

Relevance of Critical Success Factors in ERP-SAP Implementation: Case of Odisha Power Generation Corporation, India

Relevancia de los factores críticos de éxito en la implementación de ERP-SAP: Caso de Odisha Power Generation Corporation, India

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ABSTRACT:

In to-day's world, due to the disruptions brought about by technology, all segments of an organisation are experiencing intense changes. There is a demand for the organisations to integrate all the business processes. Odisha Power Generation Corporation, a Government Company in the State of Odisha, India, has recently implemented SAP, which is an ERP solution. The present case study examines the relevance and importance of Critical Success Factors (CSFs) along the various stages of implementation of SAP

Keywords: ERP, SAP, CSF, OPGC

RESUMEN:

En el mundo de hoy, debido a las interrupciones provocadas por la tecnología, todos los segmentos de una organización están experimentando cambios intensos. Existe una demanda para que las organizaciones integren todos los procesos de negocios. Odisha Power Generation Corporation, una compañía gubernamental en el estado de Odisha, India, ha implementado recientemente SAP, que es una solución ERP. El presente estudio de caso examina la relevancia e importancia de los factores críticos de éxito (CSF) en las distintas etapas de implementación de SAP.

Palabras clave: ERP, SAP, CSF, OPGC

1. Introduction

To-day's business firmament is fraught with a plethora of volatility. Snowballing competition, spread-out markets and rising expectations from customers – all contribute to such unpredictability of business environment leading to pressure on businesses to reduce costs, curtail throughput times, bring down inventories, diversify product choice, stick to delivery

dates, improve quality and harmonise global demands, supply, and production (Shankarnarayanan, 2000). Workplace is undergoing tumultuous changes consequent upon technological disruptions and emergence of novel organizational forms, which affects people as to where and how they work (Alcorn, 1997; Bleecker, 1994; Dambra & Potter, 1999; Davidow & Malone, 1992). Cumulatively, these factors call for an integration of all the processes for business success.

Enterprise Resource Planning (ERP) is a leading software which helps integrate all departments and processes, viz. manufacturing, marketing, quality control, sales, supply chain management, inventory and other areas in the company in a solitary computer system and integrate all of them in one single database. There are various vendors that provide ERP solutions. However, the major ones are SAP, Microsoft Dynamic, Oracle, JDEdward and People-soft etc. System, Applications and Products in Data Processing (SAP), founded in 1972, has the major market segment of the world (Davenport, 1998). In 1996, SAP has introduced the ASAP implementation methodology for augmenting the speed of SAP implementation projects.

Now-a-days public sector and Government organizations are also implementing ERP for information on real time and for having better administrative control (Nikookar, Safavi, Hakim & Homayoun, 2010). Such organizations have greater social obligations, public answerability, and distinctive culture (Anwar & Mohsin, 2011) and ERP helps them meet their requirements with precision.

1.1. OPGC: Company Background & History

Odisha Power Generation Corporation Limited (OPGC), which has operating plant of 210x2 MW and expansion project of 660x2 MW at Jharsuguda, Odisha, India and is also developing a 15 MTPA Coal mine through its subsidiary company Odisha Coal and Power Ltd. (OCPL), was incorporated in 1984. OPGC started as a wholly owned Government Company of the State of Odisha, with main objective of establishing, operating and maintaining large Thermal power generating stations. Later, in 1999, as part of Power Sector Reforms, 49% equity was disinvested in favour of AES, an American multi-national Company, through a process of international competitive bidding. Balance 51% continues to be held by Government of Odisha (OPGC, 2018) and thus the company is considered as a Government Company within the meaning of the Indian Companies Act, 1956. The day to day management of OPGC is vested with the nominee of strategic investor AES.

1.2. OPGC: Organisational Dynamics

Post disinvestment, OPGC has introduced several good practices and rewards system in the organisation. OPGC has implemented market-based salary structure, where performance is the key to compensation. All existing employees in OPGC governed under the Government pay scales were given an option to switch over to Market Salary structure and all new recruitments were carried out in the new structure. When OPGC carried out expansion, project roll appointment was implemented to hire construction manpower on limited-period contract. Thus, through various initiatives, OPGC adopted multiple compensation structures linked to heterogeneous service conditions. The twenty-first century is generally perceived as the era of global diversity and OPGC symbolises one such epitome of diversity.

