**SAVONIA**

# How IT department supports the SAP software implementation in Hoang Anh Gia Lai multi-sector company

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Bachelor's Thesis

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Abstract

Systems, Applications and Products in data processing (SAP) software is popular nowadays due to its significant benefits for the organizations. Being one of the biggest multi-sector companies in Vietnam, it is essential for Hoang Anh Gia Lai (HAGL) to apply the software into the daily operations. The key objective of this thesis was to find out the best practices between the company's users' expectations and how Information Technology (IT) department supports the SAP operations.

There are two research methods used in the thesis, which are quantitative (with questionnaire) and qualitative (with interviews) surveys. The target group of the questionnaire were all the employees (except the managerial levels) who are working at the HAGL representative office. The survey's purpose was to evaluate the usefulness of the software and how the employees are satisfied as well as proficient with the SAP software. For the qualitative survey, the interviewees were some of the representative office IT department members. The aim of the interview was to get to know the means, options, difficulties as well as opportunities the representative IT department has to face in maintaining the SAP operations. It could be concluded from the research results that the SAP end-users were highly satisfied with the IT department's support at HAGL representative office. Nevertheless, there are still some weaknesses which need to be improved to make the company's SAP solution better in the long-run.

In addition to the SAP software issues, the thesis also provides some theories about Foreign Direct Investment, which the case company is applying when expanding its market outside Vietnam. The theoretical and empirical parts are sometimes combined, so that the readers may understand the topic more clearly. At the end of the thesis, some suggestions are made with the hope to help the SAP users in the company as well as the IT department to utilize the SAP software more efficiently.

Keywords: SAP, IT- support

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# 1 INTRODUCTION

## 1.1 Background of the research

Nowadays, information is crucial for every company as well as individual. It plays such a magnificent role in different aspects of business, which includes an organization's communication, decision making and reactions to the whole environment. Therefore, it is more vital to know how to manage the information well. A concrete example is that the managers need to receive various information from either internal or external sources such as meetings, emails, reports, etc. which then need to be gathered, processed and disseminated. (Pennsylvalnia State University)

In a larger scale, a company must face such a lot of information and data, even daily, which could be problematic if it does not use any software or applications to integrate. The common applications are Microsoft Office tools, which include Excel, Word, Powerpoint. However, for the big corporations, especially the international, multinational ones, it requires more professional programs to ensure the whole organization's information processing. SAP software (Systems, Applications and Products in data processing) is one of the suggested solutions for the companies' current issue about managing information. SAP is now available more than in 188 countries worldwide, and it is utilized by small, medium and large companies (SAP AG Company).

The case company in this thesis process, Hoang Anh Gia Lai (HAGL), is a multi-sector corporation with 52 subsidiaries (HAGL annual report 2012). Consequently, it decided to use SAP software to optimize the operations of the whole organization. The research problem is to know how HAGL representative office IT department supports the SAP software implementation in HAGL. Furthermore, the objective of the thesis (research) is to find out the best practices between users' expectations (who are the case company's staff) and the level of HAGL representative office IT department's support. In order to find an answer to the main research problem, both quantitative and qualitative methods are applied. The information of the thesis is also supported by the help of one supervisor from HAGL, who is currently working at the representative office IT department and takes parts in maintaining SAP software operation.

## 1.2   Structure of the thesis

The content of the thesis is divided into seven main parts. First, it is necessary to introduce the background of the research, as well as to show the starting point for the thesis. Moreover, the research problem and objective should also be mentioned, so that readers may have a general understanding image of the whole thesis. Next, it is the theoretical part of SAP software. In other words, it provides more knowledge about SAP, which includes its definition, benefits of using, the challenges while utilizing and suggestions about some other SAP versions. Then, it is necessary to know the case company's information. In the meanwhile, a few theories are also combined when analysing Hoang Anh Gia Lai (HAGL) case.

The parallel structure is applied in this section: both theoretical and empirical framework at the same time in order to clarify and understand better. In other words, after the theory about the role of an IT department in companies in general, the thesis shows how important the representative office IT department in HAGL is. Similarly, the foreign direct investment theory is first mentioned, then how HAGL applies it into practice.  The fourth part, which also has the same contents with the thesis title: How SAP software is applied into the case company with IT department's support. Precisely, it explains the reason why HAGL chose SAP software, as well as its advantages and disadvantages. Other issues related to SAP are also referred, such as training programs for the employees to be familiar with the software, how IT department works and the difficulties occurring while maintaining the SAP operations.

The next section is about the research on the case company employees' satisfaction when using SAP. The purpose is to try to fulfil the objective set. There are both quantitative and qualitative methods, of which the forms are respectively survey (the target group is employees using SAP) and interview (the respondents are some IT department members). Then, development suggestions for HAGL are recommended solutions for an IT department to perform SAP software more efficiently. Finally, the conclusions are made in order to summarize the thesis.

## 2   SAP SOFTWARE

### 2.1   SAP software definition

Nowadays, most of the companies have functional structure, which means that the organization is divided into functions or departments (such as accounting, human resources, sales, marketing, etc.), and each of them is responsible for certain activities. However, in today's global economy, different steps of a process could be implemented by people locating around the world. For example, a computer manufacturer may purchase the components from the USA, produce in China and sell in the EU countries. It is too hard to manage such a complicating process without using a modern information system. (Magal & Word 2011.)

Systems which support end-to-end processes are called **Enterprise Systems (ES)**. Enterprise systems are very crucial to the execution and management business processes in the most effective way. However, a company has to invest capital in planning, implementing and constantly improving the ES. A lot of research has shown that the investments in information technology (IT), especially in ES, have increased greatly companies' profitability, productivity and competitiveness by eliminating the barriers to share information between the functions. (Magal & Word 2011.)

**Enterprise Resource Planning (ERP)** systems are the world's largest and most complicating ES. ERP systems mostly concentrate on *intra-company processes* (which indicates the operations performed within an organization), and integrate the functional as well as cross- functional business processes. ERP supports various departments in a company, such as Operations (Production), Human Resources, Finance & Accounting, Sales & Distribution, and Procurement. (Magal & Word 2011.)

**SAP (Systems, Applications and Products in data processing)** or SAP ERP was the first software in the world, which was invented by SAP AG company, with a completely integrated and global ERP system. In other words, ERP allows and helps the companies to manage end-to-end processes operating in different countries with many languages available. Before SAP was created, developers had to design customized software for each company, which had been expensive and not consistent among the organizations. (Magal & Word 2011.)

The first SAP product was SAP® R/3, which was produced in 1992 and 'R' means 'Real time'. SAP is the key milestone in ES enterprise because it has perfect features compared to the existing enterprise systems at that time. In particular, companies used to buy or employ various systems to support each function. It implies that the departments inside a same company could hardly share information as well as data with each other, as they were not integrated. It was problematic, because the information was not all the time updated or accessed, which later could lead to a decrease in productivity, efficiency and finally affect profits. (Magal & Word 2011.)

In contrast, SAP removed the inefficiencies by implementing the whole process from the beginning to the end, and consolidating all of the process data in a *single database*. Therefore, SAP allowed all the data to be available, regardless of who was or were finishing a process step.  Moreover, other employees in a company may see the process status too. It explained why SAP R/3 was considered as an innovative and important stage of ER enterprises at that time. (Magal & Word 2011.)

SAP was rapidly used by a great amount of companies, especially in the big ones. In 2010, SAP had more than 110,000 customers in over 120 countries, consisting of almost every Fortune 1000 company- "An annual ranking by Fortune magazine of the 1000 largest US public and privately-held companies, listed in order of reported revenues (Business Dictionary)." Nowadays, SAP's customers are usually small and medium sized companies. (Magal & Word 2011.)

## 2.2 Other software of Enterprise Resource Planning

According to Columbus, the top worldwide Enterprise Resource Planning (ERP) software market share in 2012 belonged to SAP, Oracle, Sage, Infor, Microsoft, with the respective percentage was 25 %, 12 %, 6 %, 6 and 5 % (Figure 1). The other 45 % went to other smaller companies, of which each market share was maximum 2 %. It could be seen that SAP still retained the worldwide ERP market share leadership, despite the challenging times of the previous year. The gap between SAP and its competitors was significant. SAP's continued market dominance was thanks to the company's main ERP strategy, such as social application adoption (SAP Jam), mobility platform, highly regarded analytics suite. (Columbus)
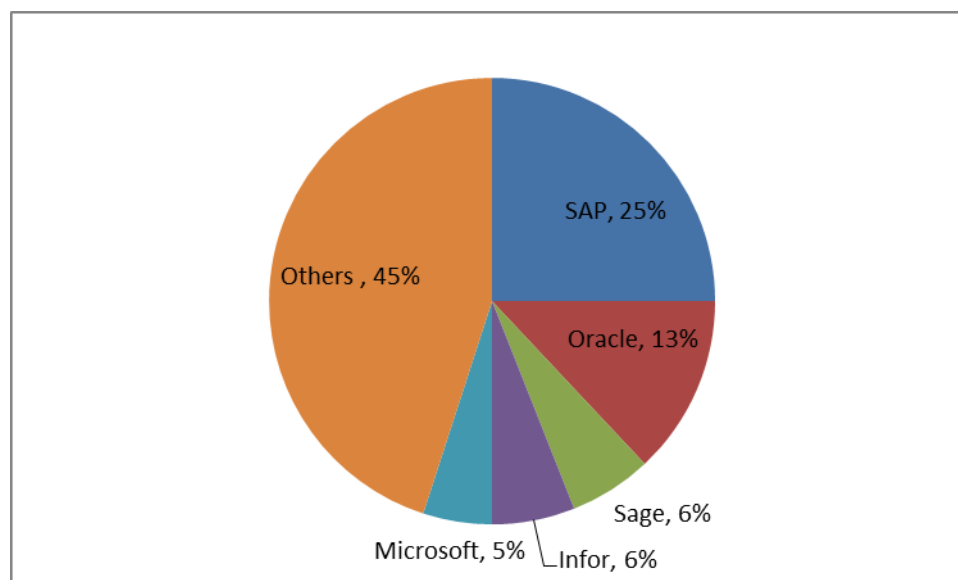


FIGURE 1. Worldwide Enterprise Resource Planning software market shares in 2012 (Columbus)

SAP and Oracle have some similarities; even they are rivals in ERP market. First, they are the two biggest ERP vendors until 2012. Their products are constantly developed, which leads to deep functionalities for the users. There are various product ranges with different industries and business sizes. Second, they are professional as well as famous in this ERP area due to many years of experiences, which may reduce the risks for clients after purchasing. Third, both companies have good supporting and training systems for the customers, even in many countries around the world. (Kanaracus)

One of the significant benefits what makes people choose SAP and Oracle is that it is able to integrate different ERP modules into one easier system to use. Moreover, it allows customization to meet the demand, for example different languages and

currencies. They also have an automatic process, which means that the data only needs to be inputted once at the beginning. It reduces the manual work, which results in saving costs. However, what makes Oracle unique is the purchase order alert when the inventories are below a certain point. The managers will get notifications in the next morning to update. One of the disadvantages of Oracle compared with SAP is that it is not user-friendly, especially to small businesses. For example, the E-Business Tax module does not work well abroad. Another weakness is that Oracle sales module is not competitive enough; therefore, clients usually look for other ERP solutions. (Kinga)

In order to know Sage and Microsoft Dynamics ERP, it is useful to make a comparison between two of them. Sage only has the Windows platform up to now, while Microsoft Dynamics has others as well, like Hotfixes for Microsoft Dynamics NAV2013R2 on Partner Source (Totovic). Moreover, Sage is more suitable for small and medium businesses. Whereas Microsoft targets at all company sizes. However, Sage ERP has more industries than Microsoft, and they both have the financial services module. (FindTheBest Co.)

About the analytics features, Sage does not have the Profit Analysis and Online Analytical Processing (OLAP) which is "a category of software tools that provides analysis of data stored in a database" (Webopedia). Furthermore, both ERPs offer many reporting features, such as multiple languages, dashboard, performance measurements, etc., except the financial forecast which Sage does not have yet. Microsoft Dynamics has another strength is that it supports the mobile capability, which indicates the mobile business intelligence. It could be seen that Microsoft Dynamics ERP has more advantages compared with Sage ERP. (FindTheBest Co.)

