity level of a given process. However, a final clarification, of how the distinct areas of the model can be treated as a collective indicator of the organization's PM effectiveness, was sought in the writers' preceding article on the same subject about the previously named "Berkeley PM² model" (kwak & Ibbs, 2000) where two important pieces of information were found:

1. Project management maturity was defined as "a level of sophistication that indicates organization's current PM practices, processes and its performance'. The interesting word, to this author, was "performance" especially that it was mentioned in the article that the model was used on 43 organizations to identify "the relationships between levels of organizational effectiveness and actual project performance data" (note: the study was done back in 1997 through PMI's Educational Foundation).

2. The relationship between PM effectiveness and PM maturity level was studied during the model application by measuring (i) PM *financial* effectiveness, (ii) PM return of investment (ROI) measuring and forecasting the potential benefits of investment in project management (by investing in training for example), and as would be predicted, (iii) the relationship between "PM effectiveness and project performance" in terms of achieving the performance requirements of cost, time, quality …etc.

Based on the above, it can be said that (1) the level of organizational PM maturity can be expected to be indicative of its PM project performance, and that (2) the project performance can be expected to be consistent.

The immediate benefit realized from this clarification is the confirmation of the decision stated in the previous section to use the model's processes and the practice areas.

Another benefit which can be realized during data collection is that enquiring about the organization's state of effectiveness could be verified through collecting clues indicating the matching level of project performance.

For example, the model establishes that an organization at level 3 of the 'execution process' will have a standardized 'quality assurance' process that "manages project execution" (say by having *formal* work progress, inspection and approval procedures…etc.). Now, in order to link the described process maturity level (PML) with the project performance – thus confirming the achieved level of effectiveness, the investigator can take clues from the actual projects to get a sense of the relationship between the PML and project performance. In further detail, if a number of projects with a "formal" execution process (level 3) have types of problems which indicate an "informal" (level 2) or "unavailable" execution process (level 1), then questions about the effectiveness of the process can legitimately be raised.

Thus far, the usefulness of the model in identifying project management effectiveness (PME) have been established in a practical way that is exemplarily for the investigation process. What is remaining now is finding out, as will be attempted in Part B, how PME can be associated with the practicing organization in order to study the organization's impact on PM effectiveness.

Summary:
Project management effectiveness was reviewed as a construct and as a process by selecting two articles addressing the two sides of the subject. It was found that the construct conceptualized by Morrison & Brown (2004) treated the organizational project management concept from an industry wide perspective and have therefore included broader areas of the

project lifecycle from top management support to meeting the projects operational goals. The developed construct was therefore linked to business organizations applying project management more than the project-based organizations targeted in this study.

The second article listed a verifiable set of criteria describing the process maturity level for each knowledge area and project process which, upon assessment, can guide the practicing organization into achieving more PM effectiveness by incrementally progressing in the different maturity levels. It was then deemed that adopting the project processes, adhering to PMI's five process groups of initiation, planning, execution, controlling and closing, shall meet the purpose of this study

Based on the above, the adopted process maturity levels (PML) can be used during the field study where, as illustrated in the previous section, the consistency of the relationship between the process maturity level and project performance can reflect the effectiveness of that process.

Part A Summary:

In this first part of the review, it was important to begin by positioning the study within the academic research field by identifying the different streams of research in project management. The approach selected in this study was found to belong the subjectivist view of project management emphasizing a soft-paradigm integrating normative and theoretical perspectives aimed at improving the practice of project management in project-based organizations.

Project management standards were then generally introduced to make a justifiable selection of which standard to further examine. A number of factual and critical reasons were given to qualify PMI standards for the selection. Two PMI standards, being PMBOK and OPM3, were identified as the main texts which the remaining PMI standards are extended from. Important remarks were found to have been mentioned in the PMBOK about OPM, organizational structure, project lifecycle and governance. These remarks were contrasted with the academic critiques presented earlier to conclude that an updated theoretical assessment is required to revisit the academic stance on PMI limitations of PM scope, the broader PLC (in light of the then newly introduced program and portfolio standards) and the segmented gate reviews methodology (in light of the PBO theory and OPM3 standard in relation to project/organization governance), due to the time lapse between the issue of these critiques and recent PMI standard developments.

The salient finding in the standards review was the identification of the "five process groups" as the central component in both PMBOK and OPM3 standards. Also, it was found that the

process groups dominate the processes of the knowledge areas representing the different project management discipline sects of time, cost, quality …etc. This dominance is most observed in PMI's process mapping. Accordingly, the five process groups we identified as structural to the project management process. These process groups are:

1. The initiation process group.
2. The planning process group.
3. The execution process group.
4. The monitoring and control process group.
5. The closing process group.

Since discussing OPM3 has covered organizational project management from a practitioner's point of view, it was necessary to introduce OPM theoretically. This study was found to be in line with a direction in OPM research focusing on global PM processes which, building on the PMI process findings, can be sought in studying the five standard process groups.

Having identified the nature of the process to be investigated, it was convenient to find out how the effectiveness of such process can be inquired. The construct of project management effectiveness and the characteristics of PM effectiveness were demonstrated using two theoretical samples. It was then concluded that the characteristics of the five "project processes", identified by Kwak & Ibbs (2002), can be adopted for being directly corresponding to the five process groups adopted from the PMI standards. The five project processes are:

1. The initiation process, characterized by five maturity levels.
2. The planning process, characterized by five maturity levels.
3. The execution process, characterized by five maturity levels.
4. The controlling process, characterized by five maturity levels.
5. The closing process, characterized by five maturity levels.

A table containing the full details of each process maturity levels was provided.

Finally, the embedded relationship between process maturity and process effectiveness was clarified using the Kwak & Ibbs (2000) by showing the importance of observing project performance in revealing the achieved extent of PM effectiveness.

<u>Part A conclusion:</u>
The quest for evaluating the impact of organizational design on project management effectiveness created a prerequisite for the identification of the project management

processes in order to determine what to inquire when investigating project management effectiveness in the project-based organization.

The review concluded that the effectiveness of the PBO's project management processes can be examined by investigating the progression of the projects between the different process groups (from PMI standards) using the characteristics identified for each process (from the PM² model).

The subsequent requirement would then be to determine how to *subject* the state of PM effectiveness, once identified during the case study, to the context of the organization. This task will be undertaken in the following part of the review; Organizational Design.

Part B – Organizational design:

Part B introduction:

This part of the review covers two main aspects: the organizational design and the project-based organization. The introduction to the organizational design aspect will be preceded with a historic overview of organizational theory and its development from closed to open systems with more regard to behavioural and psychological factors of the organizational system. Then, the structural dimensions of organizations will be reviewed with an emphasis on bureaucratic unidimensionality which most of the early studies on organizational dimensions used to claim the dysfunction of the closed system. Consecutively, the relation between the structural dimensions and individual attitudes and behaviours will be reviewed to demonstrate how this relationship is related to organizational effectiveness. Upon illustration of the said relationship, the conditions to introduce a study-consistent definition for the term 'organizational design' will be complete. A definition that depicts effectiveness as temporal output of the organization design mode.

The project-based organization (PBO) will also be introduced to determine the theoretical features to be expected in the investigated organization which required good level of distinction between the different PBO types and the structural features imposed by its nature.

This part of the review will then be concluded with identified organizational characteristics to investigate in the studied organization.

The origins of organizational design and its development:

Introduction:

An overview of the organizational schools must be provided to understand how the different theoretical movements shifted during the 20th century in order for us to ensure that our stance from OD theory in this study accommodates the latest developments in the field.

Organizational theory overview:

Turner & Keegan (1999) described the period in the 19th century as the time when the social and technical innovations were about harnessing the power of steam, water and "people". The call for greater specialization to create greater economic value was already founded in early classical management theory writings such as Adam Smith's *economic theory* (Smith, 1776). However, the theoretical developments that followed during the 20th century can be summarized as follows – mainly based on Rainey (2010):

A. Classical Organizational theories:

1. Bureaucracy:

   In 1922, Max Weber referred to his characteristics of bureaucracy (such as: fixed office jurisdictional areas, office hierarchy, documented procedures and managerial competence) as the function of "modern officialdom". Weber argued that bureaucracy provided "superior efficiency, effectiveness and protection to client's rights" as opposed to other forms of authority in the traditional organizations present at that time which were based on aristocratic and charismatic systems. However, this concept of bureaucracy as an ideal type was later empirically challenged to be inadequate (Pugh et al, 1968).

2. Scientific Management:

   Fredrick Taylor presented the principle of scientific management in Taylor (1916) as an outlook for a new mentality of collaboration between workmen and the management for greater gains for both sides. The scientific movement paid a lot of attention to efficiency as evident in the "time-motion" studies and the encouragement of specialization and monetary rewards (Rainey, 2010).

3. The administrative management school:

   Provided guidelines for the organizational effectiveness to all types of organizations emphasizing specialization and hierarchical control through work division and grouping of technically related groups, limiting span of control and the assignment of supervisors.

B. New directions in organizational theory:

These directions can be grouped as follows:

1. Human relations and psychological theories:

   A number of theories can be classified under this group, such as; (1) the motivating factors studies out of the Hawthrone experiments concluding that productivity can be increased by motivation; (2) Maslow's (1943) 'hierarchy of needs' and 'intellectual desires' which control psychological motivation, satisfaction and the need to fulfil one's own potential; (3) McGregor (1957) call for the adoption of an organizational theory where the organization is responsible for arranging the processes and adopting new structures through which people can realize their potential (theory "Y") which is opposing to the conventional view that of works are self-centred, indifferent to organizational goals and indolent by nature (theory "X"); (4) Kurt Lewin's influential work on 'group dynamics', 'force field analysis' and the concept of "unfreezing, moving and refreezing" which have inspired many works in organizational development.

2. Decision making and organizational behaviour:

   Including Herbert Simon's pioneer works on 'bounded rationality' and 'satisficing' which criticized the principles of the administrative management school (Simon, 1946) and economic theorists' assumptions about the rational of the administrative decision making (Simon, 1948). Simon's ideas influenced the development of open-systems and contingency theories (Rainey, 2010), which postulate that organizations are shaped/structured in response environmental uncertainties that must be planned for (Jones, 2013).

3. Organizational sociology and bureaucratic dysfunction:

   This group includes; (1) Merton (1940) and his views of the 'dysfunction' of Weber's bureaucratic principles and their impact on human characteristics such as the creation of (i) 'trained incapacity' by too much specialization and formalization that it makes people take decisions using the rules they are trained to follow even though the solutions may not fit the case every time, and (ii) the 'displacement of goals' as a result of making individuals, or entire departments, have to pursue the application of rules over the organization's overall goals; and (2) Victor Thompson's regard to a condition when bureaucrats become overly concerned with protecting their authority as 'bureaupathology".

C. Recent organizational theory developments:

1. Organizational behaviour and psychology:

   Offering elaborate bodies of theory in work-related attitudes, leadership, group dynamics and organizational development, the organizational behaviour theory

availed far more research than the classic theory can offer to understand the human behaviour in organizations (Rainey, 2010).

2. <u>Organizational theory and design:</u>

This development has taken many theoretical directions on the basis of the contingent view of organizations as adaptive systems where the organization's design responds to internal and external factors. Studies adopting the contingency theory view of organizations concluded that organizational structures were different depending on the operating environment (Burns & Stalker, 1961) and the technological requirements of the work (Woodward, 1965). Studies also found that the top performing company structures' differed in complexity depending on the level of uncertainty and predictability in the surrounding environment (Lawrence & Lorsch, 1967). The open system view of the organization observed that classic systems ignore the feedback cycles from the environment which are necessary for survival (Katz & Kahn, 1966). But even in open-system organizations, the closed-system conditions may be recreated by the "dominant coalitions" within these organizations to control the environmental complexities encountered (Thompson, 1967).

Discussion;

From the quick narrative above, it can be summarized that the traditional systems of an industrial world order advocating a mechanistic ideation of the organization was supplanted by a unidimensional (Reimann, 1973) envisagement of the bureaucratic skill-based principles. However, the closed-system view bear within the bureaucratic theory lacked sufficient adaptation mechanisms to internal and external changes and challenges (Turner & Keegan, 1999) and soon came about the contingent view of organizational systems to replace it.

The overview shows that recent developments in organizational theory relied on two main pillars of criticism to invalidate the classical theory; (i) the organizational structure and its dimensions (Pugh et al, 1969; Burns & Stalker, 1961; Woodward, 1965; Lawrence & Lorsch, 1967), and (ii) organizational behaviour and psychology (Katz & Kahn, 1966) (James & Jones, 1976) (Simon, 1946) Merton (1940) by placing their focus on the people carrying out the work, not the system. Both pillars, structural and behavioural, were categorized by Rainey (2010) under the organizational design (OD) school.

Next, organizational dimensions and the impact of the organizational design on organizational members will be reviewed. The collected insights shall be very instrumental in identifying the organizational aspects to inspect during the case study. It is planned that this purpose shall be fulfilled by firstly inquiring the main characteristics of organizations, then

inquiring about the project-based organization function, characteristics and design forms to make the necessary observations about what to consider in the case study.

Organizational structure dimensions:

A quick look at 'Bureaucracy':

The characteristics of bureaucracy are generally: (1) well planned hierarchy of authority, (2) division of labour based on specialization, (3) a system covering rights and duties, (4) written work procedures, (5) impersonality of interpersonal relations and (6) selection and promotion of employees based on technical competence – from James & Jones (1976) citing Hall (1963).

However, it can be said that the Weberian view of organizations was developed based on an ideal vision for the characteristics of a 'pure bureaucracy', not on an existing organizational form (McKenna. 2012). The words come in defence of the model out of fairness after delineating its disadvantages. These could be summarized as follows:

1. 'Goal displacement' and 'trained in capacity': both disadvantages were mentioned during the review above out of Merton (1940).

2. Conflict: giving people highly specialized tasks could spread feelings of alienation and discontent leading, along with lack of challenge and novelty, to increased dissatisfaction and increased employee turnover.

3. Informal organization: the bureaucratic model neglected the importance of the informal work groups where another level of coordination and decision making takes place outside the formal communication channels. Also, the informal organization is responsible for creating organizational norms that affect the way work is processed. Understanding how the interactions between members of the 'informal social structure' may affect the formal hierarchy of structure, is therefore important.

4. Extreme division of labour: this factor of bureaucracy is challenged by today's technological advancement where multi-tasking teams are needed making high division of labour very hard to apply.

5. Relevance: the model is viewed as more relevant to public organizations than commercial and private organizations where more flexibility is required.

6. Impersonality: the impersonalization of the organizational roles could cause frustration with the bureaucratic system due to 'the lack of a human face'.

7. Adaptation: managers may resist structural and procedural changes imposed by environmental challenges to maintain their authority resulting in a propensity for 'conservatism' that impedes organizational development.

Criticism similar to the above and more gave a rise for new directions in organizational theory which the following section is ought to explore.

Organizational structural dimension - the bureaucratic dysfunction view:

Kimberly (1976) mentioned that the "structuralist perspective" to organizational studies revolved around three questions: (1) what are the relationships among the structural characteristics of organizations? (2) What are the determinants of variability in the structural characteristics? (3) What are the consequences of structural variability for variability in organizational outcome? This section will attempt to shed the light on the first question only to obtain a sufficient understanding of the organizational dimensions, their relatedness and their impact on the organizational members.