1.3. ERP-SAP Solution in OPGC

OPGC embarked on an IT transformation journey in 2015 by implementing SAP solution for energy business. The SAP led business transformation exercise was undertaken through the business partner Accenture and was carried out across critical business processes of HR and Pay Roll, Finance and Controlling, Procurement and Material Management, Asset and work management, Environment, Health and Safety and Project Systems. The Project kick off was done on 23rd March 2015 and Go Live was carried out on 1st Feb 2016. The objective of this initiative was to achieve and sustain SAP led business excellence through common business

processes aligned to strategic objectives of OPGC, standardised business systems and applications and availability of accurate and timely business data.

2. Review of Literature

ERP provides two major benefits that do not exist in non-integrated departmental systems: (1) an integrated holistic view of the business enveloping all segments; and (2) a Company database, where all business transactions are passed in, recorded, processed, checked, and reported. Thus, ERP offers competitive advantage through better control and augmented visibility of information. It brings robust change leading to innovation and smart decision-making (Chung, 2007).

2.1. Critical Success Factors

Even as there are discernible benefits accruing from successful ERP implementation, there are often indications of failure of projects on ERP implementations (Davenport, 1998). Hence, it is of paramount importance to study the Critical Success Factors (CSF) that impact the success of such implementations.

Critical success factors were introduced by John F. Rockart and the MIT Sloan School of Management in 1979 primarily to support senior executives spell out their information needs for managing their organizations. Rockart defined Critical Success Factors as a limited number of areas, which, if executed satisfactorily, will ensure successful competitive performance for the organisation (Rockart, 1979).

Clear understanding of the goals and objectives for which the ERP system is being implemented is emphasised as a CSF by researchers. It is believed that the enterprise needs to clearly express the objective of ERP system implementation vis-a-vis its business needs (Krupp, 1998; Latamore, 1999; Schragenheim, 2000; Travis, 1999).

Many aver that commitment of and participation by top management is an absolute requirement for ERP implementation (Davis & Wilder, 1998; Laughlin, 1999; Oden, Langenwaller, & Lucier, 1993; Sherrard, 1998). Some consider it necessary that the execution project is headed by an esteemed, managerial level project champion (Krupp, 1998; Maxwell, 1999). Many point out that the implementation should be riveted on and be directed by the requirements of business and not of the IT department (Chew, Leonard-Barton & Bohn, 1991; Minahan, 1998).

The Project Champion should be supported by an ERP implementation team, consisting of able and efficient resources, selected for their competencies, track records, peerless reputation, and flexibility and should be delegated with adequate decision-making obligations (Davis & Wilder, 1998, Laughlin, 1999; Minahan, 1998; Sherrard, 1998). It is said that ERP implementation requires unflinching commitment by the all people involved, from the top management to the lower management (Cooke, Gelman, & Peterson, 2001).

First-rate project management, encompassing clarity of objectives, well spelt-out work plan and resource plan and a schedule for assiduous tracking of progress of project (Davis & Wilder, 1998; Laughlin, 1999; Sherrard, 1998) are essential CSFs. Further, the project plan should be aggressive, albeit achievable, and should infuse and uphold a critical sense of urgency (Laughlin, 1999). It is essential that both the consultant and the client should work on agreed upon strategy and project plan, and this would play a crucial role for ERP success (Mohamed, 1995).

ERP implementation is a massive exercise in organizational transformation. It ushers in huge changes in diverse aspects of organizational life (Al-Mashari, 2003). Thus, Organizational change management is a Critical Success Factor in SAP implementation.

In so far as ERP necessitates a change in the work behaviour of employees, this is quite likely to raise resistance. Egan and Fjermestad (2005) aver that resistance is largely because of lack of skill or understanding of the change that comes about through the ERP process

Providing training in new skills and/or giving employees a time of respite to contemplate and

integrate the new learnings after a challenging period (Aladwani, 2001) are some of the modes resistance is sought to be overcome. It is advocated that allocating 10–15% of ERP execution budget for training gives an enterprise 80% chance of success of implementation (McCaskey & Okrent 1999; Volwer 1999). Widespread education and training is generally taken as a CSF.

Avoidance of unnecessary customisation is taken as another CSF (Rothenberger & Strite, 2009). By circumventing customisation, the need to customize the basic ERP code gets reduced, which moderates the project complexities and facilitates strict adherence to the schedule of implementation (Sherrard, 1998).

