

2016

Business Strategies for ASEAN's Single Window in Southeast Asia

Craig Allen McGee Jones
Walden University

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Walden University

College of Management and Technology

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Craig Jones

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Walden University
2016

Abstract

Business Strategies for ASEAN's Single Window in Southeast Asia

by

Craig Allen McGee Jones

MBA, Touro University International, 2004

BA, Western Michigan University, 1988

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

December 2016

Abstract

Since the Asian Financial Crisis of 1997 and the Global Financial Crisis of 2007, members of the Association of Southeast Asia Nations (ASEAN) have sought to strengthen ASEAN's regional economies through a digital trade project known as the ASEAN Single Window (ASW). The purpose of this case study was to explore the business strategies that multinational organizational leaders used to overcome business barriers while implementing ASEAN partnership contracts and ASW region-wide projects. This study may be unique in that, at the time of this research, there was no published study in which researchers had explored a single window for a vast, multination geographical region. Data collection was done via in-depth interviews with ASW executives, studying online ASW-related conferences, and examining relevant strategic documents. A 6-phase thematic analysis process based on methodological triangulation corroborated the data and addressed construct validity through data familiarization, generating initial coding, categorizing codes and searching for themes, breaking codes into subcategories, data reduction and defining and naming themes, and report generation. The 4 strategic themes that emerged were business models and processes, public-private partnerships, project management methodologies, and overlapping themes. The findings offer insights into ways to overcome the ASW's constraints and barriers. These strategic themes developed into a list of critical success factors and a summary list of principle business strategies and best practices. The implication for social change is a regionally collaborative trading environment providing potential economic options that not only impede the deterioration of the regional social fabric but support new opportunities such as trade liberalization and economic stability.

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Dedication

I dedicate this doctoral research to my wife Veronique and son Thomas. In 1987, we exchanged wedding vows in Paris, France, and since that moment, our life has been anything but commonplace. Since receiving a commission as a military officer in 1988, we have traveled the world and been assigned to Europe, Middle East, and the Pacific islands. Despite the countless moves, you have always provided support and encouragement. This support was never more evident than when I repeatedly deployed to Bosnia-Herzegovina, Iraq, Saudi Arabia, and Afghanistan. Now that I am at the end of my military career, once again I find myself relying on my wife as I depart for the numerous bilateral military events in the Asia Pacific region while also working tirelessly to complete doctoral research. Words cannot express the debt I owe you after 29 years of marriage and 27 years of military service. Not only did you encourage me to succeed in life, but equally motivated our son to successfully graduate from George Washington University and most recently receive a master of arts from the American University of Paris. Your strength is the foundation that keeps our family running smoothly, and for that I love you, Veronique. To my mother, there are no words to express my appreciation for the example of courage you displayed as a single working parent and earning a degree from Indiana University while raising four boys to become fine men. To my son Thomas, you also deserve special thanks for challenging me to go as far as possible. By seeing your perseverance to achieve your collegiate goals, you helped me achieve mine. I dedicate this document to my entire family.

Acknowledgments

I want to thank all the participants from Southeast Asia for allowing me to conduct extensive interviews related to ASW. Without your cooperation, support, and candid feedback, this study would not have been feasible. Next, I want to thank the professorial mentors and advisors, especially Dr. Matthew Knight, who helped make this achievement possible. I want specifically to thank Dr. Twatchai Yongkittikul, who serves as the secretary general of the Thai Bankers Association and Mr. Sorakrit Phrunthanontachai, who oversees information and communication technologies integration projects for ASW on behalf of the Bangkok Bank. Next, and perhaps the most important yet subtle mentor, was Dr. Dionisus Narjoko of the Economic Research Institute for ASEAN, who helped me narrow my research topic. Another critical supporter making this study feasible was Mrs. Marianne Wong Mee Wan, who heads the ASW Technical Working Group from her office in Kuala Lumpur, Malaysia. Finally, through e-mail interaction, Mrs. Sanchita Basu Das of ISEAS provided great insight into the ASW challenges and barriers that public and private partners are currently confronting.

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Section 1: Foundation of the Study

The ASEAN Single Window (ASW) is a key component of the Association of Southeast Asian Nations' (ASEAN's) plan to realize the ASEAN Economic Community and to enhance trade facilitation. The ASW, when operational, will enhance trade facilitation and facilitate the movement of goods in the region by providing a relevant architecture for the electronic exchange of cargo clearance documents among ASEAN member states (AMSs; ASEAN Secretariat, 2012a). Traders will use an operational national single window (NSW) to exchange trade-related documents via a secured federated network where member state agencies can process and deliver trade-facilitated decisions (ASEAN Secretariat, 2012a). The AMSs are at various levels of development of their NSWs. In some of the AMSs, leaders of businesses and industries are increasingly making use of the existing NSWs to submit and process customs declarations and fulfill regulatory requirements. These exchanges will extend beyond national borders with the implementation of the ASW (ASEAN Secretariat, 2012a).

Background of the Problem

The 1997 Asian Financial Crisis and the 2007 Global Financial Crisis were devastating traumatic events in Southeast Asia (Das, 2012; Erkens, Hung, & Matos, 2012; Reinhart & Rogoff, 2013). Southeast Asia's banking management did not cause the two crises; rather, the crises were primarily the result of orchestrated acts of unscrupulous lending intrusions by Western banking entities, with the International Monetary Fund being the most culpable. Leaders of ASEAN, which is a 10-member-nation entity founded in 1967 in Southeast Asia that includes Singapore, Indonesia,

Malaysia, Brunei, Thailand, Cambodia, Laos, Myanmar, Vietnam, and the Philippines, resolved not to subject its populace to the pain of past financial crises (ASEAN Secretariat, 2011; Rolls, 2012; Tan, 2012a, 2012b). ASEAN leaders have collaborated to construct financial protections to shield ASEAN member nations since 1997 (Cadot, Munadi, & Ing, 2015; Rolls, 2012; Tan, 2012a, 2012b). One shield involved amassing US\$120 billion in reserves from its member nations and not from Western banks (Bhattacharyay, 2012; Capannelli & Tan, 2014; Chin, 2014). The most visionary shield, conceived in 2003, was the ASW, which is a sophisticated trade facilitation and protocol system designed to accelerate trade within ASEAN and globally (Petri, Plummer, & Zhai, 2012). A successful ASW could mean greater economic strength and financial resilience. The ASW is a megaproject that had a 2015 deadline for some members and a 2018 deadline for Cambodia, Laos, Myanmar, and Vietnam. Business problems and barriers are natural with any large project. In this study, I explored the business strategies applied so far that have represented attempts to overcome the business barriers to ASW implementation. Amid great optimism was a healthy trepidation that the formal deadline was approaching too fast, the progress was too slow, and winning business strategies remain undecided.

Problem Statement

Leaders of multinational corporations (MNCs) are eager to partner with ASEAN on ASW's region-wide infrastructure projects (Das, 2012a; Hwang, Zhao, & Gay, 2013). According to the World Bank's *Trading Across Borders 2012* report, out of 150 economies surveyed, 49 have introduced a single window, of which only 20 have a single

window system that links all relevant government agencies, which represents a low success rate of MNC-led projects (Ika, Diallo, & Thuillier, 2012; World Bank, 2012).

The general business problem is MNC organizational leaders are often unable to demonstrate to ASEAN partners their business capability to manage and complete the ASW partnership contract on schedule and within budget and scope due to inadequate management. The specific business problem is that some of the interested MNC organizational leaders (senior executives, program directors, and project managers) lack strategies to implement ASEAN partnership contracts to complete ASW region-wide projects.

Purpose Statement

The purpose of this qualitative multiple case study was to explore what strategies MNC organizational leaders use to implement ASEAN partnership contracts to complete ASW region-wide projects. Employing a qualitative research method, I conducted interviews targeting a population of MNC organizational leaders, including trade facilitation executives, program directors and project managers, who had strategies to implement ASEAN partnership contracts to complete ASW region-wide projects in the geographical region of Southeast Asia. Qualifying criteria for participation included project management expertise and decision-making authority in the ASW project. The impact of this study may generate a greater cognizance of MNC strategies to expedite ASW's timely implementation. The potential for this case study to contribute to social change involved exposing failing strategies while highlighting successful strategies. By employing successful strategies, leaders of MNCs should boost ASEAN's regional

economy through significantly increased trade. As personal incomes rise and government revenues increase, more money will be available for education, health care, and social programs.

Nature of the Study

This qualitative multiple case study was exploratory. In this case study, I discussed various strategies, both in practice and under evaluation, used by key MNC organizational leaders to ascertain which strategies were customized well enough to overcome ASW megascale business barriers so the project could meet its original deadline or the 2018 deadline for Cambodia, Lao People's Democratic Republic (PDR), and Myanmar. The qualitative research method was more appropriate than the quantitative or mixed-method methodologies because it included the greatest advantage to use open-ended interview questions so interview participants could provide more detailed and quality feedback (Faircloth, 2012; Roulston, 2012, 2014; Talmage, 2012). The qualitative research method helped me access deeper knowledge of the pertinent issues within MNCs' business strategies. Because I was the primary collection instrument in this qualitative interview process, my attributes as a researcher had the potential to affect the quality of data collection through social interaction (Pezalla, Pettigrew, & Miller-Day, 2012). Researchers can use the qualitative method to gain insights from qualified participants to analyze ASW business strategies.

The quantitative method was not appropriate because its objectives were not in alignment with this study. Quantitative researchers primarily seek to (a) enumerate a problem, (b) determine the magnitude and direction of potential relationships between

variables, and (c) develop an understanding of prevailing circumstances based on results comparable to a larger population (Jenkins, 2012; Yin, 2012). Data collection methods commonly used in quantitative research include archival data, audits, and data collected from archives or documented telephone surveys, online surveys, or both (Jenkins, 2012). This study would not have benefited from the mere compilation of numerical data, hypothesis testing, or predictions. For these reasons, I rejected quantitative and mixed-method methodologies (Jenkins, 2012).

A research design is a logical plan for getting from Point A to Point B, where Point A is the research question and Point B is the conclusion (Marvasti, 2014). Between these two points lies the collection of data, analysis of data, and interpretation of observations (Marvasti, 2014). This study followed the case study format, as it was most appropriate for mining information from MNC organizational leaders. I triangulated data sources (interviews, ASW conferences posted online, and research documentation) and field notes and consolidated the sum data into a research database. This triangulation step increased the accuracy of diagnosing the progress of different ASW business strategies (Denzin, 2012).

Other major methods used for qualitative research were not valid because they were unsuitable for this research. Researchers commonly use grounded theory and phenomenology for psychological studies, but they were not valid for this study of MNC business strategies. Ethnography was inappropriate, as it is specifically for sociocultural studies of communities or groups. The last major qualitative method, historical, was

invalid because it involves examining the past to determine or predict the future, which was not the goal of this study.

Research Question

What strategies do MNC organizational leaders use to implement the ASW partnership contracts to complete ASW region-wide projects?

Investigative Interview Questions

The intent of this study was to explore the various strategies that have been, are, and will be applicable to mitigating business barriers related to scope, scheduling, and budgeting constraints linked to the ASW. Below is a list of interview questions based on the United Nations Centre for Trade Facilitation and Electronic Business's (UN/CEFACT, 2006) *Case Studies on Implementing a Single Window* to meet the needs of this study:

Business Strategy 1. Explore effective Single Window Business Models and processes that support the ASW project.

1. What is your current Single Window Business Model? (Please describe the business process model...)
2. How is your Single Window Business Model leveraging foreign direct investments and best business practices for the NSW/ASW project?
3. How is your Single Window Business Model aligning with ICT strategies for the NSW/ASW project?
4. What is your payment model? (fixed price per year, price per transaction, combination, other model and using which currency)

5. How are you informing stakeholders about the project's success and return on investment?
6. Utilizing the SWOT (Strength, Weakness, Opportunity, and Threat) analysis concept, what is your organization's ability to meet ASW goals?

Business Strategy 2. Explore effective public-private partnership (PPP) models that support the ASW project.

1. What managerial roles and responsibilities exist for the private and public sector within this complex NSW/ASW infrastructure development project?
(If your organization is a Government Linked Corporation or State Owned Enterprise, what unique managerial roles and responsibilities were established vis-à-vis the public partner?)
2. How did your organization determine which PPP implementation and management model was best for your partnership? (e.g., design-build-operate-maintain (DBOM), operate, maintain, and manage (OMM), build-operate-transfer (BOT), or others for the NSW/ASW project)
3. How has NSW/ASW risk and complexity been treated to acquire a competitive business advantage?
4. What are your defined PPP success criteria?
5. What public agencies are involved with your NSW/ASW project?
6. How are you garnering public support as future clients?

Business Strategy 3. Explore effective project management methods that support the ASW project.

1. How does your organization determine which project management guides and standards to implement? (e.g., PMBOK, Prince2, Adaptive Enterprise Project Management, or any other project management standard/certification)
2. What project management methodology are you implementing in your NSW project? (e.g., Traditional Project Management, Agile Project Management, the Critical Path Method (a mathematical algorithm for scheduling), the Fuzzy Critical Path Method, Theory of Constraints (used to exploit weak links), or any other unmentioned project management methodologies)
3. Describe what factors influenced your organization to use the current project management methodology? (e.g., scope, scheduling, budget, risk, product quality, customer satisfaction, or some other factor)
4. What are your critical constraints for the NSW/ASW project?
5. How do you overcome NSW/ASW critical constraint issues that may trigger retardation or deviations in project scope, project schedule, or project budget?
6. Considering project management is becoming metric driven and KPIs (Key Performance Indicators) serve as early warning systems to inform project managers of unfavorable risk conditions requiring attention, what KPIs are you monitoring to make informed decisions?
7. How are you aligning metrics to support business objectives and project objectives?

