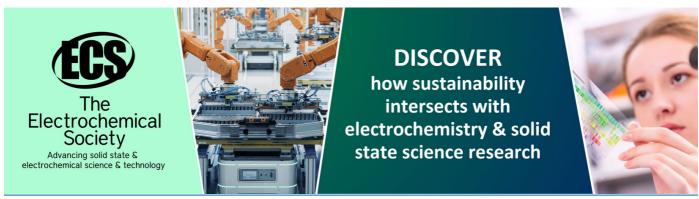**PAPER • OPEN ACCESS**

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Assessing the ERP-SAP implementation strategy from cultural perspectives

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Abstract. Implementing ERP-SAP projects in Indonesian large enterprises frequently create headaches for the consultants, since there are always be a large gap between the outcomes of the SAP with the expected results. Indonesian enterprises have experience with a huge amount of investments and ended up with minor benefits. Despite its unprecedented benefits, the SAP strategy is still considered as a mandatory enterprise system for every enterprise to compete in the marketplaces. The article examines the SAP implementation from cultural perspectives to present new horizon that commonly ignored by major Indonesian enterprises. The article applies the multiple case studies with three large Indonesia enterprises, such as KS, the largest steel producer; GEM, a subsidiary of conglomerate enterprise operates in the mining industry, and HS, a subsidiary of the largest retailer in Asia with more than 700 stores in Indonesia. The outcome of the article is expected to provide a comprehensive analysis from cultural perspectives regarding to common problems faced by SAP consultants.

1. Introduction

Enterprise resource planning (ERP) system is an integrated information system that enables to influence internal business process and external firms. It also enables to blend global standard with local situation (1). An ERP system allows an organisation to establish a convergent and integrated view of the enterprise information through the use of centralised databases and integrated business processes across different divisions and departments (2). Successful ERP implementation is believed may improve organisational capabilities such as: agility, flexibility, internal communication and cross-functional coordination, product innovation, process improvement, and information access that help the firms to respond quickly to the customer needs (3).

Due to its advantages, the ERP implementations in many firms are considered as an investment wastes rather than promising real benefits (4)(5). The similar cases also can be found with the ERP-SAP (SAP) implementation in major large enterprises in Indonesia. The SAP implementation is commonly perceived as complex tasks and surrounding with cultural barriers, with high failure rates that can reach more 80% (6)(7)(8)(9). The risk of SAP implementation increases along with the size of the enterprise. With large amount of money invested in SAP system, less than 75% of the SAP system's effectiveness was utilized (10). Scholars argue that ERP as an outcome of human actions and interactions (1)(11), whenever prepared and applied effectively, the ERP enabled to deliver benefits like faster transaction processing, error reduction, and improved productivity for the adopting organisations (12)(13).

In many firms, the SAP strategy is dominated by more for marketing and political purposes rather on the real needs. Whenever the SAP systems do not fit, the adoption would ultimately deliver badly impact to the post-adoption performance, and their underperformance would act as snow ball effects to create major problems for the firm (14). Scholars addressed

the organisations with good IT governance and organisation culture to have more effective ERP investments compared to those who do not have. The firms with good enterprise system design enables to improve their innovation through supporting internal idea generation and implementation, and it delivers impact to product or process improvement (15). The article examines the key success factors of the SAP implementation strategy in the leading enterprises in Indonesia. The article takes case study of three leading enterprises, such as: KS (the largest steel producer and a member of national strategic enterprises), GEM (subsidiary of national conglomerates in energy producer), and HS (a subsidiary of the largest retailer in Asia region). Those are the leading firms in their fields.

2. Literature Review
In the complex competition environment, the use of ERP system enables to provide the firms with a competitive advantage by improving the organizational value stream (16)(17)(18). However, applying ERP system is not an easy task. Davenport argues the ERP projects often acting against the prevailing firm culture (12)(9). Olie (1995) summarised the concept of culture as: (1) culture is a collection of individuals who share common values, beliefs, idea, etc.; (2) culture is learned; (3) culture has a historical dimension; (4) culture has different layers, such as: symbols, heroes, rituals, and values. Boersma and Kingma (2005) examines the complexity of ERP as a condition of organisations where it constitutes the intersections of segments of autonomous systems of goals. They emphasize that cultural processes play important roles in the concept of sense making to address the gap between the expectations and evaluations of ERP projects.

