1. INTRODUCTION

1.1 The Emergence of Enterprise Applications (EA) in Public Sector and Government

While the adoption of enterprise applications (EA) by public sector and government has significantly lagged the private sector (Harris, 2004), the gap has narrowed and public sector as well as government organizations have moved steadily towards the adoption of EA systems (Miranda & Kavanagh, 2005; Miranda, 1999). Public sector organizations of all sizes have increasingly adopted EA systems to address administrative inefficiencies and service delivery challenges associated with archaic custom-built IT systems (Beal & Prabhakar, 2011). Adoption of EA in Public Sector Undertakings (PSUs) and Government organizations in India has also got established over the years and currently about 175 such organizations use one or more types of enterprise applications.

1.2 The Motivations for Research

The key motivations for undertaking this research lie in the effects of increased adoption of EA by public sector and government organizations. One, the increased use of EA over time has resulted in significant lessons whose impact needs to be measured. Two, even as adoption has increased, PSUs and Government still debate on the usefulness and mechanisms of EA implementation and need to have a framework by which they can evaluate the effectiveness of existing implementations. Lastly, EA adoption has meant significant government spending. Project sponsors are being asked to establish a clear and compelling connection between the
costs of the technology and the tangible benefits the organization can expect to see as a result of the technology (Harris, 2004).

1.3 Gaps in current research on EA in Public Sector and Government

Even as the adoption of enterprise applications in public sector and government has increased significantly over the years, the current review of literature exposes a few critical gaps.

One, most research regarding EA implementation has focused on the private sector, with relatively little research done in public organizations, especially regarding the impact on organizational processes and individual behaviors in a public sector setting. Even though EA systems have been more popular in the private sector, they have gained acceptance in the public sector as well (Sprecher, 1999) and there is a need to understand the process by which EA impacts the performance of public sector and government organizations. While the literature on EA systems is significantly wide, there is still a gap, which may be filled with additional research in this field (Al-Mashari, 2002). Raymond et al. (2005) state that more research regarding ERP in government and public organizations is needed. The interest generated by the ERP phenomenon in the public sector, and the particularities of this sector make specific studies of ERP in government organizations necessary (Raymond et al., 2005).

Two, notwithstanding the significance and increased deployments of EA in public sector and government over the years, there is very little understanding of the impact and value that has been brought to these Organizations and its stakeholders/beneficiaries due to adoption of
Enterprise Applications. The limited understanding that is available is mostly through handful of case studies and anecdotes which are focused more on the implementation and its benefits, rather than an attempt to understand the process of deriving such benefits in the context of the entire organization. For example, while GFOA's (Government Finance Officers Association) book, "Enabling Technologies for Government Transformation - ERP and Beyond", consists of several chapters that describe the many ways government are using new technology to deliver value to citizens and stakeholders, it is only a compendium of experiences from a diverse group of academics, consultants, and public managers that work on a daily basis in an industry focused on introducing and sustaining positive change in the public sector and does not provide a generalized framework for assessing the impact on performance and the process by which such impact is achieved (Miranda & Kavanagh, 2005). Additionally, most of the Information Systems (IS) Researches in the Public Sector and Government have either not kept Enterprise Applications as their independent variable for analysis, or they are not in the Indian context.

Three, the sustained interest in implementing EA systems, and the consequent life cycle issues which deals specifically with major EA life cycle implementation, management and support issues in the context of the public sector (this need was espoused in Gable 1998; Gable et al. 1997, 1998) has been the key focus area for several researches on public sector EA. The research projects have been designed to explicate the major issues in relation to the ERP life cycle within several public sector departments (Chang et al. 2000). Subsequently also the focus of research in public sector EA has been primarily on implementation issues. There is very little by way of empirical research on EA implementation in public sector and government that measures the
impact of such implementations and the process by which such impacts on performance are achieved.

*Four*, from the point of view of measuring the impact on performance, despite several evaluation models of IS, there is little by way of frameworks measuring the value of enterprise applications in the public sector and government organizations (Prakash et al 2009). In July 2003, Gartner, Inc. published a research document titled ‘Traditional ROI measures will fail in government’, which highlighted the need to appraise IT investments by exploring ‘public value’. There is a suggestion that rather than business value of IT, governments should adopt a different concept, i.e., public value of IT (PVIT) (Maio, 2003). Frye et al. (2007) clearly focus on the critical success factors (CSFs) for public sector enterprise software implementations and their research concludes that differences exist between CSFs in the private and public sector enterprise software implementations. The measurement of value in the context of the public sector and government is complex and unique. Also, it is critical that the value is measured to ensure accountability of public money invested in EA projects. The current state of research exhibits gaps in the area of using value framework for measuring the impact of EA on the performance of public sector and government organizations.