According to the independent research study conducted by Panorama Consulting Solutions, which was an online survey of more than 2000 professionals from 61 countries with experience in ERP, it showed that SAP ERP had the highest rates of being short-listed as well as market share, compared with Oracle and Microsoft Dynamics. Nevertheless, Oracle was at the leading position about the user satisfaction result. Microsoft Dynamics had a weakness that the implementation duration was the longest. However, the "Percentage of Customers who Realized Payback in Less Than Three Years" belonged to Microsoft Dynamics, due to its lower prices (Figure 2). In general, each ERP has its own strengths and weaknesses. Therefore, a company should choose the one which suits it most, especially with its size (large, medium or small business), demand and budget. (Panorama Consulting Solutions)

| | SAP ERP Packages | Oracle ERP Packages | Microsoft Dynamics |
|---|---|---|---|
| Market Share | 24% | 18% | 11% |
| Rates of Being Short-listed | 38% | 32% | 24% |
| Selection Rates When Short Listed | 19% | 22% | 14% |
| Satisfaction Rates | 39% | 80% | 33% |
| Implementation Duration | 13 months | 11 months | 14 months |
| Percentage of customers who realize payback within one to three years | 57% | 51% | 74% |
| Percentage of Customers who Realized Payback in Less Than Three Years | 69% | 60% | 84% |
| Delta Between Planned Project Costs and Actual Project Costs | 8% ($19 million planned vs. $20.6 million actual) | 15% ($1.4 million planned vs. $1.6 million actual) | 14% ($408,000 planned vs. $464,000 actual) |
| Percentage of Customers who Realized Less Than 60-percent of Anticipated Business Benefits | 67% | 63% | 76% |
| Percentage of Customers who Realized More Than 60-percent of Anticipated Business Benefits | 33% | 37% | 24% |

FIGURE 2. ERP Software Vendors by Tier (Panorama Consulting Solutions)

## 2.3    Benefits of using SAP software

According to Blue Ocean Systems Pvt. Ltd, there is a variety of benefits when a company uses SAP software. However, the significant advantage that SAP offers is "a comprehensive set of integrated, cross-functional business processes". For instance, it helps to align the company's strategies (including long-term, medium and short-term) with the operations. Furthermore, SAP improves the productivities and insight of the companies. It is because the data only needs inputting once, but can be used numerous times within an organization. It results in the company's efficient workflows by using internal messages, emails, SMS alerts or other means. The SAP is able to control the data permission, which means that each employee can only access to certain levels depending on his/ her authorization. Minimizing the costs is also one of the biggest benefits that SAP brings. It indicates the high flexibilities by extending the business eco-system, such as extrapolating transactions, information, and collaborative functions. (Blue Ocean Systems Pvt. Ltd)

SAP has more than 30 years of experience working with organizations of all sizes around the world. Therefore, the companies using SAP software may trust this professional system, which helps to reduce risks. SAP provides deep vision about the company that the end-users are working, which leads to an increase in profitability, financial as well as risks control management later. Moreover, SAP reduces the IT expenditures by the integration functionality. SAP decreases the implementation time and costs compared with the traditional approaches. This may result in faster Return On Investment (ROI) for the company. (Blue Ocean Systems Pvt. Ltd)

According to SAP AG company (the founder of SAP ERP), the software also improves the companies' competitiveness by integrated, quick, and flexible business processes. With the SAP system, it contributes to offering the innovative products and services. Furthermore, the software simplifies the corporate structure, market channel, and business scenario management. SAP is now available on mobile version, which improves the users' convenience to access. The supported services are offered professionally, with over 25 industries, 37 languages, and 45 localizations. (SAP AG company)

It is useful to analyse a case company, which is Deloitte, to understand more about the benefits of SAP in daily operation. Deloitte Belgium has implemented OpenText Vendor Invoice Management (VIM) with SAP® ERP in order to streamline accounts payable

(AP) operations. The main advantage of this system is that the tax code is automatically verified when all the information of an invoice is processed. Comparing with inputting the tax code manually (the traditional method), it is definitely more accurate, fast, punctual, cost-saving. People do not have to look for the correct tax code as well as minimize the labour work. Another benefit is that the system can be utilized in existing VIM environments, for example at different Deloitte offices in Belgium. (Deloitte Global Services Limited)

## 2.4   Challenges of using SAP software

According to InformationWeek, the main challenge for SAP AG company comes from its current market leader position. It means that the company should constantly develop to offer new values to the customers. In other words, innovation as well as creation plays such an important role in maintaining the company's competitiveness. As the company has so many product ranges, it is challenging to create a consistent message about the company's different strategies, both internal and external. Furthermore, SAP AG company should own a more centralized business model. The reason is that SAP AG has a lot of subsidiaries, partners, and customers worldwide. It is better to show that the whole company is unified and well-organized. In other word, it conveys a message that the company's products complement each other, not compete, even they are co-operated software between SAP AG and the partners. (InformationWeek)

SAP AG has focused a lot on its innovation called Rubicon, which is "to formulate a strategy that propels it ahead of an unprecedented set of market forces". It creates an image that the company can gain profits mostly by innovation. While Oracle (SAG AG's main competitor) pays more attention to the products offering and aims at standards, even though its innovation is weaker than SAP AG's. Furthermore, Oracle is using the low Total Cost of Ownership (TCO) strategy currently. Therefore, it is another challenge for SAP AG to show that it is worth buying the company's software (SAP), which includes the innovative strategy for the long-run advantages. (InformationWeek)

Other SAP ERP software's challenges could be found among its existing disadvantages. It means that SAP AG should improve the weaknesses in the software, so that the company is able to ensure its competitiveness. According to SocialERP, one of the disadvantages is that the Total Cost of Ownership (TCO), which includes acquisition costs, deployment costs, maintenance costs, support costs, are still high. Although it is effective to purchase SAP software for the long-time use, some companies cannot stand the high costs in total. Moreover, the deployment risks may happen to the customers, as SAP is wide, professional and complex software. Therefore, the support is very essential at every stage. The recurring upgrade costs may arise when a new version is released. Upgrading may sometimes result in more deployment costs than a customer estimates. Another weakness is that SAP software's configuration is not flexible enough, which indicates the limited design and options. It is suggested that SAP AG should collect

more feedback and comments, so that the company could improve the current weaknesses. (SocialERP)

## 2.5   Different SAP versions

As the market leader in enterprise application software, SAP AG company has various product ranges, which could be classified basing on industry, line of business and featured solution that a client company belongs to (SAP AG Co.). According to Ultra Consultants Co., SAP AG's best-known products are "enterprise resource planning application (SAP ERP), SAP BusinessObjects software, and most recently, Sybase mobile products and in-memory computing appliance SAP HANA.". (Ultra Consultants Co.)

The main element, which makes SAP BusinessObjects successful, is that it offers outstanding features for the users. First, the software provides a complete solution, which means to explore, report, and share all data in a single and integrated package. Furthermore, clients are able to search and browse advanced to find the necessary information that they are looking for. Third, SAP BusinessObjects helps to schedule and share data, reports, or dashboards online inside or outside a company punctually. Fourth, the folder-level security sets an access limit, so that the company's data is secured, especially when doing online. Moreover, it allows Software-as-a-Service (SaaS), which means the software itself can run fast without software or hardware installation. As the main strength of SAP AG Co., SAP BusinessObjects offers customization, which indicates the solutions for industry and specific line-of-business uses through the partners. (BI OnDemand Co.)

The business challenges are solved by SAP BusinessObjects, for example it is an easy tool for the companies to use. The software provides a complete view of the business, which traditional reports cannot perform. In addition, SAP BusinessObjects saves time for the companies due to the automatic process, while consolidating data and creating reports, charts, graphs and dashboards consume a lot of manual work. In other words, it shows the entire view of a business through the integration of information from multiple sources. Therefore, another benefit that SAP BusinessObjects offers is to support the decision-making procedure of the businesses. (BI OnDemand Co.)

According to SAP AG Co., "SAP HANA is an innovative in-memory data platform that is deployable on-premise as an appliance, in the cloud, or as a hybrid of the two". The software is outstanding because it is able to converge database and application logically

within the in-memory engine. Then it transforms transactions, analytics, text analysis process. There are three main benefits that SAP HANA offers, which are real-time analytics, application and platform. Real-time analytics includes operational analytics, which indicates when the data comes from a user's SAP® applications, an instant decision could be made. Basing on the transactional and analytical data stored together; SAP HANA provides progressive analysis for all combinations of data. (SAP AG Co.)

Another advantage is that the software can run across multiple data sources as well as provide deep understanding about the unified analysis of all data types, which refers to the Predictive, Spatial and Text Analytics functionality. Real-time application means planning and optimization features, which "enable real-time prescriptive analytics by reducing layers of processing and accelerating complex computations required for scheduling and simulations.". About real-time platform, it contains integration and data virtualization services. This characteristic allows the high-volume data, stream processing and smart data access from different sources, which helps faster response and interactivity. (SAP AG Co.)

Sybase mobile software was produced to meet the SAP businesses' demand to mobilize the workforce. In other words, it enables people to access and work with SAP software on their mobile device. It ensures the transmit speed even if the employees are away from the office. The software is definitely useful in case the workers have to travel, clock-in, clock-out, not being available at the work desk. etc. Therefore, the benefits are significant, which are quick response on workflow and travel request, enhancing operational activities. (Sybase Inc.)

Quick response means that the workers are able to make the work decisions as well as get the notifications about the new tasks on the mobile device.  Furthermore, the workers can inform their absence, for example for business trip reason, via their mobile, which means that they do not have to spend time on computer login. The software is also convenient that the workers can clock in or clock out everywhere, not necessary to come to the company or offices for that purpose. Moreover, Sybase Inc. is the leader in this enterprise mobility with more than 20 000 customers worldwide, as well as professional experiences in this filed. Therefore, customers can trust the company's products when using, for example data security. (Sybase Inc.)

# 3 HOANG ANH GIA LAI (HAGL) COMPANY IT DEPARTMENT AND DIRECT INVESTMENTS

## 3.1 Introduction of the company

At the beginning in 1990s, Hoang Anh Gia Lai (HAGL) was a private company with furniture as the main production, but in a small scale. In 2002, the company became public, and had real estate as a key business. At the same time, diversification strategies were also implemented. In particular, Hoang Anh Gia Lai football club was founded in 2002 to promote Hoang Anh Gia Lai trademark locally and internationally. Moreover, Dragon Capital and Jaccar became the Company's strategic investors, which could be considered as an important milestone at the public stage. (HAGL annual report 2012)

During the period 2008 to 2010, the company was listed on Ho Chi Minh City Stock exchange with the code HAG. In the meanwhile, HAGL was raising capital from the stock market to finance the plantation, hydro power and mining businesses for sustainable developments. From 2011 to 2012, the company achieved such a great step that capital was raised from international equity markets by listing GDR on LSE, international bonds of USD 90M were issued via Credit Suisse, and convertible bonds were also issued to Temasek. (HAGL annual report 2012)

Since 2013, HAGL has transformed from a real estate company to a multiple-sector company, in which a key sector is renewable resources such as plantation (rubber, sugarcane) and hydro power industry. Those two major industries have brought profits and meaningful achievements for the company, which includes becoming the No. 1 rubber company in the world and listing on SGX, becoming the leading private hydro power company in Indochina region. Furthermore, HAGL is also successful in another sector, which helps the company to become the leading real estate company in Vietnam, Myanmar, Laos and Cambodia. Nowadays, the company's vision is to "become the leading diversified multi–sector group in Vietnam with sustainable development operations in renewable resources sectors'. (HAGL annual report 2012)

HAGL group or Hoang Anh Gia Lai Joint Stock Company (HAGL JSC) has 52 subsidiaries (see Appendix 1), which follow the parent–and–subsidiary model. The parent company consist of five branches and one representative office in Ho Chi Minh City, Vietnam. In 2012, the total number of HAGL employees reached 19457, which was

a significant increase compared with the year 2007 with 7098 persons. HAGL's development orientation focuses on the sustainable development to aim in a long-term value for both shareholders and stakeholders. Basing on the SWOT analysis, the company decided to invest in different sectors with the priorities as followed: agribusiness (rubber and sugarcane plantation), hydro power, real estate, mining, and furniture and granite production. Overall, the company's financial status seems to be sound in terms of profitablity and liquidity. Up to now, the number of HAGL's strategic partners is 14 (see Appendix 2). (HAGL annual report 2012)

## 3.2 Foreign Direct Investments in HAGL

**Foreign direct investment theory**

Nowadays, to make foreign direct investments (FDI) is a popular trend, which refers to a phenomenon that a company invests in another country. According to Welch, Benito and Peterson, "FDI tends to be seen as the most powerful method of foreign market incursion, the most substantial way in which a company can become involved in a foreign market, but normally requiring on a heavy on-the-ground commitment of various types of resources." FDI has many characteristics, one of which is inward and outward FDI. Outward FDI simply means a company invests in other countries via different operating modes, which include export, selling licensing (licensor), know-how agreement (contractor), selling franchising (franchisor), subcontracting (subcontractor), contract manufacturing, project exporting, joint or mixed venture, and inward FDI is vice-versa. (Welch, Benito & Petersen 2007, 317-318.)

The common feature of both inward and outward FDI is that they depend on the governments' legislations and obligations, which seem to be less strict nowadays so that a country can receive more foreign investments and other benefits. For instance, foreign companies have been allowed to establish wholly owned subsidiaries in the retail sector in China since 2004. Another outstanding feature is how FDI can be categorized. An answer is that it depends mostly on the level of ownership via equity in a foreign enterprise: wholly owned foreign subsidiaries and joint ventures with majority, 50:50 or minority owned. (Welch et al. 2007, 315-316 & 320-321.)