Data accuracy and accuracy of data entry techniques is considered a Critical Success Factor in ERP implementation (Stein, 1999). In so far as ERP consists of integrated and interconnected processes, the eventuality of wrong data getting entered can lead to a cascading effect. Further, it is essential that all archaic and informal systems must be eliminated. Else, some staffs may prefer to use the old, archaic systems (Hutchins, 1998).

One of the critical issues in SAP research is the management of CSFs in SAP implementations. CSFs play varying importance during the various phases of SAP implementation project. Hence, there is a need to relate the CSFs to the phase-wise Accelerated SAP (ASAP) project implementation processes to understand the relative relevance and importance of the CSFs during the distinct phases of ASAP implementations.

2.2. Unified Critical Success Factors

Esteves and Pastor -Collado (2000) unified the motley lists of Critical Success Factors and shaped them in a holistic and integrated manner, as at Table 1.

Table 1
Unified Critical Success Factors

	Strategic	Tactical
Organisational	Sustained management support. Effective organizational change management Adequate project team composition Good project scope management Comprehensive business re-engineering Adequate project champion role Trust between partners User involvement and participation	Dedicated staff and consultants Appropriate usage of consultants Empowered decision makers Adequate training program Strong communication inwards and outwards Formalized project plan/schedule Reduce trouble shooting
Technological	Avoid customization Adequate ERP implementation strategy Adequate ERP version	Adequate software configuration Adequate legacy systems knowledge

Source: Esteves and Pastor -Collado (2000)

Esteves and Pastor -Collado (2001, p. 1023) have offered a theoretical model (hereinafter referred to as the Model) to establish the relationship of CSFs vis-à-vis Accelerated SAP (ASAP) processes along with an assessment of their relevance across the ASAP phases.

3. Methodology

The current research examines how the results of the Model have been utilised in ASAP implementation in Odisha Power Generation Corporation (OPGC) and in the process makes an analysis of comparison and customisation of the Model in OPGC conditions. This is a research Case Study.

Case studies normally combine multiple data-collection methods, viz. search of archives, interviews, questionnaires, and observation (Eisenhardt, 1989). Since, the corresponding author functions as the Head of HR of the subject Company, participant observation as a methodology of data collection was an inescapable necessity. Schensul, S.L., Schensul, J.J., & LeCompte (1999) define participant observation as "the process of learning through exposure to or involvement in the day-to-day or routine activities of participants in the researcher setting" (p.91).