8. How can aligning project management knowledge areas (e.g., risk management, integration management, or scope management) with metrics and KPIs support project success?
9. What certifications are necessary for today's project managers who require more business acumen than traditionally required to facilitate project success? (e.g., business process certification, business management certification, complex project certification, cost-benefit analysis certification, lean six-sigma certification, etc.)

Business Strategy 4. Explore the correlation between the Single Window Business Model, PPPs models, and project management methods on project success.

1. What are the main lessons learned from NSW and integrating with the regional ASW project? (e.g., Strengths, Weaknesses, Opportunities, Threats)
2. What are the critical success factors for implementing a business strategy such as the single window project? (e.g., shared responsibility between public and private sector, risk allocation, effective management controls, or project economic viability)
3. Utilizing adaptive or prescriptive procedures, how did you overcome historically low project success rates involving ICT projects?
4. What technology are you using in the NSW/ASW project to dominate information management?
5. What are you doing to mitigate unnecessary risks and single points of network failure?

The closing questions were as follows:

1. What additional information would you like to share about NSW and ASW business strategies that I did not ask?
2. Whom do you recommend I talk with to learn more about the NSW and ASW business strategies?
3. Finally, I would like to schedule a follow-up meeting to validate an accurate synthesis of your comments.

Conceptual Framework Overview

The conceptual framework that I employed in this qualitative case study was the theory of constraints (TOC). The TOC in its present form is the result of the work of Eliyahu Goldratt (Naor, Bernardes, & Coman, 2013; Rahman, 2012; Rand, 2013; Zhang, Guo, Chen, & Song, 2012). Goldratt originally introduced TOC in 1979 as scheduling software referred to as Optimized Production Timetable. Since then, TOC has evolved into a robust management philosophy (Naor et al., 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012), and its acceptance improved with the release of Goldratt's 1984 book *The Goal*. The TOC project and operations management philosophy claims that every system (e.g., a corporation or project) has at least one constraint (Naor et al., 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). Although initially applied as a manufacturing expediting method, TOC has matured into a dynamic management theory, a powerful systemic problem-structuring and problem-solving methodology that supports solutions using both intuitive power and analytical rigor to boost performance (Naor et al., 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). A constraint, in the TOC

construct, is anything that limits a system from achieving optimal performance in relation to its goal and serves as a barrier (Naor et al., 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). The TOC, as applicable to this study, represented the opportunity to best explore ASW's business strategies to identify its weak links and examine exploiting them as opportunities to customize the MNC's business strategies to ensure its success. By incorporating TOC as the lens through which to ground this study, I identified and discussed managerial weak links in performance or projects, which provided critical insights for MNC executives, program directors, and project managers.

Definition of Terms

ASEAN: ASEAN is an international organization established in Bangkok, Thailand, by the governments of Indonesia, Malaysia, the Philippines, Singapore, and Thailand in 1967. The intent of ASEAN is to accelerate regional economic growth, social progress, and cultural development and to promote peace and security among the AMSs. Ten countries are members of ASEAN: Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Laos, Vietnam, Cambodia, and Myanmar (ASEAN Secretariat, 2012a; Chia, 2013; Jones, 2015; Kabir & Salim, 2014; Menon & Ng, 2013; Neufeld, 2014).

ASEAN Business Advisory Council (BAC): ASEAN leaders mandate the ASEAN Business Advisory Council (BAC) as the official ASEAN linkage to provide private sector feedback and guidance to boost ASEAN's effort toward economic integration. This forum serves as a platform for business entrepreneurs and policy makers to promote trade and investment at the national, subregional, and regional level and forge

collaborative efforts to stimulate development in all corners of ASEAN (ASEAN Secretariat, 2012a).

ASEAN single window (ASW): The ASW is an environment where 10 NSWs of individual member countries collaborate with the private sector to design, operate, maintain, manage, finance, and integrate infrastructure projects in support of regional trade facilitation (Chia, 2013; Japan Association for Simplification of International Trade Procedures [JASTPRO], 2012; Kabir & Salim, 2014; Neufeld, 2014).

Foreign direct investment (FDI): Foreign direct investment (FDI) is a cross-border investment by a resident entity in one economy with the objective of obtaining a lasting interest in an enterprise in another economy. The lasting interest implies the existence of a long-term relationship between the direct investor and the enterprise and a significant degree of influence by the direct investor on the management of the enterprise. Ownership of at least 10% of the voting power, representing the influence of the investor, is the basic criterion used. Foreign direct investment is a key element in international economic integration and creates direct, stable, and long-lasting links between economies. It encourages the transfer of technology and knowledge between countries and allows the host economy to promote its products more widely in international markets. Foreign direct investment is also a source of funding for investment and, under the right policy environment, can be an important vehicle for development. Accordingly, FDI restrictiveness indexes demonstrate that economies that are more open receive more FDI (Groh & Wich, 2012; Organization for Economic Co-operation and Development [OECD], 2013; Ramasamy, Yeung, & Laforet, 2012).

Integration into the global economy: Integration into the global market requires setting conditions that foster a reduction in transaction-associated costs and other barriers so ASEAN businesses can be competitive internationally and become a more dynamic segment of the global supply chain, thereby ultimately ensuring the internal market remains attractive for foreign investment (Hwang & Lee, 2015; Otsuki, 2011).

National single window: The single window concept refers to an exchange facility that allows parties involved in trade and transport to lodge standardized information and documents with a single entry point to fulfill all import, export, and transit-related regulatory requirements (Chia, 2013; Kabir & Salim, 2014; Weber, 2012). The implementation and use of up-to-date information and communication technologies (ICT) facilitate trade, and a single window should lead to close cooperation between all involved governmental authorities and agencies, as well as the trading community (Chia, 2013; Kabir & Salim, 2014; Weber, 2012).

Single market and production base: An ASEAN single market and production base shall comprise five-core elements: (a) free flow of goods, (b) free flow of services, (c) free flow of investment, (d) freer flow of capital, and (e) free flow of skilled labor (Chia, 2013; JASTPRO, 2012; Jones, 2015; Kabir & Salim, 2014).

Tariff liberalization: As of January 2010, Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore, and Thailand (ASEAN-6) eliminated intra-ASEAN import duties on 99.86% of tariff lines. Cambodia, Lao PDR, Myanmar, and Vietnam senior leaders have respectively reduced their import duties to 0% to 5% on 98.86% of their tariff lines (ASEAN Secretariat, 2012a; Hwang & Lee, 2015; Petri et al., 2012).

Value capture: One can define value capture as a subjective assessment of the relative bargaining powers of buyers and sellers (Austin & Seitanidi, 2012). From the perspective of business, profit equals value captured (Austin & Seitanidi, 2012).

Capturing value is not simply a single phenomenon or method, but rather a multifaceted phenomenon; furthermore, different stakeholders will define and interpret it differently (Austin & Seitanidi, 2012; Skilton, 2014).

Value creation: Although there is no consensus on a definition of value creation, Skilton (2014) defined it as the outcome of service and product market strategy. Kerzner (2013b) identified value creation as aligning value with strategic objectives of both the customer and the contractor. Heinonen, Strandvik, and Voima (2013) noted that value begins with a customer-centric approach, and companies are value facilitators that demonstrate the diversity of thought on the topic of value creation.

Assumptions, Limitations, and Delimitations

This section includes topics related to the assumptions, limitations, and delimitations of this study. Assumptions are the core presumed facts pertaining to the study and considered true, yet not verified. By initially accepting them, albeit cautiously, a researcher has a foundation to begin. Limitations include potential weaknesses of the study and delimitations include the researcher's decisions in setting the study's boundaries and parameters, such as the research question, the interview questions' intended scope, and the criteria for selecting interview participants.

Assumptions

Assumptions are ideas or beliefs about what one knows and believes about choices and information (Roy & Pacuit, 2013). Many assumptions in this study required verification at some point during the study (Jenkins, 2012; McCann, 2013). A fundamental assumption exists that a case study design using open-ended questioning for data collection is appropriate for providing the depth required for relevant analysis of resulting findings (Jenkins, 2012; Yin, 2013a). The overarching assumption was that ASW is a viable, sustainable systems program that will create a single-window trade facilitation platform for Southeast Asia to increase trade. The ASW web portal created on May 13, 2013, testified to this assumption's validity. The next broad assumption was that all ASEAN nations will participate, as agreed, to review the ASW cross-border business strategy analysis. These nations will also participate in the review of the ASW legal framework in support of legal document exchanges (customs documentation including manifests and harmonization of certificates of origin) and other electronic data. Another basic assumption was that adopting good partnerships with the private sector might ensure ASW's success. A third assumption was that by creating a unified region-wide standard, ASW's implementation will increase global market competitiveness for Southeast Asia. Integrating regional investment policies into development objectives requires the strict management of complex interoperable financial constraints. Public records regarding existing financial governance indicate the strong assumption that finances are an issue to overcome.

Disparate intra-ASEAN nations' ICT infrastructures and a lack of uniform ICT expertise in the megaproject ICT field have been well-known according to the *Global Competitiveness Report* 2011-2012, 2012-2013, and 2013-2014. Therefore, this was also an assumption that I verified and detailed, citing specific impedances. A major assumption was that MNCs are essential to building necessary PPPs for the ICT infrastructure and sharing the best functional business models appropriate to the ASEAN region. Such partnerships should help absorb the unpredictable burden of immediate and disruptive debt to weaker nations' gross domestic products. An extension of the assumed adoption of PPPs will be the introduction of adept project management models addressing project scheduling, budgeting, and maintaining project scope to ensure ASW's successful implementation. Each of these assumptions demonstrated how one assumes that qualitative research is context sensitive and aids in developing a conceptual understanding and contextual explanation of the theorizing potential of case studies (Tsang, 2013).

Limitations

The major limitation to this study was acquiring truly in-depth interviews with willing regional single window MNC organizational leaders encompassing senior executives, program directors, and project managers integrated with or serving as project managers in this project. The inability to coordinate in-depth interviews with qualified MNC organizational leaders may have inhibited the ability to extrapolate the results of the study to a broader business population (Jenkins, 2012; Yin, 2013a). The coordination and depth of these interviews directly influenced this research. Participants not fluently

understanding English posed another potential weakness to this study. Should this have occurred, follow-up questions for clarification would have been necessary so the use of English would not have compromised any interviewees' responses.

The bureaucratic environment of ASEAN and the corporate environment surrounding private companies involved in the ASW project naturally guard confidential information very securely, where the government and its corporate partners hold ownership of this information. These confidentiality fences were an expectation within the study, as they represented a limiting element. Because firsthand interviews did not take place in all 10 ASEAN nations, the findings did not fully capture the panoramic picture. I focused on securing in-depth interviews from the selected contacts outside the scholarly research environment by securing their trust through explaining the positive purpose of the case study to help mitigate these limitations (Dworkin, 2012; Faircloth, 2012; Roulston, 2012; Roulston, 2014). For this case study to be relevant, I completed the study prior to the ASEAN Economic Committee deadline, which added a self-limiting, positive catalyst to advance posthaste.

Yin (2013a) noted that a commonly held limitation or weakness of single case study analysis is the general criticism concerned with a lack of methodological rigor. Identifying limitations, using an extensive literature review, and including multiple sources of data based on methodological triangulation are important. These steps generate a chain of evidence to combat this commonly misconceived limitation.

Delimitations

Delimitations are synonymous with the boundaries of a study (Roach, 2013). The delimitations of this study included (a) the geographical location of the phenomenon, (b) the business environment in which the problem manifests and where the question would be explored, (c) the population that informs the problem, and (d) identifying the initial sample size (Jenkins, 2012, p. 29). The first delimitation was the circumscription of the enormous geographic region where the public and private sector are to construct and implement the ASW trade facilitation environment, such as ASEAN's 16 million km² of land and sea in Southeast Asia. The next delimitation, an extension of the first, was collecting the 10-nation subset with individual NSWs that eventually need to produce, operate, and integrate their NSWs into the regional ASW to provide an interoperable, seamless, cohesive infrastructure for electronic data and information exchange among all AMSs. Skeptics such as Das (2012a), Chia (2013), Jones (2015), Menon (2013), Nicklin (2012), Davis and Friske (2013) and many others have highlighted the many valid and unique public-private sector challenges. ASEAN members emphatically support accomplishing the ASW's vision, compelled by the calculated supreme rewards of an ASW success, and thereby want to work together to overcome the intra-ASEAN cooperation and business methodology management logistics and financial heavy lifting for an ASW success.

Another delimitation was nongeographic and non-ASEAN. It was the decision to confine this study to exploring the business strategies required to implement the ASW on time, and then subsequently in 2018 for Cambodia, Myanmar, and Laos. This

delimitation is important because the strategies necessary to overcome existing barriers do not fairly portray the entire picture of the ASW project. While explaining the project scope was a clear objective, the core research and discussion focused on business strategies rather than business concepts, expected economic rewards, or expected positive social impact. These facets were tangentially included, but not studied in the depth that the business strategies commanded.

One of the foremost business strategies discussed is the complex area of financing. I delimited this study to a broad discussion of the finances involved in implementing the ASW. This discussion included how leaders in ASEAN and the private sector employ PPPs and appropriate project management methods to work through existing constraints to achieve ASW's target goals. I explored the progress of numerous MNC organizational leaders across the AMS, and interviews included a select number of those senior executives, program directors, and project managers with direct oversight or management duties related to ASW. I chose the select MNC organizational leaders because they manage within ASW's financial and banking sector, the ICT sector, the regional legal framework (customs), or regional protocols (documentation basis). The ICT sector underwent in-depth study as it is, after financing, the integral gear to facilitate electronic payments, paperless transactions, radio frequency identification shipment tracking across the network, and eliminating redundant data input into the ASW portal.