The investment activity includes two main elements, which are acquisition of an equity stake (part or full) in an operating company within the target market, and establishment of a new company in a foreign country (with or without partners). Moreover, there are two types of FDI establishment in legal terms, which should be distinguished clearly: branch and subsidiary. The parent firm is liable legally for a brand establishment in a foreign country. While a subsidiary separates from the parent firm and is in charge of the local subsidiary. Therefore, FDI requires various types of resources, which consist of technology, know-how, finance, equipment and people. Furthermore, FDI decision making process is usually lengthy and includes other sub-choices. Figure 1 illustrates the process of reaching a final FDI decision and a certain mode of FDI affects the negotiation parties' positions, external factors as well as players can also have an effect on ending result. (Welch et al. 2007, 318 &321.)
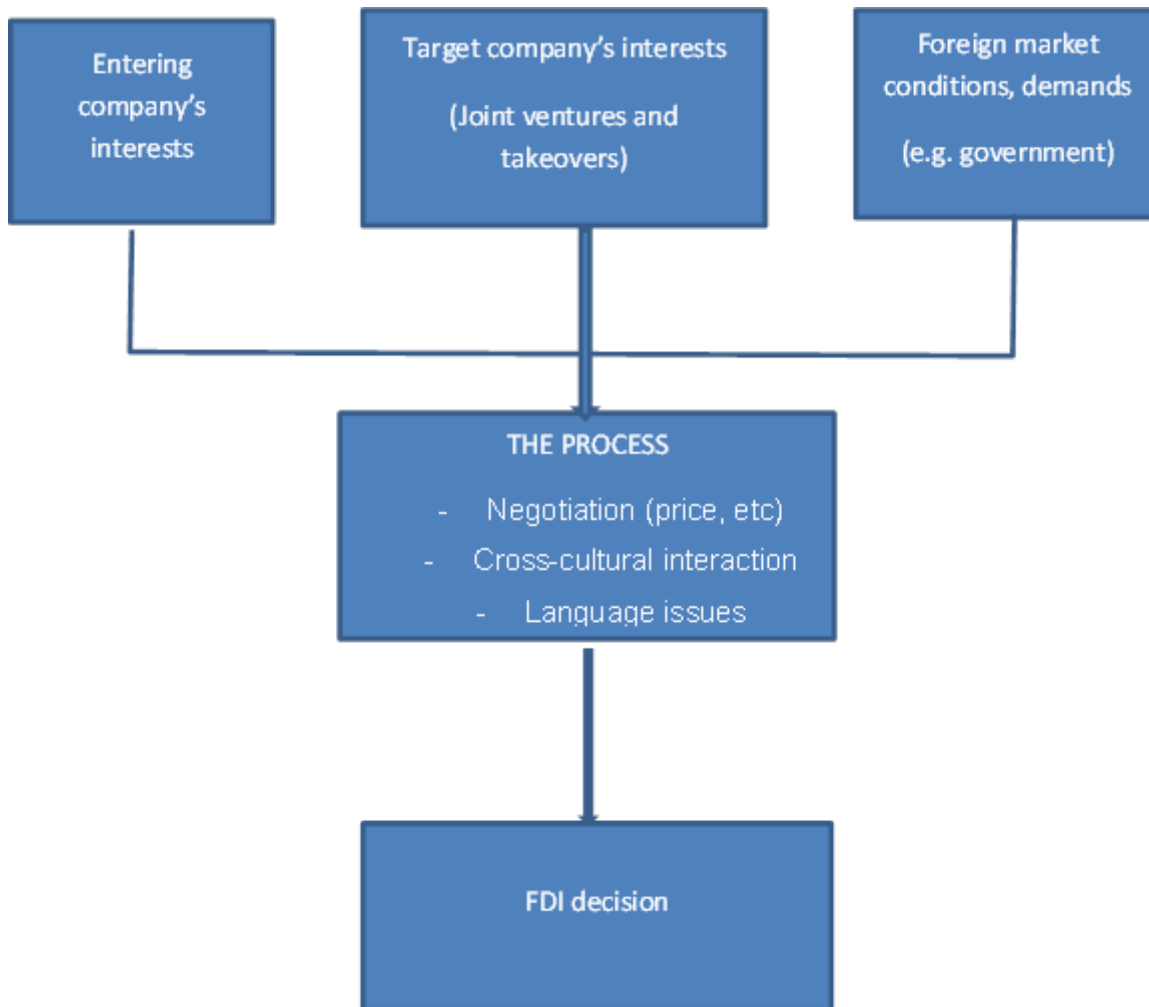
FIGURE 3. Process issues in foreign direct investment decision (Welch et al. 2007, 322.)

After analyzing FDI's different characteristics, it is time to consider why companies need to use FDI. There are some broad reasons that have been found through a long period research for the companies using FDI as the means of achieving international expansion. First, it is a powerful means of foreign market exploitation and expansion, which are divided into four sub parts: market, resource, efficiency and strategic asset seeking. Furthermore, FDI helps companies to lower costs. For example, India and China have cheap labor costs. Another benefit is that companies which supply products or services can keep the customer relationship by client following. Being closer to your customers in terms of geographical distances via FDI lets the companies have more chances to access and understand clients better. Another motive for a company's FDI is to keep pace with the competitors, especially in a potential market. (Welch et al. 2007, 325-330.)

Among the reasons why to apply FDI, import security issue may be considered one of the most important benefits of commodity cycles. For instance, China is a very popular destination country for companies' FDI. Therefore, it raises concerns in China to ensure the future important imports of the key commodities. Then the Chinese companies' use of FDI is a solution to make sure import security for China. One important explanation for FDI is that many governments provide different incentives to attract inward FDI, like the UK investment attraction board. Those six reasons somehow explain why FDI is necessary, especially in the 21st century with internationalization. (Welch et al. 2007, 325-330.)

**Foreign Direct Investments in HAGL**

According to HAGL annual report 2012, it could be concluded that the case company has applied the FDI (foreign direct investment) into practice well. HAGL has both inward and outward FDI. The destination countries where HAGL's outward FDI goes to are Laos, Cambodia, Thailand and Myanmar, which have a common geographical characteristics is that they are close to Vietnam. Especially, HAGL takes advantages of the 'strategic business triangle' (Vietnam, Laos and Cambodia) that the area has rich natural resources within a distance of 200 kilometres (see Figure 4) (HAGL Annual Report 2012)

FIGURE 4. HAGL Outward foreign direct investment (HAGL Annual Report 2012)

The company has plantation sector with two main products: rubber and sugarcane. HAGL has started planting the rubber trees in the Central Highlands, Laos since 2007. The first cultivated generation of rubber trees was in mid-2012 with 127.500 tons of dried latex for annual export purpose. Moreover, at the end of the commercial life (around 25 years), 51.000 ha of rubber trees is estimated to produce approximately 3 million cubic meters of lumber. The net profit is about 430 USD millions. The company's target is to complete planting totally 51.000 ha in both Laos and Cambodia by the end of 2013. The advantages when the company uses outward FDI in planting rubber trees are low-cost plantation land and skillful as well as experienced workforce that specialize in agriculture and forestry. (HAGL annual report 2012)

About sugarcane, 5.530 ha was initially planted in 2012. The first batch was harvested in January 2013. The company estimated that with 10.000 ha, the annual sugar production of finished products is around 100.000 tons. Thanks to large cultivated area in Laos, HAGL can easily use machinery in planting, caring and harvesting sugarcane. Consequently, the company's sugarcane productivity is quite high, and the price is

competitive in the market too. In addition, HAGL also has outward FDI in hydropower operation in Laos. The reason is that the chosen location has precious natural resources, so that it can generate power from rivers with waterfalls. (HAGL annual report 2012)

HAGL's traditional business sector is real estate, which the company has many competitive edges such as abundant and stable material sources of granite and woods, large manufacturers, modern machinery, skillful labor forces, etc. Therefore, the company decided to expand its operation by investing in Thailand and Myanmar. Myanmar is an emerging market nowadays, so HAGL would like to boost up investment in this country. (HAGL annual report 2012)

The company has legal rights to use a large area up to 72.524 square meters, which is located in the best places in Yangon- the biggest city in Myanmar. Furthermore, Hoang Anh Gia Lai Myanmar Complex project was launched in 2013, which includes a 5-star hotel, a commercial center, office buildings and serviced apartments with the total floor areas up to 639.842 square meters. Another real estate project under construction is HAGL- Bangkok High-class Apartment (Thailand), which consists of 140 apartments and the total (floor) area of 13.928 square meters. (HAGL annual report 2012)

The important benefit of applying FDI in real estate sector is that HAGL can use legally a signed land lease agreement for 70 years with a low lump sum rental. While other competing companies are still implementing the land auction procedures with higher prices in home country- Vietnam. In general, HAGL has taken advantages of outward FDI in its operation, which could bring cheap costs, large area, experienced workforce, competitive selling prices, stable sources for long-term use, valuable natural resources, etc. The common feature is that HAGL applies establishment of a new company mode in investment activities in Laos, Cambodia, Thailand and Myanmar, instead of acquisition of an equity in those foreign countries. (HAGL annual report 2012)

In addition, HAGL has had inward FDI with two strategic investors that are Dragon Capital and Jaccar since 2006 (HAGL annual report 2012). Dragon Capital Company is "owned by present and former management and staff, with the World Bank's International Finance Corporation (IFC) and the French Government's development finance entity, PROPARCO- the Investment and Promotions company for Economic Cooperation with the headquarter in Paris, France- also having shareholdings (Dragon Capital Company)."

About Jaccar Company, it used to specialize in main three businesses: sugar, food, retail and the development of marine activities. Since 2003, the company's diversification accelerated into shipbuilding in China and France, into fishing and real estate as well as into emerging market investments, mostly in Vietnam and China. (Jaccar Company). Both Dragon Capital and Jaccar are now the two non-executive members of HAGL Board of Directors as well as HAGL's prestigious foreign investment organizations. It is a success that HAGL can attract those two big organizations' investing money. Therefore, HAGL should develop the corporate relationship and the company's operation well in order to maintain the inflow FDI. (HAGL annual report 2012)

## 3.3 Role of IT department in HAGL

**Role of IT departments in companies**

According to Houston Chronicle, there are five IT functions in an organization. The first inherent role is about communication, which indicates that an IT helps an effective and quick use for the companies. Employees can communicate with each other anywhere instead of only at the workplace. There are different tools to support the communication, such as emails, teleconferencing and Internet. Furthermore, IT helps to save costs and increase flexibility for people. For instance, an employee in the USA can have a meeting with his/her colleagues in the UK through the videoconference. (Houston Chronicle)

In the modern business, travel is necessary. However, the workers are able to update the situations about the company, such as replying to the emails, accessing the data promote, uploading and downloading the files, etc. Moreover, the employees can exchange their information everywhere, for example when doing project, via the company's internal social media sites. It refers to the intranet, which has become popular within companies nowadays due to its convenience, information safety, quick response, efficiency. (Houston Chronicle)

The main function of an IT department in a company is to manage the data. Each business has a certain amount of data, which may include customer information, stocks records, financial files, human resource management, etc. The bigger scale a company is, the more data it has. It is a challenge for all companies, especially the large organizations, to secure the data. In other words, an IT role is to protect the unauthorized accesses to the companies' data, so that the privacy is ensured. It is

suggested that each company should have a back-up file plan, in case the worst situations happen. (Houston Chronicle)

IT also supports other departments in a company, for example Marketing function. IT helps to create the advertising design on computer, place advertisement on the websites as well as social media (Facebook, Twitter…), and process the online orders for the e-commerce web pages. Furthermore, IT allows a company to manage the e-commerce business, which refers to website visit tracking, an amount of internet advertisement clicks as well as time spent. The companies can also improve their processes via IT function. For instance, employees transfer files to each other mostly, which reduces printing paper amount. It means the companies can save the costs by utilizing technological advance. The travel costs and time saving are also other benefits that the companies may get, because the meetings are performed by videoconference. Similarly, some companies' training programs could be also organized on the internet. (Houston Chronicle)

The final IT function is about Enterprise Resource Planning (ERP), which helps to link business functions together. Moreover, it supports the management level to update the integrated information for the operational and strategic decision-making. However, the ERP software is expensive. Therefore, it is better for the small companies to buy the modules of one function first in order to save the costs. For the large companies, ERP software installation could cause disruption at the beginning. However, the benefits that ERP brings for the companies are significant. In general, IT plays such an important in each company nowadays, especially "IT helps small businesses manage daily operations, control costs and compete with large and established companies". (Houston Chronicle)

In large organizations, there is usually a Chief Information Officer (CIO) in an IT department that is "a company executive who is responsible for the management, implementation and usability of information and computer technologies" (Investopedia). A CIO does not have to be an expert in every business sector. However, a CIO's main responsibilities are to co-operate with other departments, so that he/ she can support the organization's operations. In other word, a CIO could be seen as a supervisor, an advisor, a co-leader of a project to achieve the organization's strategies. A CIO does not usually work alone, which means that he/ she discusses with other functional managers and employees when implementing any new IT solutions. The purpose is to ensure that the new implementations are utilized efficiently. (University System of Georgia)

**Role of IT department in HAGL**

Together with other features, the IT department also plays such an important role in maintaining the SAP software in HAGL. In order to know more precisely, it is better to analyze through each phase of the SAP process, which are Project Preparation, Implement SAP ERP and Go Live and Support. First is the project preparation step, which occurs before implementing SAP ERP. It is crucial to assign a suitable task for every IT member. Moreover, the IT department has to co-operate with HAGL's SAP partner to deploy CSC (Computer Sciences Corporation) management. For example, an SAP standard implementation model has eight steps, but HAGL is able to manage so that there are only six main parts. CSC's role is to customize a plan that is suitable with HAGL's practical implementation. CSC will offer two to three potential options according to HAGL's needs. It may be controversial among IT department, because a final decision has to be made. Of course, there should be a suitable reason to explain why to choose, such as comparing advantages and disadvantages. (Doan 21 October 2013.)