ERP has important implications for the organizations such as (17): (1) integration, ERP promises seamless integration of all the information flowing through a company that includes financial and accounting information, human resource information, supply chain information and customer information; (2) packages, ERP are commercial packages that are designed to support generic business processes; (3) some assembly required, there is no such single enterprise system enables to meet all the information-processing needs of the majority of organizations, integration challenges are needed to cope with this. The ERP project outcomes can be measured on that specific knowledge (20) such as: (1) software specific knowledge; (2) business process specific knowledge; and (3) organisation specific knowledge;

The ERP system faces pressure in narrowing the gap between pre-packaged information system and perceived functionality required by the firm (21). Some gaps are resolved in business process reengineering (BPR), or software customisation through knowledge management framework (22)(23), while other gaps will never be resolved (21). Knowledge management efforts includes to (22): (1) capture knowledge; (2) convert personal knowledge to group-available knowledge; (3) connect people to people, people to knowledge, knowledge to people, and knowledge to knowledge; and (4) measure that knowledge to facilitate management of resources and help understand its evolution.Transferring explicit knowledge to the adopting organisation is part of the standard ERP implementation strategy.

3. Methodology
3.1. Research Method
The article examines the multiple-case studies for SAP implementation in the leading enterprises, that enables to explore the differences between cases (24). The case study method is selected due to its advantages in studying phenomena in their natural setting and learn about the state of the art (25). It enables deeper exploration into selected respondents. The objective

of the study is expected to replicate the findings across similar cases with the objectives to predict the similar results among the enterprises that have implemented SAP in Indonesia(25). The article has the proposition to examine: how the cultural issues affect the SAP implementation strategy in large Indonesian enterprises.

3.2. Enterprise Overview

There are three enterprises selected as a case study in the article such as: (1) KS enterprise, is the largest steel producer in Indonesia, has produced more than 3 million tonnes of steel each year. Currently, KS has more than 8 subsidiaries to serve local demands and international markets. Since 1995, KS has installed major SAP R/3 modules such as: FICO (Financial Controlling), SD (Sales and Distribution), HR (Human Resources), PSIM (Project System & Investment Management), MM (Material Management), QM (Quality Management), PM (Plant Maintenance), PP (Production Planning), and XI (Xchange Interface); (2) GEM enterprise, is a subsidiary of national conglomerate in energy industry. GEM has a major player in the trading sector in mining products/services. Since 2010, GEM has installed major SAP modules such as: FICO (Financial Controlling), MM (Material Management), SD (Sales and Distribution), and PP (Production Planning). GEM with its subsidiaries has operated large mining fields in Jambi (Sumatra) and Kalimantan (Borneo); (3) HS enterprise, is a subsidiary of the largest retailer in Asia region with more than 700 stores in Indonesia. HS has numerous subsidiaries in retailers, health and beauty stores, convenience stores, and mini markets. Since 2010, HS has implemented SAP modules such as: FI (Financial), ME (Merchandise), ME (Merchandising) and RL (retail).

3.3. Data gathering method

The article applies the interviews, focus group discussion and field observations to the selected 118 respondents in those three enterprises. They are summarised as follow:

Table 1. Distribution of the respondents.

No.	Respondents	KS	GEM	HS	Total	percentage (%)	No.	Respondents	KS	GEM	HS	Total	percentage (%)
	Age:							Working Exp:					
	< 30 years	48	19	5	72	61.02%		< 3 yrs.	32	20	6	58	49.15%
1	31 − 40 yrs.	9	15	5	29	24.57%	3	3 − 5 yrs.	21	12	4	37	31.36%
	41 − 50 yrs.	8	1	6	15	12.71%		6 − 10 yrs.	6	3	4	13	11.02%
	> 50 yrs.	2	0	0	2	1.70%		> 10 yrs.	8	0	2	10	8.47%
	Education:							Title:					
	High School	4	0	1	5	4.24%		Staff (Analyst)	37	33	15	85	72.03%
2	Vocational	6	1	4	11	9.32%	4	Consultant	26	0	0	26	22.03%
	Bachelor	52	28	8	88	74.58%		ERP PM	2	1	1	4	3.39%
	Post Graduate	5	6	3	14	11.86%		Head of Department	2	1	0	3	2.54%

4. Case Study

4.1. Findings and Analysis: Characteristics of the Enterprises.

Interviews and observations have been done to examine the characteristics of those three enterprises (see Table 2 below). The findings in table 2 infers the organisational issues are highly influenced by the culture andit affects the SAP system implementation (7): (1) mismatch with local culture and SAP cultural readiness, SAP strategy requires cultural ready and systematic thinking which are lacking in almost all Indonesian enterprises. Lack of these

