CHAPTER 5
DISCUSSION AND CONCLUSION

5.1 Chapter Overview

This chapter concludes the work by providing a summary of the thesis and research results. The chapter also provides further discussion of the results in a wider context in order to show how the thesis makes an original contribution to knowledge. This chapter also outlines the limitations of the research, and highlights potential opportunities for future development of this study. The chapter ends by offering a final perspective of the context and contribution of the work in terms of understanding knowledge workers employed within a multicultural and international context.

5.2 Research Summary

The knowledge based economy is growing in Thailand, particularly in the IT and software development sectors. As part of this growth, FDI has been encouraged by the Thai government, resulting in international software firms locating in strategic industry clusters across Thailand. There has been scarce literature which adds to understanding of how to manage Thai knowledge workers employed in the resulting international operating environments, and this thesis has therefore utilised a case study focusing on a German software development company operating in Thailand to analyse the issues faced by German managers, and the resulting influence on Thai knowledge worker's performance. The research presented in the thesis fills a significant gap in the research, and is now summarized according to the six research objectives set out in Chapter One.

Research Objective 1:

To describe the performance and quality issues affecting Thai software developers from the perspective of the German management.

Research Results:

Three key work performance issues were identified via interviews with German management. These were procrastination from Thai employees, unfinished work, and flaws in completed work. Chapter Three explained the sampling protocol and how the German management were questioned, while Chapter Four presented the results in the form of discourse collected from these managers.

Procrastination related to Thai workers who did not begin their assigned tasks, or continually postponed or moved the work completion deadline. This resulted in strained customer relationships and difficult working conditions between the German HQ and the Thai subsidiary. This in turn led to stress in the workforce, and affected the work-life balance of the Thai employees. Related to procrastination was unfinished work, which was often incomplete due to the technical competence of the Thai software developers, or their understanding of work orders. Unfinished work once again led to strained relationships between German HQ and the Thai subsidiary, as well as stress among the Thai knowledge workers. Completed work often contained flaws, which meant that work had been finished, but often required comments and corrections via several iterations in order to meet the customer requirements. Together these three key issues of procrastination, unfinished work, and work flaws caused significant impacts on the work performance of Thai knowledge workers, and formed the focus of the framework developed in the thesis. One of the primary tasks in developing the framework and designing a solution to these issues was the need to understand the causality behind the work performance issues, and thus the second thesis objective attempted to ascertain the causality behind these work quality and performance issues.

Research Objective 2:

To investigate and characterise the root causes of the work performance and quality issues affecting Thai software developers working under German management.

Research Results:

After the identification of work issues faced by Thai staff in the German workplace, the next thesis objective aimed to understand the causality behind these issues in order to design an appropriate and effective solution. To understand this causality, Chapter Three developed the triad of determinants as a way to understand the causes from a variety of standpoints, including cultural, general day-to-day issues, and work-life balance factors. Chapter Three also described how key research methods were used to effectively analyse the factors in the triad of determinants. The cultural determinants were analysed and elucidated through Hofstede's cultural dimensions theory, while the general work performance issues were understood and structured using the fishbone analysis technique (Ishikawa diagram). Work-life balance perceptions were captured through detailed staff questionnaires. Chapter Four then presented the causality behind work performance issues through each of the triad of determinants. German-Thai cultural factors were a significant issue, and permeated throughout the workplace, affecting many other work performance issues. Work-life balance determinants also had significant impacts on work performance, and three main perceptions of work-life balance were discovered in the Thai workforce. Firstly, those knowledge workers who had a work-life balance which focused on work, and generally live to work. Secondly, there were Thai knowledge workers who balanced equally between life and work. Finally, some knowledge workers had a work-life balance which focused mainly on life, generally working to live. Identification and understanding of these work-life balance issues was critical to designing the solution for newly recruited Thai knowledge workers, as the work performance and quality issues are directly linked to work-life balance factors. The fishbone analysis provided an effective means to illustrate the day-to-day problems faced at the software firm, including the time zone differences and other factors, which are those issues that are potentially faced by any software engineering firm, independent of its operating location.