After an official plan is decided, it is time to deal with how to run the software, which consists of various activities. There are several hardware suppliers available in Vietnam, such as IBM, DELL, HP, Sun, etc, HAGL chose IBM finally. Moreover, the computer configuration has to be compatible with HAGL's demand, which includes the required amount of computers, qualified system configuration (such as Random Access Memory (RAM), Central Processing Unit (CPU), hardware, etc.). The IT department has to report to HAGL Board of Directors about the current situation and suggestion for the system investment. After a new equipment is purchased, it requires certain time to deploy new system, which consists of operating system, database, Storage Area Network (SAN), firewall, backup software and get used to those. (Doan 21 October 2013.)

The second phase is to implement SAP ERP, which comprised three sub steps: business blueprint, realization and final preparation. Business Blueprint is a detailed description of a business's process and systems required. It is updated frequently during the using process. The business blueprint contains SAP Materials Management (SAP MM) "consists of all master data, system configuration, and transactions to complete the Procure to Pay process. This process map spans from Material Requirements Planning (MRP) generated procurement proposals through final invoice receipt and verification." (Klee Associates Inc.). Moreover, HAGL also creates its own data library for internal use

in addition to SAP ERP. The purpose is that each group may get its own integrated data or latest news. (Doan 21 October 2013.)

There are around 11 groups in HAGL, which are divided basing on the company's task characteristics, such as finance, board director, etc. Each group is able to check and update its own information. The IT department has to help those group members, which includes different activities such as maintaining, developing, printers setting, Wi-Fi connecting, cable internet access, etc. The main aim of business blueprint in HAGL is that employees know where they can find, share and update information within a categorized group, a department or even a company (depending on every employee's role and position). (Doan 21 October 2013.)

Realization or Project Realization means "to implement all the business process and technical requirements defined during the previous phases and documented in the Business Blueprint" (SAP AG). In other word, HAGL staff implements the real operations basing on the current SAP software. For instance, the sales department of HAGL Real Estate Company (one of HAGL's subsidiaries) used to save the customers' contracts in the previous software before installing SAP. If a customer asks for a receipt of his/her purchasing history at HAGL, it is possible to do with SAP software because the data is transferred. SAP requires more steps when inputting data compared with the previous software. However, the benefits of Project Realization when using SAP software is that HAGL customers' data are analyzed thoroughly, such as the amount, locations and values of those apartments purchased, which the former software cannot perform. (Doan 21 October 2013.)

The last sub-step of the implementation process is Final Preparation. This phase continues from Project Realization and focuses on giving permission, which means that the employees must get the approvals from the superiors. In some cases, Project Realization and Final Preparation are combined at HAGL to save time. However, there should be a certain permission allowed, so that an employee is able to continue further. For example, a real-estate salesperson must ask his/ her boss's approval before printing the customers' receipt. The purpose is that the company's system is managed (for example to secure the customers' data), the quality is ensured (e.g the correct information) and make further plans (e.g. suitable changes). (Doan 21 October 2013.)

The final phase is Go Live and Support, which requires the HAGL representative office IT department's help a lot. It indicates an end-user is supported when the issues occur

during SAP software utilization. A user name and password will be provided so that an end-user can log in the Issue Tracking System (ITS), which includes receiving issue report, checking, taking note, finding a suitable employee and solution to fix, updating the situation and documenting the result. The internal audit and IT departments co-operate in this phase, in order to define the suitable tasks for each worker among HAGL different SAP modules, such as Materials Management (MM), Sales and Distribution (SD), Controlling (CO), Financial Accounting (FI), etc. However, Advanced Business Application Programming (ABAP) module is only monitored by the IT department. (Doan 21 October 2013.)

The interviewee (Mr. Doan) and other IT members are responsible for maintaining the SAP software's stable operation. It means that their tasks are to control the host system where the SAP software is installed. The mission is quite challenging, as the software should be ensured to run all the time (24/7), so that other HAGL subsidiaries can also use it. The Infrastructure and Operations is conducted every month, such as data backup, equipment maintenance, information management. Moreover, HAGL foreign subsidiaries (in Laos, Cambodia, Myanmar) also utilize SAP software. Therefore, HAGL representative office IT department sometimes co-operates with them to maintain and develop the whole system's operation. (Doan 21 October 2013.)

# 4   SAP SOFTWARE IN HAGL COMPANY

## 4.1   Reasons why HAGL chose SAP software

HAGL has expanded to Laos, Cambodia and Myanmar. Therefore, it is necessary to follow the standardized systems when making the company's reports, instead of using the local programs. Basing on the needs of the accounting activities, HAGL bought the first SAP module. Furthermore, the company also aims at internationalization. Therefore, HAGL invested money in implementing the SAP software on the whole company scale.  " Hoang Anh Gia Lai becomes first Vietnamese company to list on London Stock Exchange" since 2011 (London Stock Exchange PLC.). For that reason, there have been approximately 10 SAP modules up to now, in order to perform the company's different purposes. (Doan 21 October 2013.)

HAGL is one of the biggest multi-sector companies in Vietnam (London Stock Exchange PLC.). Therefore, SAP is necessary for improving HAGL daily operations, which is more consistent and convenient. Before installing SAP, each HAGL subsidiary used different domestic software. It was challenging for the whole companny's data integration, for example to make the HAGL annual report. Moreover, SAP allows more advanced functions compared with the old software, for instance to analyze the company's results through different years. (Doan 21 October 2013.)

With 52 subsidiaries, it is essential that all the staff know HAGL's main philosphy,  such as mission, vision, strategies, so that they can perform the tasks to fullfill what the company has planed. In addition, the employees should update the company's situation, for example the latest news. SAP is an optimal solution for HAGL to perform those activities. It means the software supports the company's strategies with the operations. The employees could access the data at any HAGL subsidiaries with their own valid verification. (Doan 21 October 2013.)

Moreover, SAP is easier for the managerial levels to control the company's operation. It implies that the managers are able to access the data among all HAGL subsidiaries with the right permisson. The managers do not have to wait for the paper documents, as well as spend time travelling between different locations to get the information that they are looking for. The data is secured when using the SAP software, which indicates that every employee is allowed to access a certain level of the company's information.

Therefore, it was also one of the reasons why HAGL chose to implement SAP to replace the old software. (Doan 21 October 2013.)

## 4.2 Advantages and disadvantages of SAP software in HAGL company

The significant advantage that SAP software offers is the high integration between different modules. It means that the end-users can get the common information of the modules at any time, which reduces the communication time. Moreover, the software is customized to suit HAGL's operations, which helps to improve the company's productivity. SAP ERP is utilized worldwide; therefore, the support actitivities are well-organized. It is also possible to find the useful materials about the SAP software in case the issues occur. Flexilibily is another important benefit that SAP provides HAGL, for example possibilities  to access the SAP data from any HAGL subsidiaries. (Doan 21 October 2013.)

SAP software plays such an important role in enhancing the whole HAGL company. Furthermore, each module brings certain benefits for diffrent tasks as well as departments. For instance the accounting data is accurate, because SAP integrates all the company's inputted transactions during the operations. Therefore, it is not necessary to enter the data twice for a same invoice, especially in bookkeeping. In addition, the financial accounting module (FI) also allows to provide essential information for internal and external financial reporting purpose, which for example indicates the investment ratios comparison functionality. For the Sales and Distribution (SD) module, SAP software reduces sales order processing costs (for example order-to-delivery time), time to calculate selling price, freight costs. In general, SAP software consists of many analytical features, which allows the managerial levels to evaluate the company's performance, control the reporting system and make different decisions, especially in investment activities. (Doan 21 October 2013.)

However, there are existing disadvatages about the SAP software at HAGL company. Due to many subsidiaries, the employees' knowledge and skills to use SAP are heterogenous. It requires more training programs, which have to be considered carefully as it is costly. In addition, SAP is the complex software, which means that the end-users often need support. Unfortunately, the IT department is located in the representative office. Therefore, the supporting activities could not be conducted immediately as well as frequently. The SAP users who work at the company's other subsidiaries usually

have less opportunities to get help from the representative office  IT department when utilizing the software. (Doan 21 October 2013.)

Although the software offers the Vietnamese language version, some of the contents are still in English, for example the website structure. Furthermore, the SAP materials are mostly in English. Users are required to have certain language abilities to understand when looking for the information needed.  It also implies a challenge for HAGL end-users to improve their own language skills. Another disadvantage was that the SAP software implementation process took 11 months at HAGL. In the meanwhile, it caused delays in the companys' operations. For example, the training activities were done intensively so that the end-users got used to the SAP software. (Doan 21 October 2013.)

In addition, high costs are also another issue of SAP, which includes the purchasing and implementing fees of the software. Other ongoing costs are substantial too, such as for training, software maintenance, regular upgrades purposes. Consequently, HAGL should consider carefully whenever the company would like to implement a new SAP module, for instance to compare the costs spent with the benefits to get in return.  (Doan 21 October 2013.)

## 4.3   Training programs for the employees to be familiar with SAP software

Training is essential and helpful for the end-users to utilize the SAP software more efficiently. There are many SAP AG channel partners in Vietnam, such as FPT Information System Corporation, Global Cybersoft, ICC VN Innovative Solution Consulting  Service Joint Stock Company,etc. (SAP AG Company). CSC Company, which is " a global leader of next-generation information technology (IT) services and solutions", is responsible for implementing the SAP software as well as training employees of HAGL (CSC Company).

There are three training groups, which are segmented based on different criteria, such as job positions, needs, competences, etc. The first segment consists of employees who are the chief accountants, each SAP module coordinator, managers. The training programs are often organized outside the HAGL company. The trainees are required to have advanced English skills as well as SAP knowledge, because the courses may be conducted in English language by the CSC Company instructors around the world. (Doan 21 October 2013)

The first group members are then responsible for sharing the knowledge they have learnt to the other employees in the same department or task, which is the second training segment. The purpose is that it saves the company's costs,   but the subordinates also have a chance to improve more SAP skills. The third segment is mixed between the two groups above, which means that the employees get external training program by CSC company, and (or) learn from the trained superiors. It is noticed that the representative office  IT department employees may have possibilities to attended some special courses, which could be organized by CSC, IBM, Microsoft company in Vietnam. It helps them to maintain the SAP software daily operation, support the company's end-users as well as facilitate the infrastructure and operations management tasks. (Doan 21 October 2013)

At the beginning when SAP was first installed, the training was done more intensively, as the software was new to the end-users. However, the training activities about the SAP software are conducted constantly at HAGL up to now, which could be organized inside or outside the HAGL company.  They are costly to the company; therefore, there are usually certain criteria in order to choose suitable employees to get training.

Furthermore, the company also takes into consideration the advantages and disadvantages that each training program offers, for example fees as opposed to benefits. Training might be seen as one of the methods that HAGL faciliates its employees to develop their competences about SAP software. (Doan 21 October 2013)

# 5 RESEARCH ON EMPLOYEE SATISFACTION ABOUT THE SAP SOFTWARE IN HAGL

## 5.1 Research objectives and research methods

In this thesis, there are two research methods, which are qualitative and quantitative surveys. The purpose of the qualitative method was to know the means, options and difficulties as well as opportunities that the representative IT department has to face in maintaining the SAP operations. The interview method was used, of which the target group is some of the representative office IT department members who are involved in the SAP operations currently.

For the quantitative method, the survey questionnaire was conducted via the Webropol, so that it is easier for the researcher to collect all the responses. Whenever a respondent answers the Webropol link, the result is saved in the researcher's account. Moreover, Webropol allows to analyze the gathered data, which provides a general picture of the survey questionnaire's outcomes. The aim of the questionnaire was to evaluate the usefulness and how the employees are satisfied as well as proficient about the SAP software. In order to avoid the bias sample in this survey, the target group is all employees who are working at the representative office of HAGL company, which excludes the managers.

The reason why there are two research methods is that each method will aim at different target group and objective. However, the common goal of both methods is to find out the answers for the key research problem of this thesis, which is to know how HAGL representative office IT department supports the SAP software implementation in the whole company.

## 5.2 Survey process and its results

The survey link was first sent to the company supervisor of research at HAGL. In addition, the introduction about the quantitative survey was also mentioned, which consisted of the reason, the aim and the target group to conduct the questionnaire. After the company supervisor approved, the Webropol link was sent to all employees who are working at HAGL representative office (except the managerial level) by the intranet. The theme question of the survey was also sent together with the link, which was "Employees' satisfaction when using SAP software in HAGL Company", so that the staff has a general idea of what the survey was about. When an employee finishes, the answer is then sent directly to the researcher's Webropol account. There was total 30 respondents, which was the exact amount of all employees working at HAGL representative office currently (excluding the manager positions).

**Background of the respondents**

There was 10 main questions in the survey link, of which the first five ones were about a respondent's background. The researcher would like to find out the relation between the respondents' background and their other answers to the main questions. First, the questionnaire asked about the answerers' gender. There was 60 % (which equaled to 18 persons) male (Figure 5). The difference was not significant, which may lead to evaluating the theme question fairly.