The limited time frame to complete this study indicates why I relied on secondary statistical data from existing reliable databases. Because I could not visit all ASEAN nations for interviews and observation, I accumulated and assessed feedback from peer-

reviewed articles, recent research studies, and books by scholarly authors to gain insight into each country's challenges as well as private sector challenges described by other scholarly authors.

Another critical delimitation, as identified by researchers at the Standish Group (2012), is that while project managers typically complete 39% of ICT infrastructure projects on schedule and within budget, 43% of the projects are late, are over budget, or lack required features. Furthermore, 18% of projects in 2012 were cancelled prior to completion or never implemented (McCann, 2013; Standish Group, 2012). Although 39% is the best annual completion rate since 2004, ICT infrastructure projects continue to experience schedule delays, budget overruns, and noncompletion (Standish Group, 2012). Addressing the low project success rate, I additionally focused on the three interdependent project constraints of scope, schedule, and budget. Although a Likert-type survey provides efficient means to acquire feedback, the condensed timeline to complete this study did not support developing and executing a pilot study prior to the in-depth interviews.

Significance of the Study

This case study might be of special value to business through the exploration of business strategies that can accommodate the constraints and risks of a trade facilitation and ICT project such as the ASW. Other researchers partially examined business strategies and management methods for ICT and other megascale projects, but only I focused primarily on the ASW, its business strategies, and management solutions. This study may also contribute to improvements in business practice. The improvements

could be twofold. First, they may come through research into the primary conceptual model, the TOC, as well as other relevant business strategies and methodologies that exist to handle the megasize ASW project. Second, they may come through interviews, findings, and analysis designed to inform ASW executives regarding the advantages and disadvantages of different megascale business strategies. Executives and program directors of the ASW may find this study a resource to aid them in selecting or modifying a business strategy to handle the challenging risks and constraints of the ASW and accomplish this project on time.

This study is a business study, not a social study. It makes sense that the positive social change this study may catalyze would be as a by-product of its business impact. If MNC organizational leaders use this study to discover and implement more successful business strategies to overcome barriers facing the ASW, this study will have aided a successful ASW. A successful ASW will uplift its regional economy by way of an excellent, digital, single-window trade facilitation system. An improved economy might uplift the socioeconomic fabric of the populace of the 10 ASEAN nations. A more prospering citizenry induces positive social change, including better incomes that elevate the societal climate in both overt and subtle ways. Families could better provide for themselves, and their nations' governments would be able to use increased tariff revenues on expanded trade activity to serve its population more effectively in the fields of health care, education, and social programs and provide more equitable economic development by reducing poverty and socioeconomic disparities (ASEAN Secretariat, 2011).

A Review of the Professional and Academic Literature

The intent of this literature review was to present the most salient research relevant to this study from scholarly articles, reports, and seminal scholarly books. Analysis, discussion, and synthesis of this literature provided depth, context, and situational understanding of the research question: What strategies do MNC organizational leaders use to implement ASEAN partnership contracts to complete ASW region-wide projects?

I employed the literature to make this expansive literature review as tenable and cohesive as possible to explore and discuss three specific, well-defined, critical strategies of the complex ASW project: (a) the single window business model, (b) PPPs, and (c) project management. I will use the findings of the research on these three strategies to develop a flowing, analytical comparison and contrast of the integral mechanisms and components of each strategy discussed.

Literature Search Strategy

Various research strategies existed to locate literature definitively related to the identified variables. A primary means of finding literature involved creating alerts in Google Scholar and other databases based on key words such as *ASEAN Single Window*, *single window business models*, *business and ICT strategy alignment*, *public-private partnerships*, *project management and effectiveness*, *project management and success factors*, *project management best practices*, *project constraints*, *project performance*, and *the theory of constraints*. Each key word produced constantly updated peer-reviewed literature based on the periodic alerts, thereby automating parts of the search process.

Other techniques included manually searching databases hosted by the Walden University library, such as Science Direct, ProQuest, Academic Search Premier, EBSCO, ABI/INFORM Global, and the Business Sources Complete database. Additionally, professional websites such as the ASEAN BAC website, Project Management Institute (PMI) website, the Prince2 website, the CrimsonLogic Resource Library, the Dagang Net website, the Crown Agents website, the World Trade Organization website, the World Customs Organization (WCO) website, the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) website, the UNNExT website, and many others provided access to current literature. I also purchased books and journal publications from the Institute for Southeast Asian Studies in Singapore as well as more books and database charts while in Jakarta's ASEAN Secretariat headquarters. I created this study from 282 sources, with 265 sources (94%) published within 5 years of my 2016 graduation date. Furthermore, 242 of the total sources (86%) are peer reviewed. The literature review contains 187 peer-reviewed sources, or 89% of the 210 total sources representing current literature insight. These articles served as concrete evidence exposing barriers facing ASW implementation with discussions of effective strategies and efficiency improvements in business modeling, information infrastructure interoperability, collaborative partnerships, and project management linked directly to improvements in Southeast Asian import and export performance. This all culminated in attracting private sector business and increasing global competitiveness. The ASW has caught the attention of observers, critics, and supporters worldwide as an initiative to promote regional economic growth and stability in Southeast Asia.

Defined Business Strategies

The first business strategy addressed was the ASW business model. Addressing the ASW business model entailed exploring the conceptual strategy that this visionary project is still fundamentally feasible. The exploration revealed evidence that an implemented ASW regional project would create a first-time event among 10 partnering nations in one region (Intal, Dionisius, & Fukunaga, 2012). Otsuki (2011) assessed through simulation testing that if the rest of the world conducts significant trade reform, ASEAN would still gain only a half of what it could gain by implementing its own ASW. Approximately 75% of the ASEAN gain would come from the region's own improvement, which encourages aggressive commitment to private sector investment in trade facilitation (Otsuki, 2011, p. 318).

As of 2010, Indonesia, the Philippines, Singapore, and Thailand had largely implemented their respective NSWs, but they faced numerous challenges in increasing their effectiveness (Das, 2012a). Issues consisted of inefficient coordination among domestic agencies at the lowest levels, lack of appropriate support for customs, underdeveloped ICT standard skills, and low levels of public awareness of NSW efforts and regulations (Das, 2012a). These inefficiencies supported the idea that implementing NSWs has led to ineffective improvements in the customs integration process (Abidin & Rosli, 2013). Abidin and Rosli (2013) further noted that, although ASEAN has vast experience in infrastructure planning at national levels, it has limited capability in such planning at the pan-ASEAN regional level, which is a serious gap in management competency and accountability.

The second business strategy was exploring the collaborative environment of PPPs between ASEAN governments and their respective private sector companies as a necessary means to overcome barriers related to designing, financing, building, and operating the functions of a large complex project such as the ASW. This PPP construct apparatus is primarily necessary because the AMS regional ICT infrastructures require large capital investments. Unless the broadest pan-ASEAN perspective toward PPPs is possible, the potential private partner company may find it difficult to see a return on investment (ROI) in regional infrastructure projects. Each state's national budget constraints and other demanding national priorities make it difficult for nations to shoulder the entire risk for participating in regional infrastructure development. Published accounting forecasts by Southeast Asian regional banking specialists, recognized by ASEAN, concluded that ASEAN needs approximately US\$60 billion a year for infrastructure development for the 2010-2020 time frame. In May 2012, the leaders of the ASEAN Infrastructure Fund, which is the largest ASEAN-led initiative with start-up capital of US\$485.2 million, hoped that each AMS would use billions over time from their foreign exchange reserves and issue bonds to fund regional infrastructure development projects (Abidin & Rosli, 2013). Until at least 80% of contributions become available, ASEAN senior leaders will not commit ASEAN Infrastructure Fund funds (Abidin & Rosli, 2013). Because US\$485.2 million is insufficient to finance large infrastructure projects, other investment vehicles are necessary. If funding appears from other sources, then the dilemma of project revenues obtained in local currencies may have an association with risk due to loans in opposing currencies, which creates a

financial spider web that demands painstaking, pan-lateral cooperation and strategy to make it work.

Key relationships beyond PPPs exist among multilateral development organizations such as the United Nations, the WCO, the World Trade Organization, the Asian Development Bank, and the World Bank. These relationships demonstrate the historical importance of collaboration across borders to facilitate economic growth and support financial funding. Finance economists view such collaborative relationships as one key implementation approach for ASW's capital-intensive infrastructure development. This multiple-origin sourcing of capital funds approach catalyzes a strong tailwind synergy of new resources, skills, management expertise, and invaluable experience from both public and private sectors, which will enhance and streamline fundamental qualitative ASW services.

The third business strategy, project management, was exploring the execution phase driven by the general and specialist managers responsible for working within the project constraints of scope management, scheduling, and budget management. The greatest challenge is juggling national and regional demands of the ASW project equitably and operationally while converging national infrastructure projects with regional infrastructure plans. Sharing knowledge and keeping communication lines open remains a priority to economize efforts and manage cost, technical design, and the details of a project of this magnitude. The managerial skill to implement a project the size of ASW that ultimately produces the highly anticipated financial returns is the goal. This capability to manage project implementation at the pan-ASEAN level is a recognized

Achilles heel of the ASW project. Frustrating limitations concerning regional infrastructure planning and budgets are a significant hurdle for project managers, regardless of their skill. The undercurrents of national versus regional stewardship and respective responsibilities for the ASW project stem in part from a deep ASEAN concept of noninterference in matters of national sovereignty. Inherently a noble policy, ASEAN also requires a unanimous vote to implement regional agreements. By the admission of all, such policies contribute to aggravations, especially regarding timely implementation of various ASW policy components (Abidin & Rosli, 2013).

Effectively researching these key business strategies helped to define the implementation path of ASW trade reform efficiently, explore the necessity of PPPs, and define the limitations and constraints confronting project managers. What this means for the regional and global business community is that an easy-to-use single window/trade facilitation apparatus generates a business-friendly environment. A successful trade window such as ASW will use administrative efficiency and harmonization, support fast and reliable movement of goods, reduce costs, reduce product time to market, increase predictability in import–export trade, and lessen regional economic disparity gaps. This sophisticated environment implements standardizing documents, which simplifies the exchange of information and harmonizes procedures to move goods from sellers to buyers. The environment also provides payment systems for more efficient handling of different currencies and more trusted, simplified, and securitized money transfer procedures. This single window process serves to encourage leaders of government agencies and private business entities to establish partnerships to focus on outcomes and

profits, rather than on navigating through bureaucratic encumbrances and trade complexities. The business strategies must be exposed, addressed, and solved to attain this facile trade facilitation environment in the ASEAN region. Some of the business strategies are in Figure 1. Following the ASW business strategies in Figure 1 is an illustration of how this literature review will address business strategies in Figure 2.

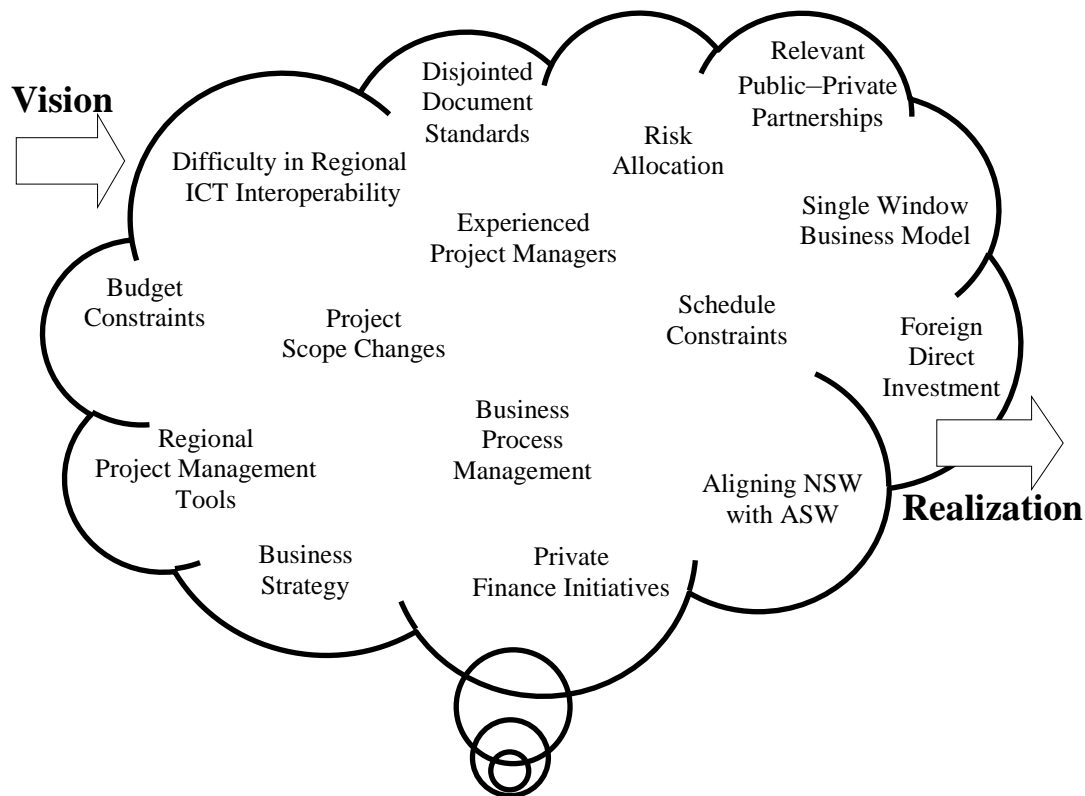


Figure 1. Single window business strategies identify the complexity of implementing the ASW project.