A prominent study by Pugh et al (1969), known as the Aston group study, will be used among other studies to explore the characteristics of the organizational structure and demonstrate the conclusion that "the concept of the bureaucratic type is no longer useful". James & Jones (1976) thought of this study as "one of the most comprehensive and informative attempts to identify dimensions of organizational structure". They added: "the Pugh et al study was therefore adopted (in their review) as a prototype on which to base a synthesis of organizational structure studies".

The importance of the study came from:

1. Its reliance on multifactor analysis to demonstrate that the "concept of bureaucratic type is no longer valid". The researchers leaned on comparative data analysis of five priori dimensions, widely researched in literature, to provide a solid ground for organizational studies, which in absence of such foundation would remain "haphazard and… dubious".

2. It provides empirical support for aspects adopted in this dissertation with regard to organizational structure – the study was conducted on fifty-two organizations using sixty-four scaled component variables.

3. The study gained a higher degree of generalizability and construct validity when it was replicated by Inkson et al (1970a), Inkson et al (1970), Greenwood and Hinings (1974), Child (1972), and Grinyer & Ardekani (1980) – despite the fact that the results in the last two studies were in favour of the bureaucratic system.

4. The study therefore serves as a time saver by making it possible for this author to concentrate on the inferred results rather than having to firstly discuss the dimensions of organizational structure themselves, specially that the primary area of

research in this study is project management effectiveness and aspects of the organizational theory related to the it, not organizational theory in entirety.

The five dimensions of organizational structure:

The five dimensions of structure selected (as *a priori*) were: specialization, standardization, formalization, centralization and configuration. A brief description of each dimension, along with relative material, will be provided hereunder, followed by a summary of the dimensions and their implication for the directions in this research.

Specialization:

The study defines specialization briefly, for having been covered elaborately in the writers' previous work, as the "division of labour within the organization" and "the distribution of duties among a number of positions". However, Jones (2013) refers to the process of establishing and controlling the division of labour and degree of specialization in the organization as 'Differentiation'. In Jones, differentiation is represented as a design challenge which needs to be balanced with 'integration'. The contradictory relationship between the two, thus the need for balance, was examined in Lawrence & Lorsch (1967) where (i) differentiation was defined as "the state of segmentation of the organizational system into subsystems…", and (ii) integration was defined as "the process of achieving unity of effort among the various subsystems in the accomplishment of the organization's task". Going back to Jones, it can be seen that Pugh et al (1969) definition of specialization fits directly with Jones (2013) definition, of not only differentiation, but particularly, the definition of 'horizontal differentiation' – the grouping of organizational tasks into roles, and roles into subunits (divisions), to enable people become more specialized and productive and to increase the organization's "ability to create value". Alternatively, Mintzberg (1979) and Litterer (1965) can be referred to for having identified 'vertical specialization' as the separation of the work performance from the administration. Apparently, vertical specialization distributes authority along the hierarchy lines while horizontal specialization divides the work groups task-wise.

Also, it should be noted that Lawrence and Lorsch hypothesized that effective organizations "would be both more highly differentiated and more highly integrated than less effective organizations". They also highlighted that the differential changes, dictated by technological advancements, may apply to some 'subsystems' more than others, forcing the administrators to adopt more differentiation, which creates a greater need for more integration. Here it seems to this author that differentiation is a mechanism of specialization while integration is a mechanism of task coordination. Some of the integration mechanisms mentioned by Jones (2013) were: direct contact, liaison roles, creation of temporary teams

like 'task forces', permanent teams like 'committees', and even, the creation of permanent structures like 'new departments' to coordinate different divisions i.e. by differentiating the organization.

A behaviour that needs to be looked out for, as a possible result of horizontal differentiation/specialization/unit-segmentation, is 'subunit orientation' which creates "a tendency to view one's role in the organization strictly from the perspective of the timeframe, goals and interpersonal orientations of one's subunit" (Jones, 2013). A relative observation can be made here about the 'displacement of goals' mentioned previously in the organization theory review where a behaviour, similar to subunit orientation, was observed by Merton (1940) in bureaucratic systems, due to the increased *specialization* and *formalization*.

Standardization:
Pugh et al explained that 'standardizing procedures' (defining and specifying the actions and circumstances encompassing an organizationally legitimized event) is the core of operational problems in organizations. The challenge raised here by Jones (2013), is that using too much standardization to control behaviour by setting tight instructions for employees on how to perform their roles and responsibilities, could "stifle" innovation and make decision making more inflexible leading to less organizational performance i.e. reducing its overall effectiveness, hence the need utilize 'mutual adjustment' more effectively by taking judgement-based decisions apart from the standardized rules.

Alternatively, 'mutual adjustment' can be used along other approaches to enhance standardization, such as; (1) direct supervision, (2) standardization of employee skills and their work input as a result of training, (3) standardization of work processes until routine tasks are carried out in a conspicuously uniform way, and (5) standardization of outputs as a result of points (3) and (4) – all of which are part of Mintzberg's five coordination mechanisms (1979).

Formalization:
Formalization can be defined as the extensiveness of rules and formal procedures and their enforcement (Rainey & Bozeman, 2000). A high level of formalization seem to imply a high level of *centralization* of authority (Rainey & Bozeman, 2000) while a lesser need for documentation in an organization reflects that a dynamic process of decision making is involved (Jones, 2013). The implications of formalization on the organization are more paradoxical as Schminke, Ambrose & Cropanzano (2000) explain. Form one side, highly formalized systems are more consistent and therefore increase the employees' perception of

fairness. However, on the other side, strict formalization may result in what is known as the 'legalistic organization', (Bies & Tyler, 1993), where the managerial discretion in decision making is inhibited by the rules-bound organization leading to less effectiveness. This behaviour is similar to the 'trained incapacity' behaviour observed by Merton (1940) in the organizational theory review above. The difference is obviously that the former term describes the organizational condition while the latter describes the status of attitude.

However, an unwritten from of rules and their impact on organizational effectiveness should not be disregarded (namely organizational norms). The power of informal norms lies in their ability to regulate group behaviour and produce "agreed-upon" standards of behaviour which may promote or reduce performance (Jones, 2013) – for example by (i) not allowing new employees to break the informally agreed rate of production or (ii) not leaving the office until the work is done.

An important study that signifies the role the informal norms play in making an organization effective or dysfunctional, is the one conducted by Balthazard, Cooke & Potter (2006). The researchers used a validated survey to collect and analyse data from more than sixty thousand respondents to "understand the relationship of an organization's culture to its efficiency and effectiveness". The researchers reported that 'constructive norms', ones which promote achievement-oriented and cooperative behaviours, are positively and significantly associated with organizational variables such as role clarity, quality of communication and job satisfaction. They also found that 'defensive norms', ones which create pressures for passive styles (being dependent on others to do the work or avoiding being in charge and taking responsibility) and aggressive styles (for example when (i) managers become power-oriented thinking they will be rewarded for controlling subordinates and responding for superiors demands and (ii) people compete internally to out-perform each other rather than performing as a team), are positively associated with behavioural conformity (the extent to which employees are required to think and behave). In other words, the more the organization dictates behavioural norms, the more its members will become conflicting, uncooperative, hostile to each other or indifferent to the work environment, thus predictively, the organization will be less effective.

The highlight of this organizational dimension (formalization), is that not only the degree of conformity to written rules should be considered when studying organizational effectiveness, but also the organization's norms and unwritten rules.

Centralization:

"Who is the last person whose assent must be obtained before legitimate action is taken – even if others have subsequently to confirm the decision?'. This was the Aston group's question to determine where the 'locus of authority' is located in an organization. Jones (2013) defines centralization as "an organizational setup in which the authority to make important decisions is retained by managers at the top of the hierarchy". Hage and Aiken (1967) noted that centralization is not only about the concentration of power within the hierarchy of authority, but, having another subcomponent, is about letting others participate in decision making in issues related to setting departmental policies, hiring, promotion …etc. Schminke, Ambrose & Cropanzano (2000) cited that the increased participation in decision making gives organizational members 'process control' (a voice) while increase discretion in decision making gives them 'decision control' (a choice), which are two attributes of 'procedural justice'. In other words, less centralization leads to increased perception of procedural fairness, which, in turn, increase positive employee participation and organizational effectiveness.

Configuration:

This fifth and last dimension is defined by Pugh et al as "the shape of role structure". It describes the height and width of the organization as reflected in the organizational chart i.e. its organizational structure. If an organization creates a long hierarchy or inappropriate spans of controls, it would suffer a number of problems. As Jones (2013) have cited, a tall hierarchy, with many vertical levels, could weaken coordination and hinder communication, result in distorting information by (i) subjective interpretation during transmission, and, in some cases, by (ii) deliberately manipulating the information to lead others into certain actions by either restricting or selectively feeding information to organizational members (Pittegrew, 1973). Direct supervision (a coordination mechanism mentioned in the specialization section above as well) is important for controlling subordinate behaviour and achieving desired outcome using appropriate spans of control. Span of control (the number of people directly monitored by one supervisor) could be influenced by a number of factors such as; job complexity, physical proximity of subordinates, the managerial style and the extent of *formalization* and *specialization* (McKenna, 2012).

Back to the study, the factor analysis (maximizing the shared portion of the variance) revealed to the Aston group four underlying dimensions of organizational structure, being:

1. Structuring of activities:
   Including variables for standardization, specialization and formalization. The dimension proofs to be an 'operationalized dimension', not an abstract type, which

can be applied to not only the administrative hierarchy as viewed in Weber's model, but also to clerical and shop floor activities.

2. <u>Concentration of authority:</u>

   This dimension measures the direction of 'dispersed authority' between the chain of command and other works, where the weighting (in the scale) is affected by the percentage of the chain of command meaning that the bigger the size ratio of the line of hierarchy, the more weighting the concentration of authority will be despite the basic assumption that specialization is in the direction of 'dispersed authority'.

3. <u>Line control of workflow:</u>

   This dimension is categorized by different factors. An example is the bipolar factor (with 'standardization of procedures' controlling personnel selection and advancement on the positive end of the scale and 'non-standardization of workflow control' on the negative end), a high score in this factor not only shows that the organization *does* standardize it procedures for selection and advancement, but also that it *does not* standardize its procedures for workflow control (since the negative side of the scale is reversed resulting in a high score for the bipolar factor collectively). The bipolar factor thus measures to variables at the same time.

4. <u>Supportive component:</u>

   Measuring the amount of activity auxiliary to the functions in an organizational structure i.e. the size of the supportive function units like legal and personnel to primary function units like production and R&D in a manufacturing organization, for example.

Moreover, it should be mentioned that the following replications of the Aston group study showed varying results ranging from confirming the conclusion that the bureaucratic model is invalid (Indik, 1970), to others concluding the opposite (Child, 1972) & Grinyer & Ardikani (1980). Therefore, the priori dimensions of organizational structure were deemed sufficient for the exploratory purpose of this research – namely; specialization, formalization, centralization, standardization and configuration, due to:

I. Their wide spread in the literature as previously mentioned, and;

II. The fact that it can be claimed that the four 'underpinning dimensions of organizational structure' concluded in the study are bound by the factor analysis coming from the sample surveyed thus limiting its generalizability which is also evident in the results of some of its own replications.

In addition to the five dimensions listed above, the dimension of "organizational size" was adopted from James and Jones for its wide spread and acceptancy in literature as an organizational dimension, as demonstrated by the two authors.

Observations about the structural dimensions:

Apparently, a number of significant observations can be extracted from the above review where information about the structural dimensions of organization were demonstrated using the findings of different authors in conjunction with our review for the Aston group study. These observations are:

I.   The different organizational dimensions seem to be interlinked and interacting with each other, take for example, concluding that high standardization and formalization correlate with high centralization, or assuming that, specialization can lead to less centralization by Pugh el al (1976), or that, formalization can be associated with configuration and the span of control as noted by McKenna (2012), and so on. These dependencies signify the importance of balancing the organizational design, on an ongoing basis, to enable the organization to function properly and achieve effectiveness continuously.

II. The dimensions also seem to have many influences on human attitudes and organizational behaviour – take for example, the frustration caused by extreme specialization and the cultivation of subunit orientation due to high horizontal differentiation (Jones, 2013), or, the impairing of effective decision making by exhaustive formalization leading to creating the 'legalistic organization' by the 'trained incapacity' (Bies & Tyler, 2013; Merton, 1940) – all of which may affect organizational effectiveness negatively.

Indeed, these influences support the existence of another level of interaction inside the organization, not only in between its 'descriptive dimensions of structure' (as labelled in the Pugh et al study), but also with the social structures represented by the people embodying the organization. This interactive nature between structural and social attributes of the organization and their collective effect on performance and organizational effectiveness, as indicated in Chapter I of this dissertation, are therefore recognized as an important area that is due for further exploration subsequently.

Summary:

The purpose of reviewing organizational dimensions in literature was to provide theoretical basis for studying project management organizations from a socio-organizational point of view, in order to assess the impact of our studied organization on its function i.e. project

management. So far, we have seen that the academic research is inconclusive about the number, measures and interpretations of these dimensions. However, a clear link was observed between the descriptive characteristics of the organizational structure and human psychology leading to an impact on the organization as a whole.

After identifying six organizational dimensions: (1) specialization, (2) formalization, (3) centralization, (4) standardization, (5) configuration, (6) organization size; it is time to establish if and how these dimensions influence individuals behaviour in particular since it is the intention of this research to investigate a project management organization by interviewing a sample of its individuals. Establishing a theoretical link between employee attitudes and organizational characteristics will provide sufficient basis for the analysis and interpretation of the data collected from these individuals in a first step to understand how the overall organizational design affects the effectiveness of project management process.

Next to the individual attitudes.

Organizational dimensions and individual attitudes:
Introduction:
In the previous section, it was seen how the absence of consideration for the psychological and behavioural factors have led to the regression of the classic organizational theory. It is therefore assumed that reviewing individual attitudes and behaviour will assist in exploring the importance of the social structure in achieving organizational effectiveness.

In 1976, a comprehensive study by James and Jones was attempted to identify the conceptual relationship between organizational dimensions and individual attitudes. The significance of this study hinges on its articulate and systematic methodology to conceptualize such a theoretical relationship. First, it beings by discussing the rationale underlying the development of the organizational structure. Second, it provides an extensive synthesis of related studies on the construct of organizational structure as well as the methods used and the critiques of these constructs. Third, the researchers review the interrelationships between the identified dimensions before, fourth, exploring the relationship between structural dimensions and individual attitudes. The interest of this study shall be served by addressing the third and fourth points. The study shall be introduced below as a theoretical sample to show the well-established theory behind the suggested link in this study between organizational structure and individual behaviour.

Also, and more importantly, the findings of the researched impact of organizational size, standardization, formalization and specialization on individual behaviour, reviewed in the study, will be taken as a direct input into developing the case study interviews.

The conceptual relationship between organizational
structure and individual attitudes and behaviour:

The writers demonstrated that the dimensions of organizational structure have long been associated with attitudes and behaviour. Take for example Lichtman & Hunt (1971) observation about the classical and modern organizational theorists sharing the same view on the social structure of the organization as primary determinant of "differential human characteristics", or, Bennis (1969) who identified behavioural and social dysfunctions of bureaucracy (deterring the development of mature personalities, encouraging group think, neglecting conflict resolution …etc.). Nevertheless, even these criticisms have been rightfully criticized by James and Jones for making global assumptions about the organizational structure and their relationship with individual attitudes and behaviour since these interactions do not necessarily fall straight into one side of the theoretical dichotomies between bureaucratic & non-bureaucratic, theory X & theory Y …etc.