Research Objective 3:

To identify work-life balance and specific culturally-related work performance problems faced by the newly recruited Thai software developers.

Research Results:

As noted previously, the triad of determinants helped to isolate and investigate cultural and work-life balance related issues. With regard to cultural aspects, there were five main issues identified in Chapter Four, which were framed and elucidated via Hofstede's cultural dimensions. Firstly, differences in the power distance relationship between Germans and Thais resulted in slow decision making in the workplace. This was primarily due to the lack of communication taking place between Germans and Thais. Secondly, there was a difference in the concept of completed work between Germans and Thais, with the result that work tasks were not prioritized in an efficient way, and thus the completion of those tasks was affected. A further cultural aspect discovered in the research related to the differing feedback needs between Germans and Thais. While Germans are able to distinguish easily between personal and professional criticism, Thais find it more problematic and difficult to separate professional feedback from their personal identity. The concept of work completion was a further work issue affected by cultural discontinuities; Germans strive for perfectionism and continuous improvement in work tasks, while Thais generally feel that work is finished once the task is completed to an adequate standard. Time management yields further cultural differences between Germans and Thais. Germans plan to exacting time standards and follow such plans precisely, while in contrast, Thais perform tasks at a pace they feel comfortable with. Such cultural differences in time management in turn lead to delays in delivering products, as well as exacerbating issues of work prioritisation.

The final cultural discontinuity relates to differences between Germans and Thais in their learning styles and needs. Thais often work to specific management orders, but do not have an overall understanding of the task, and lack initiative and creativity to complete tasks on their own. Together this relates to their differing needs with regard to learning styles. While the triad of determinants regarding work performance issues allowed for an understanding of issues affecting work

performance and quality, there was a need to move from generic to specific understanding of issues affecting software development at the case study, thus CMMI was applied.

Research Objective 4:

To correlate newly recruited knowledge workers' job related issues with specific CMMI software processes.

Research Results:

Although the identification of issues in the workplace from the point of view of management and the subsequent investigation of causality was a critical part of the research, any solution needed to take into account the nature of the knowledge work at the firm. For this reason, the research utilized the CMMI level 2 process to correlate work performance issues and causes with specific aspects of software development to create an effective solution. Using CMMI as a software-specific framework, 13 critical incidents were found and used to create the critical incidents model used in this research. The 13 critical incidents are as follows:

1. **Slow work preparation process –** related to project planning
2. **Unable to adapt to diversity and organizational culture** – related to requirements management
3. **Poor technical performance** – related to requirements management
4. **Unable to develop and influence others** – related to requirements management
5. **Poor time management** – related to project planning
6. **Unable to prioritize product backlogs** – related to measurement and analysis
7. **Poor initiative and expression in English communication** – related to project planning
8. **Unable to identify current reality and potential issues** – related to project monitoring and control
9. **No customer involvement** – related to process and product quality management

10. **No creation of versioning plan** – related to configuration management
11. **No capability of change management** – related to configuration management
12. **Failed product deployment** – related to supplier agreement management
13. **Low level of feedback utilization** – related to supplier agreement management

The identification of these critical incidents directly fed the development of a probationary training system to solve these critical incidents and the other work performance issues, including work-life balance and cultural aspects. The probationary period training model (CPM) was based around personal mastery, as stated in research objective five.

Research Objective 5: To develop a probationary training system based on personal mastery for newly recruited Thai employees to solve the previously identified work performance issues.

Research Results:

This was one of the most significant objectives of the research and was met primarily through the achievement of the previous four objectives, which in turn led to the design of an effective model. This model was then implemented with newly recruited software developers at the case study firm. Personal mastery was combined with critical thinking, force field analysis, and the critical incidents model. Together these tools, along with the theory of personal mastery were utilized to effectively develop newly recruited Thai knowledge workers during their probationary period. The resulting model (CPM) has a number of useful aspects, particularly from the point of view of German management, and the newly recruited Thai employees.