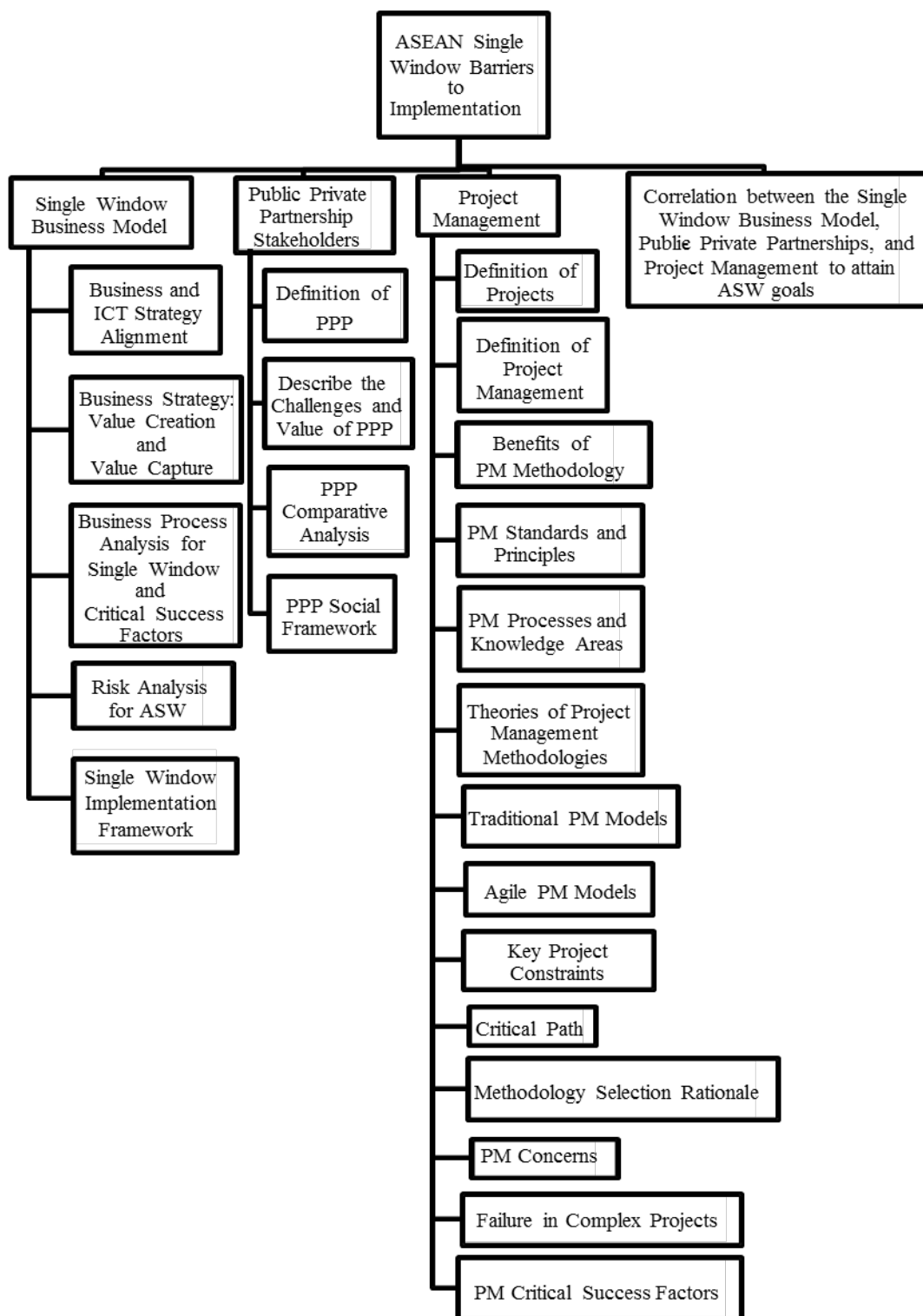


Figure 2. A literature review road map.

Single Window Business Model (B2G and G2B)

This section includes a discussion of the single window business model, inclusive of both business-to-government (B2G) and government-to-business (G2B) angles. Within the discussion of this business process model concept, a more specific focus will spotlight ASW's project and its employment (or potential employment) of this two-directional model. Within the regional 10-nation ASW project, individual member states are also implementing, or have implemented, their own subset of single windows as part of the overall ASW goal. Equally important is the basic definition of a single window, which describes the single window value and purpose as the value of a single entry point—or Single Window—is for traders to submit information to governments so as to fulfill import and export-related regulatory requirements (UNESCAP, 2013).

A business model, by definition, is a design structured to institute a systems-level, holistic approach to implement how firms do business (Gassmann, Frankenberger, & Csik, 2014; Zott & Amit, 2013). The business model also serves as a critical tool to detail how businessmen create value and not just capture it (Denicolai, Ramirez, & Tidd, 2014; Gassmann et al., 2014; Naor et al., 2013; Zott & Amit, 2013). Naor et al. (2013) noted that the TOC extends to include business model management for organizations' internal, external, and strategic constraints. As this research specifically pertains to the ASW project, a single window business model is the core foundation for developing and improving the logistics sector, which is essential to establishing a regionally integrated market (Coen, Baida, & Kouwenhoven, 2013). In essence, single window success depends on technical skills and business management capabilities introduced by single

window implementation programs (Coen et al., 2013). Using an operational management philosophy such as the TOC requires corporate partners to manage business decisions directed toward creating and capturing value and proactively managing partnerships for the successful implementation of the single window project management phase.

Researchers have yet to develop a widely accepted language and related lexicon that researchers can use to examine business process model constructs through different lenses to examine the workings of others effectively (Denicolai et al., 2014; Gassmann et al., 2014; Zott & Amit., 2013). Without having a commonly accepted definition of the mechanics of various business process models, and a common language to discuss them, many researchers adopt idiosyncratic definitions that best serve their own research project, which leads to scholarly disconnect instead of a cumulative beneficial effect. For this reason, it is difficult to develop a precise definition of a single window business model. Zott and Amit (2013) identified three main interest areas for business process models: (a) e-business and the use of information technology in organizations; (b) strategic issues such as value creation, competitive advantage, and firm performance; and (c) innovation and technology management.

In the ASEAN region, the single window concept actually refers to two different, yet complementary, operations. First, there is the NSW, which is a system that enables (a) a single submission of data and information, (b) a single and synchronous processing of data and information, and (c) a single decision-making procedure for customs release and clearance (JASTPRO, 2012, p. 2). Second, the ASW is the environment where NSWs of member countries will operate and integrate together (JASTPRO, 2012, p. 2).

Partnerships begin at the NSW level, and organizational leaders, including project managers, implement NSW plans to meet ASW interoperability standards to facilitate international trade and a regional supply chain in Southeast Asia. By adhering to interoperability standards from the WCO and the World Trade Organization, MNC organizational leaders will potentially set the foundation for new B2G collaboration, business-to-business (B2B) collaboration, government-to-government (G2G) collaboration, and efficient and effective global supply chain modernization via networked markets. An overview of the simplified distributed ASW network appears in Figure 3, and a distributed gateway model and under-the-hood view of the ASW environment is in Figure 4.

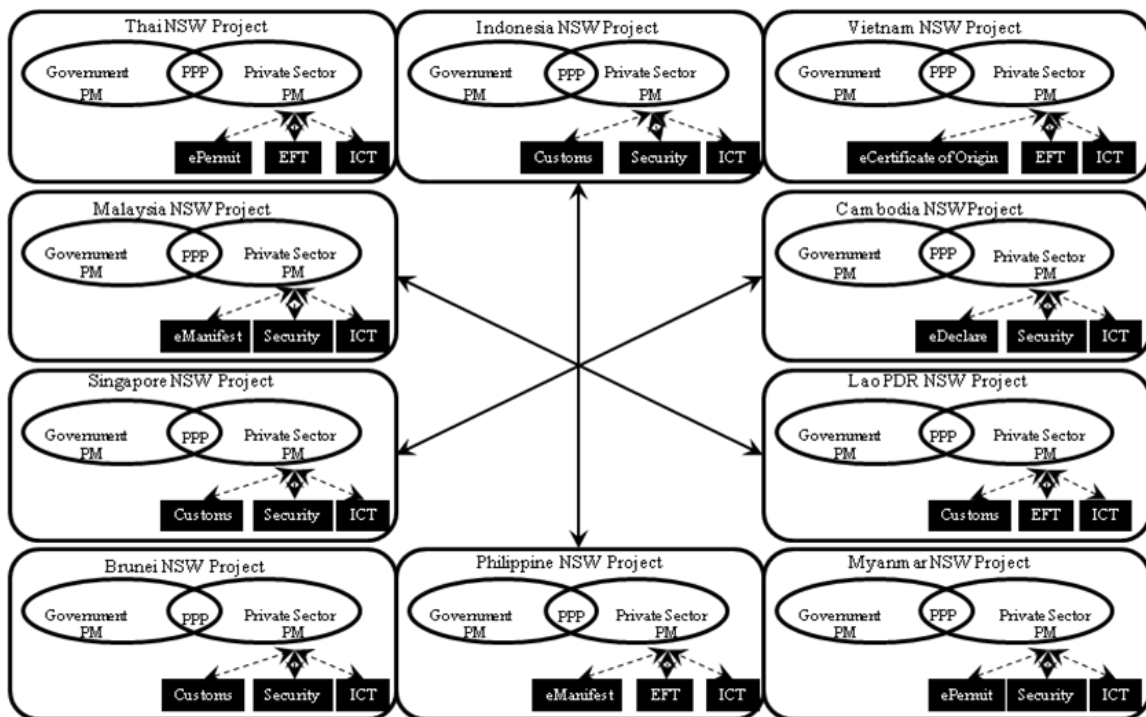


Figure 3. A hubless ASW distributed environment supports G2G, G2B, B2G, and B2B interfaces feeding a competitive advantage to the regional and global supply chain.

Implementing a distributed concept where each NSW maintains and secures its own single window network with direct control of national data facilitates the network trust relationship, security, and interoperability between gateways, thereby supporting complex data integrity. A test of this network approach was from November 2011 until October 2012 as part of an ASW pilot project and will lend its lessons learned for the eventual ASW network integration. The pilot project incorporated Brunei, Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Vietnam as a proof of concept.

Choosing the distributed gateway method provides specific guidance for the MNC organizational leaders to mitigate issues such as a third country transmitting sensitive trade-related data between exporting countries and importing countries, where a central server scenario could potentially be installed (JASTPRO, 2012, p. 3). The distributed environment also avoids a single point of failure if under cyber-attack. The ASW Gateway application requires installation on each NSW server among the AMS to establish interoperability standards and requires all NSW systems to be backward compatible with this common gateway application to ensure security, validity, and information reliability. Refer to Figure 4 to visualize the ASW gateway model.

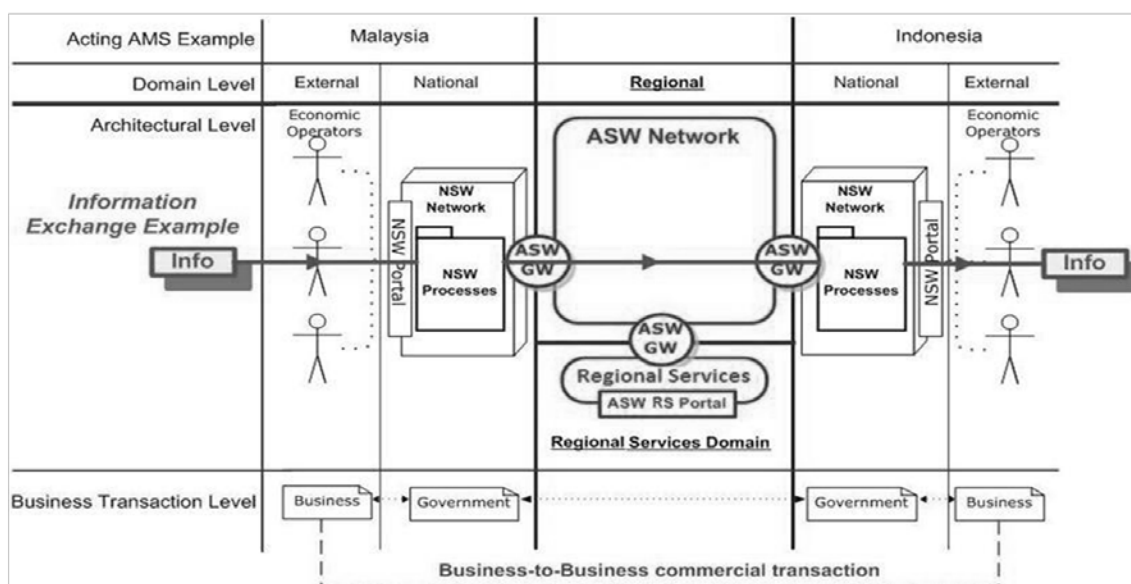


Figure 4. An ASEAN model of the ASW distributed gateway model (GW) not only supporting regional services but also supporting the business transaction level (JASTPRO, 2012; UNESCAP, 2013).

Setting the foundation for global supply chain competitiveness, global markets will also have standardized access to the ASW regional network via the international node of the ASW secure gateway (JASTPRO, 2012, p. 3). This foundation will play a vital role in B2B, B2G, and G2B transactions and future free trade agreements such as the Trans Pacific Partnership and the Regional Comprehensive Economic Partnership (Hwang & Lee, 2015). The result of the full-fledged architecture testing has been available since late 2014 and accelerates global supply chains via ICT innovations (JASTPRO, 2012, p. 5).