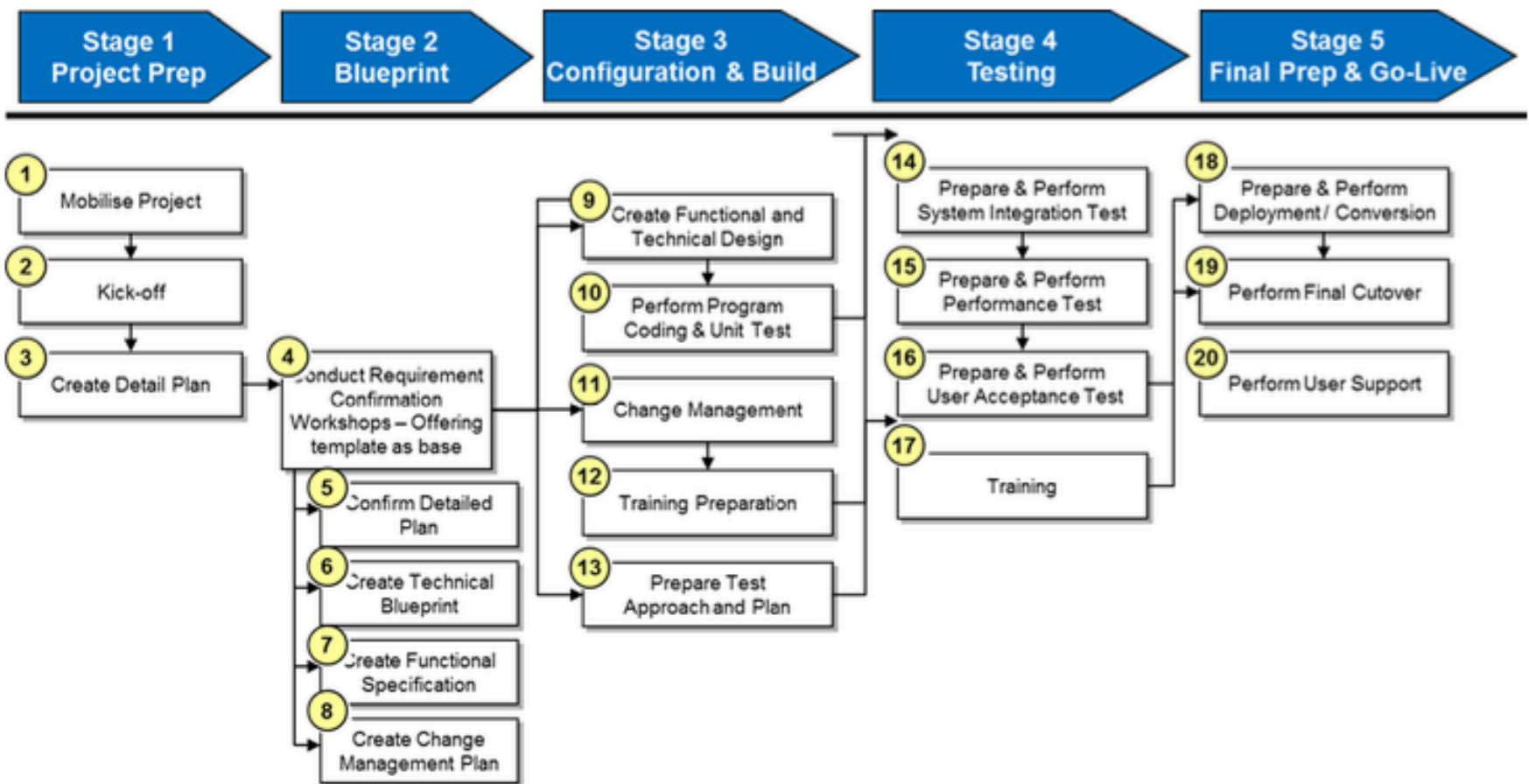
Documents collected include administrative documents, proposals, progress reports, minutes of meetings, output of formal evaluations, board memoranda and internal recommendations. Further, data collection has been carried out also through semi-structured interviews. Interviews have been carried out with OPGC SAP Implementation Steering Committee, Business Sponsorship Group, SAP Core Team and Process Owners to have comparison not only with respect to within OPGC functions as well as vis-à-vis the external consultant Accenture. In addition to giving open-ended feedback on the relevance of CSF through the phases of ASAP implementation, the interviewees have also been solicited to rate the relevance on a 10-point scale.

These data have been analysed using a constant comparative process of the main themes as described by Glaser and Strauss (1967). Through comparative analysis of the outputs of these interviews, categories have been formed, boundaries of the categories have been delineated, segments have been assigned, contents have been summarised, similarities and discriminations have been established, patterns have been discovered and summaries concluded. Comparison with the Model has been carried out after arriving at an overall OPGC view as to the relevance of each CSF in each Phase, by clustering the data into an equivalence table, collating the feedback on 10-point scale, and grouping the same into categories of 'high', 'normal' and 'low'. On a Normative Score Scale, score of 1-3 was considered 'Not much Relevant', of 4-7 of 'Normal Relevance' and of 8-10, 'Highly Relevant'.

3.1. The Phases of ASAP Implementation: Pictorial Presentation

Figure 1 provides the activities that were executed phase-wise over the duration of the Project implementation lifecycle.

Figure 1
The Phases of ASAP Implementation



Analysis of the relevance of each CSF in each phase of ASAP implementation was carried out through a cross-comparison method and by building similarities and dissimilarities and ascertaining convergences and divergences in the process. The Project team accordingly prioritised and focussed on the relevant CSFs in each stage of implementation.

4. Results and Discussions

The Model is based on theoretical assumptions, whereas in OPGC the CSF framework is based on actual interviews of both the internal and external stakeholders, Steering Committee members, members of the Change Control Board, process owners, Project champion, SAP Core Team and key users. Thus, the matrix presented in the Model by Esteves and Pastor-Collado (2001) was customised in OPGC for planning and guiding the SAP implementation project in OPGC. The divergences have been examined threadbare and analysis is presented below.

