Assessing ERP SAP implementation in the small and medium enterprises (SMEs) in Indonesia

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Abstract. The consistent growth of Indonesian SMEs has received attention of global IT vendors. One of major ERP player in Indonesian market such as SAP, has introduced ERP solutions for SMEs through SAP Business One. Due to its fast growth, unfortunately, there are still very few articles can be found to understand the ERP implementation in Indonesian SMEs. The article addressed the common factors that affect the successful of the ERP implementation at SMEs. They are: identifying vendor quality, opening balance data migration, and A-SAP methodology. The article applied case study method to examine the fast growth companies owned by same owners, such as: GRK, MMM, and KM25; with the objectives to identify the practical pattern of ERP implementation in SMEs that will be useful for SAP project manager and consultants.

1. Introduction

Enterprise resource planning (ERP) system is known as one of the most popular business solutions, enabling real-time benefits and unlimited communication. Michael [1] explained that some advantages of companies that have implemented ERP can improve access to provide accuracy and timely information, increased workflow, increased efficiency, reduce the use of paper to print, monitoring and automation of information via e-mail, ease of user interface, simplicity of process and ease of use of business practice. Bradley [2] revealed the phenomenon of successful implementation of ERP is influenced by the completion of critical success factors. Companies that implement ERP attempt to reduce redundancy and inconsistency data through procurement and maintenance of enterprise information databases [3].

The article examines the market leader of ERP software such as SAP ERP in the global market. SAP solutions have been widely applied in major leading multinational enterprises and SMEs. The popular SAP solutions for SMEs is SAP Business One. SAP Business One inherits the complexity of SAP R/3 with customization to the needs of SMEs [4]. SAP Business One involves a complex process design and requires a detailed work plan and well-planned timetable to ensure that all critical steps in the ASAP method are properly implemented. Since its introduction in 2012, SAP Business One has become major ERP provider for a low cost solution to SMEs in global market [5]. Major leading SMEs in Indonesia has shown increasing trends to adopt SAP Business One as their preference ERP solutions [6].

With consistent growth of Indonesian SMEs has made the needs of SAP Business One becomes inevitable [7]. Aisyah [8] examined the common problems faced by ERP implementation in SMEs such
as: people-related factors, and followed with data, process, and management/organisation respectfully. Although those problems are important, unfortunately, there are still very few articles can be found to address these factors. For this reason, the article examined those issues in fast growth companies under the same owners to identify the characteristics of ERP implementation in SMEs. The study showed although with the same management style, however, with different business environments need different way to address the ERP needs. They are: GRK, a distributor company of four-wheeled vehicles; MMM, a medium-size construction company; and KM25, an automotive spare-part distributor. There are several factors to examine that affecting successful implementation of SAP Business One in those companies are summarised as: quality of implementation (vendor capability), initial data balance migration, and implementation of ASAP methodology.

2. Theoretical Foundation

![Figure 1. Integration SAP SAP Business One](image)

SAP Business One is one of SAP important solution designated to address business needs of SMEs (9). SAP Business One is designed in a single and affordable solution that covers finance, sales, customer relationship management, supply chain management, inventory, purchasing, small-scale manufacturing, project tracking, planning, and reporting [10].

2.1. SAP Business One Implementation

ERP Implementation is the execution of basic policy decisions, usually in the form of laws, but can also take the form of important executive orders or decisions or judicial decisions [11]. Implementation is actions undertaken by individuals/officials or government or private groups directed at achieving the objectives outlined in policy decisions [12]. SAP Business One implementation can be interpreted as a group of people who are working together according certain steps with careful plan. SAP Business One implementation comprised of two main tasks: business functional and technical tasks.

2.2. Initial Balance Migration Data

Data migration is defined as a process of transferring business data from other application systems to SAP Business One system. Data migration referred to migration of data that stored in legacy system to new SAP Business One environment. Data migration stage of a project can consume up to 30% of the total project resources, therefore it is important to plan the data migration on each project [13]. Zaitar et.al. addressed that data migration as an important factor that has risks in the implementation of ERP [14]. The beginning account balance and previous month account balance status are the common problems faced by SAP consultants when applying SAP Business One for SMEs.