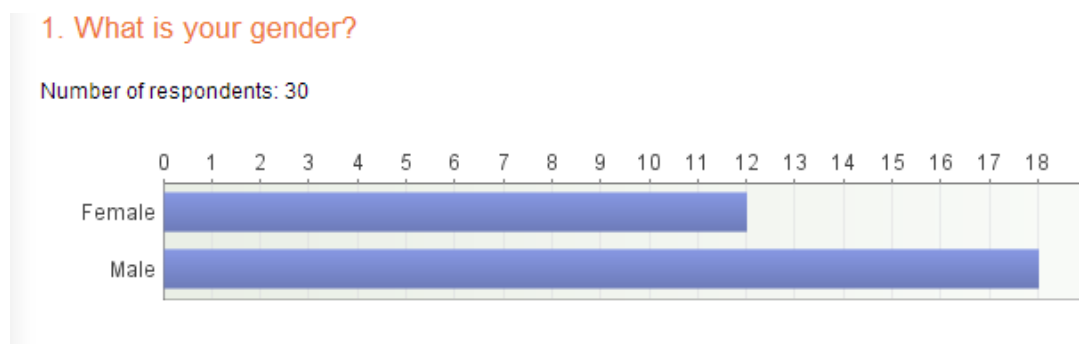
FIGURE 5. The gender of the respondents (n=30)

As SAP is the professional software, it was thought that the age group of the employees may affect the utilizing efficiency (question 2: "*What age group are you in?*"). The result showed that there was up to 70 % respondents who were from 20 to 30 years old. The other 30 % belonged to the age group 31-40 years (8 persons) and only one respondent

was in the group 41-50 years (Figure 6). It could be concluded that the employees who are working at the HAGL representative office are quite young.
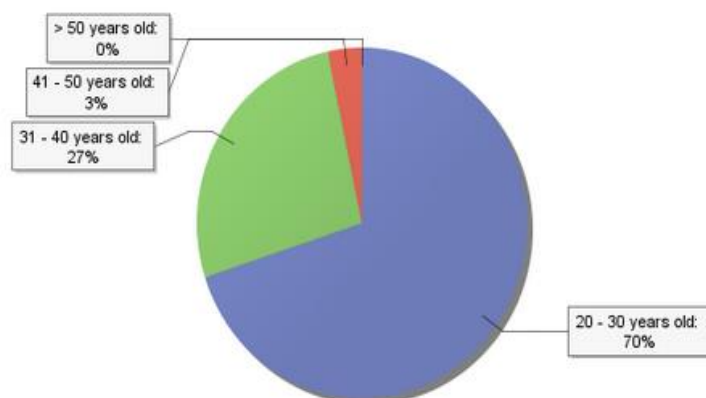


FIGURE 6. The age group of the respondents (n=30)

There are four departments at HAGL representative office, each of which usually specializes in a certain SAP module(s) for various purposes. Therefore, it may lead to different evaluations about the software usefulness as well as employees' satisfaction. The IT and the internal audit departments each had 33 % of all respondents, which was also the whole amount of staff at HAGL representative office. Moreover, the Public Relations (PR) members accounted for 23 % in total and the translation department only had three persons, which was equivalent to 10 % (see Figure 7). Basing on the company's needs, the number of staff allocated in each department differed, for example, the translation room was in the minority.
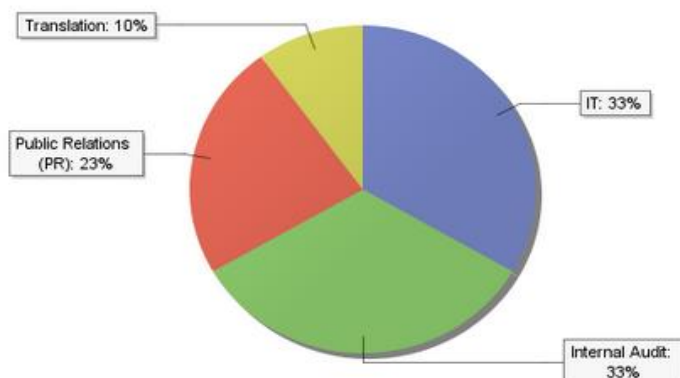


FIGURE 7. The working department of the respondents (n=30)

The experiences are important, which was the contents of the 4th question: "How many years have you been working at HAGL Company?". The majority with 40 % had around one to two working years at HAGL. Moreover, 33 % of all respondents has worked at the company from three to five years. The third place belonged to less-than-one working year group with 23 %. There was only 3 % of total answers had more than 5 years of working experiences at HAGL (Figure 8). The reason that the respondents mostly had less than five years working at HAGL was due to their young age (see figure 4): 70 % of all employees was from 20 to 30 year-old group. It also explained why there was only one person who worked more than five years.
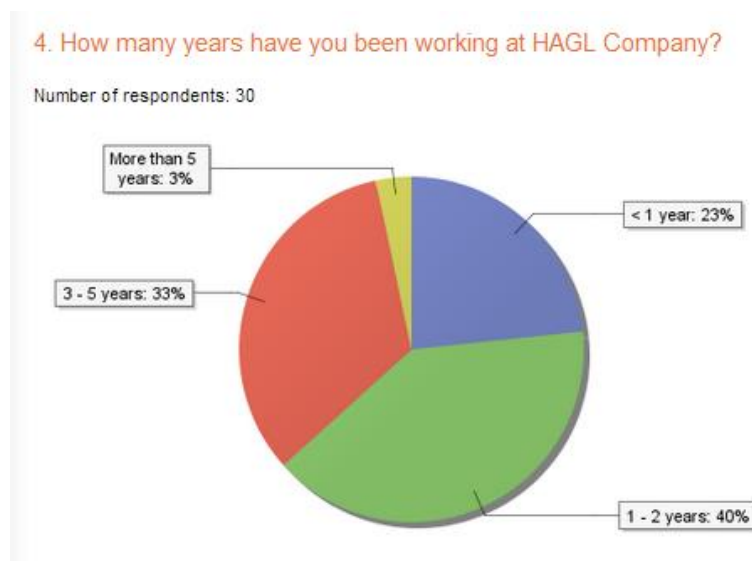


FIGURE 8. The number of working years at HAGL by the respondents (n=30)

The last background question was about "How long have you been using SAP software?". The research also wanted to discover the respondents' proficiency about SAP, which was one of the purposes of the quantitative survey. There was up to 57 % who had one to two years utilizing the software. The second place belonged to the less-than-one-year experience about SAP with 23 %. There was also 17 % of respondents who had used the software from three to five years. There was no one who had more than five years using SAP. However, there was only 3 % (equaled to one person) with no SAP software experience yet (see Figure 9). It could be concluded that most of the employees working at HAGL have experienced using SAP software. They may not be proficient with the software yet, but the respondents were used to SAP.
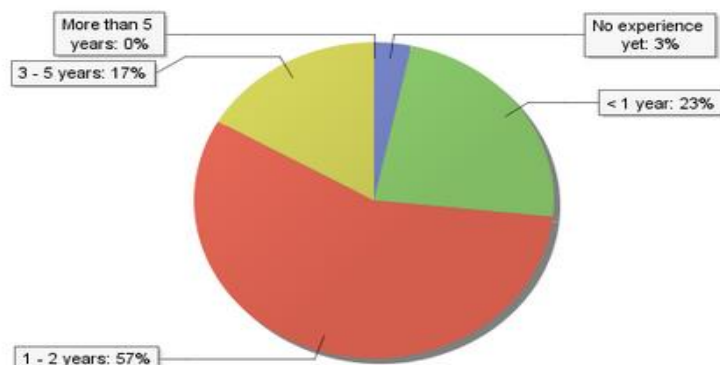
FIGURE 9. The number of SAP using years at HAGL by the respondents (n=30)

**Results concerning the use of SAP software**

The sixth question consisted of 10 sub-questions, of which the rating scale was from 1 to 4, where **1 = poor, 2 = satisfying, 3 = good and 4 = excellent**. The respondents marked the scale (from 1 to 4) that illustrated them best. First, each respondent was asked to evaluate himself/herself about "How proficient are you in SAP software?". Most of the answers were satisfying (with 33 %) and good (30 %). Furthermore, 27 % thought that they were not good proficient enough about SAP (with rating scale 1). Only 10 % shared that they were excellent (see Figure 10). In average, the rank was approximately 2.23 (out of 4.0) about the users' SAP proficiency. It indicated that the employees were satisfied with their expertise in the software in general.
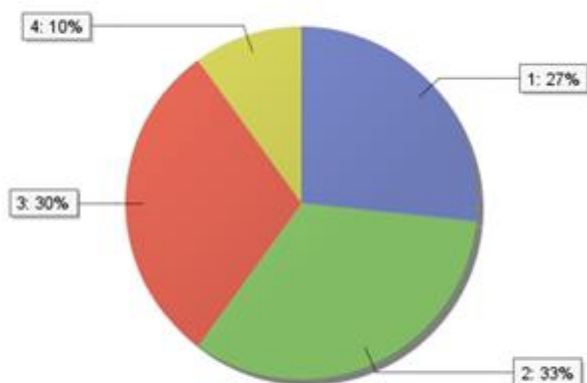


1 = poor, 2 = satisfying, 3 = good and 4 = excellent

FIGURE 10. The respondents' proficiency with SAP software (n=30)

From the second to the tenth sub-question, the objective was to find out how the respondents evaluated the usefulness of SAP software. It was also one the main aims of the survey. When being asked about "What is your evaluation about SAP user interface in HAGL?", 93 % answers were positive. It indicated the scale 3 and 4 with the result respectively was 50 % and 43 %. The option 'poor' and 'satisfying' each had only 3 % of all responses (Figure 11). Therefore, the rating average was around 3.33 for the evaluation of SAP user interface at HAGL.

What is your evaluation about SAP user interface in HAGL?



1: 3%
2: 3%
4: 43%
3: 50%
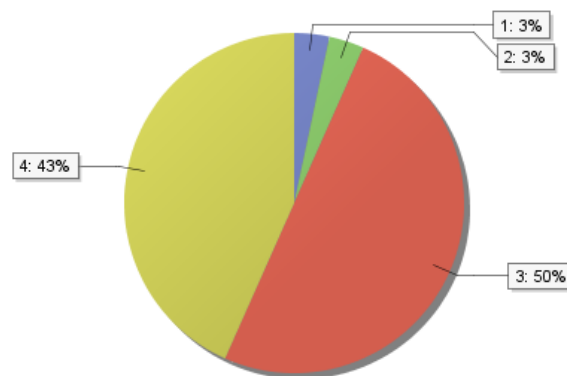
1 = poor, 2 = satisfying, 3 = good and 4 = excellent

FIGURE 11. The respondents' evaluation about SAP user interface in HAGL (n=30)

Difficulty is inevitable when using SAP software. Therefore, it was essential to discover the respondents' assessment about the help they get from different sources. Most of the answers to the question "What is your evaluation about the help you can get from colleagues when using SAP?" was poor (accounted for 40 %). Moreover, 33 % told that it was satisfying to get assistance from colleagues. For the rating scale 3 and 4, there was respectively 20 % and 7 % (Figure 12). It implied that the respondents did not receive much help from their colleagues when facing SAP problems.

FIGURE 12. The respondents' evaluation about the help they get from different sources when using SAP software: colleagues, internet, friends and IT department (n=30)

In contrast, the respondents found more help from other sources than colleagues, which were Internet and friends. The negative assessment, which was scale 1, accounted for such a small amount (less than 10 % in each source). The majority of the employees' evaluation was excellent (40 % for the Internet help) and satisfying (43 % help from friends). Both help from internet and friends got the same result about good evaluation from the answerers (23 % for each) - see Figure 12.

The employees were also requested to share their own assessment about the IT department support while utilizing SAP. It may be seen as another source where respondents are able to find help. There was up to 57 % of all answers shared that the support was excellent. Furthermore, 11 persons (equivalent to 37 %) evaluated that the IT department help was good (Figure 12). There was nobody who accessed the help was bad.

It could be concluded that the respondents got little help from their colleagues, of which the average was only 1.93 out of 4.0 Whereas, the respondents' average evaluation about the assistance from the IT department was high, which was up to 3.5. Furthermore, Internet and friends were other sources where the respondents found it satisfying to find help for the SAP difficulties (Table 1).

