Information Access for SMEs in Indonesia

A Study on the Business Performance of Garment Manufacturers

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Agus Gunawan
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Promotor:
Prof. dr. H.J. van den Herik

Copromotores:
Dr. M.A. Wahdan
Dr. B.A. Van de Walle

Beoordelingscommissie:
Prof. dr. J.M.E. Blommaert
Prof. dr. E.O. Postma
Prof. dr. E.H.J. Vaassen RA
Prof. dr. A.P.J. van den Bosch
Dr. G. Pawitan

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To Lauw Nie Fong, Subur Gunawan, and Yuliani Lakṣana

"Next Changes Begin with a First Step"

Preface

"Next changes begin with a first step". I firmly believe in the meaning of the statement. For instance, my decision for joining into a Ph.D. research programme brought an abundant amount of changes to me. In the research period, I learned many things, which made the period an invaluable and particularly interesting experience. I learned not only to overcome academic challenges but also to master challenges in life.

For me, the primary objective of writing a Ph.D. thesis arose from the observation that it was difficult to have reliable information access to Small and Medium Enterprises (SMEs) in Indonesia. In particular, it was true for the Indonesian SME Garment Manufacturers (ISGMs). The more I worked with these ISGMs, the more I understood the variety of challenges they faced in the globalised world. I realised that these challenges could not be mastered easily.

A globalised world may bring a positive impact as well as a negative impact for these ISGMs. In the recent past there has been a rise in challenges for the ISGMs. Should they produce and sell their products to domestic markets, foreign markets, or both? The ISGM managers must make qualified decisions in a short period of time. Thus, there is an urgent need for the ISGM managers to have direct access to qualified information for supporting their decisions. My observations encouraged me to help the managers by enabling them to understand the meaning of their business performance. My solution was to develop a Knowledge-intensive System (KIS) that had adequate knowledge and was able to support the managers.

Once I was convinced of the idea, I received further encouragement from my family, colleagues, and friends to pursue a Ph.D. program. The Japan Indonesia Presidential Scholarship Program (JIPS) provided me with a scholarship that enabled me to implement this research dream successfully. I am grateful for this support. The management of the funding was in the hands of the World Bank.

So, on one day, the Parahyangan Catholic University (UNPAR) received the message that I was accepted as a Ph.D. student at the Maastricht School of Management (MSM). After my M.Phil., I discussed my research idea with Prof. dr. H. Jaap van den Herik. I obtained a huge positive feedback and became involved in the partnership between MSM and Tilburg University for following the Ph.D. trajectory. I learned many things from Professor Van den Herik, Dr. Mohamed A. Wahdan, and Dr. Bartel A. Van de Walle. I am grateful for their support and knowledge transfer.

Finally, I wish to record my sincere appreciation to the following organisations: the Government of Japan, the JIPS, the World Bank, and the Government of Indonesia for giving me the opportunity to fulfil my research dream. Moreover, I am grateful to UNPAR, in particular the Business Administration Department of the Faculty of Social and Political Sciences, and the CoE for SMEs Development for Developing Countries for supporting me during my Ph.D. research period. Finally, I would like to acknowledge MSM and Tilburg University, in particular Tilburg center for Cognition and Communication (TiCC), and the Graduate School of Tilburg School of Humanities (TSH).

Further words of recognition are given in a Special Acknowledgement (see page 162).

Agus Gunawan

Maastricht, December 2012

agus_gun@unpar.ac.id

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List of Abbreviations

The list below contains all abbreviations used in the Ph.D. thesis together with a brief explanation. Normal lexical abbreviations, such as 'e.g.' and 'cf.', are not listed. Abbreviations used only in tables or figures are explained in the corresponding table or figure.