This research endeavors to close parts of these gaps through a deep empirical study in the domain.
1.4 Key Research Objective and intended Contributions

Given the background, motivations and gaps in this sphere of knowledge, this research is aimed at fulfilling the key objective of measuring the impact of enterprise applications (EA) on the performance of public sector and government organizations through an empirical study supported by quantitative analysis of data obtained from public sector and government organizations in India which have implemented EA.

In its attempt to fulfill the above said objective, the research aims at:

1. Understanding the impact on the performance through the process of value creation in the limited context of enterprise applications in public sector and government organizations
2. Determining the validity of the assertions of the management theory of Resource Based View (RBV) in the limited context of enterprise applications in public sector and government organizations
3. Defining resource capability and public value in the context of enterprise applications in public sector and government organizations

This research, therefore, fulfills the aforesaid gaps in the current state of knowledge by

- Focusing specifically on public sector and government organizations,
- Going beyond case studies and using empirical research as its methodology,
- Exploring the impact on performance and not just the issues of implementation lifecycle,
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- Providing a renowned framework - RBV theory of Sustainable Competitive Advantage (SCA) - as the mediating dimension for impact assessment, and
- Utilizing the appropriate public value framework for defining performance.

For the purposes of this research Enterprise Applications (EA) includes not just ERP but all the related integrated applications including SCM, SRM, CRM, BI and others. Additionally, the coverage of organizations for this research extended to public sector companies, government owned enterprises, Central and State government ministries and departments.

1.5 Domain of Knowledge and Research Framework

In order to assess the impact of enterprise applications (EA) on the performance of public sector and government organizations, the research identified four major domains of knowledge. First, enterprise applications and their various types were studied and identified for the purposes of this study. Second, the theory of resource based view (RBV) was considered as the major construct and hypothesized to be mediating the relationship between EA and performance. Third, the performance dimension necessitated a deep investigation into the concept of measuring performance for public sector and government organizations (very different from Private enterprises, Gartner 2003) with specific reference to EA. This resulted in the proposition of public value of IT (Maio, 2003) being used as a key construct to measure performance. Public value of IT (PVIT) is a set of measures that demonstrate how IT-related changes and investments contribute over time to improved constituent service level, operational efficiency and political return. Fourth, the enveloping domain of information systems in public sector and E-Governance
formed an important pillar of study to understand various aspects of IT systems, processes, benefits and impact on performance. Each of these domains of knowledge is expounded in the chapter on literature survey.

As a framework, this research fundamentally explores the linkages between enterprise applications (EA), resource capabilities (RC) and public value of IT (PV) in order to determine the nature and process of impact of enterprise applications on the performance of public sector and government organizations. The RBV theory provides a valuable way for IS researchers to think about how information systems relate to firm strategy and performance. Literature on IS which use the RBV theory clearly concludes that firms with superior IT capability also exhibit superior firm performance (Bharadwaj, 2000; Mata et al., 1995; Ross et al., 1996; Feeny and Willcocks, 1998; Ray et al., 2001), but this becomes possible only through the interrelations and complementarities of other organizational resources (Powell and Dent-Micaleff, 1997; Lopes and Galletta, 1997; Armstrong and Sambamurthy, 1999; Pereira 1999; Zhu, 2004).

In view of the above studies it is hypothesized that the linkage between EA implementation and firm performance is not completely direct. It is the impact of EA on resource capability that determines the long term sustainability of firm performance. In the context of ERP implementation in public sector and government where the firm value is actually measured as Public Value of IT, Figure 1.1 illustrates the linkage between enterprise applications (EA), resource capability (RC) and public value (PV).
To summarize, the public value (PV) derived from implementation of enterprise applications (EA) in public sector organizations is a resultant of augmentation of resource capabilities (RC) and not completely direct.

Consequently, research questions relating to adoption of EA and its impact on performance; impact of enhancement of RC on performance; impact of adoption of EA on RC; relationship between EA and performance being mediated by RC; and constructional definition of RC and performance in the context of EA in public sector and government organizations are addressed by related classes of hypotheses viz., (1) Levels of EA adoption are positively related to Performance; (2) Levels of RC are positively related to Performance; (3) Levels of EA adoption are positively related to RC; and (4) RC mediates the relationship between EA and Performance.

1.6 Organization of the Thesis

The thesis is organized into six chapters. In the first chapter, the motivations for research, gaps in current research, research objectives and framework for the research are described. In Chapter Two, a comprehensive review of the literature in the relevant domains of enterprise applications, resource based view, public value of IT, IT/IS in public sector and E-Governance is presented.
The framework for conceptualizing and operationalizing the constructs for the research, specific research questions, research model guiding the research and specific research hypotheses are comprehensively presented in Chapter Three. The design of research activities and the methodology followed is presented in Chapter Four. Chapter Five presents the detailed analysis of the empirical study and the results of the research hypotheses. Finally, Chapter Six concludes with a discussion of the findings, the implications of the findings for research audiences and practitioners, limitations of research and prescriptions for future research.