4.1. Phase-wise Significance of CSFs: Tabular Presentation

The numeric scores of the CSFs in the Esteves and Pastor-Collado (2001) Model as well as the overall scores arrived at in OPGC are given in Annexe I. The Comparison of the relative significance and relevance of CSF as emanating from the SAP implementation team of OPGC with respect to the Model is presented in Table 2.

Table 2
CSFs' Relevance across The Phases of ASAP Implementation

CSF Relevance along the ASAP Implementation Phases		Phase 1 (Project Preparation)		Phase2 (Business Blueprinting)		Phase3 (Business Reliaization)		Phase4 (Final Preparation)		Phase5 (Go Live & Support)	
		The Model	OPGC	The Model	OPGC	The Model	OPGC	The Model	OPGC	The Model	OPGC
Organisational Perspective	Sustained Management Support	High	High	Normal	High	Normal	High	Normal	Normal	High	High
	Effective Organisational Change	Normal	Normal	High	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Good Project Scope Management	Normal	Normal	Normal	High	Normal	High	Normal	Normal	Normal	Normal
	Adequate Project Team Composition	Normal	High	Normal	High	Normal	Normal	Normal	Normal	Normal	Normal
	Meaningful Business Process Reengineering	Normal	Normal	Normal	High	Normal	Normal	Normal	Normal	Normal	Normal
	User involvement and participation	Normal	Normal	High	High	High	High	Normal	Normal	Normal	High
	Project Champion Role	High	Normal	High	High	High	Normal	High	High	High	High
	Trust between Partners	Normal	High	Normal	High	Normal	High	Normal	High	Normal	Normal
	Dedicated Staff and Consultants	Normal	High	Normal	High	Normal	High	Normal	High	Normal	High
	Strong Communications Inward and Outwards	Normal	High	Normal	High	Normal	High	Normal	High	High	High
	Formalised Project Plan/Schedule	High	High	Normal	High	Normal	Normal	Normal	Normal	Normal	Normal
	Adequate Training Program	Normal	Normal	Normal	Normal	Normal	Normal	Normal	High	Normal	Normal
	Preventive Troubleshooting	Normal	Normal	Normal	Normal	Normal	Normal	High	High	Normal	Normal
	Usage of Appropriate Consultant	Normal	High	Normal	High	Normal	High	Normal	High	Normal	Normal
Empowered Decision Makers	Low	High	Normal	High	Normal	High	Normal	Normal	Normal	Normal	
Technical Perspective	Adequate ERP Implementation Startegy	Normal	High	Normal	High	Normal	Normal	Normal	Normal	Normal	Normal
	Avoid Customisation	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Adequate ERP Version	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
	Adequate Software Configuration	Normal	Normal	Normal	Normal	High	High	Normal	Normal	Normal	Normal
	Adequate Legacy System Knowledge	Low	High	Normal	High	Normal	Normal	Normal	Normal	Normal	Normal

4.2. Analysis: Organisational perspective

Sustained Management Support is considered of high significance in OPGC in all the stages except in Stage 4, i.e final preparation stage, when it is considered of normal significance. This largely stems from the fact that OPGC is a heterogeneous organisation with a plethora of legacy issues.

Effective Organisational Change is considered of normal significance all through; further as against the Model, it has been considered of higher significance even at the Project preparation stage, as the initial level of success in ushering in the vision of future ramification of change is considered very vital to eventual change to be sustained in the long run. Indeed, SAP implementation is more of an exercise in change management than a mere IT system implementation.

Good project scope management is significant not only at the stage of defining and mapping, but while carrying it through during blueprinting and business realisation. The success of implementation depends not only on the way the stipulations are spelt out in the project, but the exactitude with which it is executed to the details. Which is why in OPGC, Team Leads accord it higher relevance in Stage 2 and 3, as compared to what is depicted in the Model.

Adequate Project team composition has been accorded higher level of significance, as against the Model, in both the initial stages, for only a competent team conversant with all processes and legacy issues can do the initial planning for blueprinting which would

eventually lead to effective implementation. Meaningful Business Process Reengineering is of high relevance during Blueprinting phase as there are disparate legacy systems in OPGC.

User involvement and participation is considered 'high' in Stage 2, Stage 3 and Stage 5, and higher than the Model in Stage 5, as it helps in acceptability of the system from the word "go" and helps smoothening the process of implementation.