ACFTA	ASEAN-China Free-Trade Area
ACP	Average Collection Period
AFTA	ASEAN Free-Trade Area
AIS	Accounting Information System
ART	Accounts Receivable Turnover
ASEAN	Association of Southeast Asian Nations
BPS	Badan Pusat Statistik (Statistics Indonesia)
CAT	Current Asset Turnover
CLIR	Current Liabilities to Inventory Ratio
CMT	Cut, Make, and Trim
COGS	Cost of Goods Sold
DIH	Days Inventory Held
DPO	Days Payable Outstanding
EO	Economic Obstacles
EUR	Euro
FAT	Fixed Asset Turnover
FCC	Fixed Charge Coverage
FLM	Financial Leverage Multiplier
FTE	Full Time Equivalent
FSA	Financial Statement Analysis
FTA	Free-Trade Area
GPM	Gross Profit Margin
HR	Human Resource
ICT	Information and Communication Technology
IDR	Indonesian Rupiah (Indonesian currency, based on ISO 4217 currency code)
IFRS for SMEs	International Financial Reporting Standard for SMEs
INBUS	Indonesia Business
ISGM	Indonesian SME Garment Manufacturer
KIS	Knowledge-intensive System
KMO	Kaiser-Meyer-Olkin

KPI	Key Performance Indicator
LIA	Leading to Information Access
LTDTC	Long-term Debt to Total Capitalisation
NWC	Net Working Capital Ratio
NPM	Net Profit Margin
OPM	Operating Profit Margin
PCA	Principal Component Analysis
PO	Purchase Order
ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
ROI	Return on Investment
SAK-ETAP	Standar Akuntansi Keuangan Entitas Tanpa Akuntabilitas Publik (The Financial Accounting Standards for Entities without Public Accountability)
SME	Small and Medium Enterprise
TIE	Times Interest Earned
TPS	Transaction Processing System

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Chapter 1 Introduction

On January 1, 2010 Indonesia implemented the zero-tariff import duties among the member countries of the AFTA[1]. Moreover, some ASEAN's partner countries such as China, Korea, and Japan, were included too. The implementation of the zero-tariff import duties meant that no charge had to be paid to the tax officer for the import of goods. The policy aimed at developing more trade and more industrial linkages among the ASEAN member countries. Yet, it also brought a challenging situation to Indonesia's SMEs, because a tough competition, in particular with respect to pricing, arose between foreign goods and domestic goods (described in greater detail in Chapter 3). Here, we only mention the difference between garment industry and textile industry (an elaborate description follows in Chapter 3), since these concepts are used frequently in this chapter. The main production results from a garment industry are apparels (clothing such as shirts, shorts, pants, pyjamas), while the main production results from a textile industry are fabrics (raw material for producing apparels in the garment industry). Our focus is on the garment manufacturing industry.

The thesis investigates (1) how a Knowledge-intensive System (KIS) may support a user in interpreting the business performance and (2) to what extent it is possible to develop a KIS and apply it to the Indonesian SME[2] Garment Manufacturers (ISGMs). A user of the KIS may be a manager or a novice manager[3]. Dealing with various challenges in a globalised world, a manager has to make qualified decisions in a short period of time. Therefore, the manager should be able (a) to access a variety of qualified information items in a proper time, such as the firm's business performance and its business targets, and (b) to understand what the meaning of the information is.

The interpretation of a firm's business performance is based on numbers resulting from two sources, viz. Financial Statement Analysis (FSA) and the Key Performance Indicators (KPIs). The FSA techniques enable the manager to have a complete understanding of what has happened during a specific accounting period. The results of the FSA are useful when the firm deals with external parties such as banks. The KPIs enable the manager to monitor and evaluate the firm's daily operations. An understanding of how to read the results of the FSA and the KPIs will support the manager on how to make a qualified decision for the future.

The first chapter constitutes an introduction to the topics mentioned above. In Section 1.1, we formulate the main managerial challenge in ISGMs, i.e., the problem domain of our research. Subsequently, in Section 1.2, we formulate our problem statement and four research questions. Section 1.3 describes the research methodology that will be applied to address the research questions and the problem statement. Section 1.4 provides the significance of this research. Finally, Section 1.5 presents the structure of the thesis.

1.1 The Main Managerial Challenge in ISGMs

The main managerial challenge faced by the ISGMs is in making adequate decisions for achieving a better productivity and a better quality. The ISGMs managers need to be supported by qualified

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[1] The members of the Association of Southeast Asian Nations (ASEAN) try to enhance the possibility of enduring the ASEAN market by their products. In order to achieve that, AFTA (ASEAN Free Trade Area) was established as far back as in January 1992. The goals of AFTA are to eliminate tariff barriers among the Southeast Asian countries with a view (1) to integrate the ASEAN economies into a single production base and (2) to create a regional market of 500 million people (ASEAN Secretariat, 2002). The members of ASEAN are 10 countries, namely: Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei Darussalam, Viet Nam, Lao PDR, Myanmar, and Cambodia (detailed information can be seen in http://www.aseansec.org/64.htm).