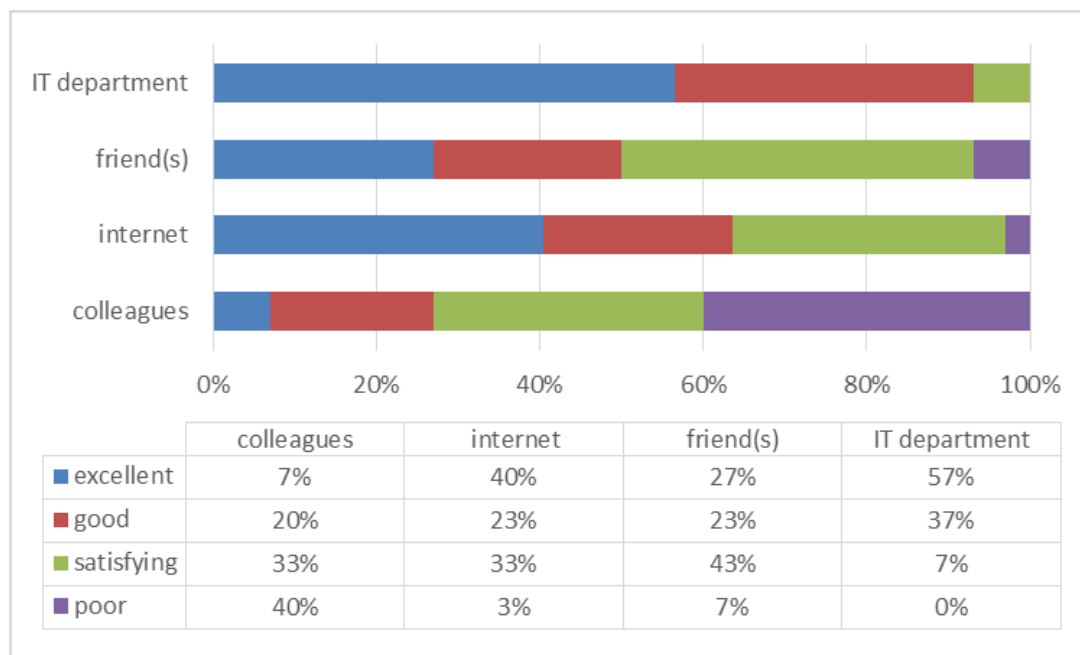TABLE 1. The average of the respondents' evaluation about the help they get from different sources when using SAP software: colleagues, internet, friends and IT department (n=30)

| Question: | Scale 1 | Scale 2 | Scale 3 | Scale 4 | Total | Avarage |
|---|---|---|---|---|---|---|
| What is your evaluation about the help you can get from colleagues when using SAP? | 12 | 10 | 6 | 2 | 30 | 1.93 |
| What is your evaluation about the help you can get from Internet when using SAP? | 1 | 10 | 7 | 12 | 30 | 3 |
| What is your evaluation about the help you can get from your friend(s) when using SAP? | 2 | 13 | 7 | 8 | 30 | 2.7 |
| What is your evaluation about the (representative office) IT department's support to use SAP? | 0 | 2 | 11 | 17 | 30 | 3.5 |

Scale: 1 = poor, 2 = satisfying, 3 = good and 4 = excellent

The skills to manage the daily SAP software operations of the IT department were also evaluated by the respondents. The answers were absolutely positive, with no one marked neither scale 1 nor 2. There was 57 % saying that the IT department's skills were good, and another 43 % thought it was excellent (see Figure 13). Therefore, it resulted in the average assessment of 3.43 (Table 2).

How skillful is the IT department is to manage the daily operations of SAP software?



1: 0%
2: 0%
4: 43%
3: 57%
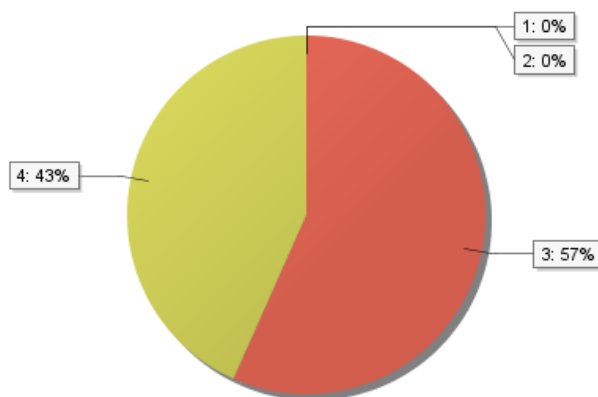
1 = poor, 2 = satisfying, 3 = good and 4 = excellent

FIGURE 13. The IT department's skills to manage the daily operations of SAP software (n=30)

"How useful is the company's SAP software?" was the next question, which also helped to answer the survey's purpose. Similar to the previous question, there were only good and excellent evaluations, which was respectively 23 % and 77 % (see Figure 14). It

was clear that the majority of all respondents thought the company's SAP software was essential as well as practical.

How useful is the company's SAP software is?
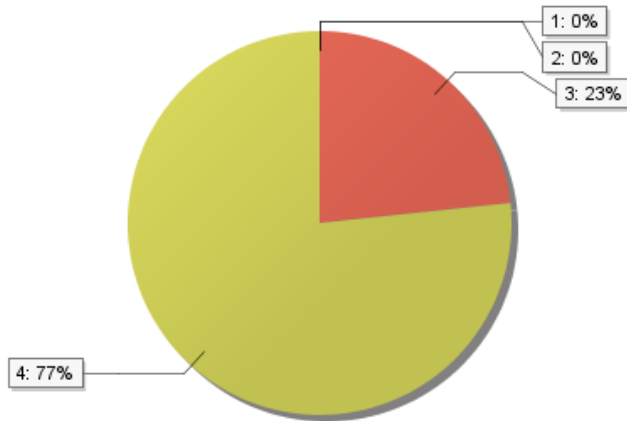


1 = poor, 2 = satisfying, 3 = good and 4 = excellent

FIGURE 14. The company's SAP software's usefulness (n=30)

The outcome of one of the most important questions: "What is your satisfaction with the current SAP operation?" was optimistic. Half of all employees shared that their evaluation was excellent. Almost 43 % thought their satisfaction was also good. Fortunately, there was no one with the lowest satisfaction level, which was scale 1 (Figure 15). Because the answers were from rating scale 2 at least, the average evaluation about the respondents' satisfaction with the current SAP operation was 3.43 (see Table 2).

What is your satisfaction with the current SAP operation?
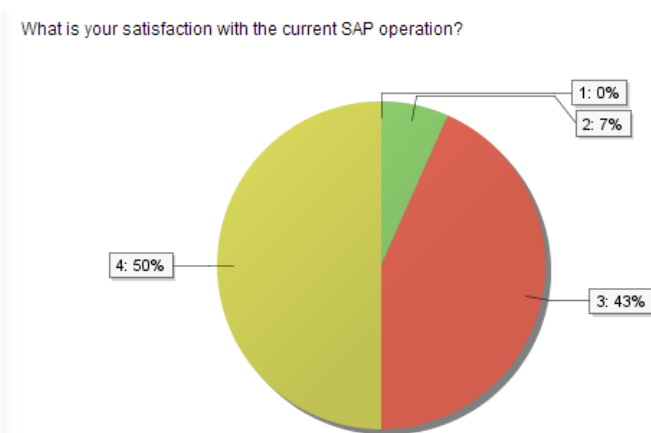


1 = poor, 2 = satisfying, 3 = good and 4 = excellent

FIGURE 15. The respondents' satisfaction with the current SAP operation (n=30)

In order to have a brief evaluation about the company's SAP, the respondents were also requested to give their own general rating scale. There were two answer types, which was good and excellent. The result was almost the same, with 53 % for scale 3 and 47 % for scale 4 (Figure 16). Therefore, the outcome was 3.47 out of 4.0 in average. It implied that the respondents, who are the employees working at HAGL representative office, were highly satisfied with the company's SAP software.
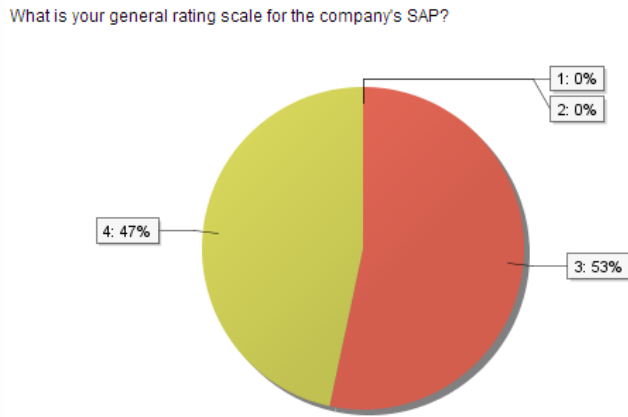


1 = poor, 2 = satisfying, 3 = good and 4 = excellent

FIGURE 16. The respondents' general rating scale for the company's SAP (n=30)

In general, from the seventh to tenth sub-question, which aimed to know the respondents' assessment about the IT department's support as well as SAP software, the average was all higher than 3.0 out of scale 4.0. The evaluation result about HAGL SAP was up to 3.77, which indicated the respondents felt good with the current software offered by the company (Table 2).

TABLE 2. The respondents' assessment about the IT department's support as well as SAP software (n=30)

| Question: | Scale 1 | Scale 2 | Scale 3 | Scale 4 | Total | Average |
|---|---|---|---|---|---|---|
| How skillful the IT department is to manage the daily operations of SAP software? | 0 | 0 | 17 | 13 | 30 | 3.43 |
| How useful the company's SAP software is? | 0 | 0 | 7 | 23 | 30 | 3.77 |
| What is your satisfaction with the current SAP operation? | 0 | 2 | 13 | 15 | 30 | 3.43 |
| What is your general rating scale for the company's SAP? | 0 | 0 | 16 | 14 | 30 | 3.47 |

Scale: 1 = poor, 2 = satisfying, 3 = good and 4 = excellent

In the quantitative survey, there were also some open questions which the respondents may share their own opinions. First, the employees were asked to tell their suggestions for the IT department to develop the SAP operation better. The key word that had the highest frequency was upgrading operations, which may be done every three-month or annually. Furthermore, reducing some steps in the current software was also suggested. The employees thought that it would be better if the whole process were shorter. The purpose was to save time and make people feel convenient.

Some respondents suggested that a few changes should come from the end-users as well, which meant, for example, to follow the IT department about SAP policy more strictly, improving their own knowledge and skills to use the software. Another recommendation was to recruit more IT people to implement SAP more quickly, such as to code Advanced Business Application Programming (ABAP), working in the support team or to solve the problems in different modules. Moreover, there were some answers to share that the current SAP software operation was fine enough.

The eighth question was about "What do you (as a user) expect from the IT department's support when using SAP?". The respondents suggested different ways so that the IT department may help the end-users better. For instance, the IT members could solve the issues directly, instead of remote support from the computers. In contrast, there was an opinion to recommend the IT department to support through phone calls. Furthermore, the beginners who have just used SAP for short time expected the IT department to support more, especially with a certain module they were using.

There was another suggestion to maintain the end-users' laptops as well as desktop computers at HAGL representative office more frequently, which also facilitated the SAP software operation. In some respondents' opinions, the training activities were essential. However, they said it would be more practical if the IT department may implement the SAP training. Because the representative office IT department understood the company's SAP situation as well as end-users' needs, it may be more effective to have internal training. In addition, the answerers expected that the IT members would guide them to use more SAP functions if possible.

Next, the respondents were asked to contribute to the question "How the IT department can improve their support to HAGL's SAP users?". Most of the answers were about the supporting activities, such as side-by-side, creating call center support, how to utilize

other SAP modules.  In addition, some employees thought that it was essential to upgrade some functions, which may be tools to search files in the central folder, the company's support website. In the respondents' opinion, it was useful that the company provides more internal as well as external training for the representative office  IT department. Together with the IT members' own improvement, it may help to increase more knowledge and skills for the IT staff to maintain the SAP operations. SAP is the complex software; therefore, it requires constant updating and certain competences to fulfill. Furthermore, the representative office  IT department is now responsible for the whole HAGL Company's SAP operations, which indicated hardworking and challenging tasks.

## 5.3 Interview process and its results

At the beginning of the process, an email was sent to ask if the interviewees are willing to help. After getting the permission, the interview questions (including the brief introduction about the survey, such as the survey topic, purpose and target group) were delivered, so that the interviewees knew the main idea in advance. The theme interview questions were planned to find out difficulties and opportunities that representative office IT department has to face when maintaining the SAP operations at HAGL. Among 10 members of the IT department, it was chosen to be interviewed 5 people with different positions to ensure the variety and accuracy of the qualitative survey. The interview was conducted through the video conference (on Skype) with the time agreement between a researcher and each interviewee.

The language used in all interviews was Vietnamese, because it is the mother tongue of both the interviewees and an interviewer. The purpose of not using English language in this case is that it helps the interviewees to share their opinions better, as well as both parties could communicate and interact well in their mother tongue. Then a written form of each interview was sent to the interviewees, both in Vietnamese and English (translated by the interviewer). If there were not any more comments, it meant that the interview result could be used in the thesis.

The interview questions may be considered to include two main parts: four background information questions (about the interviewees) and then six questions concerning the survey topic. The purpose was to discover the relation between an interviewee's background factors and its effect on the SAP maintaining task at HAGL. For the first interview question: "How many years have you been working at HAGL representative office IT department?", the similarity among all answerers was that they have worked at least two years at HAGL. The longest working experience at HAGL in the target group was six years. Three answers were the same which were three working years. Second, it was asked "How long have you been involved in maintaining the SAP software operation?". The average value that the interviewees have had with the SAP at HAGL was more than two and a half years.

Together with the above background questions about the working years at HAGL as well as with the SAP software, the third question: "*Have you had any previous experience relating to SAP or other ERP software before being involved in this project at HAGL?*" helped to find out if the respondents were acquainted with SAP before or not. There was

only one interviewee who used to work as an IT supporter for ERP Oracle in another company before coming to HAGL. The others had been involved directly in the SAP or any other ERP software. However, they also worked in an IT department and had a chance to access the SAP. It means that all interviewees have general knowledge of SAP before starting the maintenance task at HAGL.