However, the rationale underlying the relationship between structural dimensions and attitudes as two sets of variables, with possibly other moderating variables – as evidenced by Porter & Lawler (1965), was found by the two researchers to be applicable under the Indik (1968) linkage model. The Indik model divides organizational components into seven panels (Panels 1 & 2 containing overall organizational structure and process, Panels 3 & 4 replicating previous panels at subunit level, Panel 5 includes a set of individual characteristic measures and variables, Panel 6 includes a set of organizationally related individual behaviour variables, and finally, Panel 7 embedding the previous panels under a cluster of organizational environmental variables. The model postulate that the relationship between 'non-adjacent' panels can be moderated by variables in intervening panels (for example, the subunit processes panel can be moderated by variables in the overall organizational structure panel). This concept is key, despite not empirically proven, to questioning studies assuming a linear relationship between organizational and individual characteristics. The writers hence proposed a comprehensive (integrated) model "from the stand point of open-system concepts of interrelatedness, interaction and dynamicity" and based on previous research and whereby the relationship between "the tallness or flatness of an organization and individual attitudes could be mediated by and /or interact with" the overall and subsystem structural measures as well as the organizational context (processes, norms, values …etc.).

The above reveals three main points, which are:

1. The conceptualizing of an interactive linkage model for the relationship between the variables of organizational dimensions (structural and individual) remains, despite being theoretically sound, speculative and lacking empirical validation. However;

2. The relationship between organizational dimensions and individual attitudes can be moderated by contextual variables as provided under James and Jones proposed model.

3. An observed behaviour could be influenced by a single structural dimension or more. Therefore, the use of the term 'structural characteristic' is suggest to be more accurate in providing for such possibility. An observed behaviour could therefore be the result of that structural characteristic.

The above conclusions are very elementary for this study due to the fact that the organizational context under investigation is dominated by project management processes. An integrated model based on open-system dynamism allows for the impact of organizational design on project management effectiveness to be established on justifiable theoretical basis.

The impact of organizational dimensions on individual attitudes and behaviour:

As a result and in hope for providing an "impetus for organizational researchers to adopt integrating models", James and Jones provided examples of previous studies "exemplifying the beginning of integrating models". The studies presented basically addressed the impact of organizational size, formalization, standardization and specialization on individuals' behaviour, which this author have summarized in the following table:

	Models of Dimension and behaviour Impact:	Authors:
	Organizational size:	
	- Increased subunit size leads to low group cohesiveness, high task specialization and poor communication. - The above subsequently leading to need dissatisfaction, high employee turnover and absenteeism.	Porter & Lawler (1965)
	- Increasing size increases communication process and task specialization resulting in lower satisfaction.	Indik (1972)
	- Increased size leads to larger number of subgroups with bifurcation of interest and	Bass & Barrett (1972)

	increased conflict.	
	- Increased size leads to more subgroups with bifurcation of interest, sub-goal internalization, role conflict between subgroup role and organizational role.	Forehand & Gilmer (1964)
	- Larger organizations adopt long span of control, tall management hierarchy and accordingly communication and interpersonal relations issues.	Payne & Pheysey (1971)
	- Increasing unit size leads to greater work differentiation, delegation of authority, participation in decision making and increased effectives.	Mahoney et al (1972)
Formalization and standardization		
	- Lack of formalized role description leads to role ambiguity and role conflict.	Hickson, 1966; House, 1971; House & Rizzo, 1972; Pheysey, Payne & Pugh (1971)
	- Role ambiguity and conflict lead to dissatisfaction and dysfunctional behaviour. - Low formalization, lack of standardized procedures, role ambiguity and conflict can be moderated by leadership behaviour (by providing structure in ambiguous situations).	House, 1971; House and Rizzo, 1972)
	- Low formalization and low standardization leads to high role ambiguity and role conflict leading to low motivation, low satisfaction and low performance.	James and Jones (1976)
Specialization:		
	- Division of labour leads to creation of specialized subgroups and sub-goal internalization, bifurcation of interests and organizational conflict.	Corwin (1969)
	- Subgroup orientation provides source for role conflict.	(Forehand & Gilmer, 1964; Kahn, 1964; Kahn et al, 1964)
	- Incongruity of personnel across subunits is a	Walton & Dutton, 1969)

	source for conflict.	

The above table demonstrates the influence of structural dimensions on behaviour. These behaviours are therefore *indicative* of the structural characteristics potentially influencing them. Based on this conclusion, identifying the behaviours of the organizational individuals can be used to compare the structural characteristics theoretically associated with them and the observable characteristics of the investigated organization to validate the theoretical association and analyse the case study.

Summary:

Identifying the structural dimensions of organizations allowed for the exploration of their relationship with individual attitudes and behaviour through a conceptual model integrating their variables with variables of the organizational context. This relationship was found to allow for the verification of the structural characteristics through their indicative associations with the structural dimensions.

Furthermore, the theoretical link between project management process in an organization and its performance, affected by its organizational characteristics and resulting attitudes and behaviours, can therefore be established as interrelating variables interacting within the organizational system.

These findings will facilitate the later conclusion of Part-2 of this review by two means:

1. Providing sufficient basis to identifying the term 'organizational design' from a process effectiveness point of view. This definition shall serve as a labelling description for the otherwise extended expression of: "organizational structure dimensions, processes and the affected individual attitudes and substantiated behaviours".
2. Allowing for a tailored view of the project-based organization, its structure, processes and challenges. Doing so shall concentrate the development of the case study interviews based on this particular form of organizations rather than the general perspective discussed so far.

Organizational design:

Jones (2013, p. 9) introduces organizational design (OD) as the means for increasing organizational effectiveness and the shaper of the organizational members' response towards the external environment as well as their individual and group behaviours. The

author defines OD as "the process by which mangers select and manage aspects of structure and culture so that an organization can control the activities necessary to achieve its goals". Csaszar (2012), however, describes organizational design as an emerging field specifically devoted to "studying the links between environment, organizational structure and organizational outcome". Furthermore, a five-years-long longitudinal study was published by Glick et al (1990) to strongly reflect the relationship between change in organizational design and effectiveness (CODE), particularly how organizational design, context and leaders can affect change in organizations. However, these examples, while testifying for the embeddedness of organizational effectiveness and organizational members' relationship, still do not reflect the approach adopted in this study.

Organizational design definition:

In the beginning of this dissertation, it was signalled that a more descriptive definition will be needed to concisely articulate the relationship between the 'functional and social structures of an organization', from one side, and the 'organizational effectiveness', from the other. The need for a more relevant definition was supported by:

(i)   Illustrating the research need to link between the organization's macro and micro characteristics (Katz &Kahn, 1966),

(ii)   The view of the organizational structure as a disseminator of organizational culture and behaviour (Jones, 2013 – p. 196; Janicijevic, 2013; Lichtenstein & Brain, 2006), which was demonstrated in the second part of this review using a number of studies about the impact of structural dimensions on individual attitudes and behaviour, and

(iii)   By the literal implication of the term "organizational design" as a deliberate process, which is evident in the recent definitions provided above by Jones (2013) and Csaszar (2012), and which can also be captured in Mintzberg (1979) notion that "design" assumes direction, the ability to alter a "system' and affecting how the organization function.

Accordingly, it is postulated in this study that if we are to inquire about the status of organizational effectiveness, then the term "Organizational Design" should be defined as:

"Organizational Design is a modal description of the interactive characteristics, of the organization's hierarchical and social structures, responsible for its current state of effectiveness, which can be studied by analysing its active 'structural dimensions' and their 'substantiated attitudes and behaviours'

coalescing to either promote or impair organizational processes and overall ability to function effectively"

The above definition explicitly dictates the following:

1. Organizational design reflects the status of organizational effectiveness.
2. This status (of effectiveness) changes continuously due to the ongoing interaction between the organizational mechanistic and social structures, thus requiring continuous attention and redirection in order to maintain the desired state of effectiveness for, otherwise, the result could be the decline of the organization (Jones, 2013 – p. 15). The statue of organizational effectiveness is therefore temporal depending on the '*mode'* the organizational design is at.
3. A desired mode of 'organizational control and effectiveness' can be achieved and endured by continuously reviewing and analysing the organizational processes and operations within which the structural and behavioural characteristics of the organizational status are reflected. This point connects directly with the discussion in this study about OPM maturity models and the stages of process improvement in the OPM3 model, suggesting a link between organizational effectiveness and project management effectiveness through organizational design.
4. The organizational process review shall cover both the organizational outcomes (process outputs) and human behaviours, noting that the 'process review' principally entails the pre-existing of a sufficient knowledge base about the function being performed by the organization and the theoretical background it comes from i.e. the knowledge about *project management* processes in experience and in theory, in our case. This assumption highlights the importance of the review subjects covered in Part-1.
5. The reviewed data can then be analysed based on integrated theoretical perspectives combing organizational theory with theories of the practiced function. Similar to the point above, the breadth and depth of this review is highlighted again.

In addition, the tailored definition for the term 'organizational design' above and the points derived from it suggest that the particulars of the investigated organization should be distinctively identified, as a final task in this review, in order to:

1. Tailor the case study to the nature of the organization investigated and confining the area of research. This shall serve as a final lens to a focused research methodology meaning that the scope of the case study, area of investigation and type of questions can be more deductively identifiable.

2. Link this part of the review, addressing organizational design, with the first part, addressing project management effectiveness, by adding a layer of '*project management*' to the subject of organizations under review by looking into the *project-based* organization.

3. Signify the importance of the type of the organization selected for study – as indicated in the first chapter of this dissertation by bringing out its distinctive qualities.

Therefore, the project-based organization will be explored next.

The project-based organization:

Introduction:

In this area, attention will be directed towards the organization under investigation by clarifying its typological distinction from other organizational forms. This is essential to conclude with necessary notes about the 'public project-based organization'.

The distinction between public and private organizations:

The nature of an organization as a public one, be it state bureaus, schools, firms ...etc., is normally designated based on government ownership (Hickson et al, 1986). However, many specialists agree that the distinction between public and private organizations remains a research controversy (Rainey, 2009 – p. 50; Perry & Rainey, 1988).

Examples for the sought distinctiveness can be found in economists and organizational scientist writings:

i.   Rainey (2009 – p. 11) cited a number of economic researchers concluding that the absence of economic markets for public organizations outputs makes them "more bureaucratic, inefficient, change resistant and susceptible for political influence, than private firms" – see for instance (Barton, 1980; Downs, 1967; Niskanen, 1971).

ii.   Mintzberg (1979) noted that the most common feature among all public organizations is that their works are routine, simple and repetitive which gives the way to laying a highly standardized work process. Based on this characteristic, Mintzberg labelled public organizations as "Machine Bureaucracies" following the Weber's description for bureaucracy with its standardized processes, technical competence principles, identified communication channels and work rules. Bureaucratic machines have an 'operating core' and an 'administrative component'. The core runs a highly rationalized work flow with simplified repetitive tasks. The high differentiation of these simplified and limited tasks, both vertically and horizontally, in a constrained work flow fashion leads to a 'sharp division of labour' and the emergence of 'formalization of behaviour' as the key design parameter of the machine bureaucracy. The

operating core is isolated from the external environment through the tight regulation from the administrative component which is usually large and extended to allow for the principle of direct supervision and control using sharply differentiated functional units. Here it can be said that our previous review of the history of organizational theory and the structural dimensions have paid its results by making the descriptions of Mintzberg's machine bureaucracy possible to be made concise with an attained level of familiarity in light of the previously covered material.

However, as Rainey & Bozeman (2000) have concluded, the converging findings of empirical research about the public-private distinction is similar to that in research about the impact of the structural dimensions on performance i.e. inconclusive, leaving the researchers divided about how to assess such findings.

In practice, it is evident that major organizational theories (such as Max Weber's bureaucratic principles, Fredrick Taylor scientific management techniques, organizational sociology and behavioural theories rising from Theory Y by McGregor and the Hawthorne studies – all of which have been mentioned in the organizational theory development brief), are being applied today in both public and private organizations alike (Carnevale, 2003). This uniform application of organizational theories across the public-private dichotomy border supports the null distinction between the two types.

As far as this study is concerned, it was important to learn from the wide reviews conducted in the articles featured above, that comparing the two types has often relied on either comparing organizational structures or assessing the impact of structural dimensions on performance. Acknowledging the limited scope of this study, clarifying the distinctiveness of the public over private organizations is not the challenge posed by the phenomenon under investigation but rather it is the assessment of the *public* organization's impact on PM effectiveness that is sought. The bureaucratic features of public organizations identified by Mintzberg (1979) in this section in addition to other characteristics (behavioural and structural) inferred or induced by other researchers reviewed in this dissertation, shall be considered as sufficient theoretical basis for making observations during the analysis of the case study in the final chapter.

A final note could be added about the distinctiveness of this study being conducted on a public organization by sharing its contribution with the current debate about public and private organizations.

The distinction between temporary and permanent PBOs:

In order to appreciate the distinctiveness of the *permanent* project-based organization, this section will be dedicated to exploring the nature of the PBO's process, structure and challenges, particularly as a structurally-independent public project-based organization.

The Project-based organization:

The "functional hierarchical line management" formed the main organizational paradigm for almost two centuries until the inception of project and process based approaches in the 1950s (Turner& Keegan, 1999; Turner & Keegan, 2000). Actually, project-based organizations (PBOs) can be viewed as a replacement for the functional and matrix organizations (Hobday, 2000) given that the latter two share organizational resources simultaneously, by adding a temporary coordination mechanism without changing the existing structure, while the PBO enjoys dedicated resources. This distinction can be explained by showing that the reason for the difficulties experienced by project teams in doing their 'tasks' within the functional organization, were reported to comprise a conflict between operational and project processes (Turner & Peymai, 1995).

However, the tensions recurring within the temporary project organization because of its essential need for autonomy apart from the permanent organization (Sydow, Lindkvist & DeFillippi, 2004), is not quite the problem being investigated since our chosen organization is a separate entity solely dedicated for the management of government projects; a permanent PBO in its own right. Hence, there is an actual need to provide a basic distinction between the different kinds of PBOs in literature.

Project-based organizations can be created as an outgrowth of the product-based operations-oriented organization (Keegan & Truner, 2002) i.e. as a separate unit with dedicated resources. Hobday (2000) suggested that the 'milder form of PBO', where the PBO co-exist within a larger traditional organization, should be referred to as the *project-led organization*. Not far from this definition is DeFillippi (1998) definition of the *project-based enterprise* where the PBO is presented as temporary project organization responsible for creating a product for the marketing and distribution of the *managing* and more-durable parent organization. It is noticed that these definitions share a common view of the PBO as subset of the permanent organization.

In Turner (2009 – p. 126), the project organization ranges from functional hierarchy to project hierarchy through a number of matrix types but all of them remain a structure within a larger organization, occurring temporarily within functional units or permanently in dedicated departments, only to serve the purpose of 'resource allocation'. Perhaps this view is

reinforced by the wide application of project management in different industries where the project is interpreted as a production process – for objectives and strategies (Turner & Muller, 2003). Organizational project management (OPM), covered earlier in this review, corresponds to this aspect of the project organization.

From another angle, the PBO can be distinguished as a *project-based firm* where the process emphasis is placed on project dimensions rather than the functional dimensions (Lindkvis, 2004) due to the nature of the services being produced by the firm; being of a project type – such as design consultant and project management firms. Standard wise, it was mentioned in PMI review that the PMBOK (2013) acknowledges the different types of project-based organizations including the *entire-firm* PBO such as that identified by Lindkvis above.