[2] SME is an abbreviation from Small and Medium Enterprise.

[3] Henceforth, for brevity we use 'manager' whenever 'manager or novice manager' is meant.

information and adequate knowledge in their daily decisions (see Section 2.2). Here we briefly discuss three topics: two targets for the ISGMs to survive in a globalised world (Subsection 1.1.1), the ISGM's weaknesses (Subsection 1.1.2), and the gap in the current research on the use of a KIS by ISGMs (Subsection 1.1.3).

1.1.1 Two Business Targets for the ISGM to Survive

For garment industries, there are two business targets that should be achieved to survive in the globalised world (cf. Bernhard, Thomas, Cesar, & Hanna, 2009; Atristtain, Connie, & Rajagopal, 2010). The targets are (1) achieving a better productivity and (2) achieving a better quality. We define the ISGM business targets as follows.

Definition 1.1: ISGM Business Target
An ISGM business target is a significant objective in the firm's strategy that has to be achieved by the Indonesian SME Garment Manufacturer in order to survive (and to flourish) in the globalised world.

With regard to the first target, productivity is the driving factor in enhancing a firm's performance (cf. Joshi & Singh, 2010). Productivity is a fundamental concept considering the efficient and effective use of resources (cf. Käpylä, Jääskeläinen, & Lönnqvist, 2010). The concept of manufacturing productivity can be discussed in different ways but most aspects available in the literature review can be grouped into three categories: partial productivity, total factor productivity, and labour productivity (see Shahidul & Shazali, 2011a). Partial productivity relates the multiple inputs to net outputs. Total factor productivity expresses the ratio of all outputs produced to all resources used. Labour productivity is determined by an employee's potential to reach the highest level of his[4] possible performance. When an ISGM manager is able to maintain a high level of productivity, he may be able to optimise (or even maximise) the firm's profit. We define productivity as follows.

Definition 1.2: Productivity
"Productivity is the envisaged, efficient, and effective use of all resources of the firm, measured in a complex task as few mutually exclusive components such as labour productivity, process efficiency, degree of technology used, and targeted quality of products are associated with a manufacturing system" (cf. Käpylä et al., 2010; Shahidul & Shazali, 2011b).

With regard to the second target, when the ISGM manager is able to maintain the quality level of its products, he may be able to fulfil his customer's expectations. A failure to achieve the required quality level, which is stated in a job contract, can cause the ISGM to pay huge fines. In order to avoid such a failure, the ISGM managers must be supported by information related to quality indicators of the production process. With an immersed observation on the quality indicators, the ISGM manager will be able to make a better decision on minimising the possibility of a loss for the firm. For instance, quality indicators may be used to identify trends in quality of the ISGM's employees. Knowing the trends, a manager will be able to categorise which employees should be given higher rewards, which employees need to be supervised, and which employees need to be fined (or even fired). We define quality as follows.

Definition 1.3: Quality
"Quality is a state of conformance of the products or services with the firm's established criteria or specifications" (cf. Garvin, 1987).

The high price competition with a foreign competitor such as China forces the ISGMs to compete with foreign firms by a better management practice. For our domain of research we may remark that the garment business will only be able to sustain when maintaining high productivity and high quality. Qualified decisions to achieve a better productivity and a better quality may help the ISGMs to survive in the globalised world (described in greater detail in Chapter 3).

[4] Henceforth, for brevity we use 'he' and 'his' whenever 'he or she' and 'his or her' are meant.

1.1.2 The ISGM's Weaknesses

The weaknesses of ISGMs can be categorised by four features, namely (1) a lack of capital, (2) a lack of skills, (3) problems in productivity and business development, and (4) a lack of communication and knowledge sharing among the managers (see Abduddin, 2006; Indarti, 2006; Cheng, Lu, & Sheu, 2009; Soetrisno, 2009). A further explanation will be presented in Chapter 3.