Prior to the implementation of the CPM model, German management did not understand how to effectively develop the newly recruited Thai knowledge workers. As a result, the CPM shortens the training and development of newly recruited staff, and saves German management both time and cost. Prior to implementation of the CPM, the German management also lacked a formal or structured way to give feedback to Thai knowledge workers during their probationary period. The CPM

closes this gap by providing a useful framework/tool for providing feedback to Thai employees during their probationary period.

From the point of view of newly recruited Thai employees, the CPM provides a mechanism to introduce them to problem solving, as well as a way to adapt more quickly and easily to a foreign work environment and management style. The problem solving aspect of the CPM stems from the work-specific software issues identified and framed within the CMMI structure. In addition to an awareness of these software and technical issues *per se*, the CPM also acts as a tool that allows Thai knowledge workers to adapt to the German culture. In this sense, the CPM acts as a bridge between the local Thai culture, and the differences presented by the German work culture. This cultural bridge, and the associated problem solving skills leads to employee empowerment, which ultimately allows newly recruited Thai knowledge workers to achieve a more appropriate work-life balance. The CPM thus represents a useful tool both for Thai staff and German management. The final research objective subsequently provides a formal analysis of the CPM's effectiveness.

Research Objective 6:

To implement and evaluate the effectiveness of this probationary training system (the CPM) in terms of reducing culturally rooted, and work-life balance related work issues, and increasing the performance of Thai software developers.

Research Results:

The evaluation of the CPM was presented in Chapter Four from the perspective of three key stakeholders: German management, senior Thai developers, and newly recruited Thai developers. The evaluation yielded positive results from each of the three stakeholder groups, with newly employed knowledge workers suggesting the CPM reduced their levels of stress, and gave them something to strive for in their work. Quantitatively, the CMMI critical incidents were reduced from 13 to only 5, suggesting that the CPM increases work performance and quality by minimizing software specific critical incidents at the firm.

Senior Thai software developers (existing employees) reported that in addition to the reduction of the critical incidents, the newly recruited employees had improved

working behaviors linked to the generation of creative tension. The senior Thai developers felt that the CPM could be used to generate a checklist of skills and attitudes when recruiting knowledge workers in the future, and suggested that the CPM facilitates an increased understanding of company expectations in terms of work attitude and behavior.

German managers reported that the CPM had provided them with a blueprint to increase their understanding of the causes and effects of issues in the German-Thai workplace. This understanding would then allow them to significantly improve and adapt the workplace to reduce work performance and quality issues. In addition, German management noted that the creative tension and personal mastery focus in the CPM would enable newly recruited developers to more quickly progress in their careers.

As well as evaluation from the perspective of the three stakeholder groups, it was important to compare the CPM against other readily available tools for managing knowledge workers, or more specifically, software developers. One tool closely associated with managing people in the software engineering industry is P-CMM, which derives from the CMMI framework used to collect the critical incidents in this research. The overall evaluation of the CPM against the P-CMM illustrated that there are a variety of advantages to the CPM, including its specificity for the German-Thai culture, the focus on personal mastery and the predetermined three-month timescale. While Chapter Four showed that the CPM has a significant number of advantages over the P-CMM framework, the comparison concludes that the CPM could be coupled with the P-CMM roadmap, and extended to make a contribution across all the P-CMM maturity levels. Ultimately, the CPM can be utilized as either a standalone model, or coupled with the P-CMM should this be necessary.