3. Methodology

3.1. SAP Accelerated Methodology

SAP has established methodology known as accelerated SAP method, to assist business consultant to applying ERP solutions (see Figure 2), comprised of: (1) project preparation; (2) establishing business blueprint (project preparation and refine goals); (3) project realization (implement system, test and configure); (4) final preparation (system testing, end-user training and fine tuning); and (5) go-live and support (move from pre-live to a live-operation, including end-user support).
Figure 2. ASAP Methodology

3.2. Research method
The article applies the multiple-case studies for SAP-ERP implementation in the SMEs, that enables to examine the differences within and between cases [15] [16]. The case study method involves using interviews and focus group meeting with the selected respondents, with the aims to replicate the findings with other Indonesian SMEs. The article applies the following propositions: (1) Proposition 1. The quality of the vendor (capability) in managing the project affects the implementation of SAP Business One; (2) Proposition 2. The initial balance migration data affects the implementation of SAP Business One; (3) Proposition 3. Accelerated SAP methodology has maximum effects on the implementation of SAP Business One.

3.3. Data gathering method
The questionnaires were designed with the Likert scale 1-5, and distributed to 75 respondents in: GRK, MMM and KM25. The questionnaires are delivered to each project manager and key users that involved in SAP Business One implementation. The important key users to address such as: supply chain management (SCM)-purchasing division, SCM-warehouse division (logistic), SCM-sales division, finance and accounting division. The interviews and focus group also conducted to the selected respondents in those SMEs to explore their thoughts and data findings. The distribution of respondents is shown in Table 1 below.

| No | Responden | GRK | MMM | KM25 | Total | Percentage |
|----|-----------|-----|-----|------|-------|------------|
| 1  | Sex       |     |     |      |       |            |
|    | Male      | 1   | 3   | 2    | 6     | 40%        |
|    | Female    | 4   | 2   | 3    | 9     | 60%        |
| 2  | Age       |     |     |      |       |            |
|    | < 25 year | 3   | 4   | 4    | 11    | 73%        |
|    | 26 – 35 year | 2 | 1 | 1 | 4 | 27%      |
|    | > 45 year | 1   | 1   | 1    | 3     | 20%        |
| 3  | Education |     |     |      |       |            |
|    | High School | 1  | 2   | 2    | 5     | 33%        |
|    | Vocational | 1   |     | 1    | 2     | 7%         |
|    | Bachelor   | 3   | 3   | 3    | 9     | 60%        |
|    | Post Graduate |    |     |      |       |            |
| 4  | Working Experience | |     |      |       |            |
|    | < 3 years | 1   | 1   | 4    | 6     | 40%        |
|    | 3 – 5 years | 2 | 2 | 4 | 5 | 27%      |
|    | 6 – 10 years | 2 | 2 | 1 | 5 | 33% |
|    | > 10 years | 4   | 4   | 4    | 12    | 80%        |
| 5  | Title     |     |     |      |       |            |
|    | ERP Project Manager | 1 | 1 | 1 | 3 | 20% |
|    | Department Head | 4 | 4 | 4 | 12 | 80% |
4. Case Study

4.1. Overview Enterprise

The article examined the three companies belong to the same owners to illustrate the difference characteristics of ERP implementation in SMEs. Although they have same owners, it does not necessary have same characteristics of ERP implementation pattern in each company. The article examined the unique characteristics of Business One implementation in those companies. Those companies are: (1) GRK is a distributor of spare-part four-wheeled vehicles and two wheels. Before using SAP Business One, GRK uses Accurate applications to run its business. Due to advance development of the company size, increasing customer needs and complexity business processes have influenced the management to switch legacy Accurate application to SAP Business One. Legacy applications are considered no longer to address the needs of the company; (2) MMM is a construction company and has implemented SAP Business One in 2013. Like GRK, MMM also utilised the Accurate application to support financial reporting, and decided to switch to SAP Business One; KM25 is a distributor company of two-wheeled vehicles. Before using SAP SAP Business One, KM25 applied manual recording by using Microsoft Excel. With fast development of the company and the complexity of business processes in KM25, the management decided to replace entire manual recording system with SAP Business One. KM25 completed SAP Business One implementation in 2014.