Here, we transform the set of four weaknesses into two categories: the first category is related to *capital* (weakness 1) and the second category is related to *human resources* (weakness 2, 3, and 4). To obtain more capital from external parties such as banks, the ISGMs have to meet at least three requirements, namely a good business prospect, a sound financial position, and a strong and solid capability to sustain in the business. Dealing with the second category, viz. enhancing the management's decision capabilities, has a top priority (cf. Rice, 2000; Miles, Miles, Snow, Blomqvist, & Rocha, 2009; Gunawan, Wahdan, & van den Herik, 2010b). Thus, to make a qualified decision, a manager should be supported by qualified information (see Subsection 2.2.1).

To make sure that the ISGMs can achieve the two targets (better productivity and better quality), an ISGM manager need to be supported by qualified information and by professional experts. The use of knowledge regarding the 'best practice' (how to manage the business well) in the garment business will guide the expert's effort to exploit efficiently the natural resources, human resources, and capital resources. However, if the manager is also the ISGM owner, we face a particular hindrance[5]. Most of the owner-managers do not like to be supported by an expert's judgements because either the owner-managers are reluctant towards a non-family expert or the owner-managers cannot afford to pay the salary of the expert. This observation encourages us to try to contribute to the situation using technology, i.e., by providing a KIS model that is designed for the ISGMs. Supported by an adequate KIS model, the ISGMs will make better decisions in their competition with the garment manufacturers from abroad. Without the support, the ISGM managers will find difficulties in producing a good apparel product with a reasonable price. When they could not compete with a cheaper price from abroad, their business existence is in danger.

1.1.3 Three Points of Attention

There are at least three points of attention when dealing with the ISGMs' main managerial challenge: transferability, interpretation of the results, and Key Performance Indicators (KPIs).

First, large enterprises and banks have their own software for managing their financial data. The software is typically supported by a computer-based Accounting Information System (AIS). The software will be able to provide automatic calculation based on various FSA techniques. However, the price of the software is usually not affordable by an ISGM. Moreover, the research of that kind of software has, so far, only focussed on AIS practices in large enterprises and banks. An AIS model developed for large enterprises may not necessarily be successfully applicable at the SME level, i.e., it is not sufficiently transferable.

Second, the results of the FSA are useful for the credibility of a firm. Most of the FSA software only focusses on calculation (based on financial analysis techniques), ignoring the interpretation of the numbers resulting from the formulas. As case in point we mention KAPLAN Singapore that distributed the Free Financial Analysis Spread Sheet. The goal of the software is to provide easier ways for their students in their learning process. Thus, it will not directly help the user on how to interpret the meaning of the numbers resulting from the software. To support the ISGM managers in interpreting the result of the FSA, a computer-based system that provides adequate knowledge is needed (see Subsection 2.2.2).

Third, many researchers attempt to make a contribution in using a KIS in the financial domain. They do so for developed countries (cf. Khalil, Saad, & Gindy, 2009; Xidonas et al., 2009a) as well as for developing countries (cf. Wen, Wang, & Wang, 2005; Tarantino, 2008). In any type of

[5] Henceforth, for brevity we use 'owner-manager' whenever 'the ISGM manager is also the ISGM owner'.

country, each industry has its own characteristics. Within different industries, a specific number can be interpreted differently. The scarcity of empirical studies about FSA practices for ISGMs has led to gaps in understanding on how to interpret the FSA results for the ISGMs. Here we believe that KPIs can be used to add a better insight into the ISGM's business performance (see also Section 2.4). The KPIs can be generated from the AIS.

Taking into account the above observations on the three points of attention, we will construct a model by combining a computer-based AIS and a KIS. The model is called LIA (Leading to Information Access). LIA will be constructed only for the ISGMs. We define LIA as follows.

Definition 1.4: Leading to Information Access (LIA)
Leading to Information Access (LIA) is a computer-based system that combines an Accounting Information System and a Knowledge-intensive System in providing qualified information (the result of FSA and KPIs) and adequate knowledge on how to interpret the information for the ISGMs.

LIA supports the managers in:

(1) recording the ISGMs business transactions according to Indonesia's accounting standards,

(2) converting the accounting data into valuable information based on the FSA techniques,

(3) providing KPIs automatically from the data recorded, and

(4) providing an interpretation for the results obtained in points 2 and 3.

Supported by LIA, the ISGM managers may make better decisions to achieve the business targets (better business performances).