This business process model will promote both value creation and value captured by implementing innovative procedural efficiencies, performance management, and ICT process efficiencies; raising trade volumes; and improving supply chain management

techniques and logistical data exchanges while reducing costs. The champion of this concept, CrimsonLogic, implemented the TradeNet system in 1989 using a design-build-operate-maintain (DBOM) model making Singapore the first country in the world to construct a long-term single window with public and private parties in an ICT trade project partnership (World Bank, 2013b). Since 2010, TradeNet has handled more than 30,000 declarations a day, processed 99.9% of permits in 10 minutes, and received all collections through interbank deductions (World Bank, 2013b). TradeNet has saved the Singapore trading community approximately US\$1 billion because of these best business and technical practices (World Bank, 2013b). CrimsonLogic has also partnered with Brunei Darussalam to implement its single window network since 2012, which makes CrimsonLogic one of only a few corporations that has successfully implemented a single window project.

Dagang Net is implementing the Malaysian National Single Window (MNSW), which provides experience in trade facilitation, e-commerce, and public-private partnership collaboration. Dagang Net also provides experience in integrating infrastructure development, standards development, and National ICT consultancy. Other companies working with ASEAN nations are in Table 1 and cases in which the national government is implementing its own project have the term *Customs Department*.

Table 1

National Single Window Corporate Partners and ASEAN Member States

	Corporate partner	Single window program
National Single Window Indonesia	PT Electronic Data Interchange Indonesia	Indonesia National Single Window
National Single Window Malaysia	Dagang Net Technologies	myTRADELINK
National Single Window Philippines	Bureau of Customs supported by Crown Agent (UK)	Philippines National Single Window
National Single Window Singapore	CrimsonLogic Pte. Ltd.	TradeNet
National Single Window Thailand	The Customs Department	Thailand National Single Window
National Single Window Vietnam	Partnering with the Japan National Single Window	Under Construction: Combining the Vietnam Automated Cargo and Port Consolidated System (provisional name) and the Vietnam Customs Information System
National Single Window Lao PDR	PN Group Limited (UK) or Bureau Veritas (France) both provided feasibility studies	Under Construction – Using Automated System for Customs Data designed by the United Nations
National Single Window Cambodia	The Customs Department	Under Construction – Using Automated System for Customs Data designed by the United Nations
National Single Window Myanmar	No Data	Under Construction – Using Automated System for Customs Data designed by the United Nations

Note. Source: JASTPRO (2012).

South Korea, which is not an ASEAN state, also recently established a PPP to implement a single window network. The South Korean project demonstrated that a less sophisticated technological concept pursued within an excellent business model may be more valuable than using a more sophisticated technology deployed via a mediocre business process model (Arend, 2013; Casprini, Pucci, & Zanni, 2014; Schaltegger, Ludeke-Freund, & Hansen, 2012; Trimi & Berbegal-Mirabent, 2012). Embracing operational change extended monetary benefits of approximately US\$18 million in 2010 to South Korea and rendered competitiveness strategies to international companies such

as Samsung, Hyundai, and LG in the form of logistical predictability and supply chain reliability (World Bank, 2013b).

These operational advantages stem from the network's ability to connect logistical operations via web services, apply best business practices, apply best ICT practices, create business value, increase capacity, improve stakeholder coordination, improve infrastructure, and integrate data and business processes (Pedersen, 2012; Westerheim & Baalsrud Hauge, 2015). Veit et al. (2014) referred to such concepts as digital business models in support of digitized business transactions that can strategically structure themselves to meet operational requirements.

According to a report developed by IBM's Coen et al. (2013), called *Beyond the Single Window*, only approximately 71 single windows of varying complexity are in operation, with about 12 others under way (see also World Bank, 2013b). These low numbers highlight the difficulty with implementing a single window project and the reason project scope is extremely narrow in most cases. This difficulty is primarily because technical success does not equate to business success. Hoekman (2014, 2015) and Hoekman and Shepherd (2015) concluded that successful single window projects must have a focus on both business modernization as well as ICT to enable automation. This complex technical program relies on business relationships of mutual understanding and relies on mature business management skills (Coen et al., 2013). This level of coordination becomes even more complicated when attempting to implement a regional single window with numerous interoperability data exchange requirements. The regional single window concept at this point is experimental, so trying out an alternative business

process model on real customers paying real money for a real economic transaction provides the highest level of fidelity (Schaltegger et al., 2012). Furthermore, Kindström and Kowalkowski (2014), Trimi and Berbegal-Mirabent (2012), and Zott and Amit (2013) indicated a difference clearly exists between failure and mistakes and explained that the former is a natural outcome of the experimentation process and can be useful, whereas the latter are experiments too poorly designed to yield new learning. Although this appears to contradict logic, Kindström and Kowalkowski (2014), Trimi and Berbegal-Mirabent (2012), and Zott and Amit (2013) continue to believe that project failures are more valuable than mistakes. Even if the ASW regional project is unsuccessful, the effort should produce lessons learned to generate a viable business process model. The business process model must deliver value to customers, entice customers to pay for the value, and convert payments to profits based on captured value created from strategic changes and technical innovations (Arend, 2013; Solaimani & Bouwman, 2012; Teece, 2014; Trimi & Berbegal-Mirabent, 2012).

Figure 5 depicts an interpretation of a common business model. The figure illustrates steps to understanding what constitutes a business model and eventually leaves senior managers to envision how to manipulate the model to fit specific business requirements. Such innovation management requires agility to create a business model generation process with no guarantees of success, but it does provide a starting point. Eppler and Bresciani (2013) and Schneider and Spieth (2013) described using visual templates and sketches similar to the Osterwalder breakdown of a business model to prod managers to target business model innovation and development. Gassmann et al. (2014)

asserted that business model innovation is the most important aspect of achieving competitive advantage, superseding even the product itself or service innovation.

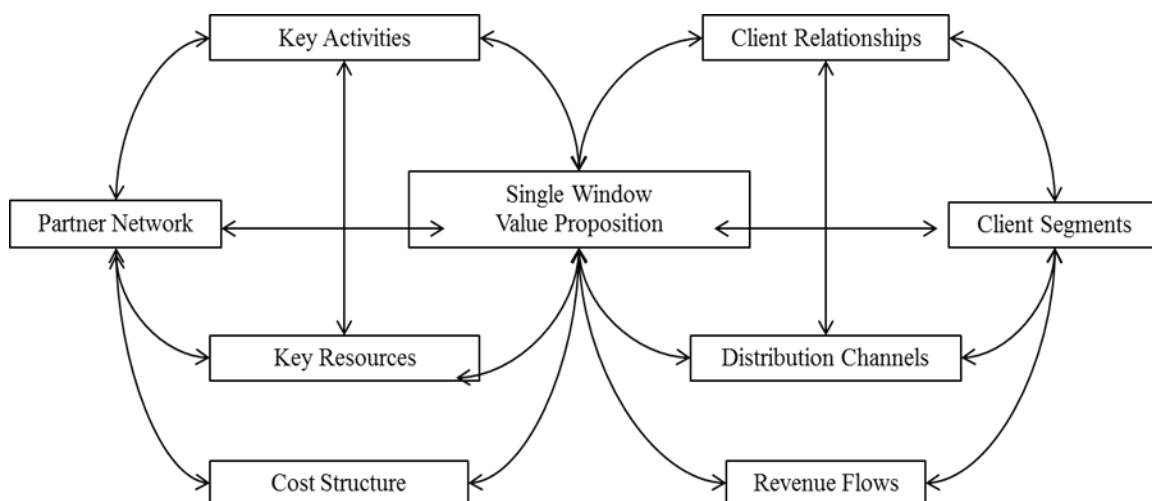


Figure 5. The Osterwalder nine-point breakdown of a business model (Osterwalder, 2004).

Investment in ICT networks is a critical determinant of logistics companies' competitiveness and growth (Tongzon & Nguyen, 2013). Information and communication technology enables service providers to achieve supply chain integration and efficiency in meeting the logistical needs of customers and international trade (Tongzon & Cheong, 2013; Tongzon & Nguyen, 2013). Though service providers widely understand that the single window conceptually plays a critical role in integrating regional logistics in Southeast Asia, there is remarkably little literature to conduct a comparative analysis or provide theoretical support (Tongzon & Cheong, 2013; Tongzon & Lee, 2015; Tongzon & Nguyen, 2013). Veit et al. (2014) mentioned that in the digitization of enterprises, perhaps the missing link to superior digital business models is their alignment using business information systems engineering to support electronic data

exchanges via the web portal, receive electronic payments, issue electronic permits for import and export activity, and inspect electronic manifests of cargo.

Business and ICT strategy alignment. A business and technological strategy alignment defines at which degree the ICT mission, including its objectives, plans, and operational support, is supportable by the business mission with its objectives and plans (Alotaibi, 2016; Aversano, Grasso, & Tortorella, 2013). The alignment requires synchronization, a solid platform for business strategy, ICT strategy, business infrastructure, and ICT infrastructure to integrate successfully (Aversano et al., 2013). The ASW takes into account two core principles adapted from Henderson and Venkatraman: (a) the alignment of business strategy and ICT strategy and (b) the systematic transformation of the predefined strategies into ICT solutions (Aversano et al., 2013; Balhareth & Liu, 2013; Henderson & Venkatraman, 1993). Figure 6 shows a map of these two-core alignment principles and demonstrates why senior corporate leaders insist on ICT managers being a part of developing corporate strategy (Tewari & Misra, 2013).

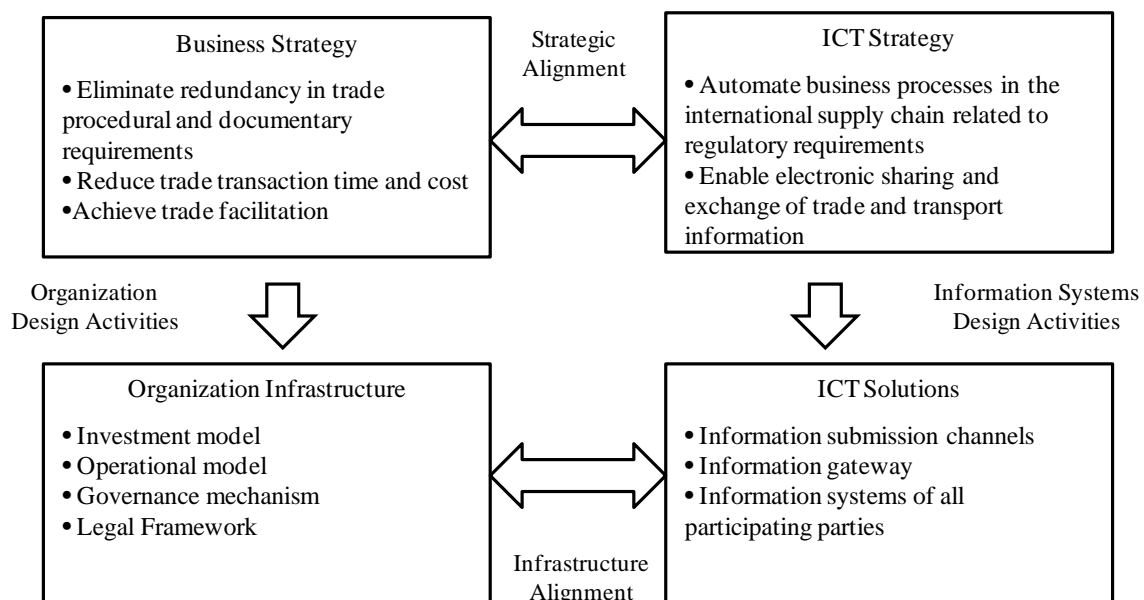
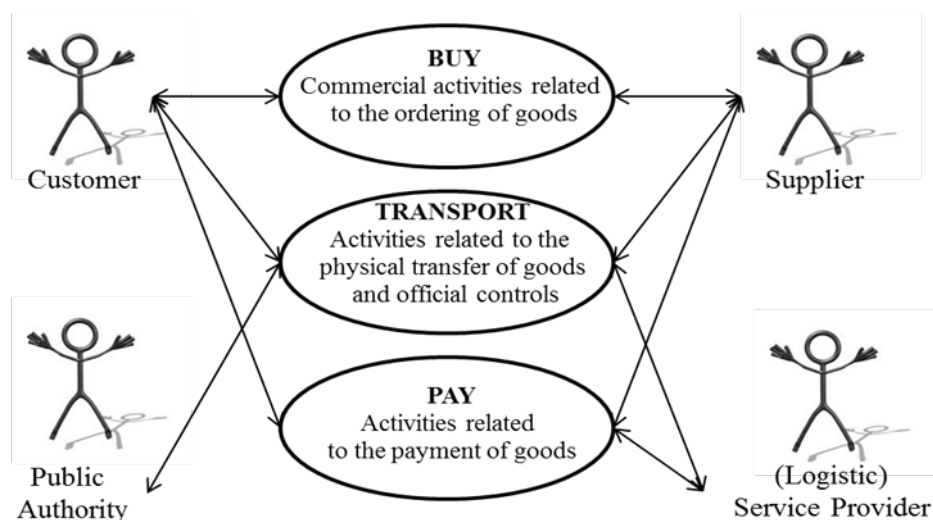


Figure 6. Alignment principles (Chew & Gottschalk, 2012; Henderson & Venkatraman, 1993; van Stijn et al., 2011).

E-solutions for trade facilitation emphasize the importance of strong business and ICT strategic alignment, as well as systematic transformation of the strategic vision into well-governed ICT solutions. Without the solid incorporation of these principles, the implementation of any single window endeavor is likely to face the risk of nonuse or failure to capture cost benefits and efficiencies, resulting in limited access to international markets. Such limitations potentially prevent the growth of business. Misalignment explains why, although ICT seems to create competitive advantage, modern enterprises often fail to gain the expected business value from it if not managed attentively (Mitropoulos, 2012; Valentine & Stewart, 2013; Venn & Berg, 2013; Verner & Abdullah, 2012). The alignment modeling issue requires meticulous work and is the first phase of analyzing strategy alignment. Demonstrating the complexity of this milestone, alignment of business and ICT strategies has included at least 90 peer-reviewed studies distributed

in 37 journals between 2003 and 2012 (Aversano et al., 2013), including the *International Journal of Project Management*.