Regarding increasing the working performance issue, the critical incident model (CPM) assists Thai software developers learning capability. The German managers will also learn how to develop strategies to help their own employees. When mutual understanding is created, people from two cultures, German and Thai, can work together efficiently. As a result, less critical incidents were found as shown in the prevention phase. There were five out of thirteen repeated critical incidents found, the CPM model provides the change management method using force- field analysis

feedback to improve employees working behavior which can be seen in the solution phase of the CPM.

5.3 The Critical Incidents Personal Mastery Model (CPM)

There are a significant number of performance and quality issues facing German management when employing Thai software developers. The German management team has many difficult factors to deal with when operating its business in Thailand, for example, Thai laws relating to business, but some of the most important issues arise from the difference between the German and Thai cultures in which the business is operating, particularly in terms of managing knowledge workers.

Recruiting the most appropriate person to the fit the job is a significant component affecting future growth of the business. As a result, most performance and quality issues are of significant concern for German employees. The issues centre around a lack of comprehension in terms of work goals, and issues associated with Thai employees' understanding of timescales. These issues can be traced to the significant differences in both national and organisational culture between German managers and Thai employees. The results in this work showed four main issues including procrastination, unfinished work, work flaws, ability and attitude toward learning.

Root causes of the work performance and quality issues affecting Thai software developers working under German management were clarified in order to understand the problem thoroughly. Root causes have been investigated by conducting two focus groups with Thai and German software developers to create a learning forum. From the discussion with Thai and German employees, there are three main determinants of causality including work- life balance, cultural and general work determinants.

According to the work-life balance issue, Thais expressed three perspectives of work-life balance values, which focus on a work-life balance both inside and outside the workplace, a work- life in an organizational setting only, and a work-life balance outside organization only.

Next, cultural differences show that typical cultural behaviour between Thais and Germans affects the work performance of Thai employees, which creates cross-cultural discontinuities; for example, power distance in communication, differing feedback needs, the concept of work completion, time management, and differences in learning styles and needs.

Based on these three issues of causality, the findings were analyzed by CMMI to bring out the specific critical incidents reflecting poor work performance in the case study software development firm. The thirteen critical incidents were related to seven process areas of CMMI Level 2 including requirements management, project planning, project monitoring and control, supplier agreement management, measurement and analysis, process and product quality assurance, and configuration management. Therefore, to apply CMMI level 2 as a framework ensures the generalization of the CMMI critical incidents matrix to collect the situations reporting how Thai software developers fail to perform based on the seven process areas of CMMI level 2.

Senge's personal mastery concept was applied to design the CPM model to enhance working performance of knowledge workers in a multinational setting. Training and development process is considered very important in this stage especially for the newly recruited employees. In international human resources management, motivation theory has been mentioned and adopted in many researches; for examples, Maslow's hierarchy and Hackman and Oldham's job characteristics model.

Nevertheless, to focus on the psychological state relating to human satisfaction to motivate employees to get achievement has several disadvantages. In terms of productivity, there is the question raised how can the conditions that generate the desire and capacity of employees to perform work at highly productive, and efficient level be provided. Secondly, if employees are encouraged to improve something, they may be resistance to change. To the point of job design, if the work is adjusted too much to satisfy employees, the meaningful element of the job will be removed. If it is considered from the point of scientists and engineers, motivation theory is the precepts of the bureaucratic model. Moreover, it is possible that the managers are facing problematic employees who express dissatisfaction towards motivation. There is also

a discussion of money and effect on work performance stimulation. Finally, it is a matter of discipline whether employees are able to keep stability and willingness to work with full capacities (Colquit, 2009).

Various training methods were also available to apply for improving performance; for instance, classroom instruction, audiovisual training, computer-based training, electronic performance support systems, e-learning, on the job training, simulations, business games and case studies, behavior modeling, experiential program, team learning, and action learning (Noe et al., 2007). However, these training methods are ready made. It may not be applicable to all circumstances in the organization as well as professions in which knowledge workers are surrounded. The argument was shown in the following table to show the summary of why personal mastery was significantly adopted as the knowledge management approach.