However, not much of a research was found on the subject of project organization as distinctively a permanent and *independent system*. Rather, the majority of research was associated with the nested types of PBOs in their cross-functional and matrix temporary forms. Examples are: (Lundin & Soderholm, 1994) continuously addressing the project organization as temporary; (Packendorf, 1995) based his work around the temporary nature of PBOs; (Middleton, 2000) stated that "project organizations are temporary and should complement or supplement functional departments"; (Ford & Randolph, 1992) noted that terms such as matrix management, project management, matrix organization and project organization all refer to some type of the cross-functional organization to perform a temporary task; (Turner & Muller, 2003) redefined projects by adding the production function to their 'temporary nature'. All of these examples place an accent on the temporary nature of the project organization.

This is not to imply that the permanent and structurally independent PBO does not share similarities with other embedded types in terms of their structural relationship with their parent organizations and the influences they are subjected to due to such relationship. If this embedded-parent relationship can be described to exist at a 'macro' level, then it can be suggested that even independent PBOs have a structural relationship with *higher* organizations at a 'mega' level, hence the notion of potential influences on the structurally independent PBO. For a public organization, clues of this external relationship can be witnessed in the governance policies the subject organization is committed to. The following clues from the literature shall be cited below in support of this view: Here, two important observations about the public organization investigated in this study, shall be pointed out:

1. Being a government owned organization, the organization's permanent and independent nature does not exempt it from being subjected to the external institutional control of the government, as noted by Perry& Rainey (1988). This control simulate the same environmental factors which embedded PBOs have with parent units of the organization, particularly, in terms of governance.

2. Keeping in mind the project management function of our selected organization, it would be required to align its 'project governance' policies with the higher organizational governance parameters set of its performance as discussed in the first part of this review . This environmental complexity could open a discussion about project lifecycle vs product lifecycle and the critiques raised by Engwall (2003), Williams (2005) and Morris et al (2006) for PM standards and the extended role of project management in reality.

Following will be a brief exploration about the role of governance in project-based organizations. This addition is necessary to complete our review of the project-based organization's context.

Organizational and Project Governance:

The distinction between project and organization governance is important for organizations to implement stakeholder policies and achieve organizational value (Hassim et al, 2011; Too & Weaver, 2014). The word 'governance' being associated with government and control (Klakegg et al, 2009), extends to mind decision making, setting limitations and delegation of authority (Hassim et al, 2011). Governance is therefore directional to organizational performance, through a "non-hierarchical form of steering", to ensure the implementation of public policy (Rhodes, 1997).

Ahola et al (2014) differentiated between two streams of organizational governance literature:

i. From the transaction cost economics literature drawing from economic and organizational literature and focusing on the "most efficient form of governance for a specific economic transaction", and;

ii. From corporate governance literature focusing on the relationship between corporate owners and, typically, CEOs.

Of course, this study is interested in the first stream for its association with the transactional control policies enforced by the higher organizations on our selected PBO. Ahola et al. continues to explain that the role of project-based *firms*, involving the management of several projects simultaneously, requires making trade-offs relating to "the allocation and

prioritization of resources" and ensuring organizational members do not act against the interest of the firm. Thus, governance provides a "framework for ethical decision-making and managerial action" within an organization (Muller, 2009).

The economic transaction literature stream identified by Ahola et al can be coincided with Hassim et al (2011) view of project procurement as a significant environment for these ethical issues, hence providing a common area between organizational governance and project governance in PBOs where the control of the economic transaction make the two meet in a single process area – *project procurement*. A noticeable connection can be made here about this common area of organizational and project governance with the stage-gate review process promoted by PM standards as previously cited from Morisson et al (2006) in the standards review section – more specifically, the stage-gates reviews associated with procurement processes.

Adding more weight to the above postulation, is what has been mentioned previously in the public-private distinction section, about the economists conclusion about the public organizations being subjected to external influences due to the absence of markets to their outputs. Building on the same point, the absence of output markets means, and come from the fact, that the public organization depend on government funding i.e. due to the absence of the commercial aspect in the services they were established to provide. Our organization fits within the category of public-funding public-ownership following the Wamsley & Zald (1973) classification. Connecting the economic facts with the ownership classification clarifies two points:

1. The firmness of governance control of the higher organizations on our PBO can be expected to be greater than it would be on other organizations with less public ownership categorization (such as privatized postal services and utilities), hence more attention should be given to the observation of such influences over the process groups interactions and characteristics identified in Part A.
2. The cited conclusions from the economists about public organizations can be seconded from this angle by highlighting the role of governance on yielding these characteristics with potentially the ownership level being a variable moderating such effects.

The influence of this relationship, between organizational and project governance, represents a challenge for the PBO and shall therefore be observed during the case study. The following area will add more details on the issue of PBO governance.

The project management office as sub-function of governance:

Due to having a project management office (PMO) in the investigated organization, and based on the governance role the PMO was found to have in literature, it was deemed that the following part of the review will be complementary to the previous one.

Turner & Keegan (1999) have identified two main functions for the project-based organization; operational control and governance. Governance is seen in the study as external to the PBO. The roles that a PBO governance function can fulfil may vary from setting strategic, financial control, audit and providing "technical expertise through centres of excellence". Dai & Wells (2004) made a note that the term *Project management office* (PMO) and *centre of excellence* or *expertise* are the same. However, Hill's (2004) distinguish between the two terms by categorizing the PMO into five stages of capability development.

FIGURE 1 Overview of PMO Capabilities across the PMO Competency Continuum
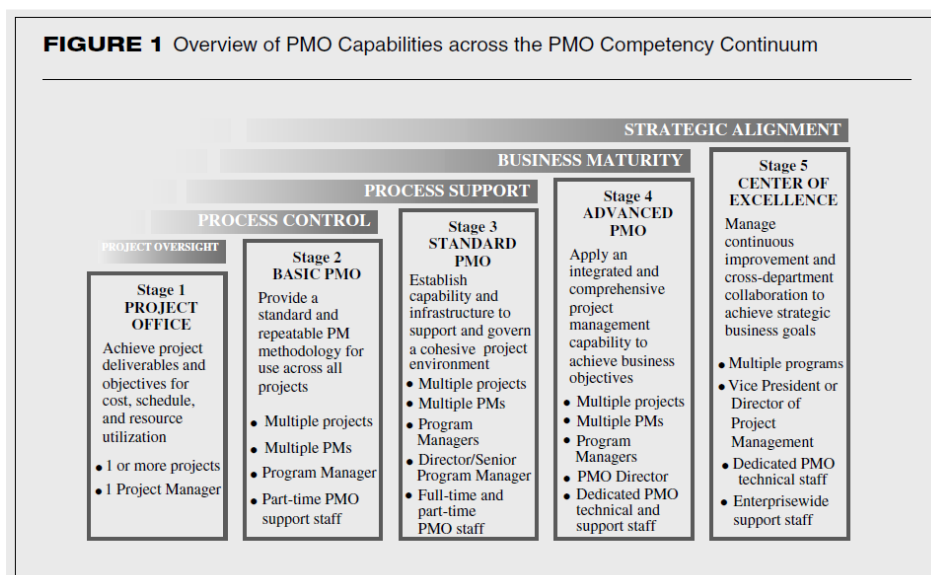
According to the chart above, the standard project management office is realized in the third stage while the excellence centre is realized in the fifth and final stage of the competence continuum. According to this model, project governance is achieved within the basic PMO function while the more executive role of strategic alignment is achieved by at the excellence centre stage.

The PMOs analogous position to the "central function areas" allocated at the sphere of the "first-tier' senior management, gives the PMO the governance mandate to act as an executive department taking its role from the prime decision makers (Unger, Gemunder & Aubry, 2012).

The role of the PMO as a formal layer for the institutionalization of governance strategies (Pemsel & Wiewiora, 2012), transitioning higher organizational governance policies into the PBO while performing the function of project governance, should therefore be observed

during the investigation of the selected organization taking into consideration the observations made previously about the impact of organizational governance on the project management processes and the organizational characteristics identified in Part A. in order to understand the impact of its governance function within the organizational structure and subsequently its potential impact on project management process.

Summary:

The emergence of the project-based organization, as a need to overcome the paradoxical process requirements between traditionally the project organization and the functional organization, was followed by a stream of research about the different types it may assume in the organizational compilation, which was demonstrated by a number of works. The review claimed, based on the different citations viewing the PBO as temporary, that little research could be found about the PBO as a permanent structurally-independent organization. However, it was noticed that this scarcity could partially be explained by the common similarities the temporary and permanent organizations share with 'parent' or 'higher' organizations, respectively, governing their performance. This observation led in turn to the discussion of the role of organizational governance as one of the PBO challenges.

Considering the nature of the investigated organization as a specialized project management organization, it was suggested that *organizational* governance policies imposed on our PBO by the higher organization it reports to, would mostly meet with the PBO's *project* governance policies in the project procurement area which the literature regard as a major area for the governance of the transactional cost imposed by the stakeholders on the project organization i.e. by the higher organization on our PBO is this case.

A particular observation about the relationship between the public ownership category and the level of governance control, directed the attention of this author to examine more carefully the impact of organizational governance on the project management process groups and characteristics, concluded in Part A review, during the investigation.

Finally, the governing role of the project management wad featured to show how this structural element of the selected PBO could be a transient mechanism for the external governance while performing project governance internally. The previously highlighted area for examining the governance impact on PM processes and characteristics should therefore be expected to be most evident at PMO level.

In this second and final part of the literature review, it was necessary to build on the findings of the first part where it was concluded that project management effectiveness can be examined by:

1. Checking the processes responsible for shifting the projects from initiation through project closure, namely PMI process groups, to make necessary observations about PM process.
2. Identifying the characteristics associated with each process using PM² model.

In order to facilitate a theoretically based analysis for the information gathered using the above, it was decided to review the context within which the process of project management is taking place i.e. the organization – from an 'organizational design' point of view.

Part B began by citing the historical developments of organizational theory, from (i) classical directions such as; bureaucracy, scientific management, and administrative management, into (ii) more psychological and human relations orientations; such as the motivational factors and decision making related behaviours, and more recently (iii) work attitudes, organizational behaviour and design.

It was then discussed that the unidimensional bureaucratic view was criticized using two main pillars; organizational structure and organizational behaviour, as the contingency view gained more support in the literature.

Accordingly, the dimensions of organizational structure and the behaviours associated with them (reflecting the aspects of the social structure) were ought to be reviewed in order to:

1. Acquire a comprehensive understanding of these factors and how they interact and affect the organization.
2. Gain sufficient theoretical knowledge that can be used to interpret the data which will be collected during the case study.

An influential study by Pugh et al (1969) concluded that the bureaucratic form is "no longer useful" based on the empirical investigation of the organizational dimensions. Therefore, it was necessary to firstly engage a discussion about the Weberian view of bureaucracy and its critiques. Pugh et al was then used to introduce the organizational dimensions supported by other scholarly contributions to view the dimensions from different perspectives. The study results were then summarized to concluded that the adoption of the five dimensions of (1) specialization, (2) standardization, (3) formalization, (4) centralization, and (5)

configuration, shall be sufficient and not the 'underpinning dimensions' concluded by the study for lack of generalizability.

Upon reviewing the dimensions, a number of notes were given about the dimensions' interrelatedness and direct influence on organizational members' attitudes and behaviours. This observation was further explored by featuring an extensive study by James and Jones (1976) which proposes a conceptual model linking organizational dimensions with individual attitudes and behaviours theoretically. Based on the study, it was posable that the relationship between organizational dimensions and individual attitudes and behaviours can be moderated by project management processes similarly to the moderating effect of the contextual variables postulated by the featured study.

Moreover, a table was created containing the descriptions of the different behaviours associated with organizational dimensions citing the studies inferring them to demonstrate their relation with individual attitudes. These behaviours are considered indicative of the structural characteristics substantiating them hence, these behaviours can be employed in the case study to explore the impact of the structural arrangements on the effectiveness of the process of project management.

With the relationship between organizational dimensions, attitudes and process effectiveness being demonstrated, it was practical to introduce a definition for the term 'organizational design' (OD) to combine the concepts of PM process effectiveness within the organizational context. The definition was derived from texts and papers illustrating the role of OD in achieving organizational effectiveness and increasing "value" through organizational and behaviour control. Accordingly, a more 'purpose-fitting' definition of organizational design was provided including the implications posed by this definition on our study.

Providing a tailored definition for OD served the purpose of linking its identified characteristics (structure and substantiated attitudes) with resulting performance thus giving more depth to the relationship highlighted by this dissertation. However, another step was needed to further contextualize the concept of OD to our type of organization. This was done by reviewing the project-based organization to see what particular issues of our type of PBO should be paid the attention during the case study.

Being a 'structurally-independent public PBO', the distinction between public and private organizations was reviewed to conclude that the inconclusive findings of research do not support the existence of a clear-cut distinction between the two types. However, the distinctive characteristics of public bureaucracy, mainly those identified by Mintzburg (1979),

were deemed sufficient material to make necessary observations about the public organization in question.

Furthermore, the distinctiveness of permanent over temporary PBOs was reviewed to reflect (i) how the PBO have emerged out of the traditional project organization, (ii) how prevailing the concept of it temporariness is, in the literature, and (iii) how that temporariness is associated with the structural dependency of the temporary PBO. However, an environmental similarly was observed between the temporary and the permanent PBO suggesting an influential role for governance in the PBO effectiveness based on the relationship between the PBO and the 'parent' or 'higher' organization responsible for the creation of the PBO originally.

Concurrently, both characteristics of being a public and permanent PBO, discussed above, were noted to be positive attributes for the significance of the scope and nature of this study.

Drawing on this observation, the subject of governance was introduced by identifying two main streams of research; transaction of cost (more relevant to our study) and corporate agency. it was pointed out that (i) the classification of our public PBO as 'public-funding public-ownership' makes it more subjective to external/higher economic control i.e. governance, and that (ii) the theoretical association for project and organizational governance can be located in the project stage-gated procurement process of the project. These observations will be considered during the examination of the project management processes identified in Part A.

Moreover, the project management office (PMO) was identified as mechanism of control with different levels of maturity where project governance can be practiced at a standard PMO level while the more strategically oriented role can be found in a fully developed 'excellence centre'. The PMO was therefore identified as a potential organizational element where the impact of the unified organization-project governance on project management processes can be observed, during the case study.

The second part of the review was concluded thereat. Its finding will be concluded next.

Part B Conclusion:

The organizational context, in which the previously identified processes are performed, can be characterized by (1) the structural dimensions of the organization and (2) the individual attitudes and behaviours they substantiate. Subsequently, the interaction of these two characteristics affects the organizational PM effectiveness.

Accordingly, the concepts of PM 'process effectiveness' and 'organizational context' (representing the main themes of this dissertation) can be combined using a tailored definition of the term; organizational design (OD).

The term 'structural characteristics' imply the interaction of more than one structural dimension to create a verifiable work configuration. Accordingly, the characteristics of the organizational design can be elicited by associating the inquired attitudes and behaviours with the observed structural characteristics of the investigated organization following the process described in the OD review section.

The project-based organization can be characterized by distinctive features such the extent of their lifecycle i.e. temporary or permanent, their structural independence and their public-private ownership which may impose certain environmental influences on their processes, namely governance, seeking control of the transition cost of economies from ethical and performance points of view. Accordingly, it is important to observe the impact of governance on the PBO process.