1.2 Problem Statement and Research Questions

For adequately dealing with financial knowledge and garment knowledge (high-level knowledge as well as detailed knowledge), we aim at developing LIA to mimic the decision processes and to make logical inferences (cf. Wahdan, 2006; Shue, Chen, & Shiue, 2009). In his interaction with LIA, the manager may obtain professional guidance in such a way that he is able to take a wise decision. For the managers, it then looks like the advice comes from a human expert. Supported with qualified information from AIS and adequate knowledge from KIS, an ISGM manager may learn how to use qualified information and to interpret the FSA and the KPIs. Thus, by using LIA, the manager may learn on how to make better decisions. Moreover, the expert may use LIA for providing a second opinion on the interpretation of the FSA and the KPIs.

In Subsection 1.2.1, we formulate our problem statement (PS) which is inferred from the main managerial challenge mentioned in Section 1.1. Furthermore, in Subsection 1.2.2, we derive four research questions (RQs) from the problem statement.

1.2.1 Problem Statement

Based on BPS (Badan Pusat Statistik - The Statistics Indonesia), the types of garment manufacturers can be divided into four categories, namely (1) apparel made of textile, (2) apparel made of knit, (3) apparel made of leather, and (4) apparel made of furs. The order in mentioning the categories is from the biggest number to the smallest number. In our study, we will investigate two categories, namely: apparel made of textile and apparel made of knit. The reason for choosing this focus is based on the proportion of the firms. From 2001 till 2009, the apparel made of textile contributed up to 86.78% with respect to the contribution of all the garment categories, and apparel made of knit contributed up to 7.43%. Accumulating the two categories, they already contribute up to 94.21% from all the garment manufacturers in Indonesia.

An adequate evaluation on FSA and KPIs will give a better insight into what has really happened in the daily activities. However, there is a clear shortcoming interpreting the results of various FSA and KPIs at the SMEs level. Admittedly, this holds in particular in developing countries, such as

Indonesia (Carmeli & Tishler, 2006; Paprika, Wimmer, & Szanto, 2008; Winarto & Gunawan, 2008). Moreover a well-defined learning process is also missing. Our problem statement (PS) thus reads as follows.

PS: *To what extent can LIA be used (1) to access qualified information, (2) to give professional guidance, (3) to provide a second opinion, and (4) to improve the learning process in interpreting the results of the FSA and the KPIs?*

1.2.2 Four Research Questions

In order to answer the PS, we aim at answering the following four RQs. The first three RQs (RQ1, RQ2, and RQ3) will be used as the basis for constructing LIA. Answering the PS will be completed by validating and evaluating LIA in RQ4.

The first RQ reads as follows.

RQ1: *What kind of knowledge of FSA techniques does a financial expert need in order to formulate his opinion on the business performance of an ISGM?*

To answer RQ1, a framework for FSA will be developed by analysing (1) what kind of FSA techniques are needed by an Indonesian financial expert, (2) how the FSA techniques can be used for an ISGM, and (3) how the financial expert interprets the results of each technique.

The second RQ reads as follows.

RQ2: *What kind of knowledge of KPIs does a garment expert need in order to formulate his opinion on the business performance of an ISGM?*

To answer RQ2, a framework for KPIs will be developed by analysing (1) what kind of crucial indicators are needed by an Indonesian garment expert, (2) how to use those indicators, and (3) what is the interpretation of the results of each indicator.

The third RQ reads as follows.

RQ3: *To what extent can LIA be developed for supporting the ISGM managers in accessing the qualified information and the adequate knowledge?*

The answer to RQ3 will be given by constructing LIA for automated interpretation on FSA and KPIs. We will investigate how the interpretation of both FSA and KPIs can be organised in a conceptual model of LIA.

The fourth RQ reads as follows.

RQ4: *To what extent is LIA acceptable as a tool to access the qualified information and adequate knowledge for the ISGMs?*

RQ4 will be answered by validating and evaluating LIA's performance by using experimental tests with actual cases and by using a questionnaire (cf. Smith, Vibhakar, & Terry, 2008). A comparison on the learning effectiveness (by measuring the respondent's perceived usefulness and learning satisfaction) will be conducted using four groups of respondents, namely (1) financial experts, (2) garment experts, (3) non-domain experts (people who work in non-garment and non-financial industry), and (4) university students.