Table 5.1 The summary of concepts mentioned in the research

Total Quality Management (TQM)	**Capability Maturity Model Integration (CMMI) People Capability Maturity Model (PCMM)**	**Knowledge Management (KM) Personal Mastery Concept**
- Popular / well known philosophy to manage organizational performance and quality	- CMMI – Software Process quality Control - PCMM Well tested set of human capital management practices acting as a roadmap to continuously improve the capability of an organizational workforce	KM approach showing how the new knowledge is built, disseminated, reused for further improvements and continuous learning
- Successful in large organizations but implementation in SMES is slow and relatively unsuccessful (Ghobadian and Gellear, 1996)	- Practices suitable for large organization with five maturity levels - PCMM was introduced to balance the process and technology focus of Capability Maturity Model Integration (CMMI) – software quality process control	Intellectual Capital (Roos et al Skandia Model, 1998) - Illustrates the components of knowledge and the relationships between human and intellectual capital
- Practices recommended by TQM often unsuitable for application to different work types or diverse cultures (Dawson, 1995)	- The focus of CMMI and PCMM is firmly at an organizational rather than individual level - costly and timely	Balance Scorecard (Kaplan and Norton, 1996) - Learning is more than just training - The focus on mentoring and coaching are helpful to increase employees' knowledge

Table 5.1 The summary of concepts mentioned in the research (Continued)

Total Quality Management (TQM)	**Capability Maturity Model Integration (CMMI) People Capability Maturity Model (PCMM)**	**Knowledge Management (KM) Personal Mastery Concept**
		- Increase learning and growth to improve employees' skills - Focus on measureable outputs
- From human perspective, TQM focuses on customers' needs in order to generate other improvements in the organization		Personal Mastery (Senge, 1990) - The sense of accomplishment from activities that are important - Success which bring about both career and life (Childress, 2007) - First step to learn fifth discipline - Learning does not occur if an individual is not inspired by a strong intention and enthusiasm which signifies personal mastery

5.4 Originality, Contribution to Knowledge and Generalization of the Study

The research in this thesis represents a contribution to knowledge in a variety of ways. The first relates to the application of KM as an alternative method to HR when developing staff during their probationary period.

In relation to the probationary period, the work also fills a void in the literature, as there is a scarcity of literature dealing with the critical, but often overlooked probationary employment period (see Chapter Two). While a profusion of literature exists regarding the training of existing employees, there is very little relating to the probationary period and the development of staff when they first join the company.

The German-Thai cultural context also represents a significant contribution to knowledge. There has been little to enhance understanding of how German-Thai knowledge workers can operate in a mutually beneficial way. While more expansive literature exists regarding Confucian (Asian) styles of management in Thailand, much less exists regarding European management styles, and the subsequent impact on Thai knowledge workers. In this respect, this thesis adds new knowledge to the field of knowledge management with respect to managing knowledge workers in Thailand. Hofstede's approach was applied to understand Germans and Thais which showed an extreme case of two different cultures. German appeared to have low power distance, high individualism, high masculinity, and low long-term orientation whereas Thais was perceived as having high power distance, low individualism, low masculinity and high long –term orientation. One cultural value that Germans and Thais shared at very close range was quite high uncertainty avoidance. Since the cultural dimensions of countries that Hofstede conducted by using huge examples of regions and cultures around the world, the results were acknowledged internationally. Therefore, this research can be use as a framework to conduct a further study of other extreme cases of cultural differences and work issues affecting work performance and quality.

Understanding the software engineering industry also represents a contribution given that there is not a significant amount of literature regarding the management of knowledge workers in this industry, particularly in their probationary period, or from Thailand. This research study thus provided the CPM model designed based on knowledge management concept called personal mastery. The model was created to

assist the German managers to manage and control Thai knowledge workers as well as Thai learned to adapt themselves to the new organizational culture and prepare themselves good for international tasks. The effectiveness of the model ensured by the prevention and the solution phase explained in Figure 4.11.