4.2. The Result Findings

Based on interviews and observations, the result findings of the three companies are summarized as follows:

4.2.1. SAP Business One Project Execution

Major respondents agree that project manager and business function consultant shared the similar roles to support the SAP Business One implementation, with following percentages: (1) GRK, with 71% respondents agree; (2) MMM, with 60% respondents agree; (3) KM25, with 60% respondents agree. The respondents addressed the characteristics of the project execution (see Table 2) below:

| GRK | MMM | KM25 |
|-----|-----|------|
| Equal role of PM and FC is needed to execute the project. | FC to be more dominant than PM. FC needs to manage complexities of business process, although with better preparation. | PM to be more dominant than FC. Having better experiences enables PM to execute the project faster. |

Note: PM: Project Manager, and FC: Functional Consultant.

4.2.2. Initial Data Migration Balance

| GRK | MMM | KM25 |
|-----|-----|------|
| Data source: ending balance of legacy system to be initial balance in the new SAP Business One system. | Legacy system from SAP Business One. | Legacy system from Accurate software. |
| No system, manual recording (MS.Excel). | | |

Table 3. Comparative Results of Initial Data Migration Balance.
4.2.3. Accelerated SAP Model

**Table 4. Results Comparison of ASAP Method Implementation**

### Project Preparation

| Similarities                        | Differences                                                                 |
|-------------------------------------|-----------------------------------------------------------------------------|
| GRK                                 | Server installation for SAP database and remote application were done in the preparation phase. |
| MMM                                | The server of MMM and KM25 were combined into one with GRK server.           |
| KM25                               | The server of MMM and KM25 were combined into one with GRK server.           |

### Business Blueprint Establishment

| Similarities                        | Differences                                                                 |
|-------------------------------------|-----------------------------------------------------------------------------|
| GRK                                 | Blueprint establishment was done through accelerated methodology, where important tasks such as identifying user requirement and supporting documents were produced. |
| MMM                                | Requirement report and documents were taken from GRK.                       |
| KM25                               | Similar requirement report and document taken from GRK, and PM assured the blueprint from best practices. |

### Project Realization

| Similarities                        | Differences                                                                 |
|-------------------------------------|-----------------------------------------------------------------------------|
| GRK                                 | Database setting and configuration, create report and document, upload master data and other configurations. |
| MMM                                | Internal testing and monitoring implementation process.                     |
| Idem                                |                                                                             |
Focus only at database setting and configuration.

**Final Preparation**

| Similarities | Differences |
|--------------|-------------|
| GRK          | PM ensured the data is valid. |
| MMM          | After opening balance was uploaded. There was no supporting document stated data is valid. PM convinced all data are valid. |
| KM25         | There was no documentation is created. PM convinced all data is working well. |

**Go Live and Support**

| Similarities | Differences |
|--------------|-------------|
| GRK          | Supporting documentation is made to confirm Go-Live status. |
| MMM          | MMM and KM25 did not create supporting documents for Go-Live status, since it had been ignored in previous phase; and users are ready to operate SAP Business One. |
| KM25         | - |

5. Lessons Learned

The success of the SAP Business One project in the SMEs sector depends on clear objectives, good implementation quality, structured migration data processes, and maximization of implementation methods used. Sumner [17] stated the critical success factors in system management projects depends on the selection of vendors, needs to be properly identified. In appropriate vendor selection commonly contributes high failures in the ERP implementation. Paul Dorsey [13] examined that migration data as an essential factor that affecting the success of project implementation. So the initial balance-migration data should be planned as early as possible before the project begins. With lack of preparation, well-planned and documentation may lead to project failure. SAP accelerated methodology requires each critical phase should be proceeded properly such as: preparing blueprint, processing steps, user acceptance test and training. Jose and Joan [18] stated that failing to address these critical phases may lead to creating implementation failures.

6. Summary

Based on the results of questionnaires, interviews and observations are expected to be the quality factor of the implementation, initial balance data migration and implementation of A-SAP implementation method to be more focused to support the successful implementation of SAP Business One in the SMEs sector. In addition, other non-technical factors such as project management, user engagement, communication, and top management support can influence the success of SAP Business One implementation in the SMEs sector.

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