1.3 Research Methodology

The research is explorative by nature. The research approach uses both quantitative and qualitative methods (see below). The study is divided into four stages: (1) building a model of AIS (the accounting information items are based on FSA and KPIs), (2) building a model of KIS (the interpretation of the accounting information), (3) the construction of LIA (combination of AIS and KIS), and (4) validation and evaluation of LIA (see Table 1.1). The study goals of the first and the second stage are to explore the current situation of ISGMs, the FSA framework, and the KPIs framework (RQ1 and RQ2). The study goal for the third stage is to construct and use LIA (RQ3).

Finally, the study goal of the fourth stage is to validate and to evaluate LIA (RQ4). Most of our research strategy is adapted from Wahdan (2006).

Table 1.1: Overview of the Relations between Chapters, PS, RQs, and Research Methodology.

		PS and RQs				
		PS	**RQ1**	**RQ2**	**RQ3**	**RQ4**
Chapter	**1**	M1				
	2	M1				
	3	M1-5				
	4		M1-5			
	5			M1-5		
	6				M1-6	
	7					M1-5, 7
	8					M1-5, 8
	9	M1-8				

Source: proposed by the researcher.

The research will be carried out using eight approaches. The results of the analysis will be considered as the outcome, i.e., the answer to the RQs and PS. Below, we briefly discuss the adapted research approaches by their number, i.e., M1 to M8 (see Figure 1.1).

M1. Literature reviews. The knowledge required to build a LIA prototype is acquired from two types of data sources, viz. literature and other data sources. Literature review is used as the basis for developing three models: FSA, KPIs, and LIA (see Chapters 2, 4 till 8). Other data sources used are firm's reports, accounting principles in Indonesia, and public news (see Chapters 3 till 5). For the first prototype, we construct a LIA model based on the literature only.

M2. Manufacturing surveys by BPS. The empirical analysis is based on data from the annual manufacturing surveys by the BPS. Owing to the limited number of ISGM who are willing to provide their financial statements, we use the results of the annual manufacturing surveys conducted by BPS (see Appendix A). The results of the annual manufacturing surveys are mainly used for obtaining a general overview of the ISGMs, in particular of their financial conditions. The surveys consist of 22,418 cases representing the survey results from 2001 till 2009. Using the data from the surveys, we compose some financial indicators and use them as indicators for the annual industry average. So, we are able to compare an ISGM with the average value of the other firms (as presented in Chapters 2 till 8).

M3. In-depth interviews. We conduct in-depth interviews in two groups, namely garment experts and financial experts. In the first group, thirty-one garment managers (or owners) from different firms participate in the in-depth interviews (see Appendix B). The results of the interviews are used for problem categorisation and for obtaining an understanding on how the ISGMs sustain (as presented in Chapters 3, 5, and 6). In the second group, twenty-five financial experts participate (see Appendix C). A semi-structured questionnaire is submitted to be handled by the experts as a test case. The case in the questionnaire comes from financial statements out of Indonesia Business[6] (INBUS). We conduct protocol analysis to uncover the processes of problem solving by the experts when interpreting the results of FSA (see Chapters 4 and 6).

[6] Five ISGMs were willing to participate even to a larger extent by providing their restricted financial data for our analysis. As the owner-managers are interested to use LIA for free later on (which is promised), they are willing to provide their financial statements. We are only allowed to process their data for our research. The five ISGMs remain anonymous. To keep the ISGM anonymous, we called it INBUS, meaning Indonesia Business. In order to refer to a specific INBUS, henceforth we will call the INBUS as INBUS 1, INBUS 2, INBUS 3, INBUS 4, and INBUS 5.

M4. Observations. We conduct observations in five INBUSes. The observation approach is for obtaining a deep understanding of the ISGM daily activities. With the understanding, the reasoning process on the quantitative data obtained will be more precise (as presented in Chapters 3 till 8).