For a 'structurally-independent public PBO', like the one under investigation, the deployed project governance policies and the imposed organizational governance controls can meet in the project management process of project procurement (process wise) and through the operation of the project management office (organizational unit wise). Thus, the observation of both the process and the unit should be included in the case study.

Chapter 2 Conclusion:

The task undertaken in this defining chapter was to infer the theoretical information necessary to address the two main themes in this dissertation, being (1) project management effectiveness, and (2) organizational design. The chapter was therefore divided into two parts to address each theme separately. Part A of the review was ended with a summary articulating the highlight of the covered sections followed by a concise conclusion pointing out its findings, and so have Part B. the two reviews can be integrated and further concluded as follows:

The effectiveness of the project management process can be detected in the progression of projects through the different process groups of (1) initiation, (2) planning, (3) execution, (4) control, and, (5) closing, using a set of descriptive characteristics for each process.

The organizational design of the project-based organization could impact the identified status of PM effectiveness by the different structural characteristics creating the specific

work configurations responsible for the increase or decrease of the organization's ability to perform effectively.

The relationship associating the structural characteristics with the status of effectiveness can be empirically verified by comparing the 'identifiable' structural characteristics (which can be observed in the investigated PBO) with the 'theoretical' structural characteristics (empirically researched), using the attitudes and behaviours observed on the organizational members as a validation method.

The next chapter will contain a detailed description of the research methodology.

Chapter 3

Research Methodology

Introduction:

The research questions introduced in the first chapter of this dissertation imply the qualitative nature of the method to be used subsequently to address the social phenomenon reflected by those question. However, the philosophical grounds explaining how and why such questions were formulated, will need to be identified to constitute an acceptable level of appropriateness and relatedness between these questions and the methodology used to obtain their answers.

A basic subject for debate among researchers, as well as a challenge, has been the adequacy of using methods derived from natural sciences in social sciences (Morgan & Smircich, 1980). Our underlying assumptions about ontology, human nature, and epistemology, are believed to be the reason behind the so called dichotomy of quantitative and qualitative methodological approaches to research (Burrell & Morgan, 1979). Indeed, the variant approaches depicting a gradual shift between the two extremes of subjective and objective research views of the lived reality, indicate the "rough and oversimplified" dichotomization argued about. Fair enough, the appropriateness of whichever method "is contingent on the nature of the phenomena to be studied" (Morgan & Smircich, 1980). Therefore, the adoption of a qualitative approach in this research should be demonstrated through its relatedness to the investigated phenomenon.

	Subjectivist Approaches to Social Science					Objectivist Approaches to Social Science
Core Ontological Assumptions	reality as a projection of human imagination	reality as a social construction	reality as a realm of symbolic discourse	reality as a contextual field of information	reality as a concrete process	reality as a concrete structure
Assumptions About Human Nature	man as pure spirit, consciousness, being	man as a social constructor; the symbol creator	man as an actor; the symbol user	man as an information processor	man as an adaptor	man as a responder
Basic Epistemological Stance	to obtain phenomenological insight, revelation	to understand how social reality is created	to understand patterns of symbolic discourse	to map contexts	to study systems, process, change	to construct a positivist science
Some Favored Metaphors	transcendental	language game, accomplishment, text	theater, culture	cybernetic	organism	machine
Research Methods	exploration of pure subjectivity	hermeneutics	symbolic analysis	contextual analysis of Gestalten	historical analysis	lab experiments, surveys

The case for qualitative research:

Historically, the discourse among scientists about the appropriateness of (i) a more monographic conception of science adopting induction, case studies, soft understanding and open qualitative approaches to analyse local contexts and (ii) a statistically-based empirical conception of science adopting experimental and standardizing quantitative approaches to establish universal facts, began in the 1920s to result in different phases of development in, mainly, German speaking areas and the USA (Flick, 2009 – p. 17; Flick, Kardorff & Steinke, 2004 – p. 9).

The postmodern stand-point of the "pluralization of life worlds" and need for localized and situationally developed understanding of the studied phenomenon has risen due to the rapid social changes resulting in a great diversity of cultural milieus, individualism and biographical patterns in sociality. These social developments has led to the "differentiation of objects" and the failure of the traditional deductive methodology, testing theoretically driven hypotheses against empirical evidence, in addressing requirements of local knowledge and practices (Flick, 2009 – p. 12; Geertz, 1983).

Flick also cited Toulmin (1990) in which four tendencies in empirical social research that could alter its dysfunctionality, were observed:

1. The return to the oral tradition evident in the use of narratives, language and communication.
2. The return to 'the particular' and not 'the abstract' of the studied situation.
3. The return to the local systems of knowledge, practices and experiences of the studied context as opposed to the traditional interest in testing their universal validity.
4. The return to the temporary association of the problem and the finding of the research instead of the assumption of generalized validity.

The field of qualitative research is therefore in a better position (than quantitative) to gain more flexibility towards the objects under research and more ability to describe "the details of a case in its concrete situations" (Flick, 2009 – p. 12).

Significantly, this particularity and subjectivity of the qualitative approach can be considered complementary to quantitative research by offering an interpretation of the statistical relationships through differentiated and intensified case-studies (Flick, Kardorff & Steinke, 2004 – p. 9).

This study therefore adopts qualitative approach due to its appropriateness to the objectives set earlier in Chapter I, which will be discussed further in the following sections.

The symbolic interactionism position:

Reviewing the philosophical assumptions underlying social research (highlighted in the introduction out of Morgan and Smircich article), the attention of this researcher was oriented towards the symbolic interactionism where "the empirical standing point is the 'subjective meaning' that individuals *attribute* to their activities and their environments" (Flick, 2009 – p. 57). This line of sociological research, coined by Herbert Blumer in 1938, is focused on social processes interacting at three premises, which in Blumer's words are (cited in Flick, 2009 – p. 58):

> "The first premise is that human beings act toward things on the basis of the meaning that the things have for them…. The second premise is that the meaning of such things is derived from, or arises out of, the social interaction that one has with one's fellows. The third premise is that these meanings are handled in, and modified through, an interpretative process used by the person in dealing with the things he encounters"

In other words, social interaction creates subjective meanings, in peoples' minds, which are constantly modified through an interpretative process.

The methodology used in this dissertation shall therefore attempt to:

1. Capture the attitudes exerted by the different organizational members within the first premise of symbolic interactionism i.e. how they *act* towards their organizational realities (namely the status of effectiveness).
2. Understand the subjective meanings they have created towards such realities i.e. the second premise, and subsequently;
3. Evaluate the effect these meanings have on the organization when interpreted into behaviours within the third premise i.e. when *dealing* with the realities.

The process above can avail sufficient data for analysis using the theoretical evidence from the literature review linking certain behaviours and attitudes (actions and dealings) with organization dimensions (lived realities), thus providing empirically supported findings, useful insights and significant context knowledge (Morgan & Smircich, 1980).

The use of case-studies in organizational research:

Peer Fiss commented that "one might well argue that case studies form the cornerstone on which modern organization theory has been built" – see influential studies in organizational and management literature, such as Blau (1962) and Crozier (1964) on the dynamics of bureaucracy and Allison (1971) on 1962's Cuban missile crisis. Furthermore, case studies are attractive academics and practitioners alike for its ability to simulate real world experiences in the classroom and their appreciation for complexities of the organizational phenomena (Byrne & Ragin, 2009 – p. 424).

The writer explains in great detail that the challenge posed by selecting a case study approach lies in providing "a configurational understanding of the organizational phenomena with a specific spatial and temporal context" and then analysing the "complex interdependencies between various factors and causal conditions that in combination characterize the case in question". However, the question of how such a flexible approach, with a few "agreed-upon rules for drawing conclusions and verifying their robustness", can gain popularity in a "more positivistically oriented field of organization and management studies".

Fortunately, this is no concern for this study where neither the 'subjective meaning' of its individuals "form the central starting point for research" (Flick, 2009 – p. 58), nor does it use observation-based interpretative hermeneutic approaches to collect evidence (Byrne & Ragin, 2009 – p. 431), because this study is systematically disciplined by the findings of previous empirical research. It seeks to validate well-researched relationships using qualitative approaches to collect specific data necessary for comparing local organizational context to universally assumed conclusions about such relationships.

Given the above perspective, it can be said that while this study can be classified as complementary to quantitative studies in general – following the previous notion by Flick, Kardorff & Steinke (2004 – p. 9), however, it cannot be said to exactly fit such an objective since it is not tailored, as an 'intensified case-study', around a particular empirical finding. Rather, this study can be classified under the 'organization level', following Fiss's case study configuration classification (Byrne & Ragin, 2009 – p. 430), for its interest in the particular relationships between organizational structure and processes. Upon comparing this classification to other literature cited in this dissertation, it was found consistent with James and Jones (1976) and Katz and Kahn (1966) call for the investigation of both the micro and macro aspects of the "inner organization" being attitudes and structure respectively. The

classification of this study as an "*organization-level* configuration case-study" is therefore acceptable for addressing the case of the selected PBO in this dissertation.

The research methodology:

Flick (2009, p. 128) outlined the components which should be considered in planning the collection and analysis of evidence necessary for answering the research questions. These components are; the goals of study, the theoretical framework, the research questions, the type of empirical data required, the methodological procedures, the degree of standardization, the generalization goals, and the sources available. The different considerations taken in treating these components will be elaborated below.

Keeping the goals of this dissertation realistic giving the short time available for submission and the limited resources available as well as the limited access to empirical data, it was decided to interview a purposively selected sample (predetermined list of individuals) of organizational members using the "expert interview" technique (Flick, 2009 – p. 165).

Expert interviews are a variant form of the semi-structured interviews (Byrne & Ragin, 2009 – p. 205). The interviews are focused on the interviewee's capacity as an "expert in a certain field of activity being, normally, "members of an organization with a specific function… professional experience and knowledge". A specific form of expert interview which can be identical to the need of this study is the "systematizing expert interviews" where the aim to have information about a specific process (Flick, 2009 – p. 165).

Expert interviews must be conducted in a way to (Flick, 2009 – p. 166):

1. Make the most use out of the usually short time given by the expert for the interview. The preparation of an interview guide can be useful to assist the interviewer in managing the time and quality of feedback.
2. Ensure the experts' answers are impersonal and relevant to the topic of the interview to avoid turning the meeting into a "rhetoric interview". This challenge implies that keen selections should be made the purposive sampling based on the prior knowledge the interviewer has, being a member of the same PBO, about the experts' types and their level of authority.
3. Avoid representing oneself as an 'incompetent interlocutor' for lack of relative knowledge about the processes in question. However, this should not be an issue for this interviewer who is a colleague of the interviewees with similar level of expertise in the subject area.

Unlike other interview techniques, there is no specific coding technique associated the expert interviews (such as grounded theory coding or qualitative content analysis). Instead, the interviews are analysed by comparing the "content of expert knowledge" and their subjective views (Flick, 2006 – p. 165). The ability to link the two elements (expert knowledge and subjective view) during the interview by selecting the right questions and their sequence is therefore crucial for a successful analysis. This objective can be met by combing the principle of the symbolic interactionism with the interview process – as will be illustrated below.

The literature review done in Chapter II, has revealed the importance of the human factor in organizations. Therefore, interviewing the organizational members (the chosen experts), responsible for PM processes, to see how they are affected by the different organizational arrangements under which they perform, is central to this study. The conducted interviews shall therefore be designed in a manner to fulfil the following requirements:

1. Validate the descriptive characteristics of the status of PM effectiveness in the investigated organization using the outcome of Part A of the literature review. These descriptions can be validated during the interview using the second premise of symbolic interactionism i.e. the subjective meanings reflecting people's perception of such characteristics.

2. Investigate the structural characteristics affecting the status of PM effectiveness using the outcome of Part B of the literature review. The presence of these characteristics can be confirmed using the second premise of symbolic interactionism i.e. the subjective meanings reflecting people's perception of such characteristics.

3. Identify the behavioural impact of such characteristics and how people react towards them i.e. their generated attitudes, also using Part B – which is reflective of first premise of symbolic interactionism i.e. how the people *react/behave* towards things.

4. Evaluate the reversed impact of the captured behaviours and attitudes on the organization's ability to perform in accord with its chosen design – which is reflective of the third premise of symbolic interactionism i.e. how the people *handle* things.

5. Conclude with insights about the role played by the mutual impact of the mechanistic and social structures of an organization in promoting or demoting its effectiveness – that is the impact of organizational design of the investigated PBO on its PM effectiveness.

The integration of these two elements in a gestalt of interview questions will be demonstrated in the next section.

The interview questions:

First, the reader's mind should be refreshed about (i) the sensitizing questions elicited in the first chapter out of the main research question – which was: "What is the impact of OD on PME?", and (ii) the type of the organization under investigation (being a public project-based organization responsible for the delivery of variant types of construction, infra-structures and special nature projects), essentially because the sensitizing questions should be compatible with the nature of the organization and the process involved. The sensitizing questions were therefore oriented towards identifying the characteristics of the organization and the state of its PM process through the subjective meanings of organization experts whom interaction (as part of the social structure) reflect in a whole the current *mode* of the organizational design responsible for the temporal state of effectiveness. This association between the sensitizing question, and, the organizations design and process, can be demonstrated by showing the connection they have with the 'interview requirements' provided in the previous section:

The sensitizing question:	The corresponding interview requirement:
How can the state of effectiveness in a PBO be identified?	Validate the descriptive characteristics of the status of PM effectiveness in the investigated organization using the outcome of Part A of the literature review. These descriptions can be validated during the interview using the second premise of symbolic interactionism i.e. the subjective meanings reflecting people's perception of the process characteristics.
What organizational characteristics can be associated with such state?	Investigate the structural characteristics affecting the status of PM effectiveness using the outcome of Part B of the literature review. The presence of these characteristics can be confirmed using the second premise of symbolic interactionism i.e. the subjective meanings reflecting people's perception of the organizational characteristics.
What do people think about organizational choices affecting their performance?	
How do they react to the influences resulting from the organizational conditions they	Identify the behavioural impact of such characteristics and how people react towards them i.e. their generated attitudes, also using Part B – which is reflective of first

perform under?	premise of symbolic interactionism i.e. how the people *react/behave* towards things. .
What is the effect of the people's reactive behaviour on the organization's ability to perform effectively?	Evaluate the reversed impact of the captured behaviours and attitudes on the organization's ability to perform in accord with its chosen design – which is reflective of the third premise of symbolic interactionism how the people *handle* things.

It noticeable from the above table that the "interview requirements" can be transformed into "interview procedures" to acquire empirical data for comparison and analysis, which is also corresponding to the final requirement of the interview, being: "conclude with insights about the role played by the mutual impact of the mechanistic and social structures of an organization in promoting or demoting its effectiveness – that is the impact of organizational design of the investigated PBO on its PM effectiveness".

Based on the above, the interview questions were formulated into five 'question groups' complementing the five sensitizing questions, the outlined interview requirements and the

INTERVIEW QUESTIONS LIST		
QUESTION GROUP	#	QUESTIONS
FIRST QUESTIONS GROUP	1	from this chart, what do you think is the maturity level for (process x) in this organization?
	2	what outputs do you know testify to this fact? Give me examples
	3	do you think it is so clear that you would expect everyone else to select the same level?
SECOND QUESTIONS GROUP	1	what do you think are the functional issues responsible for this process maturity level (PML)?
	2	do you think these issues can be enhanced to increase the maturity level of this process? How?
THIRD QUESTIONS GROUP	1	do you think this PML is satisfactory? Why?
	2	do you think you, or the unit you work in, can do better on this process?
	3	does it make you feel in a specific way?
FORTH QUESTIONS GROUP	1	how do you think the 'system' you are working by affect your ability to perform well and achieve the required results? Give examples
	2	are there any constraints, or enablers, that affect your performance? Give me examples
	3	(confrontational questions)
FIFTH QUESTIONS GROUP	1	considering these conditions persist and you still have perform as required by the system, what do you think is the best way you can handle these conditions to meet the job requirement?
	2	how do you think these strategies (of how to handle the situation) will affect process output?
	3	how do you evaluate these effects (positive/negative) and their consequence (inevitable/beneficial)?
	4	if certain 'systematic' changes are to be made, what do you think would enhance PML and the overall performance?

premises of symbolic interactionism. The result was a list with a total of 15 questions as can be seen in the list above.