The final background question: *"What is your responsibility at the IT department and SAP project?"* aimed to clarify what the main tasks of the interviewees are.  Three people were related to the IT helpdesk activities, but they specialized in different areas. For instance, one interviewee's job was more about SAP Project System (PS) module oriented. The SAP PS usually deals with Work Breakdown Structure (WBS), which means to define the tasks and assign resources to those tasks, and Network- that states the dependencies within the Work Breakdown Structure (ERPtips). Two other interviewees took care of the IT helpdesk for both the representative office and some other HAGL subsidiaries. Moreover, there was an interviewee who is responsible for the SAP Controlling (CO) module. SAP Controlling plays an important role in the management of decision-making and CO Module is mostly used for the internal reporting purpose (SAP FICO). There is a tight integration between PS and CO modules:  PS uses the personnel records from Human Resources (HR) module, shows costs in Controlling (CO) and links to materials or customers in the Logistics modules (ERPtips).

The fifth question in the interview was about "What are the difficulties that you face when maintaining the SAP software?". Although all interviewees had general knowledge of the SAP before, they still had certain problems when maintaining the SAP at HAGL. Because the given tasks were different, and this was a question for sharing a person's own opinion, so the answers were not similar. For the first interviewee, the SAP software in HAGL is large (one of the biggest SAP in public companies in Vietnam). Therefore, it took him almost one year to get used to maintenance task. There were two people who thought that the work pressure was the most difficult. It was because HAGL's board of director really expected that the SAP could improve the whole HAGL company's reporting system as well as data access convenience.  Another interviewee shared that it was hard to maintain the SAP operation in subsidiaries; especially when HAGL has just restructured the whole organization. It makes the SAP Controlling (CO) module management harder. For the final interviewee, he said that the big amount of users (more than 500 users totally) was difficult for controlling the permission access.

Moreover, each interviewee was asked to share his/ her own solution to the current SAP issues at HAGL. It was the contents of the question number six: "How can you solve the problems that are related to SAP?". There were two same answers, which suggested searching the information on Google or reading the handbooks first. If they cannot find a suitable solution, then it was better to ask from other people, such as colleagues, friends. However, there was one diverse recommendation that it was better to ask from other people, then search on the Internet. The reason was that the interviewee thought it was hard (at least for him) to understand the SAP materials, which were too complicated and professional. The final advice was that HAGL should take advantage of the valid SAP software guaranty time (3 years) with IBM Company, together with a 2- year contract with CSC Corporation. It meant that HAGL should develop the relationship with its partners, so that they would transfer more SAP technology to HAGL during the contract period. All the suggestions can be regarded as valuable and used in different situations.

In addition to difficulties, the members of HAGL representative office IT department might get some opportunities in return. The seventh question: *"What are the opportunities that you have in maintaining the SAP software?"* helps to find out what they are. The result was exciting that all interviewees had the same opinion.  They shared that their knowledge as well as experiences had improved significantly. Furthermore, they agreed that the SAP software maintenance tasks had brought them the opportunities to meet other people, both internal and external. It meant that the employees inside HAGL representative office had a chance to communicate more, as well as with the staff of other HAGL subsidiaries. In addition, the interviewees had the possibilities to meet other representatives from other big companies (also using SAP) in Vietnam, such as FPT, CMC, Cisco, IBM, HP, BigC, Tan Hiep Phat, etc. One interviewee told that he even got a chance to work at HAGL foreign subsidiary (in Myanmar) to share his own knowledge as well as experiences about SAP software.

In order to find out how the interviewees can perform their tasks, by asking the question: "What are the means you use in maintaining the SAP software?". The term Transaction Code (T-code or Tcode) was mentioned in most answers. "SAP transaction code are derived from the German language, since SAP originated and was developed in Germany.". For example, *VF* t-code means *billing* while *ME* indicates *purchasing* (Schmid). Moreover, other tools were also used, such as SSH Client, Tivoli Storage Manager (TSM), Human Capital Management (HMC). SSH means "Secure Shell", which is a method of securely communicating with another computer by encrypting all the data

sent via SSH (Christensson). "The Tivoli Storage Manager (TSM) central scheduler allows client operations to occur automatically at specified times" (IBM Inc.). With the SAP Human Capital Management (HCM) tool, it helps the Human Resource Managers to control the budget, so that it is aligned with the whole company's expenditures tactics. Furthermore, HCM allows employees to coordinate with each other more, as well as the professional performance appraisal system. (Microexcel Inc.)   Moreover, the main SAP server is located in another region, not at the representative office. Therefore, the interviewees have to control remote and visit the server every month. The back-up activities are also done at least every two months.

The interviewees were also willing to tell their advice to develop SAP software to work better *("What is your own suggestion(s) to develop SAP software to work better?").* Up to four people thought that increasing the end-users' knowledge of using SAP is really necessary. It could be implemented by different ways, such as internal and external training, learning from the colleagues or experienced employees. There was another suggestion that the English language skills are also important. It is because most of the updated materials about SAP software are in English. Therefore, it requires more comprehensive skills. Those suggestions were practical and normally applied in the companies, which have been using SAP software.

The final qualitative question in the interview was about *"What activities would help you most in your work with SAP?"*. The answer that had the highest frequency was training. The interviewees have had both internal and external training so far. It was really effective, as they can then share the knowledge achieved through the training with other staff. According to the interviewees' opinions, the training should be continual so that the latest SAP information may be updated. In addition to training, they have had possibilities to attend the seminars (both internal and external) about the SAP software. They were able to improve more competences, as well as meeting the employees from other companies that have also been using SAP. It was also the main idea of one answer, which was to share knowledge between people, but inside HAGL company scale. Furthermore, the annual survey has been conducted, at least at the representative office, since HAGL used the SAP software. It helps the interviewees as well as the representative office IT department knows how the SAP software situation is, for instance strengths and weaknesses. In their opinion, it was useful to receive the feedback of the SAP end-users, who are working at the SAP representative office.

## 5.4 Findings from quantitative and qualitative research

In the questionnaire, there was a tight relation between respondents' background and the answers to achieve the quantitative survey's purpose. It could be stated that most of the employees who are working at HAGL representative office were young (70 % from 20 to 30 year-old group). Therefore, they did not have a lot of working experience as well as long time use of SAP software (both had the highest frequency was from 1 to 2 years). Lack of working and SAP using experiences also affected the respondents' own evaluation about their SAP proficiency.

The average assessment for the employees' proficiency about SAP was 2.23 out of 4.0 (see Table 3). It implied that the employees at HAGL representative office were qualified to utilize the software in general. Among three sources, which were colleagues, Internet and friends, the respondents shared that Internet helped them best (with 40 % for rating scale 4). While the colleagues could not help to solve the difficulties much, which implied the 40 % in poor evaluation result, equaling to only 1.93 in average (Table 3). Moreover, the friends' assistance was mostly satisfying, which was in between among three sources to help.

TABLE 3. The frequencies in different options about the respondents' evaluation relating to SAP software and the averages of each question

6. Please mark the one that describes best your opinion

Number of respondents: 30

| | 1 | 2 | 3 | 4 | Total | Average |
|---|---|---|---|---|---|---|
| How proficient are you in SAP software? | 8 | 10 | 9 | 3 | 30 | 2.23 |
| What is your evaluation about SAP user interface in HAGL? | 1 | 1 | 15 | 13 | 30 | 3.33 |
| What is your evaluation about the help you can get from colleagues when using SAP? | 12 | 10 | 6 | 2 | 30 | 1.93 |
| What is your evaluation about the help you can get from internet when using SAP? | 1 | 10 | 7 | 12 | 30 | 3 |
| What is your evaluation about the help you can get from friend(s) when using SAP? | 2 | 13 | 7 | 8 | 30 | 2.7 |
| What is your evaluation about the (representative office) IT department support for employees to use SAP? | 0 | 2 | 11 | 17 | 30 | 3.5 |
| How skillful is the IT department is to manage the daily operations of SAP software? | 0 | 0 | 17 | 13 | 30 | 3.43 |
| How useful is the company's SAP software is? | 0 | 0 | 7 | 23 | 30 | 3.77 |
| What is your satisfaction with the current SAP operation? | 0 | 2 | 13 | 15 | 30 | 3.43 |
| What is your general rating scale for the company's SAP? | 0 | 0 | 16 | 14 | 30 | 3.47 |
| Total | 24 | 48 | 108 | 120 | 300 | 3.08 |

Scale: 1 = poor, 2 = satisfying, 3 = good and 4 = excellent

The evaluation about the usefulness as well as the respondents' satisfaction about the SAP software was mainly positive. Moreover, the average outcome of those assessment criteria was all higher than 3.0 (Table 3). For the questions such as "How skillful is the IT department is to manage the daily operations of SAP software?", "How useful is the company's SAP software?" and "What is your general rating scale for the company's

SAP?", the responses were either good or excellent. It meant that the employees were highly satisfied with the company's SAP software as well as representative office IT department support.

For the open questions in the quantitative survey, which were "What is your own suggestion(s) for the IT department to develop the SAP operation better?", "What do you (as a user) expect from the IT department's support when using SAP?" and "How the IT department can improve their support to HAGL's SAP users?", there were some similarities among the answers. First, it was about supporting activities, which respondents shared different methods, such as applying direct supporting instead of remote control from the IT members' computers, supporting through phone calls, putting more effort when helping the SAP beginners. Moreover, the upgrading tasks were also mentioned, which could be improving the current operation quarterly or annually, searching tools and SAP interface customization feature.

The SAP software at HAGL was still complex. Therefore, the end-users expected that it would be better if the representative office IT department could reduce some unnecessary steps during the process.  It may result in saving time when the employees perform their tasks. Training might be one of the essential solutions to help both the IT department and the end-users to utilize the SAP software better, which could be internal and external. In addition, each employee should improve himself/ herself to achieve more competences, as well as follow the representative office IT department policy about SAP more strictly in order to use the software more efficiently.

Because the respondents' background was homogeneous in terms of working experience at HAGL company as well as the SAP software use, which was mostly less than 5-year period, it was hard to find out the correlation between those two background criteria and the main quantitative questions. Moreover, the majority of the questionnaire respondents were quite young, which did not result in significant relation with the answers of the core questions. The gender factor did not affect the respondents' replies to the main questions in the questionnaire. Therefore, there was not any correlation in this case.

The first important findings from the qualitative research were that how the background of the interviewed person affected the answer of the main survey questions. There was only one interviewee who had previous experiences about ERP Oracle, before working at HAGL representative office. Therefore, his answer was more professional and

practical, compared with the others'. It could be recognized clearly from the question number seven to ten (see Appendix 4). That interviewee was experienced, so that he was appointed to share his SAP knowledge to HAGL foreign subsidiary in Myanmar. Whereas other employees mostly told that they used T-code as the main means to maintain the SAP software, this interviewee even shared more tools such as SSH Client, Tivoli Storage Manager and Human Capital Management. In addition, his suggestion was also practical that the end-users at HAGL should improve their language skills. In his opinion, it was necessary because most of the SAP materials are written in English. The in-house meetings have helped him with his work with SAP. He explained that those occasions gave him the chances to meet and discuss with other experienced staff. Therefore, he could get more knowledge and suitable solutions.

Other findings were that the target group in the qualitative survey could be considered homogeneous in terms of the years involving in the SAP software maintenance. The biggest gap was one year. It may be the reason why the interviewees had the similar answers in some cases. It could be found from the question seven and ten (see Appendix 4). Most of the interviewees told that they had opportunities to improve their knowledge and experiences a lot. Furthermore, the SAP maintenance tasks brought the possibilities for the interviewees to meet other people, both inside and outside HAGL company. Those occasions helped to learn and share more knowledge about SAP. The majority of the replies to the tenth question was about training and seminars, which have helped the interviewees most in the work with SAP. In conclusion, it was possible that not all interviewees had a big difference in the starting point about SAP software maintenance at HAGL representative office IT department, which led to the similar answers to those opportunities and activities they got.

# 6   DEVELOPMENT SUGGESTIONS FOR IT DEPARTMENT

## 6.1   Suggested solutions for an IT department to perform SAP software more efficiently

1) Based on the quantitative research results, some solutions can be suggested which may help the representative office IT department to perform the SAP software better. The SAP operations need to be upgraded more often, such as quarterly, yearly. The SAP central folder should also be improved, so that the end-users could find the data more easily. Furthermore, it provides a brief overview of the software. The current SAP operation is still complex. Therefore, the IT department should reduce some unessential steps, which facilitates time saving as well as make the software more user-friendly.

2) The survey respondents thought it would be more practical if the IT department may organize the short training sessions for the employees working at the representative office. The main reason is that the IT members know the strengths and weaknesses of the representative office end-users well. Moreover, they work at the same location, which may be more flexible to conduct the training.

3) The support activities are crucial to the SAP end-users as well. HAGL might consider hiring more IT employees to work at the representative office in order to ensure the software operation. There are currently 10 members at the representative office IT department. However, they are responsible for maintaining the SAP software of the whole HAGL Company together with other subsidiaries' IT members (some HAGL subsidiaries have their own IT department or IT members in addition to the help of the representative office IT department).