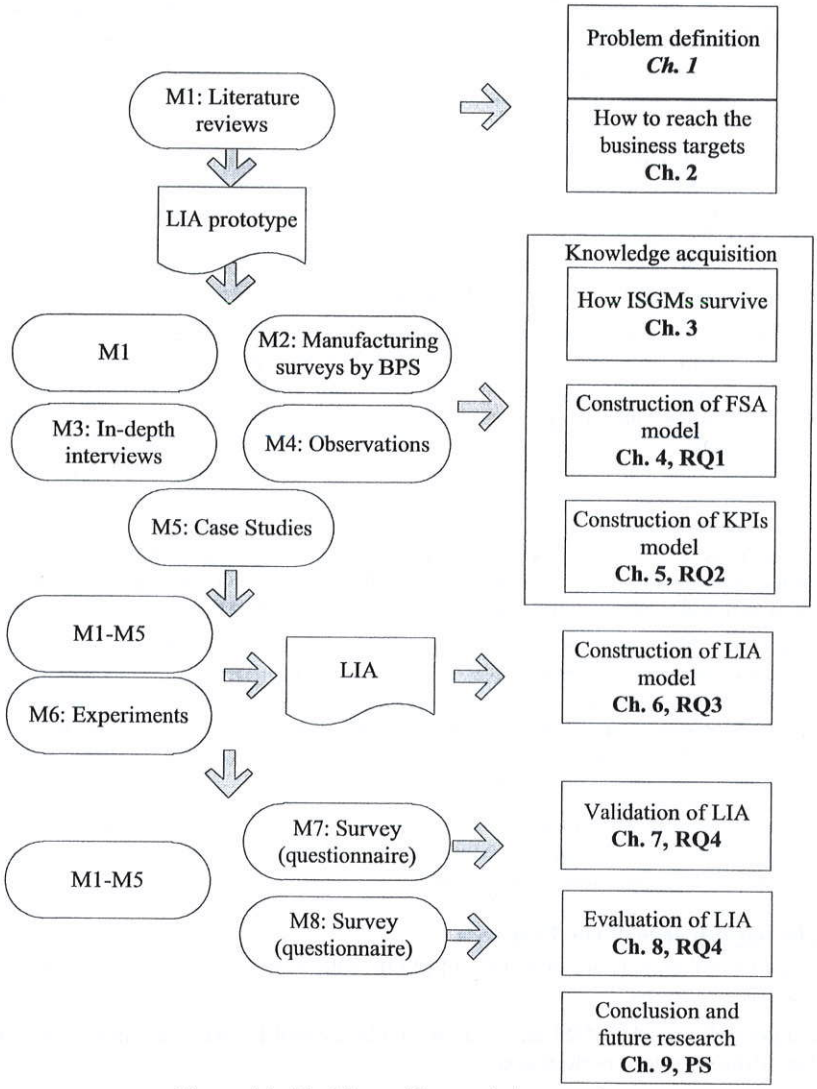

Figure 1.1: The Flow of Research Approaches.
Note: Ch. means chapter, RQ means research questions, PS means problem statement.
Source: adapted from Wahdan (2006)

M5. Case studies. The financial statements of the five INBUSes are used to construct five different case studies. The cases are used as a test case in our interviews with financial experts and for validating and evaluating LIA in our surveys (as presented in Chapters 3 till 8). The case-study strategy is adopted because of its ability to examine contemporary events within their real life context and to utilise multiple sources of evidence (Yin, 2003).

M6. Experiments. We use the acquired knowledge from M3, M4, and M5 to revise the LIA prototype model. For minimising the possibility of errors that occurred, experiments on LIA are conducted. In the experiments, the LIA results are observed by three financial experts and by five garment experts. The financial calculation results of LIA on INBUS 2 are also compared with the financial calculation results of a bank's software, where one of the financial experts works (as presented in Chapters 6 and 7; anonymity by us is ensured).

M7. Survey (questionnaire). The questions in the survey (questionnaire) are mainly consisting of a five-point Likert scale and open-ended questions. For answering RQ4 from the validation point of view, 55 financial experts, 42 garment experts, 29 non-domain experts, and 70 university students participated in our survey (see Appendix D). The survey aims at validating LIA (as presented in Chapter 7). The participants are asked to interpret the FSA and KPIs of an INBUS. The test case is handled by LIA too. The interpretations generated by LIA are compared to the interpretation made by the participants on the same cases (cf. Nikolaos, 2002; Shue et al., 2009). The validation of LIA will determine whether the system is functioning "as intended" (Kumra et al., 2006; Khan & Wibisono, 2008).