Using these questions, an 'interview guide' was developed to assist the interviewer in managing the interviews. The interview guide is accompanied with (i) the table of the descriptive characteristics of PM process out of PM² model, and (ii) the 'dimension/behaviour' impact table, respectively – both of which were developed in the second chapter.

The procedure of how to administrate the interview and use the interview guide will be elaborated in a separate section after introducing the case sample in the next section.

INTERVIEW GUIDE		
procedures	**questions**	**notes**
1. present the interviewee with the prepared Process Maturity Levels Chart - 2. ask interviewees what level they think the process level is in their unit - 3. discuss why this level and what clues they think support this level is achived. 4. take notes.	FIRST QUESTIONS GROUP: 1. from this chart, what do you think is the maturity level for (process x) in this organization? - 2. what outputs do you know testify to this fact? Give me examples - 3. do you think it is so clear that you would expect everyone else to select the same level?	1. use PM² process extracts for help - 2. compare different feedback and evaluations.
1. present the interviewee with the organization chart in addition to brief definitions of the adopted structural dimensions. 2. engage a dicussion to ensure the interviewee's attention is focused on the subject and that his feedback will be time effecient and beneficial	SECOND QUESTIONS GROUP: 1. what do you think are the functional issues responsible for this process maturity level (PML)? - 2. do you think these issues can be enhanced to increase the maturity level of this process? How?	1. write notes that suppliment the first group answers.
1. continue with the questions while taking notes.	THIRD QUESTIONS GROUP: 1. do you think this PML is satisfactory? Why? 2. do you think you, or the unit you work in, can do better on this process? 3. does it make you feel in a specific way?	1. use the dimension/behavior tables created in Part B to check matching answers. - 2. focus on writing answers to the third question to contrast and confront with the answers which will be provided in the following questions.
1. continue with the questions while taking notes.	FORTH QUESTIONS GROUP: 1. how do you think the 'system' you are working by affect your ability to perform well and achieve the required results? Give examples. - 2. are there any constraints, or enablers, that affect your performance? Give me examples. 3. (confrontational questions)	1. use the dimension/behavior tables created in Part B to check matching answers. - 2. use the list of public bureaucracy characteristics to check the matching answers. 3. write additional notes. - 4. take notes of answers conflicting to third group questions.
1. continue with the questions while taking notes.	FIFTH QUESTIONS GROUP: 1. considering these conditions presist and you still have perfrom as required by the system, what do you think is the best way you can handle these conditions to meet the job requirement? - 2. how do you think these strategies (of how to handle the situation) will affect process output? - 3. how do you evaluate these effects (positive/negative) and their consequence (inevidaBle/beneficial)? - 4. if certain 'systematic' changes are to be made, what do you think would enhance PML and the overall performance?	1. use the dimension/behavior tables created in Part B to check matching answers. - 2. use the list of public bureaucracy characteristics to check the matching answers. 3. write additional notes.

<u>Sampling:</u>

According to Flick 92009 – p. 15) sampling can be described as a process which the researcher will encounter at different phases of the research development. It has been decided so far in this dissertation to use 'purposive sampling' to intentionally select predetermined persons for the 'expert interview'. The purposive sampling here is one option under the "case sampling" process encountered prior to the investigation. Other forms of sampling would encountered when trying to take a decision about which parts of the collected data should be focused on for detailed interpretation (material sampling), or about which parts of the text should be featured while representing the findings (presentational sampling). These forms of sampling shall be addressed in their respective phases.

With regard to the case sample selected for the interview, the following table will represent the sample structure reflecting the details of its predetermined criteria. The structure was determined targeting the selection of a diversified sample that is well-distributed geographically and process-wise to achieve an organization-wide representation.

PBO case sampling table:					
staff level			executive	senior	unit expert*
number	15		1	4	10
male	10	distribution	1	3	6
female	5		--	1	4
national	8		1	4	3
expat.	7		--	--	7
HQ staff	9		1	4	4
regional	6		--	--	6

In order to facilitate a traceable analysis and a detailed presentation of the findings, the selected sample was distributed in a tabular matrix (using their departments, organizational level and some demographics) to produce name codes for the interviewees. These codes will be used to mark the question lists, make notes and, more importantly, to reference the interviewees' highlighted feedback and make observations in a practical and meaningful way. The 'interview codes' are shown below.

					INTERVIEW CODES TABLE

depart.	org. level	male/ female	national/ expat.	HQ/ Regional	interview code
TM	executive	M	N	Q	TM-executive-MNQ
PMO	senior1	M	N	Q	PMO-senior1-MNQ
Design	senior2	M	N	Q	Design-senior2-MNQ
sites	senior3	M	N	Q	sites-senior3-MNQ
contracts	senior4	F	N	Q	contracts-senior4-FNQ
sites	expert1	M	N	Q	sites-expert1-MNQ
PMO	expert2	M	X	Q	PMO-expert2-MXQ
PMO	expert3	M	X	R	PMO-expert3-MXR
design	expert4	M	X	R	design-expert4-MXR
contracts	expert5	M	X	R	contracts-expert5-MXR
sites	expert6	M	X	R	sites-expert6-MXR
sites	expert7	F	N	R	sites-expert7-FNR
sites	expert8	F	N	R	sites-expert8-FNR
planning	expert9	F	X	Q	planning-expert9-FXQ
quality	expert10	F	X	Q	quality-expert10-FXQ

DEPARTMENT CODES: TM (top management) - PMO (project management office) - design (design department) - conracts (contracts department) - sites (sites management & supervision department) - planning (planning section) - quality (quality section)

Interview procedures:

Taking into consideration the notes featured in the research methodology section above, the procedure to conducting the 'expert interview' will be furnished as follows:

1. The interview shall begin by the first question group. The interviewee will be represented with the five levels of process maturity related to his unit. For example, the questions given to the 'experts' working in the construction site supervision department will be based on the execution process group and its maturity characteristics. The interviewee's feedback on the process maturity level (PML) should be objective and professionally induced based on the clearly identified characteristics in each level (from this chart, what do you think is the PML of process x?). However, the following question will stimulate the expert into using his subjective view in determining the most salient feature of the PML (what outputs do you know testify to this fact?). The third question will link the identified PML to the level of effectiveness actually achieved and reflected in project success as discussed in Part A review (do you think the PML is agreeable among all people? How tangible is its results in reality i.e. how effective is it?). The interviewee will be expected to demonstrate the link between PML and effectiveness using his subjective view.

2. The interviewer shall then proceed to the second questions group aimed at eliciting the organizational characteristics the interviewee distinguishes the most as the factors responsible for the state of the process effectiveness he/she just identified, hence the question (what do you think are the functional issues responsible for this PML?). Here it is noted that the terms used in the questions are not necessarily those of the research, but more conveniently, those which can be used in everyday life. Now, assisted by a board showing the organization's organizational chart and the brief definitions of the adopted structural dimensions, the interviewee's feedback will be expected to be specific and informative. If not, the interviewer should set the interview back on track by rephrasing the questions and encouraging the interviewee to give more specific hints and viewpoints. The following question (do you think these issues can be enhance increase the PML?) will reveal more of the interviewee's subjective view about the observable/descriptive characteristics of the organization which he/she perceives as *dysfunctional*.

3. The third questions group should be approached from a more subjective point of view (do you think this PML is satisfactory and why? Can a better level be achieved? Does this make you feel/think in a specific way?). The questions should be asked with the prepared list of 'dimension/behaviour' ready for checking the expressed attitudes towards specific dimensions.

4. The mission in the fourth questions group is to capture the interviewee's reaction to the organizational settings affecting his own performance or that of his unit (how do you think the system you are working by affect your ability to perform well and achieve the required results? What are the constraints or enablers affecting your performance?). Examples should be obtained from the interviewee to establish a case for the given feedback. The interviewer should challenge the interviewer with confrontational questions if needed using the feedback given in the previous questions group. A list with the characteristics of public bureaucracies discussed in Part B of the literature review should be present to assist the interviewer take necessary notes if some of its attributes were mentioned.

5. Coming to the fifth group of questions means that the impact of the organizational characteristics on the employee behaviour has been investigated. The remaining aspect to investigate now is the counter reaction exerted by the individual behaviour towards the existing work configurations affecting his performance. The questions in this groups shall reveal the strategies adopted by the interviewee to *handle* the organizational situation (considering these conditions are persistent and you still have to perform as required by the system, what do you think is the best way you can

handle these conditions to meet the job requirements?). The awareness of the interviewee about the consequences of these strategies should be inquired in order to identify the attitude these strategies are being practices with (how do you think these strategies will affect the process output? How do you evaluate these effects?). Again, the 'dimension/behaviour' table and the public bureaucracy list should be used to record notes as appropriate.

Following the above procedure to record data from the interviews combined with the interviewee codes illustrated above is believed to be sufficient tools for the possession of detailed and organized material for analysis and the conclusion of results.

Summary:

A determinant factor in selecting a research methodology is the philosophical background on which its ontological and epistemological assumptions are based. A view of the social world as a pattern of symbolic interactions where human actions and interactions are interpretative of the 'subjective meanings' they sustain, dictates a subjective and qualitative approach to research. The use of the 'case-study' approach to this research was found consistent with requirements set earlier in this dissertation to combine the micro and macro elements of the investigated organization under one methodology. Further, it was found that the 'expert interview' technique would be the appropriate data collection method to analyse and compare expert knowledge against previous research findings about the impact of the structural dimensions on behaviour and attitudes. The technique was found compatible with the premises of the sociological position of 'symbolic interactionism' where the obtained views are indicative of the (i) impact caused by the organizational setting on the individuals, and (ii) the behavioural reaction through which the individuals impact the process and subsequently the overall effectiveness.

Further to selecting a methodology, the interview questions and 'interview guide' were developed based on the interview requirements derived from the methodology. Also, a table with the details of the selected 'case sample' was provided along with the 'interview codes' which will be used to organize and compare the collected data.

Finally, a detailed procedure on how the interview will be conducted and the measures taken to ensure the required data is obtained was delineated to affirm the robustness of the followed methodology.

In the following chapter, the data collected during the interviews, their analysis and findings will be introduced.

Chapter 4:

Research data, findings, conclusions and recommendations:

Introduction:

In this chapter, the project management process in the investigated organization will be analysed in order to determine the units to be interviewed based on each identified process. Then the data collected during the interviews will be demonstrated before the extracted observations and findings are presented. Final conclusion and recommendation are provided at the end of the chapter to conduce the dissertation.

The analysis of the organization's PM process:

Prior to commencement, it was necessary to analyse the project management process of the tested organization (ABC) in order to identify which units to interview about each of the process maturity levels. Upon review of the organization's PM methodology, it was noticed that the project life cycle (PLC), documented in the methodology, made a good interpretation of PMI's notion that the project stages "can be broken down by functional or partial objectives, intermediate results or deliverables, specific mile stones within the overall scope of work… the project life cycle can be determined or shaped by the unique aspects of the organization…" (PMBOK, 2013 – p. 38).

The basic findings were illustrated in the figure below. These findings conclude that:

1. The project life cycle in ABC has two main milestones, namely stage-gate 1 (SG1) and stage-gate 2 (SG2). These gates serve the objective of the *higher* organization's governance identified in Part B of the review. SG1, a project plan authorization committee, comes in the middle between initiations and planning processes to ensure the 'project management plan' (PMP) – where project's initial scope, budget and time schedule, is externally approved. SG2, a project construction contract authorization committee, comes at contract award stage to sign-off the project's contract specifying exactly what the final deliverable will be and at which financial, technical and legal terms. SG2 is more significant than SG1 as entire project could get cancelled at this stage to the discretion of the governing/higher organization. The significance of SG2 confirms the observations made in Part B of the literature review that organizational governance, represented in SG2, and project governance, represented in the PLC breakdown, will meet in the procurement phase.

2. The unique position of the Contracts Department 'contacts', gave it a dual role being intermediate PLC stage and an initiating stage at the same time, due to the

Project Life Cycle in ABC Organization Vs Process Groups/Maturity Level								
PLC		initiation	SG-1	design	contract	SG-2	Sup & SM	closing
responsible unit	1	PMO	PMO	design	contracts	contracts	sites	sites
supportive unit	2						PMO	contracts
sup. Unit	3			PMO	PMO			PMO
initiation process group/PML								
planning process group/PML								
execution process group/PML								
controlling process group/PML								
closing process group/PML								

significance of SG2 in confirming the *higher* organization's project commitment leading to actual execution. This resulted in causing a break in PM process as can be seen in the illustration below.

3. The units responsible for each stage of the PLC were identified as can be seen in the illustration. However, important remarks were made:

   a. There is a sharp distinction in unit/stage responsibility which is indicative of a 'sharp division of labour' as noted by Mintzberg (1979) about the "bureaucratic machine". Aspects of this sharp division is expected to be evident during the interview.

   b. Each unit is responsible for one process except for the "construction site management & supervision department" (coded as "sites") which is responsible for three process; execution, controlling and closing. The 'sites' unit therefore covers 3/5 of the PLC stages. The large size of this unit is therefore consistent with the breadth of its role. The different impacts of the size dimension should therefore be expected to manifest more evidently in this unit.

   c. There was a difficulty in associating the description given by Kwak & Ibbs (2002) for the planning process directly to one of ABC units. The model describes the planning process as the process responsible for defining overall scope, work breakdown structure, costing, scheduling …etc. the description depicts the planning as more pertaining to PMI's "Project Time Management" knowledge area (PMBOK, 2013 – p. 141) rather than pertaining to the "Project Planning Process Group" which is identified as the group of processes responsible for the development of the management plan and "the project documents that will be used to carry out the project". The definition provided by the PMBOK, which Kwak and Ibbs model (2002) is based upon, is therefore more appropriate. The unit corresponding to PMI definition of the planning process group is therefore the Design department.

The comparison made in the first step to investigate the organization between the maturity model processes and ABC project life cycle, resulting in the above points, revealed important implications for the development of the PM² maturity model. As concluded by Kwak and Ibbs (2002), the model "should be continuously refined to reflect the advances in our PM knowledge base… the model should be applied to other industries and companies to further our understanding of PM… real-world case studies reporting on how an organization has actually applied the… model would also be beneficial to the PM community". While this case study is not one on case of applying the PM² model, it could highlight two directions of development:

1. The model was last revisited by the authors in 2002 based on the PMBOK standard and not PMI's OPM3 standard, reviewed in Chapter 2, which came latter in 2003 (PMI, 2015). The basic difference between the two standards was discussed in the review where the PMBOK is oriented towards single projects management while OPM3 is oriented towards the project organizations. Thus OPM3 can be regarded as a later development in PM "knowledge base" which the model should consider. A developed model should reflect more flexibility towards the organizational project lifecycle needs, which are process, objective and result specific (PMBOK, 2013 – p. 38). The direction towards adopting OPM3 will not affect the essence of the existing model since the project process groups, including area processes, is in the heart of OPM3 as discussed in the review. Respecting the PLC will eventually reflect organizational and project governance implications on PM process.