Business strategy: Value creation and value capture. Bringing value creation and value capture together requires a clear understanding of what value means (Skilton, 2014). The primary function of aligning strategies in business is to capture value (Kerzner, 2013b). Capturing value is not simply a single phenomenon or method, but rather a multifaceted phenomenon defined and interpreted differently by different stakeholders (Austin & Seitanidi, 2012; Chew & Gottschalk, 2012; Heinonen et al., 2013; Skilton, 2014). From the vast array of business stakeholders, I looked at the stakeholders relevant to this study's subject: the ASW. Key stakeholders in the global supply chain business (see Figure 7) identify customers, suppliers, service providers, and public authorities. It was important to include public authorities such as customs authorities in the specific examination of the single window. Stakeholders in the global supply chain maintain different roles and responsibilities that demonstrate the different perspectives related to a regional single window system and environment. Creating and capturing value permits all stakeholders to focus on optimizing operational relationships in the interest of generating and maintaining long-term profits with operational efficiencies. Figure 7 serves as an overview of exchanges to create and capture value.



Commercial Procedures	Transport Procedures	Regulatory Procedures	Financial Procedures
<ul style="list-style-type: none"> • Establish Contracts • Order Goods • Advise on Delivery • Request Payment • Packing • Inspection • Certification • Accreditation • Warehousing 	<ul style="list-style-type: none"> • Establish Transport Contract • Collect, Transport, and Deliver Goods • Provide Waybills, Goods Receipts, Status Reports, etc... 	<ul style="list-style-type: none"> • Obtain import/export Licenses • Provide Customs Declarations • Provide Cargo Declarations • Clear Good for Export/Import 	<ul style="list-style-type: none"> • Provide Insurance • Provide Finance • Execute Payments • Issue Statements

Figure 7. An illustration of value creation and capture activities between the public and private sector of the single window value chain otherwise considered a value chain partnership (UNESCAP, 2013; van Stijn et al., 2011; Vellema, Ton, de Roo, & van Wijk, 2013).

The following key terms relative to value creation and value capture fully define components in Figure 7 and may be helpful to both lay and professional trade import and export industry readers. Customers, importers, and buyers are those to whom goods and services are sold, as clearly defined in the sales contract; they view value as value for money (Austin & Seitanidi, 2012; van Stijn et al., 2011). Suppliers, exporters, and sellers

are those who sell goods or services as stipulated in a sales contract; they see value as an exchange to gain value (Austin & Seitanidi, 2012; van Stijn et al., 2011).

Service providers serve as the key logistical link between sellers and buyers to make the transaction efficient and successful. Service providers have a host of possible services, such as providing commercial, financial, transshipment, localized transport temporary warehousing, all degrees of needed freight forwarding, customs brokering, and executing the details of bureaucratic express integrator services. Service providers are the essential carrier, expert in port documentation, terminal operations, inland container depot handling, insurance company demands and regulations, ICT value-added service provider details, and very familiar with relevant banks and financial institutions (Tongzon & Nguyen, 2013; van Stijn et al., 2011). Service providers' logistical services include all activities associated with the movement of products and information to, from, and between members of a supply chain (Tongzon & Nguyen, 2013; van Stijn et al., 2011). Information and communication technology is an important variable that fosters competitive advantage for logistic companies to achieve efficiencies and create value (Tongzon & Cheong, 2013; Tongzon & Nguyen, 2013; van Stijn et al., 2011). Service providers view value from their own vantage point and accept the function of serving the original network transaction of sellers and buyers, and those parties' independent profit interests, but act as a third intermediary stakeholder by seeking to profit by offering efficient, cost-effective, and expeditious logistical handling of the transaction contract with all its exigencies.

Public authorities of the exporting country, importing country, and country in transit, including authorized private inspection agencies, monitor goods crossing borders with methods and procedures that adhere to national and international law and to public interests. Public authorities view value in terms of optimizing operational relationships (Tongzon & Nguyen, 2013; van Stijn et al., 2011). Adopting fluid ICT networking may extend a competitive advantage to transport and logistical companies, and intermediary participants would profit in an era of intensifying business and trade globalization. Tongzon and Nguyen (2013) clarified that greater ICT adoption enhances increased sector factors and supply chain factors than by intraenterprise factors. Other findings regarding the real benefits of greater ICT use in sectors of the supply chain include error reductions, service quality improvement, customer satisfaction, and better integration in the supply chain (Savolainen, Ahonen, & Richardson, 2012; Tongzon & Nguyen, 2013; van Stijn et al., 2011).

Nguyen (2013) observed a positive relationship between electronic information exchange and business firm performance using econometric analysis of firm-level data. Using structural equation modeling based on survey data of first-tier suppliers to firms in the electronic industry, Nguyen and Tongzon (2012) noted that e-business had a positive and significant impact on supplier performance. The positive impact on firm performance is a result of three constructs: electronic data interchange capacity, information alignment, and relational alignment (Nguyen, 2013; Tongzon, 2012). All these factors constituted the activities of capturing value throughout the value chain for a single window business model. Though a business model is more generic than a business

strategy, coupling strategy with business model analysis must take place to protect competitive advantage and capture value resulting from a new business model design (Solaimani & Bouwman, 2012; Teece, 2014; Vellema et al., 2013).

Business process management and its critical success factors. Business process management (BPM) as related to the TOC covers a broad spectrum of tools and techniques to identify inefficient processes and outcomes in businesses to analyze and construct solutions to correct detected flow flaws and inefficiencies, often employing field-specific, specialized software to help in the solution determination. The goal behind BPM is to help company leaders realize optimal efficiency and optimal profit (Aparecida da Silva, Pelogia Martins Damian, & Dallavalle de Pádua, 2012; Dumas, La Rosa, Mendling, & Reijers, 2013; Pedersen, 2012; Rahman, 2012; Rand, 2013; Westerheim & Baalsrud Hauge, 2015). Business process management may refer to anything from purchasing cutting-edge ICT equipment to addressing employee–employer relations, bettering hiring and screening methods, or improving agile management systems (Anttila & Jussila, 2013; Dumas et al., 2013; Wong, 2013; Wong, Tseng, & Tan, 2013).

The scholarly experts presented in this literature review showed that the ASW project is not simply about overcoming and expediting the myriad details of customs clearance, but also noted the importance of employing the business management models that best serve and empower import, export, and transit transactions. Business process management has a lot to offer the ASW project, as it involves more than number crunching and efficiency measuring, including tools and solutions that are holistic to increase management efficiencies using data information systems to counter constantly

escalating costs due to inefficient formalities (Rahman, 2012; Rand, 2013). Business process management helps with overcoming border processing bureaucracy and paperwork that is responsible for almost one third of recorded import and export delays (Guo, 2015a, 2015b; Moisé, 2013; see Figure 8).

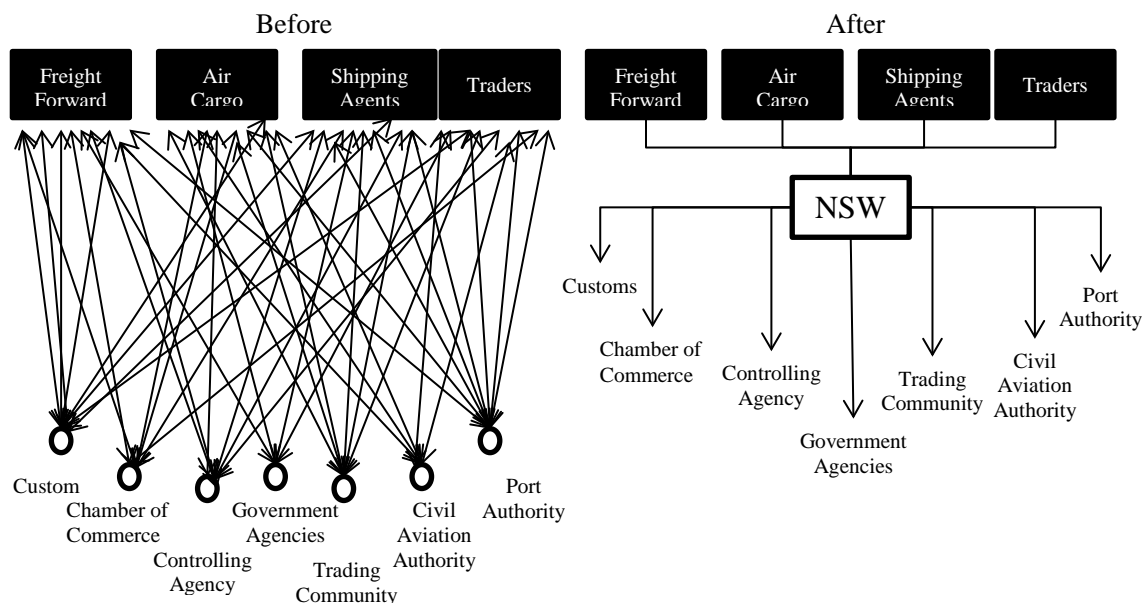


Figure 8. Sample efficiency of the single window process (CrimsonLogic, 2010).

Other management hurdles facing ASW stem from nonsynchronous modernization across organizations and nonuniform attempts to institute import and export reform concerning data distribution to overcome weakest link delays. Some of the recommended efficiencies that BPM studies include will require ASW managers to embrace change to increase import and export transit capacity and predictability in the form of enhanced outcome processes. The era of measuring successful trade solely by the volume of traded goods is over. Managers must add speed and efficiency to the

volume yardstick to measure success as they outgrow traditional output process mentalities.

As MNC organizational leaders establish the regional ASW network, outcome process analysis establishes and redesigns efficiencies, which allows BPM corporate managers to implement best operational trade practices and unified processes and thereby reduce delivery time and costs. Managers for single window trade procedures must collaborate with key stakeholders to develop common tools and guides for efficient and effective trade procedures to establish efficiencies. These tools and guides are relevant because the typical focus of BPM is on complex problems where there are no simple solutions and MNC organizational leaders can modify and implement these tools differently with the singular goal of establishing regional interoperability.

Dabaghkashani, Hajiheydari, and Haghighinasab (2012) offered a definition of BPM as an overarching strategy to support business processes using methods, techniques, and software to design, enact, control, and analyze operational processes involving human beings, organizations, applications, documents, and other sources of information. The strategy involves a continuous and flexible improvement process, and the process is similar to the work breakdown structure, but BPM uniquely includes bottleneck analysis through simulation study techniques. Another outcome of BPM is a reorganization of staff or outsourcing to acquire personnel with key technical skills or to develop new responsibilities, which may lead to PPPs that facilitate such requirements.

Using a task–technology fit concept, a fit between business environments, business processes, and ICT must exist (Škrinjar & Trkman, 2013). From this concept,

BPM is successful if it continuously meets predetermined goals, both with a single project scope and over a longer period. Sixty to 80% of BPM initiatives are unsuccessful (Škrinjar & Trkman, 2013). Because of such statistics, the drive to establish critical success factors (CSFs) has been the primary objective of numerous researchers. Škrinjar and Trkman (2013) identified the top CSFs for BPM as top management support, effective project management, project champions, communication and interdepartmental cooperation, and end-user training. Top management appears to be the most important. These CSFs are the strategies that ASEAN-6 leaders have adopted to launch their NSW projects, while leaders in Cambodia, Lao PDR, and Myanmar are still struggling to come to terms with these management strategies. Vietnam continues to progress beyond Cambodia, Lao PDR, and Myanmar, as Vietnam leaders embraces organizational and management change, although strategic barriers still exist concerning contextual conditions. Simply adopting certain business processes or approaches will not render the same success. This point illustrates the complexity of NSW project's potential for success or failure. A best-fit mentality tailored to align business strategy and technology is critical to ASW's business success (Lederer, Kurz, & Lembcke, 2014; Lederer, Schott, Huber, & Kurz, 2013; Röglinger, Pöppelbuß, & Becker, 2012; Yunis et al., 2012). Numerous businesses are unable to implement this proactive strategic alignment successfully. Škrinjar and Trkman (2013) noted the importance of top management's involvement and of the appointment of process owners as CSFs. These roles are critical, as there appears to be no direct correlation between money invested in ICT and improved organizational performance; top managers and process owners can fill this gap with

effective business process analysis and management. Another key reason for the failure to achieve proactive strategic alignment is the inability to embrace the end-to-end process where some efficiencies harm efforts in other areas of the single window process, which creates limited value and illustrates why designing reputable business process models is an art. Teece (2014) contended that managers must acquire a deep understanding of end states and become more skilled listeners and faster learners. Critical success factors are unique and can change over time, and the process evolves and requires constant vigilance while mapping key processes associated with the ASW project. Even the most sophisticated ICT employment with creative and technological innovation does not guarantee business success. New product development efforts must align with a business process model that defines their target market and captures value strategies (Arend, 2013; Solaimani & Bouwman, 2012; Teece, 2014; Trimi & Berbegal-Mirabent, 2012).

Risk analysis for ASW. Trade facilitation, according to ASEAN, refers to customs integration, establishing an ASW with uniform standards, and conformance. The primary concern in this study was ASW implementation according to relevant business models and strategy, creating and capturing value, understanding effective PPPs, and proactively managing supply chain risk. Leaders of MNCs must effectively execute the ASW implementation within key constraints. This project will benefit the public sector with numerous trade efficiencies and streamline customer interaction, while the private sector might gain imports and exports, transit predictability, significant cost savings, and long-term strategic business and political relationships. By implementing the operational management philosophy known as the TOC, leaders in the private sector

will manage business decisions related to analysis and conceptual design, partnership management, and project management of the ASW infrastructure development project to boost performance.