In the Model, Project Champion has been accorded high importance at all the stages; however, in OPGC, it has got lesser significance, i.e 'normal' at Stage I or in Preparation and Stage 3, or in Business Realisation. It is because in OPGC, the Steering Committee at the stage of Preparation and the external consultant (i.e Accenture) and the Process Owners, at the business realisation stage, are envisaged to have preponderant roles, along with the Project Champion.

'Trust between Partners' is accorded 'High' importance in first four stages as against 'Normal' importance given in the Model. OPGC is marked by existence of multiple and rival unions, heterogeneity of service conditions and multifarious compensation structures. Hence, building synergy for achieving any change intervention necessitates building trust, which is the foundation of any successful human enterprise.

'Dedicated staff and consultants' has been given high importance in OPGC, as compared against 'normal' relevance in the Model. The Team Leads feel that SAP implementation is a complex project, more so in an organisation like OPGC, which has several critical functional areas and legacy issues and if the staff or consultants are changed or withdrawn during the Project, it would affect the success of the Project.

Strong communication as a CSF has been accorded high importance in OPGC in the first four phases, as against normal importance, given in the model. Communication is the way in which individuals become aware of, can question, understand, become involved in, support, and finally show positive acceptance for change. The required levels of commitment or support from the different audience groups, such as Steering Committee, SAP Core Team, Process owners, Key users, end-user community at each major Project milestone stages are different, for which a different communication strategy at each, geared at specific target groups, is to be adopted, which necessitates an elevated level of importance attached to Communication as a CSF.

Formalised Project Plan and schedule has been accorded the same level of importance in all the stages, as in the Model, except in the Blueprinting stage, where, it has been accorded high priority in OPGC. It is because the diversified process activities in OPGC require voluminous work, and hence an elevated level of importance.

Adequate training Programme has been given the same level of importance in both the Model and OPGC (i.e 'normal' importance); however, in OPGC in view of large non-executive staff, it is felt that adequate training is required at Final Preparation stage (i.e. stage 4) to make the core team and users ready for using the system after 'go live'.

'Preventive Troubleshooting' has been accorded the same level of significance in both the Model and in OPGC. It is 'high' at Phase 4, when the system is tested. Usage of Appropriate Consultants is accorded 'high' importance in OPGC in first four phases, as against 'normal' in the Model. This is because, OPGC is a unique organisation having variegated functions, relevant to both public and private sector. The consultants accordingly need to have expertise in functioning and processes in both the sectors, which characterises a rare level of competency.

'Empowered Decision Makers' is accorded 'high' importance in OPGC in first three phases, as against 'Low' in the first and 'Normal' in the latter two phases in the Model. It is because in OPGC, the Team Leads feel that empowerment in decision making in the initial phases would help to decide on the processes and help achieve project schedule on time.

4.3. Analysis: Technological Perspective

In OPGC, 'Adequate ERP Implementation Strategy' has been accorded 'high' significance in first two phases, as against 'normal' in the Model. This is because, OPGC Team Leads feel