2. The model was developed primarily for organizations "trying to adapt and implement PM" (Kwak & Ibbs, 2002) for a wide range of industries (kwak & Ibbs, 2000). Perhaps a possible direction of development would be to further elaborate the process descriptions to allow for more direct association to the different organizational forms i.e. the project-based organizations and organizations practicing organizational project management – also discussed in the review.

Whatever developments the process maturity model might have, matching the level of maturity with the resulting project performance will remain a key feature in the model (Kwak & Ibbs, 2000) – also discussed in Part A of the literature review.

<u>Interview preparations, commencement and data organization:</u>
Using the interviewee codes developed in Chapter 3, the paper sets which will be used in assisting the interviewer with interview administration and taking notes, were prepared in order to commence the data collection phase. However, a number of difficulties were experienced:

1. It took a long time to get the organization's consent to conduct the interviews and coordinating the meeting details with the pre-selected 'experts'.

2. Only eight, out of fifteen, interviews were conducted due to the time and geographical constraints encountered. However, enough effort was spent to ensure the conducted interviews cover all process and units focusing on including the 'senior' representing the 'administration' and at least one 'expert' representing the 'core'. In addition, at last two experts were interviewed from each unit except 'contracts' where only one person was interviewed. An attempt was made to interview distant interviewees but it turned out to be ineffective. One of the nearest 'sites' expert was visited and interviewed. Also, the top management 'executive' interview did not take place for schedule related reasons. The figure below shows the codes of the interviewed persons.

	depart.	org. level	male/ female	national/ expat.	HQ/ Regional	interview code
	LIST OF INTERVIEWED PERSONS					
☒	TM	executive	M	N	Q	TM-executive-MNQ
1	PMO	senior1	M	N	Q	PMO-senior1-MNQ
2	PMO	expert2	M	X	Q	PMO-expert2-MXQ
3	PMO	expert3	M	X	R	PMO-expert3-MXR
4	Design	senior2	M	N	Q	Design-senior2-MNQ
5	design	expert4	M	X	R	design-expert4-MXR
6	contracts	senior4	F	N	Q	contracts-senior4-FNQ
7	sites	senior3	M	N	Q	sites-senior3-MNQ
8	sites	expert1	M	N	Q	sites-expert1-MNQ
☒	contracts	expert5	M	X	R	contracts-expert5-MXR
☒	sites	expert6	M	X	R	sites-expert6-MXR
☒	sites	expert7	F	N	R	sites-expert7-FNR
☒	sites	expert8	F	N	R	sites-expert8-FNR
☒	planning	expert9	F	X	Q	planning-expert9-FXQ
☒	quality	expert10	F	X	Q	quality-expert10-FXQ

3. During the interviews, the difficulties of conducting 'expert interviews' highlighted by Flick (2009 – p. 166) in the methodology section of Chapter 3, were experienced in terms of the lack of interviewees free time and directing the conversation in a manner to collect the required information. Therefore, the interviewer made sure the interview time was well invested and the necessary information collected. The structure of the interview questions was not followed precisely but the sequence of the question groups, associated with interview requirements and methodology in Chapter 3, was maintained.

4. The interviewee replays were noted in the 'interview questions list', where the code of the interviewees was featured to keep track of the records. The extracted information were then kept in an electronic spread sheet to document the recorded data in preparation for analysis.

5. The data were then sorted by unit and presented in a tabular format for demonstration – see thumbnail in the figure below.

The collected data will be reviewed in the following section.

Data review and representative sampling:

The data will be represented following the project life cycle stages and hence the units order of the PMO interviews coming firstly and followed by the 'design', 'contracts' and 'sites' interviews respectively. The data review will demonstrate how the status of PM effectiveness can be used to investigate the responsible dimensions and behaviours using subjective meanings. To deliver this purpose, representative samples from the first three interviews with the 'experts' from the project management office, will be provided. Data from the rest of the interviews will be extracted in a schedule with necessary observations and highlights.

The PMO unit Interviews (representational):

PMO-senior1:

Using the process maturity level (PML) table extracted from the adopted maturity model, the interviewee expressed his view that the PMO's initiation process is consistent with Level 3 in the PML chart – a level characterized by the formal review and approval of project plans in a systematic manner that is beyond arbitrary application (as would be in Level 2) and below a multi-project integrated phase (Level 4). The interviewee interprets the consistent *production* of the project management plans (PMP) as an evidence of process effectiveness. This view was challenged by referring to performance reports showing that most plans had time and cost variances. The occurrence of unanticipated 'post-plan' developments was given as the reason behind the plans' reduced effectiveness. The interviewee practiced a level of discretion when asked if the discussed cases can be taken for signs of system dysfunction.

In the second questions group, the interviewee identified (1) formalization as the dimension responsible for the plans' inaccuracies because "even if certain projects were initiated by other departments, their plans have to be processed to SG1 through the PMO in retroactive effect to satisfy the formality… leading to PMO being responsible for the project variance although it is technically not ours". The interviewee also identified (2) centralization as a responsible dimension since it was found that the adoption of projects initiated by other units was forced onto the PMO by decisions from the top management. The final responsible dimension identified by the interviewee was (3) specialization due to the PMO's advised inability to utilize other units' resources, such as 'design', to improve the project plan details until SG1 has been approved, by the time of which the project variance is irreversible. When asked if these issues can be enhanced, the interviewee defended the existing conditions despite the discontent, "the current PM methodology is only five years old" which should be kept the same in order not to "disturb the workflow"..

In the third group, aimed at identifying the interviewee's subjective position from the process status of effectiveness (symbolic interactionism first premise), leading to adapting performance-affecting behaviours (third premise), the interviewee was found to be satisfied with the overall process effectiveness given "the large number of projects" carried out successfully. Discouraged by pessimistic expectations, the interviewee showed no intention to utilize any of the suggested coordination mechanism to enhance the predictability of the stage gate approval dates residing with the other units, during the plan preparation phase. Here, the effects of 'subunit orientation' on opportunities for effectiveness improvement can be seen. The status quo was regarded by the interviewee as "inevitable".

Come the fourth group of questions, the attention was directed towards identifying the behaviours exerted or observed by the interviewee who seem to have adapted an attitude, out of the tight formalization and specialization environment, to follow available rules even if

they lead to ineffective results "trained incapacity", since "delaying the issue of the project plans for further fine tuning would delay the following project stages unnecessarily". Having a small team of six people working under his direct supervision has allowed the interviewee to have a reasonable 'span of control' giving the complexity of the tasks they do. The interviewee learned to differentiate their specialization in order to partially compensate the resource gab he would to develop comprehensive project plans.

The fifth group of questions was used to identify the impact of the developed behaviours and attitudes on PM effectiveness. The interviewee was confronted with two strategies spotted during the interview in dealing with uncertain project plans; (i) processing standard projects, and (ii) delaying risky ones until asserted. He was asked to evaluate the impact of these strategies on later project effectiveness. It turned out that integration mechanisms such as 'direct contact' (to follow up on notes recorded in the project plans) or 'task force' committees (to solve escalated risks), were adopted on running projects to balance the barriers of specialization (Jones, 2013 – p. 99).

PMO-expert2:

This interviewee also, like the senior, agrees to Level 3 as the level appropriate for the initiation process. When asked if the plans he produces were effective to his opinion despite the cost and time variances spotted in the reports, he owed the occurrence of such variances to the dysfunctional processes of the 'sites' unit in advancing the progress on site and to 'project change' resulting in an increased of the projects final value. A note was taken to check these aspects when interviewing the 'site' experts. The interviewee was reminded of the variances in other stages of the PMO plans which still require explanation. The interviewee noted that "the delay between SG1 and SG2 is out of our control" in reference to the external governance factor discussed in Part B of the literature review and the beginning of this chapter. These effects will be further investigated in the interview to be conducted with the 'contracts' senior responsible for that process.

In the second and third group of questions, the interviewee identified the following dimensions as responsible for the status of ineffectiveness; (i) centralization, for having to accept some imposed deadlines and estimates despite his judgement, and (ii) specialization, for having no authority over the process in the other units which carry out the work planned by him. The interviewee was 'indifferent' towards the fact that he sometimes has to produce ineffective plans "as long as this is the way it should be done". Being indifferent to organizational goals is a sign of bureaucratic organizations Theory X (McGregor, 1957) reviewed in Part B. When the interviewee was asked if the imposed dates can be achieved

by ensuring appropriate planning techniques are committed by the contractor in stages as early as the negotiation or even the proposals submission stages in procurement, he explained that first communications with the contractors are only allowed after award of contract for integrity reasons. Another aspect of governance is identified here.

The fourth group of questions revealed that the interviewee depended on the cooperation of other PMO colleagues. It was interesting to notice that the horizontal differentiation of the PMO teams allowed for the creation of achievement-oriented constructive norms (Balthazard, Cooke & Potter, 2006) – mentioned in Part B. However, the interviewee revealed that "people" in the other units refrained from extending their cooperation to him in order not to "get implicated in PMO problems". The reason could be owed to the degree of specialization, or the 'state of segmentation' using Lawrence and Lorsch (1967) terms, preventing the need for such cooperation. Another reason could be the recent joining date of the interviewee to the organization given the time it would take a newcomer to develop interpersonal relationships. The norms in the following units shall be observed.

In addition, it was found that the interviewee has developed an attitude where other units' cooperation is enforced by written instruction channelled through the upper hierarchical lines. The interviewee uses the centralized hierarchy to induce effectiveness. The interviewee is also of the view that the standardized procedures need to be more efficient as they usually "take a long time in process". This notion supports the PMO senior comments about available procedures.

PMO expert3:

The interviewee's view of the initiation process PML was consistent with previous assessments (Level 3). When asked about the ineffectiveness of the project plans and the resulting variances, he explained that the design stage variance normally occur due to shifting project priorities of the 'design' unit which, when changed by the 'upper offices', would result in delaying his baseline. Again, the issue of centralization, which he identifies in the second question group as the impacting dimension, arises as cause of ineffective PMPs. The interviewee adds another dimension; specialization, as the cause forcing the PMO to adopt project initiated in other units "to complete the formality". However, the use of 'direct contact' integration mechanisms (for example, site meetings and providing technical advice on site) was demonstrated by the interviewee to reduce the negative impact of less developed PMPs to manage change and deliver the projects successfully. Another example of how the power of the hierarchy can be used to enforce effective measures was

demonstrated when the interviewee explained how "the recommendations that (they) believe are crucial" get imposed from the top.

Nevertheless, the third group of questions revealed that the interviewee is unsatisfied with the effectiveness of the initiation process although necessary pressure tools are available through the centralization dimension since the effect of these tools takes place "after the fact" i.e. when the variance has already happened. The interviewee revealed that an attitude of empathy has developed in the PMO towards the chance of one of them get "unfortunate and… have to deal with the consequences" of a varied project plan. When put together with the norms of the in-unit cooperation, mentioned by PMO exper2, the internal team cohesiveness of the PMO unit can be regarded to the small size of its teams. Porter & Lawler (1965) identified the opposite effects of size on 'group cohesiveness' in large organizations giving a logic to this conclusion. In the fourth group of question, the interviewee identified *unit* configuration (responsible for unit size) as another dimension behind group norms. The interviewee also confirmed that being an old member of the organization provided him with the chance to build a network of interpersonal relationship which he can use to "work things out" within the PMO as well as in the other units – unlike PMO expert2 who could not develop such networks for being a newcomer. This was taken as a positive effect of the 'informal organization' which importance is neglected by the bureaucratic organization (McKenna. 2012).

In the fifth group of questions, the interviewee was asked if he thought that cooperation (the informal organization) was sufficient enough to make PM process effective, he answered that it "does mitigate risk so it can be said that it could enhance the (status) of effectiveness but not the overall process". Previously in the interview, it was noticed that the interviewee, like the senior, was 'indifferent' to the organizational goals as the people deal with work problems "using available means. The result is something else". The observation here is whether the tenure duration in the bureaucratic systems is related to attitudes such as 'trained incapacity' and 'being indifferent'. With regard to a question of what can be done to process effectiveness, the interviewee suggested overlapping PMO and 'design' functions to lead to less scope and cost variance. When asked if that would also reduce the time variance, he stated that time delays in SG2 and the execution stage are "uncontrollable".

The remainder interviews (extracted):

The 'design' unit Interviews:

Design senior2	Planning process:	Observations:
PML level and	Agrees to Level 3 with the effectiveness sign	Strong subunit

effectiveness:	being identified as receiving minimal tender and site queries (meaning that the produced project documents are consistent and complete). The interviewee also views measuring effectiveness of his process should limited to his stage and not the entire project life cycle.	orientation supported by sharp specialization
Identified dimensions:	Identified specialization as the dimension responsible for his unit's high KPI. Specialization lead to effectiveness.	specialization and
	When asked how they avoided schedule interruptions and mid-design changes, he identified standardization as the way for limiting and controlling such interruptions. It is noted that high specialization led to the unit treating other units are external organizations against which the internal resources should be protected i.e. creating a bureaucratic core.	standardization Bureaucratic core (Mintzberg, 1979)
Resulting attitudes and behaviours:	Regarded unit PML as satisfactory… project delays or change "is not a design issue".	Subunit orientation
	Perceives duties assigned from PMO by reviewing 'external consultant' submission, who the 'design' unit does not get to select, as resources consuming and destabilizing.	Bureaucratic core norms
	The PMO being liable for the external consultant effectiveness while the 'design' unit is responsible for the quality of the technical scope creates a 'role conflict' – out of lack of coordination across the differentiated tasks.	Role conflict requires integration mechanism to achieve task coordination
Reverse behaviours	Subunit orientation leading to considering process success as one of the internal design	Subunit orientation

impacting effectiveness:	while delay in external consultant approvals and its impact on project effectiveness is irrelevant… "It is not our problem".	
Design expert4	**Planning process:**	**Observations:**
PML level and effectiveness:	Agree to Level 3. Views unit effectiveness is both process-inherent and team-inherent (same people spending a long time doing same work > division of labour leading to specialization)	Specialization
Identified dimensions:	Identified specialization as the responsible dimension for unit effectiveness	Specialization
Resulting attitudes and behaviours:	Interviewee was asked same questions asked for his senior. Answers confirm subunit orientation attitudes.	Subunit orientation
	Interviewee was also asked if they shared the same cooperation norms as PMO. It was found that the jobs are so specialized and differentiated that there is no need to adopt such norms. Instead… "Everybody knows what they have to do".	Sharp role differentiation eliminated need to build cooperative norms.
	Work pressure at peak times requires 'design' teams to work "until work is complete". In absence of overtime compensation (standardization here as the legitimizing circumstances), the unit develop a norm to reward by practicing more flexibility in giving short and personal leaves which makes employee feel satisfied.	Mutual adjustment. Interestingly, staying as long as takes to complete the work is completed is a Weberian view of the 'modern organization' – i.e. bureaucracy (Weber, 1922)

Reverse behaviours impacting effectiveness:	When asked if process effectiveness could be affected by long working hours under time pressure and if something should be done to remove these peaks in the first place, it was found that the informal organization agreed-upon rules have resulted in making it acceptable due to people's satisfaction with the informal rewards system.	Informal organization agreed-upon rules.