factors affects the SAP strategy design, preparation and implementation; (2) lack of ownership culture, there is no share-ownership culture of all departments to SAP strategy. The case study above addresses the SAP decision is a top-down decision, and ownership culture is perceived belongs to top management issues; (3) management and communication culture, the SAP adoption in most Indonesian enterprises are led more on the political and marketing purposes rather than based on real needs. There is also lack of communication strategy to articulate the interest of top management; (4) cultural change, SAP strategy states the importance of revising the current organisation culture. The table 4 shows that top management puts minimum efforts on the adopting the cultural change to support the SAP strategy. It can be seen in: top management support and commitment, clear vision, goals and objectives of SAP system, end-user involvement, organisation fit for SAP, business process reengineering (BPR) initiatives, and process management, etc. (26); (5) information flow, SAP requires the role of KM strategy to manage the information flow of tacit/explicit knowledge amongst the stakeholders, such as: users across departments/divisions, consultants, and management. However, the appropriate KM strategy hardly can found in the case study; (6) sectoral differences, due to the vast of organisations, places and distribution of people, the sectoral ego dominates the Indonesian large enterprises. It creates political and psychological barriers to SAP adoption. Understanding the sectoral differences should be considered as an essential component of SAP implementation strategy.

Table 2. Comparison of the Characteristics of the Enterprises.

No.	Business-IT Issues	KS (State-owned Enterprise)	GEM (Energy enterprise)	HS (Retailer enterprise)
1	Top Management Supports	Lack of appreciation for the staffs to encourage motivation to use IT-based applications.	Internal conflict intra/inter department and lack of support to SAP implementation.	Lack of supports to SAP implementation team.
2	Organisation Culture	External intervention (government bodies) to the KS strategy and operation. Intervention can go deep into ERP strategy and SAP implementation.	Leadership is controlled by business family (Conglomerate). External intervention from other subsidiaries/holdings, although is not frequent, may impact the ERP strategy and implementation.	External intervention especially from holding company. All SAP operation is managed centralised and may slow down the decision process in the subsidiaries.
3	Challenges of Project Manager (PM)	There are always unexpected things required by the users or top management (beyond initial plan).	Multiple roles required for PM. GEM requires the PM should be ready for all projects complemented with SAP applications such as legacy applications.	PM should develop adequate knowledge related to retail business. Current PM has a high dependency on the knowledge of key users in each department.
4	Business-IT Plan	Focus on extending SAP with legacy applications;	Focus on extending SAP with legacy applications;	DFG (Holdings) controls all SAP operation in all subsidiaries including HS;

Note: PM: project manager;

4.2. Findings and Analysis: Technical Perspectives

Technical aspects are also the major cultural issues need to be examined in SAP implementation. Findings address the SAP consultant needs to understand: (1)SAP specific knowledge and interconnection with legacy applications (27)(28). ERP strategy should deal with integrating legacy and SAP culture; (2) business process specific knowledge, relates to managing cultural change or resistances in BPR initiatives, applying KM culture relates to tacit/explicit knowledge transfer, and project management framework dealing with technical process management (29); (3) organisation process specific knowledge, relates to political decision making and marketing expectation of SAP strategy. SAP implementation strategy also should deal with narrowing the gap between expected SAP results and SAP outcomes.

5. Lesson Learned

Scholars have addressed the importance of culture preparation to smoothing the SAP implementation strategy. The SAP software has embedded its success culture based on the best practices in the developed countries, while the Indonesian enterprises are not familiar with this culture. It creates a gap between expected SAP results with the outcomes. The SAP implementation in major enterprises is surrounded with the political environment with a top-down approach, while other related to marketing purposes. Very rare, the SAP adoption reflects the real needs of the firm. Case study above infers the cultural issues related to SAP implementation strategy can be summarised into three specifics knowledge. They are (20): (1) software specific knowledge, in the article refers to expertise of SAP vendors and best practice associated with legacy applications; (2) business process specific knowledge, it relates to preparing BPR initiatives, KM (30) and project management framework; and (3) organisation specific knowledge, it relates with understanding the decision process, leadership style and managing change culture (31)(32). The effective consultant should be able to anticipate that knowledge into SAP implementation strategy.

6. Conclusion

SAPproject is a complex task with high failure rates in implementation, especially when applying in Indonesian enterprises. The article examines these issues from cultural perspectives to provide holistic analysis to the existing condition. Literature studies have shown that cultural issues often ignored in preparing SAPimplementation strategy, and it delivers significant impacts to SAPoutcomes. SAP strategy requires changing in organisation culture comply with the best practices practised by well developed firms. Indonesian enterprises are still relatively new and may not be exposed to this kind of culture, and they need special attention on it. The article examines the cultural issues that commonly ignored by the Indonesian enterprises whenever they implemented SAP system such as: SAP specific knowledge (best practices) and its integration with legacy applications, business process specific knowledge (relates to BPR initiatives, KM and project management framework), and organization specific knowledge (relates to understanding decision making, leadership style and changing culture).

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