M8. Survey (questionnaire). The questions in the survey (questionnaire) are mainly consisting of a five-point Likert scale and open-ended questions. For answering RQ4 from the evaluation point of view, the participants will be asked to evaluate LIA's performances (see Appendix E). The same respondents who participated in the validation of LIA (55 financial experts, 42 garment experts, 29 non-domain experts, and 70 university students) also participated in the evaluation of LIA. The evaluation surveys are used for testing whether LIA can be used (1) to access qualified information, (2) to guide in interpreting the results of FSA and KPIs, (3) to provide second opinion in interpreting the results of FSA and KPIs, and (4) to accelerate the learning process on how to interpret the results of the FSA and the KPIs. Participants have been informed before the survey that the goal of the survey is to determine whether LIA can be used as a tool to improve the learning process in interpreting the results of FSA and KPIs.

All results from the literature studies, in-depth interviews, observations, case studies, and experiments (i.e., M1, M3 till M6) are coded and analysed using the qualitative research software NVivo 9. We use this software to perform cross-case content analysis from all the sources stated above. We perform pattern and theme recognition based on inductive and deductive processes in an iterative process. The quantitative data from the annual manufacturing surveys, and our own surveys (M2, M7, and M8) are analysed using SPSS Statistics 17.

Based on the discussion of the results from M1 till M8, answers are provided to the four RQs and the PS. Conclusions are also drawn. Moreover, recommendations and suggestions for future research are discussed (as presented in Chapter 9).

1.4 The Significance of the Research

The findings from this study are expected to fulfil the following five goals, which we regard as the significance of the research.

1. The study will provide ISGM managers with a better tool for accessing qualified information on their firm's business performance.
2. The study will provide ISGM managers, using the LIA model as a tool, with a guide to interpret the results of the FSA and the KPIs.
3. The study will provide the financial or garment experts with a second opinion in interpreting the results of the FSA and the KPIs.
4. The research will provide the users, using the LIA model as a tool, with an easier way to understand (in a shorter period of time) how to interpret the results of FSA and KPIs than via ordinary school learning methods (without the support of a computer).

5. The research will contribute to the body of knowledge on KIS for interpreting FSA and KPIs of ISGMs, and thus forming a foundation for future research in related fields.

1.5 The Structure of the Thesis

This thesis is divided into nine chapters.

Chapter 1 focusses on the introduction to the study. A problem statement is formulated and four research questions are derived from the problem statement. In addition, a research methodology is presented and is followed by five research goals.

Chapter 2 provides an explanation on why qualified information and adequate knowledge is needed by the ISGMs to reach their business targets. The literature leads us to an idea for the proper formulation of LIA's capabilities. A combination of AIS and KIS is proposed for constructing LIA.

Chapter 3 presents the important role of garment manufacturing by SMEs for Indonesia. A description of the double-edged effect of AFTA to ISGMs is presented and the business challenges as faced by the ISGMs are defined. After analysing the root business challenges of an ISGM's weaknesses, we propose to increase the managerial capabilities by using LIA.

Chapter 4 proposes a model for interpreting the result of FSA. The model is derived from a long discussion with Indonesian financial experts. We discuss the use of the DuPont model for ISGMs. Straightforwardly, we present the use of financial ratio analysis, comparative FSA, cash flow analysis, and sensitivity analysis. The chapter addresses our first research question – RQ1.

Chapter 5 suggests a model for interpreting the KPIs for ISGM. The model is derived from an intensive discussion with ISGM managers (garment experts). The KPIs are the representation of ISGM's unique characteristics. The chapter addresses RQ2.

Chapter 6 focusses on our efforts to combine the model presented in Chapter 4 and Chapter 5 into LIA. We present the construction of LIA. The chapter addresses RQ3.

Chapter 7 presents the results of our survey on validating LIA. The validation stage is conducted by comparing the respondents' opinion (in particular garment experts and financial experts) on the real garment cases with the results of LIA on the same cases. The real cases are from five Indonesia Businesses (INBUSes). The chapter addresses RQ4 from the validation point of view.

Chapter 8 describes the results of our survey on evaluating LIA. The goal is to evaluate whether LIA may be used (1) to access qualified information, (2) to guide in interpreting the results of FSA and KPIs, (3) to provide second opinion in interpreting the results of FSA and KPIs, and (4) to accelerate the learning process on how to interpret the results of the FSA and the KPIs. The chapter addresses RQ4 from the evaluation point of view.

Chapter 9 provides answers to the four RQs and to the problem statement. From the results, we have drawn our conclusions. Subsequently, possible areas for future research are suggested.

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