The 'contracts' unit interview:

Contracts senior4	Initiation process (SG2)	
PML level and effectiveness:	Agrees to Level 3. Interviewee showed that her process effectiveness is often compromised by 'design' in delaying reply to technical queries. Another side of ineffectiveness is delayed award recommendations (out of workload) delaying SG2 approvals and project kick-off. Interviewee views this as "good delay".	Role conflict in absence of coordination mechanisms Subunit orientation
Identified dimensions:	Interviewee identified formalization as the responsible dimension behind technical queries delay and leading to tender extension or increased offer values. Formalization was enforced by standardization as the latter ensures that the replies are signed and documented even it leads to further delay, which the interviewee does not mind since it is "a matter of compliance" (legalistic organization)	Formalization Specialization Legalistic organization
Resulting	Also, centralization was viewed as good	Centralization

attitudes and behaviours:	means to enforced desired responses from 'design' and expedite replies on technical queries.	Use of hierarchical authority
	Being in the heart of organizational and project governance policies, 'contracts' developed strong subunit orientation which is evident in disregarding the impact of SG2 delays on overall PM effectiveness… "We have a specific role and we will fulfil this role".	Strong subunit orientation supported by SG2 milestone and governance policies
Reverse behaviours impacting effectiveness:	Creating a 'liaison role', through differentiation, was agreed to be a good mechanism to increase the queries effectiveness while maintaining the standardization requirements.	Liaison role is needed to increase effectiveness

The 'sites' unit interviews:

Sites senior3	Execution, controlling and closing process	Observations
PML level and effectiveness:	Agrees to Level 3 in all processes. Sees maturity reflected in ability to execute QA/QC policies and closing procedures. The interviewee links process effectiveness to contactor capabilities.	
Identified dimensions:	For a standard project with a good contractor and no change orders, the interviewee (assisted) was able to identify 'size' as the impacting dimensions due to the large number of teams disbursed over vast geographical areas. Communication and performance problems were linked to 'long span of control'.	Size with hierarchical and span of control issues
	Also, centralization was responsible for time-consuming decision making and procedure	Centralization

	delays due to 'long hierarchy' and vertical differentiation.	
	Formalization and specialization were identified as responsible for the extended paperwork circulations which cannot be reduced … "we cannot compromise the integrity of our process due to our direct relation with financial and legal aspects of the contact".	Formalization and standardization
Resulting attitudes and behaviours:	Unsatisfied with process effectiveness and left with no option to further delegate power in key issues due to centralization and project governance requirements, the interviewee adopted 'aggressive' management style (Balthazard, Cooke & Potter, 2006) to gain control and reap effectiveness. Impact of such style should be observed in the next interview.	Aggressive managerial style
	On the contractors' side, the aggressive style was extended (blacklisting and works withdrawal) to control contractor behaviour and achieve desired performance… "We are very serious'.	Aggressive managerial style
Reverse behaviours impacting effectiveness:	The Inapplicability of discussed solutions (such as (i) taking the contractor prequalification role from 'contracts' to limit "bad performance' and increase process effectiveness and (ii) reconfiguring the unit design), will encourage the current aggressive styles which effects should be identified with the next interviewee (sites expert6).	Existing conditions enhance the aggressive styles
	Existing conditions result in high turnover in two directions; people being let go and people	High turnover

Sites expert1	Execution, controlling and closing process	Observations
	deciding to leave out of pressure. Effects are to be explored in next interview.	
PML level and effectiveness:	Agrees to level 3 on all processes. The interviewee owes process ineffectiveness to contractor performance and delay of procedures.	
Identified dimensions:	The interviewee identified size, centralization and standardization as the dimensions affecting process output.	Size Centralization Standardization
Resulting attitudes and behaviours:	The interviewee is unsatisfied with the process effectiveness because "our team effort is not tangible… projects… are delayed… although it is the contractor". Demanding job requirements and aggressive control (job-threatening evaluations) have led to the creation of 'internal competition' between subordinates and the 'displacement of goals' despite role clarity and high specialization. Also, the interviewee revealed that teams have developed passive behaviours by exploiting bureaucratic procedures and "throwing responsibility around and pointing fingers at each other" – passive norms and defensive behaviours developed by employing ineffective standardization.	Internal competition Displacement of goals Defensive norms by avoiding responsibility
Reverse behaviours impacting	Interviewee agrees that negative attitudes are have a reversed effect on process effectiveness.	Liaison roles were recommended

effectiveness:	Liaison roles were agreed to be potential solutions for standardization and centralization persistent realities.	

Data analysis and findings:

The state of effectiveness in ABC:

The first group of questions revealed that identifying the level of process maturity, by linking the maturity model descriptions to the applied process in the organization, was relatively easy to all interviewees. This is expected from a group of people in their calibre and familiarity with the organization. However, it is the state of effectiveness which was the subject to controversy among these professionals. Their personal interpretations of how the organization works and the behaviours they create eventually were found to be crucial to the endurance of current PM processes and the sustainability of their achieved maturity levels despite the challenges raised by the inherent organizational characteristics on PM process. The role of the human attitudes in affecting PM effectiveness was therefore observable.

Moreover, it was found that by using the subjective interpretations of the experts interviewed, it was possible to engage a critical discussion about (i) the organizational factors impairing their ability to achieve the organizational goals effectively as well as (ii) the dysfunctional attributes of the organisation.

In general, the identified level of process maturity was interestingly identified to be at Level 3 for all of the five main processes. However, it was noticed that the PML levels in ABC and their observed effectiveness are not consistent. For example, despite the fact that the quality procedure responsible for keeping the project records in the 'execution' process was found to be degraded (applied informally and selectively as would be found in level 2 of the PM^2 model), the actually identified PML for the 'execution' process was found to be higher at level 3. This can be explained by considering the nature of the organization being a public entity where the underperformed procedure can be leveraged. Therefore, the claim that the factors affecting the achieved level of PM effectiveness could reside in factors pertaining to the organization rather than the PM process itself, could be supported under this finding.

Identified structural dimensions:

The findings in regard to the impacting structural dimensions in ABC were summarized per unit in the following schedule:

Unit:	Process:	Structural dimension:	Impact:
PMO	Initiation (SG1)	Formalization:	Project plan variance.
		Centralization:	Adoption of projects initiated by other units. Imposed project durations and estimates. Ineffective project plans.
		Specialization:	Cannot utilize other unit project resources. Adopting other unit projects to obtain SG1.
'design'	Planning	Specialization:	Sharp division of labour Increased process maturity
		Standardization:	Bureaucratic 'core'
'contracts'	Initiation (SG2)	Formalization:	Technical queries delay Tender duration extension Increased offer values
		Specialization:	Legalistic organization
'sites'	Execution, controlling & closing	Size:	Ineffective communication Lower project performance
		Centralization:	Slow decision making
		Formalization:	Extended paperwork cycles
		Specialization:	Ineffective procedures

The main findings with regard to the organizational dimensions are as follows:

1. The observed impact of a certain dimension may manifest differently depending on the nature of the unit's arrangement (its organizational design). For example, the specialization dimension has affected the PMO more differently than the 'design' unit. The PMO was affected by not being able to use 'design' resources to enhance the quality of the project plans, while the 'design' unit was the benefited from

specialization by being able to create a 'bureaucratic core' that nurtures the increase of their process maturity and meeting their internal objectives more consistently.

2. Certain units, such as the PMO, tend to use the strength of bureaucratic centralization in a positive way to boost cross-unit collaboration, meaning that the power of the hierarchal line can be cultivated as an effective means to overcoming aspects of the bureaucratic dysfunction.

3. The dimensions of formalization and standardization are often interrelated. Seeking conformity may lead to either increased standardization or formalization depending on how the performing unit approach it. For example, the 'contracts' unit achieves conformity to the written rules by applying more standardization to ensure the tender query replies are in order, while the 'sites' unit utilizes more formalization to complete project records and achieve comply with contractual requirements.

Another observation can be made about the difficulties experienced while conducting the interviews. It was realized that the second and third question groups (investigating dimensions and attitudes respectively) were interlinked in the sense that many aspects of the interviewees' attitudes were revealed ahead of time when the interviewees were providing their answers about the second questions group. This practical experience supports the notion that organizational structure and social structure are seamlessly connected.

Identified attitudes and behaviours:
The following schedule shows the identified attitudes and behaviours distributed by unit and structural dimension:

Unit:	Dimension:	Attitudes and behaviours:
PMO	Formalization:	Trained incapacity
	Centralization:	Using power of hierarchical lines to achieve results
	Specialization:	**Subunit orientation** achievement-oriented constructive norms
	Small size	Team cohesiveness
'design'	Specialization:	**Subunit orientation** Bureaucratic core norms (other units as external orgs.) Role conflict with PMO (external consultants) Non-cooperative norms Weberian view of the developed office (extended work hours)

'contracts'	Specialization:	Role conflict with 'design' (tender queries)
		Subunit orientation (out of governance)
	Centralization:	Using power of hierarchical lines to achieve results
	Formalization:	Legalistic organization
'sites'	Size:	Ineffective communication
		Long span of control
	Formalization:	Aggressive styles (job threatening evaluations)
		Aggressive styles (internal competition)
		Defensive norms (avoiding responsibility)
		High turnover
	Centralization:	Slow decision making
	Specialization:	Displacement of goals
		Role conflict with 'contracts' (contractor prequalification)

The main finding in this area were that:

A. Specialization dimension:
  1. Specialization is responsible for the creation of *negative behaviours* such as (i) subunit orientation in each of PMO, 'design' and 'contracts', which has a negative impact on process effectiveness, and (ii) role conflict between the three units.
  2. Specialization played a *contradicting role* in helping cultivate positive norms such as in the case with cooperative PMO teams and the 'design' unit commitment to finishing the work, from one side, and at the same time, creating role conflict between PMO and 'design' and between 'design' and 'contracts'.

Therefore, clarifying the effects of specialization requires further investigation in order to understand its relationship with the different variables in the organization.

B. Unit size: it was observed that size helped develop different behaviours in the smaller units (such as cooperative teams in PMO) than in large units (such as 'sites') where it was observed that;
C. Formalization: can be used as a behaviour control dimension but considering the aggressive styles manifested in the unit, formulation resulted in creating several negative behaviours.

D. <u>Centralization:</u> with all departments being subordinate units in a highly centralized bureaucracy, the units developed a behaviour to use centralization as means for enforcing cross-unit collaboration to achieve effectiveness, as discussed in the previous section.

An observation can be made about the dimension of standardization which does not seem to have induced specific behaviours. Rather, it was noticed that standardization was *employed* by the units to place obstacles in front of other units such as in the case of 'design' with PMO design change requests during the design process.

Another observation can be made about the dimension of 'configuration'. It was noticed that configuration (the shape of role structure) was *absorbed* in the characteristics of the specialization dimension which is responsible for; division of labour, task and role differentiation, vertical and horizontal differentiation and choices of the integration mechanisms (Jones, 2013 – p. 93)

Identified impact of OD on PM effectiveness:

The fourth and fifth group of questions separated two types of behaviour; those created by the first premise of the psychological concept of symbolic interaction (people initially *act out* in accord with their pre-existing subjective meanings) and the third premise (people *handle/respond* to the situations they experience based on their subjective interpretations). Hence, the following table was created to demonstrate the two types divided by unit:

Unit:	Impacting/reversed behaviours:	
	Positive:	**Negative:**
PMO:	- Integration mechanism (direct contact) - Integration mechanism (task force) - Use of power of hierarchal lines to overcome bureaucratic dysfunction - Informal organization (cooperative)	- Being indifferent to organizational goals. - trained incapacity
'design':	- Informal organization (finding an alternative reward system) - Use of power of hierarchal	Sustaining subunit orientation (being accustomed to negative

	lines to overcome bureaucratic dysfunction	dimensional impact)
'contracts':		
'sites':		• Turnover (deciding to leave)

The main finding is that members of the organization were able to develop positive behaviours to overcome some of the dysfunctional aspects in their organization. It was noticed that the structural and social complexities imposed by the organization's type and function have led in some cases to the promotion of the informal organization by using interpersonal relationships to workout ineffective processes. In other cases, the same have led lead to the creation of negative behaviours as we have seen in the case of the 'design' unit where a strong subunit orientation was endorsed to pursue the units own goals. While the first behaviour may have availed the conditions for more effectiveness, the second behaviour may result in the opposite. However, it should be observed that these two behaviours, representing the third premise of subjective interactionism, are reactive to the organization's design i.e. produced by it. Thus, the case for the impact of organizational design on effectiveness through people's behaviours can be demonstrated.

Findings summary:

The findings of this research can be summarized as follows:

1. The analysis of the organizational process, as identified in ABC's documented PM methodology, revealed important notes about the applicability and directions of development in the PM² model which was adopted in order to identify ABC's process maturity levels.

2. The analysed data revealed that the investigated PM process state of effectiveness is inconsistent with the process maturity levels (PML) identified for these processes. It was therefore proposed that the factors impacting the status of effectiveness could reside within the organizational settings and not only the direct PM processes.

3. The data collected from the interviewees helped identify the dimensions impacting the effectiveness of PM process in ABC. It was observed that the structural dimensions' impact on the units depended on the relation between these dimesons and the nature of the process these units are performing.

4. The interaction between structural and social dimensions of the organization helped develop certain behaviours and attitudes which require more attention and further empirical research to explain the variables affecting these relationships.

5. The behaviours developed by the people in reaction to the above were identified using the collected data. It was found that the positive part of these dimensions helped increase the effectiveness of PM process, while the negative behaviours have produced ineffective practices.

<u>Conclusions:</u>

Based on the findings above, it can be concluded that in order to capture the complexities of the lived reality in the project-based organization, the definition provided in this dissertation for the organizational design must be borrowed to meaningfully reflect the interactive elements responsible for the organization's status of effectiveness in a dynamic and continues way. The study have also demonstrated that an "interpretivist" approach to the phenomenon of project management effectiveness in PBOs can lead to the identification of the organizational characteristics and behaviours explaining it. Indeed, only with such explanation may we being to inquire about the real factors affecting the performance of our project organizations. Due to the modal nature of PM effectiveness, given the continuous organizational interactions with PM processes, it is believed that organizations are required to continuously monitor the factors affecting its ability to perform as intended. The preservation of an effective organizational design is therefore a critical requirement.

Among all observations, it was significantly noticed that the positive behaviours adopted by the investigated units were in fact a representation of the 'integration mechanisms' cited in the literature. This indicates the importance of training in raising the organizational awareness and ability to moderate the impact of the organizational structure using these mechanisms.

Perhaps the most important finding in this research is that, in the same way the organizational dimensions cause people to *act* predictively (supported by a large amount of empirical research), the people *react* interpretatively in ways that either fix or deteriorate the organizational situation. The initiative to play a positive role in this interactive environment relies on the organization's awareness and willingness to induce desirable change.

In summary, this study concludes that organizational design and project management effectiveness are correlated. Therefore, the mutual effects of these elements should be monitored and controlled.

<u>Recommendations:</u>

The study highlighted the importance of integrating empirical data from quantitative studies into qualitative research to reap the benefits of both approaches. An empirically assisted research can therefore provide important insights for future research. In this regards, it must

be stated that the results of this study cannot be generalized for being context specific. However, the implication for future research are clear.

One the implications observed during literature review was that more research is needed in the field of project-based organizations, particularly the permanent types, such as PM public organizations (such as ABC), consultancy firms and professional PM services organizations.

Finally, the study is hoped to inspire other researchers and professionals to conduct a similar investigation in project-based organizations in order to further extend our understanding of project management.

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