An area of concern for managing supply chain procedures is to plan and account for disruption in supply chain operations. Such risk management concerns concentrate on the issue of single points of failure, or weak links, in the supply distribution and information distribution process, as the focus of the entire ASW network is on ICT network advantages. Business strategies must include secondary and tertiary methods to mitigate and recover from unpredictable and catastrophic events. The basic intent is to not only attain competitive advantage but also maintain it through strategic forecasting and to construct a layering of capabilities that are cost effective. Revilla and Sáenz (2014) and Tazelaar and Snijders (2013) noted risk represents events with little probability of taking place but may occur abruptly, and these events may bring negative consequences to the supply chain process.

Osterwalder's 9-point breakdown of a business model, as seen in Figure 5, demonstrates the complexity of developing risk management strategies in support of the business strategy. This is especially true when emphasizing integration activities, which is a group process, instead of individual functions (Revilla & Sáenz, 2014; Tazelaar & Snijders, 2013). Activity integration is critical to maintaining competitive advantages in the case of ASW and should be a primary focal point for operational, financial, and information risk management success; the business and ICT strategy alignment is so

critical for businesses to comprehend due to its cause and effect relationship (Baden-Fuller & Haefliger, 2013; de Bakker, Boonstra, & Wortmann, 2012).

Executives developing risk strategies for single window operations must mitigate the risk of bottlenecks caused by single sourcing and multiple sources as a preventive measure. This effort will reduce inflexibility in the chain of integrated activities and processes, reduce volatility to the release of logistics, reduce the incapacity to support high levels of demand in a timely manner, and thus increase collaborative partnerships. These are just a few concerns regarding risk management.

The primary concerns regarding financial flow risk are exchange rate risk, price and cost risk, and financial practices risks (Revilla & Sáenz, 2014; Tazelaar & Snijders, 2013). From a business perspective, financial risks concerning exchange rates are vital because they significantly affect profit margins due to the mechanics of payments. Specialized single window companies such as CrimsonLogic, Dagang Net, and Crown Agent focus primarily on facilitating import and export transactions services, which in return receive online payments demonstrating how single windows overcome this issue. International online payments work as follows: the payee generally incurs the exchange rate variation and all payments convert to the target currency. Velocity and quantity of financial payments must be meticulous to take advantage of exchange rate fluctuations that are beneficial. Watching the exchange rates around the clock and exerting pressure to transact when the rate favors their interest looks to viewers like a game, but it is important to those involved. The timing, speed, and volume of payments are critical to

maintaining a stable cash flow, which adds stability to the project. There is no room for carelessness or nonvigilance in this area.

Information flow risk concerns the clear flow of information communication regarding operational transactions and financial transactions that makes information accuracy another critical concern. Inaccurate, tardy, or fuzzy information has a direct and adverse effect on prudent decision making in the single window process and naturally impedes success. Within the ASW project, excellent, secure alignment of business and ICT strategies is necessary to mitigate vulnerabilities, protect customer data, maintain confidence of proprietary design, and protect intellectual property. Service providers must constantly address confidential property securitization to maintain long-term trusting, positive partnerships (Kaiser, 2012). One specific mitigation method involves developing contingency planning for alternate courses of action when required (redundancy). Risk management is about robust planning and refining processes, and managers must remain vigilant for uncertainty and disruption.

Single window implementation framework. Specific emphasis in this review covered the value-based relationships referred to as public–private collaboration. This requires consideration in the single window business strategy, as benefits will equal the sum of this collaborative entirety (Kivleniece & Quelin, 2012; York, Sarasvathy, & Wicks, 2012). Collaboration across the ASW environment provides the opportunity to establish a significant regional economy of scale across Southeast Asia to create unprecedented performance metrics, customer service, and efficiencies based on common core processes. Outsourcing the highly technical, megascale infrastructure projects

needed is both prudent and effective, but also challenging. Barriers and obstacles will arise in shaping public–private relationships to meet each new scenario, which may include negotiating mutually beneficial contracts, effectively managing workforce issues, managing ongoing relationships, ensuring strong performance, and institutionalizing flexibility and innovation (Guo, 2015a, 2015b; Moisé, 2013). Specific risks include business continuity, data privacy, access to sensitive code, and economic espionage (Guo, 2015a, 2015b; Moisé, 2013).

A business process model must be more than just a logical way of doing business to be a source of competitive advantage; senior leaders must hone it to meet particular customer needs (Solaimani & Bouwman, 2012; Teece, 2014), and, although ASEAN-6 leaders have confronted this challenge, Cambodia, Lao People’s Democratic Republic, Myanmar, and Vietnam senior leaders are still confronting this challenge. Senior leaders in Cambodia, Lao PDR, Myanmar, and Vietnam have until 2018 to overcome numerous business strategies related to partnering with organizations capable of developing effective business models, aligning business and ICT strategies, and creating and capturing value in a single window trade environment. This section of the literature review is particularly relevant for these nations and the business leaders seeking such strategic opportunities. Because BPM is cyclical, it will continue to be significant for ASEAN-6 businesses as they complete the project management implementation phase in route to the operational and maintenance phases of cross-border BPM.

Finding an appropriate cost and investment model for creating respective NSW systems is worrisome for Cambodia, Lao PDR, Myanmar, and Vietnam. Deliberation is

ongoing and will continue to determine the ratio of cost-bearing between governments funding the project via foreign exchange reserves and national agencies managing the project or the private sector funding NSW projects via FDI or a hybrid form of PPP financial investment models. Public–private partnerships are successful in Malaysia and Singapore, while Cambodia, Lao PDR, Myanmar, and Vietnam senior leaders remain undecided and continue to explore financial and business model possibilities while conducting feasibility studies. These less prosperous ASEAN nations cannot afford a large financial error. With so many complex strategies, it is important to assess and thoroughly scrutinize all options before finalization.

Public–Private Partnerships

The strategy of public–private partnering for a successful ASW has already appeared in several sections in this literature review, but because it is a potential lynchpin of any successful ASW business process model, a fuller, more focused, and deeper presentation of PPPs is in order. Using PPPs is a potentially key implementation strategy to expedite ASEAN’s ASW infrastructure objectives, but due to the sheer magnitude of funds required, the final acceptance of the PPP approach rests with its proponents and financial analysts addressing and subduing concerns about its inherent risks (Hwang et al., 2013). Inherent risks are not unusual in business, however.

Inherent risks are also part of any big project funding approach, whether private, public, or a combined PPP. The large sum of money involved and the central question of ROI make a normal ASW discussion about the handling of risk factors special. Any ASW PPP risk-factor discussion can become contentious. With 10 nations involved and

private company names being potential partners, contentious discussion should not be strange or lead to concern about the proven PPP model or its viable application for the ASW project. The PPP model demands exacting scrutiny and balanced apportionment structures for both risk and reward. Iossa and Martimort (2012) noted both developed and developing economic officials have been increasing levels of delegation to the private sector to provide new and complex services in support of infrastructure development (Hoppe & Schmitz, 2013; UNESCAP, 2013). The Comprehensive Asia Development Plan prepared by the Economic Research Institute for ASEAN and East Asia (ERIA), based on international trade theory, included an analytical discussion of the economic logic of PPP in infrastructure development. The aim of this development plan is to contribute to coordinating, expediting, upgrading, and expanding subregional initiatives and promoting private participation (ERIA, 2013). The Comprehensive Asia Development Plan encourages PPP support in response to globalization and the need to be competitive via economic integration projects and to narrow economic development gaps in Southeast Asia.

Defining PPPs. Though finding a single commonly held definition of PPP is difficult, Bel, Brown, and Marques (2013), and Delmon (2010) and Koontz and Thomas (2012) and Trebilcock and Rosenstock (2015) defined PPPs to include a range of public-private interactions, such as long-term contractual relationships between public and private sector actors to share risk for the design, construction, and operation of infrastructure services. Mladenovic, Vajdic, Wündsche, and Temeljotov-Salaj (2013) explained that the main reasons for partnerships are the liability benefits of risk sharing

and the ability of the private sector to deliver, finance, maintain, and operate projects at lower costs than the public sector. Some consider this a vested business model where both parties commit to the success of the contracted partner.

Such agreements straightforwardly address risks, benefits, and the available resources of both the public and the private sectors, where the public can be a local, state, or federal government agency or authority (Jenkins, 2012, p. 49; National Council for Public–Private Partnerships, 2014; Sarmento & Renneboog, 2016; UNESCAP, 2013). The intent of PPPs is to provide greater efficiency, better access to capital, and improved compliance with government regulations (National Council for Public–Private Partnerships, 2014; Sarmento & Renneboog, 2016; UNESCAP, 2013). One alternative to pursuing PPPs is for leaders in the public (governmental) sector to implement increased tax subsidies in support of infrastructure projects, which would put an increased burden on that public sector’s private sector economy and citizenry. The privatization of government-owned-and-operated services or entities is common in both developing and developed countries as a means to implement infrastructure projects and increase operational efficiency (Vasigh & Howard, 2012). A key reason for private company participation in big infrastructure and service projects is greater efficiency, fueled by the degree of global competition and private financing that offers benefits if lenders have enough expertise to assess project risks (Hoppe & Schmitz, 2013; Iossa & Martimort, 2012; UNESCAP, 2013). Not every PPP may result in outcomes that are identical in nature or magnitude for each partner, but expectations of the formation of the partnership is the development of a mutually beneficial relationship with each other, thereby

justifying and garnering broader support for PPPs (Cruz & Marques, 2013; Jenkins, 2012).

Public–private partnerships are critical for any government aspiring to become, or practice as, an e-government, which is a government that communicates electronically via the Internet with its administration, government agencies, and citizens. Public–private partnerships invariably foster and facilitate collaboration as well as coordination and cooperation to operate within budget constraints while offering vital services. Numerous surveys highlight that governments routinely realize cost savings of 20–50% when the private sector provides services that support this practice (National Council for Public–Private Partnerships, 2014). This statistic, coupled with access to advanced technology, projects efficiency, while mitigating explicit and implicit liabilities to demonstrate value for money makes an excellent case for ASEAN leaders to use more PPPs in its ASW project (Chou & Pramudawardhani, 2015; Das & Yean, 2015; Hwang et al., 2013; UNESCAP, 2013).

Major PPP models explained. The main characteristic of a PPP, compared with the traditional business approach to providing new infrastructure projects or services, is that PPP agreements bundle investment and service provision in a single long-term contract (Engel, Fischer, & Galetovic, 2013). The concessionaire can manage and control the assets, usually in exchange for user fees, which are its compensation for the investment and other costs for the duration of the contract and can be as long as 20 or 30 years (Engel et al., 2013). Depending on the type of partnership formed when the contract becomes final, the project can, if agreed in the contract, revert to government

ownership (Engel et al., 2013). I will describe the various types of partnerships that exist and their respective qualities in this section. The purpose of describing the major PPP models is to clarify that while some PPP practitioners believe PPPs are overwhelmingly beneficial, critics caution that a PPP in practice can often veer off its of its own good fairness theory, which results in many contracts requiring renegotiation to rectify the vendors' advantages (Engel et al., 2013). Unforeseen issues arise, such as project timelines and schedules not adequately maintained or unexpected cost overruns that require subsidization of investments. Both of these examples illustrate the risk burden for the public sector and validate the concern that barriers still exist in creating optimal safety in risk-sharing contracts between public and private sectors.

Public-private partnerships exist in many configurations, yet most conform to a handful of well-tested flexible models designed to allow tailoring by their individual partners, circumstances, and applications. I provide explanations of the most well-known models that are in use globally. The first one explained is operations and maintenance. The public partner forms a contractual agreement with a private partner to operate and maintain a specific service in the operations and maintenance partnership. The public partner retains ownership and management of the public facility (Delmon, 2010; Jenkins, 2012, p. 53; National Council for Public-Private Partnerships, 2014; Trebilcock & Rosenstock, 2015; van der Geest & Núñez-Ferrer, 2012).

Another PPP model is operations, maintenance, and management. Under this form of partnership, the public partner maintains ownership of the public facility while the private sector partner acquires an additional duty of management (National Council

for Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). The operations, maintenance, and management model affords the private sector the ability to invest its own capital in the facility or project (National Council for Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). This option is of interest to the private sector for longer term partnerships, as it affords an opportunity to make extended ROIs.

A design-build (DB) partnership exists when the private partner provides both design and construction of a project for a public agency (National Council for Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). This type of partnership can reduce time, save money, provide stronger guarantees, and apportion additional project risk to the private sector (National Council for Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). These savings and efficiencies are in part due to the continuity of having the designer construct the project under a DB partnership.

Similar to the DB partnership, the design-build-maintain (DBM) partnership includes the responsibility of maintenance allocated to the private sector that helps minimize certain risks for the public sector (National Council for Public–Private Partnerships, 2014; Trebilcock & Rosenstock, 2015). The public sector maintains ownership and conducts the operations activities under this form of partnership. The private sector executes the DBM activities.

The design-build-operate (DBO) partnership is similar to the DB and DBM partnerships. The DBO method of contracting in this structure extends a separate and

sequential approach, which means that a single contract exists for the architectural design, a different contract exists for the construction, and another contract exists for the operations phase of the project (National Council for Public–private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). Though this partnership method is more complex due to the transition from each phase, it does efficiently incorporate the operations responsibility of the project, which the public partner typically handles for public projects. The DBO method extends an opportunity to the private sector to entice private funding for public projects, as this investment secures notably higher profit returns during operations. Another advantage of a DBO is that it consolidates control of these phases to the private sector, along with more risk.

The DBOM partnership model is an integrated partnership that combines the design and construction responsibilities of design-build procurements with operations and maintenance (National Council for Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). The consolidated procurement of each project component targets the private sector for services, while the public sector funds, finances, and retains ownership.