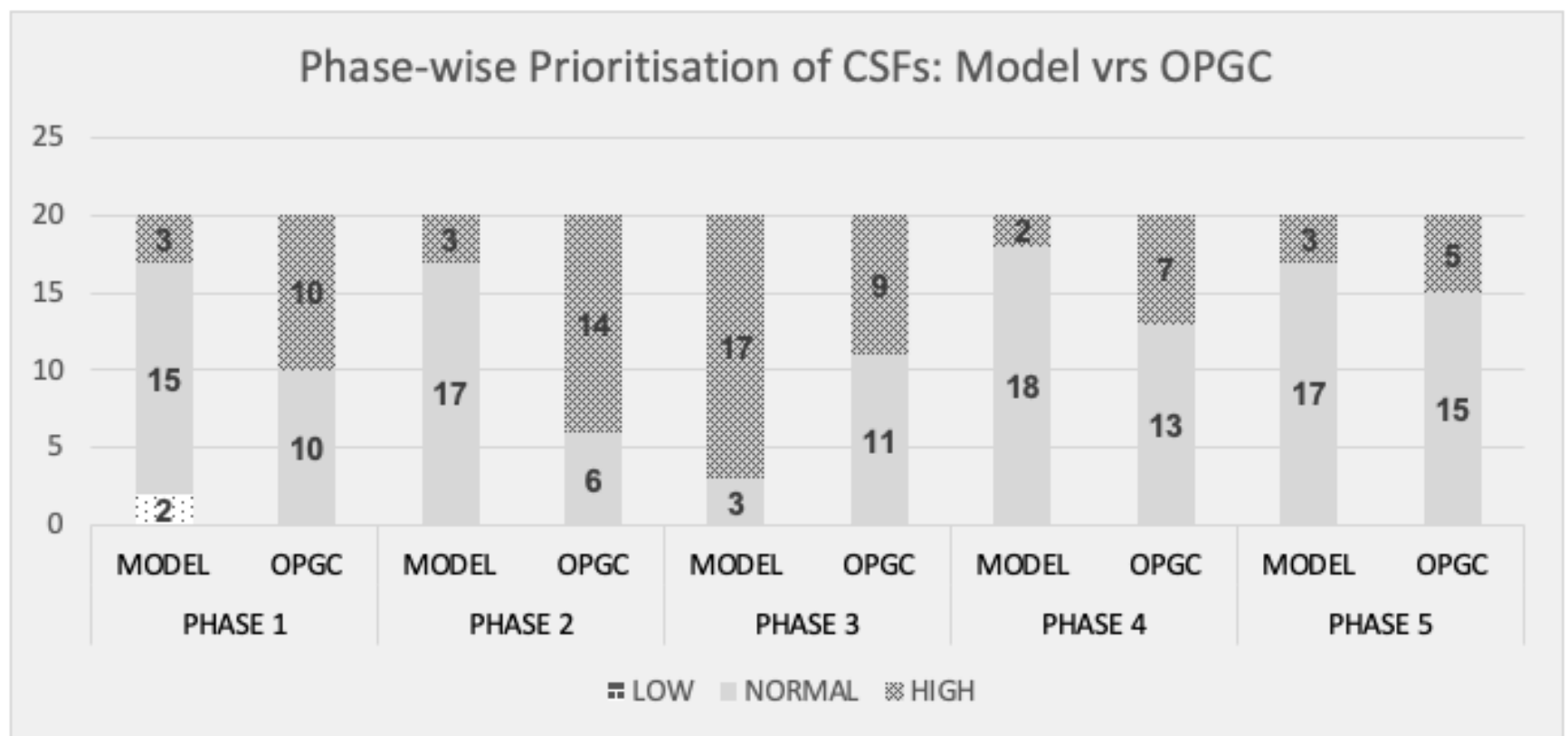
that important strategies, such as Change Management and Communication Strategy and Plan, Project Management Strategy and Plan and various Schedules are to be carried out during first and second stage formulating the 'To Be' process and thus would require strategic decision making regarding weeding out ineffective and inefficient processes and embracing new process already tested in the standard SAP modules.

'Avoid Customisation' has been accorded the same level of significance, i.e. 'normal' in both the Model and in OPGC. Avoiding customisation saves time, effort and money, apart from standardising the processes in consonance with the SAP best practices. On the CSF 'Adequate Legacy System Knowledge', OPGC team gives high significance in Stage 1 & 2, as against 'Normal' in the Model. This is largely because, in view of the legacy issues running into three decades, adequate knowledge of the same is considered necessary in OPGC.

4.4. Overall Phase-wise Prioritisation

The comparison of the overall phase-wise numbers of CSFs in the Model versus the same in OPGC is depicted in figure 2 below:

Figure 2
Overall Phase-wise CSFs during ASAP Implementation



In OPGC, all the CSFs have been perceived to be either at normal or elevated level of significance in all the phases. Maximum number of CSFs (i.e. 14) have been considered of highest significance in the business blueprinting phase, and thus it is considered the most critical phase from OPGC's perspective. The next in importance appears to be the Preparation Phase in OPGC, where 10 CSFs have been held as of high significance. The Business realisation phase is no less significant with 9 CSFs having been accorded high importance.

5. Conclusions

The study aims to customise the Esteves and Pastor-Collado (2001) Model of relevance of Critical Success Factors in ERP-SAP Implementation to the specific conditions of OPGC. The study, apart from being a research project by the Corresponding Author, was, in fact, a part of the implementation process in OPGC. The study equipped the OPGC members with knowledge as to relevance of each CSF in each of the ASAP implementation process and thus helped monitor the implementation. It is important that the practitioners of SAP implementation need to customise the model as to the specific requirements of the organisation. All said, there is no gainsaying that knowledge and customisation of the model would go a long way in SAP implementation in any organisation, which is considered as a

major change management initiative in any organisation these days.