Based on the critical incidents personal mastery model research steps (See figure 3.7), critical incidents were collected and categorized based on the Capability Maturity Model Integration (CMMI). CMMI was developed by the Software Engineering Institute (SEI), Carnegie Mellon University, the United States of America. The CMMI framework has been adopted in numbers of researches and in real practices in software companies worldwide to certify the level of their software quality assurance. CMMI comprises of five maturity levels which was globally chosen to practice from level 1 to level 5 depending on the company' need and situations. Therefore this study was generalized by applying CMMI level 2 as a framework to gather the critical incidents to access effects on software process improvement.

The research has been based on a real case study, and the results are therefore of interest to future investors in the Thai knowledge economy. For example, future German (or other European) investors may wish to understand how cultural differences affect knowledge workers' performance, and as opposed to simply considering the cost of labour and availability of skills, may also be able to take into account how culture will impede successful investment, and how such impediments can be overcome. This type of research is especially important given the growing importance of ASEAN and the forthcoming ASEAN Economic Community (AEC) in 2015. For Thailand to remain a regional leader, there must be a comprehensive understanding of knowledge industries, knowledge workers and how culture affects these aspects.

5.5 Research Limitations

As with all research, there were a number of limitations, but these were minimized through awareness of their existence. The limitations also form a useful part of potential future research. There were four key research limitations, as described below.

5.5.1 International Software Development Work Setting

Software development is an intrinsically complex process, with innovation and creativity at its core. As such, attempting to collect data and use such data to create a generalized model for knowledge workers is susceptible to the complexity and local nuances of the particular software development environment. In this research the international nature of the software development such as language, culture, legalities and other issues had impacts on the data collection and research, which in turn impacted the creation of the CPM. Therefore if the CPM is to be generalized for application to other software firms, the international nuances and complexities of software development must be reimagined to ensure the model is effective. However, despite such considerations, it should be reemphasized that the focus of the research in this thesis is on the process used to develop knowledge workers in their probationary period, rather than the data and the model *per se*. The process and the resulting CPM is also based on developing knowledge workers in their probationary period, but this assumes the searching and hiring process is straightforward. In reality, finding and recruiting appropriate knowledge workers can be challenging, especially in a different culture. While the CPM provides input to the search and recruitment processes, it does not explicitly investigate these in the research. This limitation represents a potential future research area, where the search and selection process could be more closely linked with the CPM used in the probationary employment period.

5.5.2 Cultural Differences Focused on German-Thai Culture

Research and development of the CPM was focused on the German-Thai culture, which met the aim and objectives of the research set out in Chapter One. However, each culture has its own unique aspects, which influence how people behave and respond to those from another culture. Thus when applying or attempting to generalize the results of this research to other firms operating in Thailand, or to other software development firms off shoring their operations to destinations aside from Thailand, then the model must be adapted. For example, if the CPM was applied to a US firm operating in Thailand, then the cultural differences and resulting impacts on work performance and quality would differ, and the CPM would require adaptation. Similarly, if the CPM was applied to a software development firm in one

of the other ASEAN nations, then again, the cultural characteristics and resulting CPM would need to be modified. Thus the exclusive focus on the German-Thai culture in this research has provided opportunity for in-depth analysis of the German-Thai culture and the development of the effective CPM to reduce issues of work performance and quality, however, if the model was to be applied to other cultures, then modification and re-assessment of the input data would be necessary. Modifying and adjusting the CPM to meet the needs of other intercultural knowledge work represents an opportunity for future expansion of the research.