Moreover, the representative office IT department also has to take care of other technological and technical issues together with SAP software. It indicates that the workload as well as responsibilities are too much for the IT members. The recruitment would help to eliminate the IT department's current disadvantages. On the other hand, every IT member should continue improving his/her own expertise, particularly knowledge of SAP software to perform the tasks better. The IT department is able to make a proposal to the managerial levels of hiring more employees in essential cases, such as over-workload, the IT members' absence due to business trips (especially in the long-run).

4) Another suggestion is that the company could develop a call center for SAP supports. The target group is HAGL company employees who are using the software. The purpose is that the channel allows more communications between the SAP end-users and the representative office IT department employees when the issues occur. A user contacts the call center to get immediate supports for basic issues, or the IT department may solve a case later, after they know the preliminary situation. This solution is useful in case the users are neither at the representative office nor at the work desks, especially with no internet connection. They are still able to get support for the SAP issues.

A call center may also be considered a handy suggestion for HAGL employees who have just started using SAP software or with little experiences. The IT department can guide those employees more precisely at the beginning, especially with the important or difficult tasks relating to SAP. Moreover, a call center can be utilized as a backup in case the company's Issue Tracking System (ITS) is maintained or updated. The HAGL SAP end-users are still able to contact the IT department via a call center.

5) Furthermore, the IT department may publish the solutions to the basic as well as common SAP problems for HAGL internal use only. The users have a chance to read those materials first and find the suitable methods. If they are not available, the users can contact the IT department for further support. It may help the IT employees to save time and also solve more SAP cases in the meanwhile. In addition, this internal portal might be a tool to provide the essential and updated SAP information, which is collected by the IT department from different sources.

6) Conducting a survey to collect the end-users' feedback is another feasible solution, which could be done at least annually. The IT department could know the users' opinions in order to improve the strengths as well as reduce the weaknesses of the present SAP operations. It is suggested to create a few open questions, so that the respondents are able to share their comments and contribute developing the software better.

7) The SAP operations should be upgraded more often by the IT department. The better the SAP process is, the more practical the software can be applied in HAGL. In other words, more precise tasks at the input stage may result in more useful output data. In requires more effort and time when putting data into a computer, for instance for an

invoice. Therefore, the IT department has to consider both advantages and disadvantages in a certain module before upgrading the SAP operations.

8) The IT department can arrange a meeting among its members at least once or twice per month. This solution aims to update and discuss the latest SAP software situation. Because the main SAP server is situated in another region in Vietnam, which is not the same location as the representative office, the IT members have to take turns and check every month. Moreover, there are opportunities that the representative office IT employees are sent to the HAGL foreign subsidiaries in order to share and learn more knowledge of SAP software. The meetings between the IT department members give more chances for the co-workers to know and exchange more information relating to SAP. Moreover, they might contribute to developing the company's SAP software better within the IT department meetings.

9) The strong co-operation between the IT department and other parties, such as the company end-users, the different departments or subsidiaries are essential and useful for consolidating the IT helpdesk. In the long-term, it may help HAGL to be more independent of the company's SAP partners. As a further matter, the technology transfer process takes less time and the IT helpdesk has chances to work more effectively. The suggestion also follows one of the HAGL company's expectations in the future.

## 6.2   Suggestions for HAGL end-users to utilize SAP software better

It is important that each end-user tries to develop himself/herself, which may include English skills and SAP knowledge improvement. It takes the company end-users' efforts to be acquainted with every SAP module, which requires different factors such as good field knowledge, SAP training, data analysis skills, practical experiences, etc. The SAP modules at HAGL are related to each other in a certain extent. Therefore, accuracy should be ensured by the end-users when utilizing the SAP software. It also implies that the end-users' skills, competences and know-how are valuable.

Furthermore, it is recommended that the colleagues share their SAP experiences as well as assist each other more. The quantitative research results showed that the SAP end-users' evaluation about the help they got from the co-workers was not positive. In addition, the users should follow the representative office IT department policies better, which might ensure the data security, reduce risks, and it is easier for the IT department to control the SAP issues. Every end-user is advised to know a brief overview of SAP operations at HAGL, which might help to find out mistakes more quickly and also save time for the IT department.

The employees are able to dedicate to enhancing the current SAP operations by answering truly the surveys carried out by the representative office IT department, or by HAGL company. The respondents' opinions play such an important role, as they are the SAP end-users, at which the survey aims to find out different solutions to support.

Another suggestion is that the employees should attend enough SAP training courses that are offered by HAGL. They are useful as the users are able to achieve more SAP competences, and meet other experienced people from inside or outside the company as well. In addition, the SAP seminars may bring the opportunities for HAGL employees to learn more. In general, the company's end-users are recommended to improve on their own, together with the chances provided by HAGL, so that they could utilize the SAP software more efficiently.

# 7 CONCLUSIONS

Successful SAP software implementation has fulfilled one of the core strategies of HAGL, which creates the fundamental basis for the company's further development both in the domestic and international market. The software assists in the managerial and also operational tasks to be more effective. The most significant benefit that SAP brings is an integrated data in a whole company. It implies a more consistent and efficient system, where the information is required to be registered once and then synchronized for other using purposes as well. On the managers' side, the SAP software provides updated as well as exact data for decision-making, especially the investment actions. In addition, the company's productivity has improved thanks to SAP.

However, there are existing disadvantages of the software, which needs to be enhanced for better operations. The main issue comes from the company end-users' expertise in SAP software, which varies among 52 subsidiaries. It indicates that more training together with each employee's own effort are essential to achieve more SAP competences. The representative office IT department should support the recruits more, especially people who do not have many SAP experiences yet. The current software is still complicating, which requires a decrease in the implementation steps. Moreover, the operation might be upgraded more often, so that the company is able to keep pace with the latest SAP trends.

According to the quantitative survey result, the SAP end-users who were working at the HAGL representative office were highly satisfied with the IT department's support, as well as with the company's current SAP operations. The respondents were willing to share their own suggestions to elaborate the system better as well. Moreover, the qualitative survey was also conducted, of which the interviewees were some of the representative office IT department members. The interviewees told the difficulties as well as opportunities they got when maintaining the SAP software. Consequently, there were different methods to be applied when an issue occurs.

Despite the limited amount of employees, the representative office IT department has tried their best to maintain the SAP operations at HAGL. Each of them is responsible for a certain task, but under the supervision of the IT department managers and other managerial levels. Moreover, the company's main server is located in another region, which needs to be maintained by the IT members in order to ensure the SAP software continuity.

The representative office IT department employees were also supported by HAGL company so that they may perform the tasks better, such as through SAP software training courses, seminars or other meetings to discuss. CSC company, which is one of the SAP AG Co. partners in Vietnam, also assists in SAP software implementation and training at HAGL. The IT department sometimes has to co-operate with the SAP partners of HAGL (such as IBM, CSC) for the more efficient SAP software maintenance.

The end-users also play a crucial role in the whole SAP operations. It may be more useful to utilize the software if the users can improve their own competences together with the representative office IT department supports. It means that there should be a mutual development for better SAP operations at HAGL in the future.

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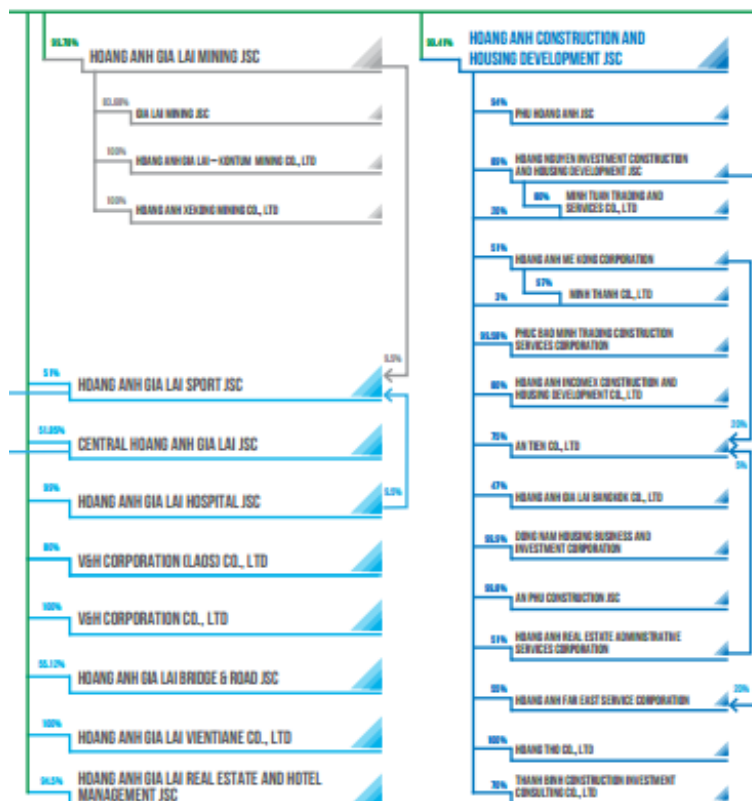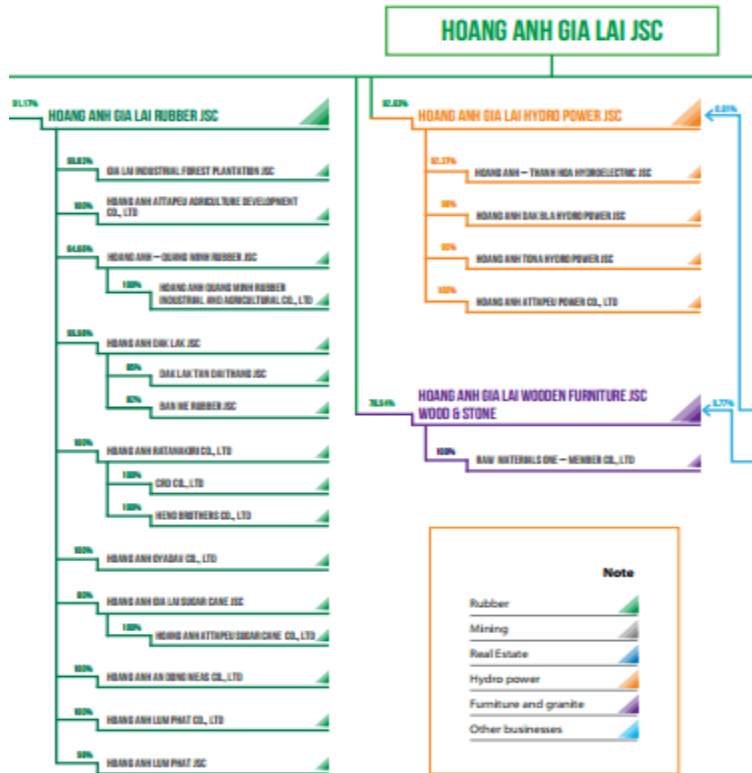
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# APPENDICES

HAGL's organizational structure                         **APPENDIX1**



ORGANISATIONAL STRUCTURE

HAGL's strategic partners                                    **APPENDIX 2**

Quantitative research questions (Webropol questionnaire)     **APPENDIX 3**

1.   What is your gender?

-    Female

-    Male


2.   What age group are you in?

-    20- 30 years old

-    31-40 years old

-    41-50 years old

-    > 50 years old


3.   Which department are you from?

-    IT

-    Internal audit

-    Public Relations (PR)

-    Translation


4.   How many years have you been working at HAGL Company?

-    < 1 year

-    1 - 2 years

-    3 - 5 years

-    More than 5 years


5.   How long have you been using SAP software?

-    No experience yet

-    < 1 year

-    1 - 2 years

-    3 - 5 years

-    More than 5 years


6.   From the questions 1) to 10), the rating scale is from 1 to 4 (1= poor, 2= satisfying, 3= good, 4= excellent). Please mark the one that illustrates you best

| Question number | Question | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 1) | How proficient are you in SAP software? | | | | |
| 2) | What is your evaluation about HAGL SAP user interface? | | | | |
| 3) | What is your evaluation about the help you can get from colleagues when using SAP? | | | | |
| 4) | What is your evaluation about the help you can get from Internet when using SAP? | | | | |
| 5) | What is your evaluation about the help you can get from your friend(s) when using SAP? | | | | |
| 6) | What is your evaluation about the (representative office) IT department's support to use SAP? | | | | |
| 7) | How skillful the IT department is to manage the daily operations of SAP software? | | | | |
| 8) | How useful the company's SAP software is? | | | | |
| 9) | What is your satisfaction with the current SAP operation? | | | | |
| 10) | What is your general rating scale for the company's SAP? | | | | |

7.      What is your own suggestion(s) for the IT department to develop the SAP operation better?

8.      What do you (as a user) expect from the IT department's support when using SAP?

9.      In your opinion, how the IT department can improve on offering their support for HAGL's SAP users?

10.     Thank you for your answers. Please feel free to give your comment(s) concerning this survey.

Qualitative research questions (interview)                    **APPENDIX 4**

1. How many years have you been working at HAGL representative office IT department?
2. How long have you been involved in maintaining the SAP software operation?
3. Have you had any previous experience relating to SAP or other ERP software before being involved in this project at HAGL?
4. What is your responsibility at the IT department and SAP project?
5. What are the difficulties that you face when maintaining the SAP software?
6. How can you solve the problems that are related to SAP?
7. What are the opportunities that you have in maintaining the SAP software?
8. What are the means you use in maintaining the SAP software?
9. What is your own suggestion(s) to develop SAP software to work better?
10. What activities would help you most in your work with SAP?