Further, this Case Study is a way forward in substantive theory building in the matter of relevance of CSFs in implementation of ERP-SAP. In the process the model also gets validated in different situations. Substantive theory gets built in the framework of finding differences and similarities of contextualized occurrences, and designs, across and within case studies engrossed on analogous themes. A revalidated substantive theory is more transferable, albeit not generalizable, in the sense that elements of the context can be superimposed on contexts with similar features to the context under study. Theory building requires continual comparison of data and theory (Glaser & Strauss, 1967) and an incessant refinement between theory and practice (Lynham, 2000).

Sometimes it is felt that CSFs are not, per se, directly manageable. Rather, management directly owns, defines measures and manages the processes along the distinct phases of SAP implementation. Hence a converse way of rightfully handling the problem would be to focus on each CSF and ascertain which ASAP process must be performed especially well so as to achieve a specific CSF. Thus, identifying the most critical processes phase-wise, which would eventually lead to accomplishing the CSF, would be a more user-friendly and practitioner way of handling the issue. However, identification of process and activities phase-wise becomes a gigantic effort and hence, linking up each CSF to each of the activity or process for identification of the critical processes would become too elaborate to be taken up within the gamut of a single case study. When done, this could give a crucial insight into the critical issue of which ASAP processes are important for management of each CSF and thus help practitioners to focus on those processes.

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Annexe I

CSF Relevance along the ASAP Implementation Phases

Esteves and Pastor-Collado (2001) Model

			Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Organizational Perspective	Strategic	Sustained Management Support	8	5	5	6	8
		Effective Organizational Change	6	9	6	5	6
		Good Project Scope Management	5	4	4	5	5
		Adequate Project Team Composition	5	4	4	4	4
		Meaningful Business Process Reengineering	4	7	4	4	5
		User Involvement and Participation	5	8	10	7	5
		Project Champion Role	10	10	9	10	10
		Trust Between Partners	5	4	4	5	5
	Tactical	Dedicated Staff and Consultants	5	5	4	5	6
		Strong Communication Inwards & Outwards	7	7	5	6	8
		Formalized Project Plan / Schedule	9	7	7	7	5
		Adequate Training Programme	5	5	5	7	4
		Preventive Trouble Shooting	4	4	7	9	7
		Usage of Appropriate Consultants	5	4	4	4	4
		Empowered decision Makers	3	5	5	5	4

Technological Perspective	Strategic	Adequate ERP Implementation Strategy	5	4	4	4	4
		Avoid Customization	4	4	4	4	4
	Tactical	Adequate ERP Version	4	4	4	4	4
		Adequate Software Configuration	5	6	10	6	6
		Adequate Legacy Systems Knowledge	3	4	4	4	4

CSF Relevance along the ASAP Implementation Phases (OPGC)

			Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Organisational Perspective	Strategic	Sustained Management Support	8	8	8	7	8
		Effective Organisational Change	5	7	6	7	7
		Good Project Scope Management	7	8	8	7	5
		Adequate Project Team Composition	8	8	7	7	5
		Meaningful Business Process Reengineering	7	8	7	6	5
		User involvement and participation	7	8	8	7	9
		Project Champion Role	7	8	7	8	9
		Trust between Partners	8	8	8	8	7
	Tactical	Dedicated Staff and Consultants	8	8	8	8	8
		Strong Communications Inward and Outwards	8	8	8	8	8
		Formalised Project Plan/Schedule	8	8	7	7	6
		Adequate Training Program	5	5	7	9	7

		Preventive Troubleshooting	4	5	7	8	7
		Usage of Appropriate Consultant	8	9	9	9	7
		Empowered Decision Makers	8	9	8	7	7
Technical Perspective	Strategic	Adequate ERP Implementation Strategy	8	8	7	7	7
		Avoid Customisation	4	7	7	6	5
	Tactical	Adequate ERP Version	5	6	7	7	5
		Adequate Software Configuration	5	6	9	7	6
		Adequate Legacy System Knowledge	8	8	7	6	5

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