5.5.3 Qualitative Evaluation of the Model

The model is evaluated qualitatively, which provides a clear picture of how effective the CPM is for the three main stakeholders in the evaluation. While the qualitative evaluation is appropriate and effective, the lack of quantitative data regarding the CPM's effectiveness, means it is difficult to provide a cost-benefit measure or give a straightforward numeric assessment of the model's effectiveness. Like the other research limitations, there is opportunity expand the research in the future and provide a quantitative measure of how effective the CPM is, or what the cost-benefit ratio of implementing the CPM is. A quantitative evaluation requires further samples during implementation of the CPM, and a comparison of the CPM against a control group who undergo the standard probationary training. Sampling size and type also represents a research limitation in this study.

5.5.4 Purposive Sampling and Sample Size

Chapter Three detailed the sampling methodology and sample groups. One of the key methods of sampling in this research can be described as purposive sampling, where the researcher aims for control in selecting samples, rather than aiming for statistical representativeness or generalize ability (Barbour, 2001). Tongco (2007) suggests that purposive sampling can introduce significant researcher bias, due to the judgments and selections made by the researcher. Levy and Lemeshow (2008) corroborate this viewpoint, but add that these judgments and selections are only problematic if the research methodology has been ill-conceived. While the sample sizes and selections in this research were carefully chosen based on the research aim

and objectives, and took into account the representativeness of the sampling protocol, repeatability could be interpreted as a research limitation. For example, while the sampling was representative, a different set of employees or managers might yield slightly different results. For example, implementation of the CPM was with only three newly recruited employees because the company case study is SMEs. It contains current 13 Thai software developers. Among these employees, the experienced software developers are one third less than junior and mid-level employees. The company cannot receive much more than 3 employees because the company wants to ensure the quality of training by facilitating learning activities for newly recruited employees to work with the company successfully. They must be attentively trained by the experienced workers. However, training and development for newly recruited employees are the investment of time and effort (See Chapter 2 Section 2.8 and Chapter 3 Section 3.6). Therefore, to limit numbers of employees is helpful for the company to control the effectiveness of employees rather than receiving a lot in numbers and the company fail to control the quality of their newly recruited employees' working performance.

With regard to sampling limitations, it is again worth noting that the key results of the research are the process and application of KM, rather than the end result of the model. The contribution to knowledge lies not in the results from individual interviews and particular sample groups, but the process used to reduce work performance and quality issues of knowledge workers during their probationary period. The model itself is also the result of the process, and therefore would yield the same result even if new samples were selected. Thus the repeatability of individual sample groups does not necessarily influence the research process or the resulting model. This also provides a further opportunity to develop the study, by repeating the research with increased sample sizes and a new sample group comprised of recently recruited knowledge workers in their probationary period.

A further limitation related to sampling is that the number of critical incidents was taken as a way to measure the effectiveness of the model, and as a general statistical rule, with only three new employees during implementation, the number of critical incidents is likely to be smaller based on simple statistical rules. This makes it difficult to isolate the true effect of the CPM from the effects of statistical sampling.

However, the initial results of the CPM are promising and show benefits for both Thai employees and German management. Future research will attempt to refine and increase confidence in the framework using further validation.

5.6 Future Work

As noted above in Section 5.5, the limitations form a useful foundation to create potential adaptations to the research, and future research directions. Figure 5.1 illustrates how the research limitations generate future research opportunities, while the key areas for future research are described below.

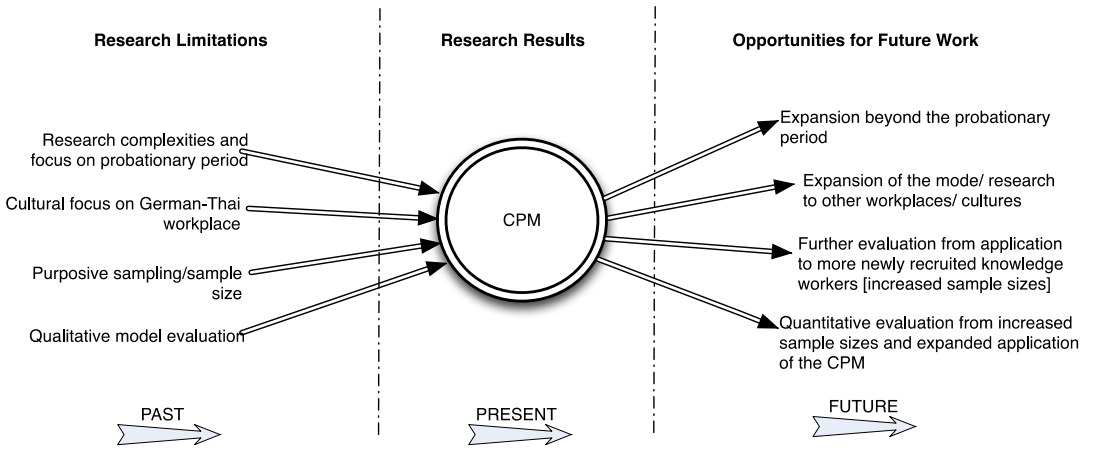

Figure 5.1 Research limitations and the generation of future research opportunities

5.6.1 Expansion Beyond the Probationary Period

Chapters One, Two and Three stated the importance of the probationary period in the research, and suggested that the probationary period was an often overlooked period of employee development in the literature. While the probationary period represents a crucial period to focus on, future modifications to the research could take into account the work performance after the probationary period. This would also provide a useful standpoint from which to evaluate the CPM over longer time scales. The CPM itself could also be reworked and expanded for application to other employees at the case study, including those who have already worked at the firm for a period of time, and are classified as senior developers. This reworking and

development of the CPM could then be taken as part of the continuous development suggested by the higher maturity levels of the CMMI and P-CMM software engineering roadmaps.

5.6.2 Expansion to Other Software Developers in Thailand

The research focus and data collection has been on the German-Thai culture, but future research could expand the samples and cultural considerations to generate adjustments to the CPM in alignment with the needs of other intercultural knowledge work. For example, as well as German organizations off shoring to Thailand, there are a variety of other nations considering, or already operating software development in Thailand.

5.6.3 Expansion to other Knowledge Based Industries in Thailand

The CPM could also be expanded beyond software development to other knowledge industries in Thailand. The growth in Thailand's knowledge economy means there are a variety of knowledge based industries that are attracting FDI in the form of off shoring. Future adaptations to the CPM could be applied to develop the Thai knowledge workers in these industries.

5.7 Final Perspective and Conclusion

With Thailand's continually developing economy and increasing emphasis on the knowledge based sectors, issues related to managing knowledge workers in an international multicultural environment are likely to grow, and thus an awareness and development of a framework such as that presented in this thesis can help the three main stakeholders involved in this research; international managers; local Thai employees and finally, the Thai government. Ultimately, increasing the effectiveness of employee performance in an international multicultural work environment should enable Thailand to build its reputation as a productive, creative and innovative place to develop knowledge based business.

The global knowledge economy has a plethora of definitions and there is significant debate over the best way to develop and manage knowledge based activities. What is clear however, is the general agreement that knowledge and the

knowledge economy is of importance to nations wishing to grow and sustain their economic development. Based on this, there is a need for countries wishing to develop their knowledge economy to encourage and understand FDI if they are to move beyond the confines of their own domestic economies. As such, these economies must ensure they understand how to create an environment conducive to high quality knowledge work. The work in this thesis is thus of critical importance to ensure Thailand is able to understand how foreign direct investors view Thai knowledge workers and some of the issues they face. More importantly, the research provides a potential solution to these issues, which should allow firms to improve their competitive advantage. This then has positive implications for Thailand's wider knowledge economy. While the research in this thesis has focused on a narrow case study in northern Thailand, the insight into how to manage Thai knowledge workers, and the process used to achieve this understanding and develop a solution, could then be applied to other firms and cultures operating in the software development industry, and beyond this, to other types of knowledge work in Thailand's burgeoning knowledge economy.