Differing from the DBOM model, design-build-finance-operate-maintain (DBFOM) partnerships are more tightly packaged. The private sector executes contracted tasks and services. Researchers at the National Council for Public–Private Partnerships (2014) noted one commonality that prevails in all DBFOM projects is that financing is partially or wholly by debt, which leverages revenue streams dedicated to the project. Upon completion of the project, users are assessed fees from the newly

developed service, such as a single window. Life cycle costing and valuation determines if future revenues will leverage against the funding mechanisms (bonds and grants) used during project development and construction (Jenkins, 2012, p. 55; National Council for Public–Private Partnerships, 2014).

Design-build-finance-operate-maintain-transfer is the same structure as the DBFOM approach, except that at the end of the contracted project, the public sector owns, that is, takes full transfer of, the final produced asset. This approach is popular worldwide and its structure makes it a viable contender for some of the AMSs to adopt.

The private partner in a build-operate-transfer (BOT) approach will build a facility to the specifications agreed to by the public agency, operate the facility for a specified time under a contract agreement, and then transfer the facility to the agency at the end of the specified period of time (National Council for Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015). This approach typically allows the private sector time to maintain control of the facility for an agreed upon time frame, therefore affording the investor the opportunity to acquire gains on the financial investment. After the maturation of the contractual agreement, the facility reverts to public control and then recontracts operations or maintains ownership (van der Geest & Núñez-Ferrer, 2012). The incentives to choose BOT concessions stem from a trade-off between the government financing the construction and the operation of the facility and the potential excessive use prices that the consumer may face during the concession period (Auriol & Picard, 2013). Governments must decide in the interest of

the public consumer whether to offset financing at the expense of other priorities or take on more risk at the expense of the public consumer.

The private sector in a build-own-operate approach executes the assembly and retains ownership of the facility without having to transfer ownership or any obligation by the public sector to assume title or purchase the facility. The public sector in this approach provides financial incentives for infrastructure development projects. The buy-build-operate partnership model is primarily for financing and revitalizing outdated public facilities to create a more modern and efficient private facility that can generate positive cash flow (National Council of Public–Private Partnerships, 2014; Sarmiento & Renneboog, 2016; Trebilcock & Rosenstock, 2015).

The various PPP models all refer to some form of concession, which is a grant by a government to a private-sector party to provide a service or to use an asset. According to French law, a concession gives a private party the right to use government-owned assets for their maintenance, operation, and management over a specified period (Delmon, 2010, p. 9; Trebilcock & Rosenstock, 2015; van der Geest & Núñez-Ferrer, 2012). Because there is no universal norm regarding the most appropriate approach to PPP, leaders of each country, sector, or project must conduct their own analysis; PPP is not normative (Delmon, 2010, p. 5; Trebilcock & Rosenstock, 2015; van der Geest & Núñez-Ferrer, 2012). The PPP deliverer of infrastructure services is the project company, operator, or the concessionaire. It is easily surmised from the numerous PPP models mentioned, and others not mentioned such as a private finance initiative (PFI), private concession, and privatization, that a common misunderstanding exists among

those external to the PPP process and some internal to the PPP process (Delmon, 2010; Trebilcock & Rosenstock, 2015; van der Geest & Núñez-Ferrer, 2012). The misunderstanding is also evident in terminology discussions on whether to consider partnerships as a lease, affermage, or contract, which causes another constraint to PPP. The PPP spectrum of various models that exist is in Figure 9.

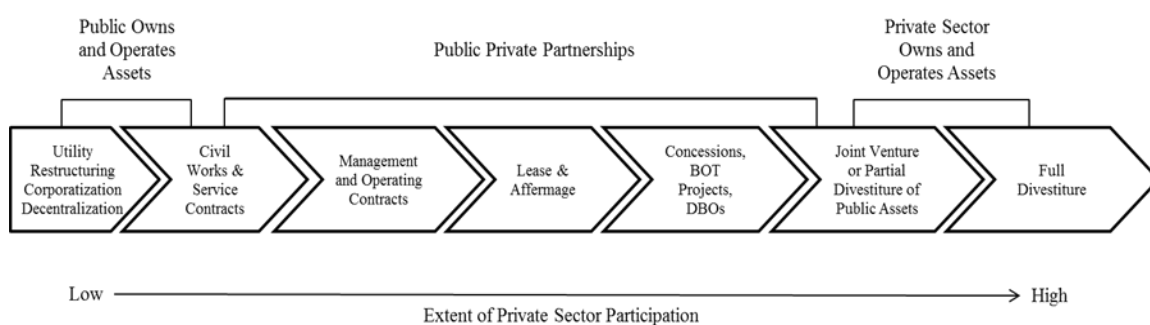


Figure 9. The PPP spectrum (Delmon, 2010, p. 14).

Based on the study and these outlines of the various PPP models, I generated interview questions to visualize and understand what factors influenced the decision to implement a specific PPP model in the countries involved; for example, DBOM, operate-maintain-manage, or BOT for the ASW project? I created other key questions to develop a greater understanding of what appeared to be the preferred method of partnerships to achieve ASW objectives and which partnership has best mitigated risks for the private and public sectors. Additional critical questions sought to target what risks required special attention during the formation of PPPs across the AMS considering the various economic, technical, financial, and political disparities that exist. I generated six interview questions based on the discussion of different types of PPPs and their relevancy.

Challenges and value of PPP. This section includes the challenges and value of PPPs in support of infrastructure provision and finance in Southeast Asia from the perspective of various entities. Essential features of regulatory and legal frameworks are necessary, which include contractual safeguards for accountability frameworks to attain the optimal value of PPPs (Ismail & Azzahra Haris, 2014a, 2014b; Kurniawan, Ogunlana, & Motawa, 2014). It is vital for a successful PPP to have well-defined and effective procurement and financing strategies in place, which includes oversight and regulatory frameworks that identify roles and responsibilities for both public and private partners to reduce pitfalls, protect public sector interests, and uphold the integrity of public service (Ismail et al., 2014a, 2014b).

The annotated lessons from PPP infrastructure development projects in countries such as Malaysia and Thailand are numerous. One lesson is to view the long-term scenario as clearly as the short-term scenario, especially concerning investment return and safeguards. Public–private partnership projects in these two ASEAN nations suffered mainly because of the lack of adequate guarantees for the long-term investment return, the always fragile impact of political intervention from the public sector, and mitigating economic risks (Ismail & Azzahra Haris, 2014a, 2014b). Such failures occur when public-held facilities transfer to private entities, which in turn modifies pricing structures to recover investment costs and establish a revenue stream. Mitigating such pricing dilemmas and the aforementioned unforeseen scenarios after projects commence may require more risk provisions from the public side, such as financial guarantees for

the private sector to offset maintaining common acceptable pricing and avoiding customer discontent in the public sector.

Greater regulatory risk-prevention safeguards, protocols, and frameworks must be in place to continue attracting FDI and PFI (Kurniawan et al., 2014). Had more of these safeguard frameworks been in place, the tragic financial setbacks suffered by the transport sector of Bangkok, Thailand, could have been much smaller. Political upheavals and regulatory conflicts in this case exploded and abruptly stopped completion of the mega-BOT project expansion for the Bangkok Transit System Sky-train and the Mass Rapid Transit. The financial toll was enormous.

The infrastructure services needed by developing countries to support economic activities are those related to transportation, energy, water, and telecommunications (UNESCAP, 2013). Many of these countries cannot afford the high cost of major infrastructure development without PPPs. Public-private partnerships offer project affordability but also track-record-proven improvement in program performance, cost efficiencies, better service provision, and appropriate allocation of risks and accountabilities in the field of designing, constructing, operating, maintaining, and financing infrastructure development through leasing contracts, concessions, and divestitures (Engel et al., 2013; Koontz & Thomas, 2012). The essential ingredients for PPP success are a consistent and dependable regulatory environment, investment protection, contractual safeguards, and a comprehensive accountability framework. Where ASEAN countries are currently embracing these strategies, PPPs are providing critical infrastructure development. Senior leaders at ERIA broadly describe PPPs as

various schemes that use investment from private sectors. However, ASEAN considered cooperating with public sectors in economic infrastructure projects solely the public sector's responsibility until the 1970s. Such partnerships dramatically demonstrate the long-term acceptance of PPPs and the welcoming period they have had to refine and evolve (UNESCAP, 2013), especially in regional projects where currency fluctuation is a significant risk to investors.

Several Southeast Asian officials have attracted FDI and PFI by centralizing PPP project access. The Filipino officials are accommodating PPPs with a Public–Private Partnership Center, and Malaysian officials have implemented the Public–Private Partnership Unit or Unit Kerjasama Awan Swasta to extend PPP project information within their specific countries (ERIA, 2013). This management technique provides private investors the opportunity to execute risk analysis on prospective infrastructure projects, thereby transferring risk from the public to the private sector.

Independent PPP observers, as well as the Malaysian public, have shown concern about PPPs not adequately protecting public interests against opposing business interests, thereby eroding public confidence (Ismail & Azzahra Haris, 2014a, 2014b). Problems have centered on policy and implementation, as well as corruption, questionable supervision, and unreliable access to investment capital. Malaysia attempted to address these fears by creating the Ninth Malaysia Plan (2006-2010) that introduced the concept of PFI as the main PPP model for the future (Ismail & Azzahra Haris, 2014a, 2014b). A PFI is a cooperative venture for the provision of infrastructure or services built with the expertise of private partners while meeting the needs of the public sector through

optimum allocation of resources, risks, and rewards, allowing Malaysia to endorse PPP as the preferred model for financing infrastructure projects (Ismail & Azzahra Haris, 2014a, 2014b). Thus, the public sector provides a significant share of project funding or payments to the private sector for services rendered to the public for the entire period of contracted construction and operations services (Ismail & Azzahra Haris, 2014a, 2014b; UNESCAP, 2013). The Ninth Malaysia Plan addressed the hazards of overlooking public interest while implementing PPP models in Malaysia. New guidelines under the Ninth Malaysia Plan specifically align private sector revenue with quality of service managed by fixed-term contracts to mitigate abuse (Ismail & Azzahra Haris, 2014a, 2014b). Another key concern with PPPs is that the private sector often requires financial assistance from the public partner to make such partnerships successful, which reinforces public skepticism (Ismail & Azzahra Haris, 2014a, 2014b). Government bailouts, usually in the form of emergency funding for the private side of a PPP, highlight the notion that PPP profits favor the private sector rather than the public sector (Ismail & Azzahra Haris, 2014a, 2014b). The adoption and declaration of PPP models supported by a sovereign nation provides legitimacy for these models, including operations and maintenance, PFI, BOT, build-own-operate, and build-own-operate-transfer and the technical and innovative approach these models provide to public infrastructure development. Governments use PPPs to construct beneficial infrastructures and services for the public out of the opportunities they offer for increased efficiency and value-added services (Ismail & Azzahra Haris, 2014a, 2014b).

After Indonesia received an investment grade of BBB from Fitch Ratings in December 2011 and a BBB3 from Moody's Investor Service in January 2012, coupled with Indonesia's economic growth of 6.23% in 2012, foreign investors expressed high interest as Indonesia approached investment-grade rating (Coordinating Ministry of Economic Affairs [CMEA], 2010; ERIA, 2013). Wanting to maintain economic growth, Indonesia is looking to address infrastructure development to grow the economy, and PPP are likely to be one of the main means of bridging the cost gap between government funding capacity and infrastructure financing demands (CMEA, 2010; ERIA, 2013). According to Indonesia's own governmental assessment, the gap between the funds required to implement its needed infrastructure projects through 2014 and the government's budget for these projects was US\$104 billion (CMEA, 2010). The goal was to secure new PPPs to fund and bridge this gap.

Unlike Malaysia and the Philippines, Indonesia does not have an efficient central organization or agency dedicated to the generation and management of the intricate machinations of PPPs, which makes the process of handling PPPs in support of national infrastructure projects more difficult. The National Development Planning Agency of Indonesia promotes and publishes a significant and useful annual book on PPP projects categorized as potential projects, priority projects, and ready-for-offer projects (ERIA, 2013). The Indonesian PPP book listed 58 PPP projects in 2012 with an estimated cost of US\$51 billion (ERIA, 2013). Indonesia has received regional praise for decisive efforts to protect against PPP risks. The Indonesian Infrastructure Guarantee Fund provides actual guarantees for financial obligations for PPP contracts to mitigate contractual risks,

including breach of contract by the government contracting agency and changes in laws and regulations (CMEA, 2010; ERIA, 2013) as new public–private partnerships are established.

One of the showcase success PPP projects in Indonesia, the Central Java 2 x 1,000 Mega Watt Power Plant project, sponsored by J-Power Ltd, Itochu Corporation, and PT Adaro Energy, is the first PPP project guaranteed by the Indonesian Infrastructure Guarantee Fund (CMEA, 2010; ERIA, 2013). This guarantee is a result of the Ministry of Finance recently enacting Regulation No. 223 of 2012; Fiscal Support for Construction Cost in Public–Private Partnership Projects, which prescribes a viability gap fund to raise the financial viability of PPP projects (CMEA, 2010; ERIA, 2013). The viability gap fund is in the form of cash to PPP projects as a part of construction costs (CMEA, 2010; ERIA, 2013). Projects must be economically, financially, technically, and environmentally viable; comply with sector regulations; and have a binding arbitration clause in the PPP agreement to qualify for Indonesian Infrastructure Guarantee Fund guarantees.

Despite the complexity and associated risks of PPPs, they will continue. The magnitude of government policies, bills, and federal regulations affecting cooperative projects between government and the private business sector attests to Indonesia's preference for risk transference. Indonesian leaders are diligently working to mitigate risks to better and more confidently use the PPP approach, with increased focus on leveling the playing field and instituting greater transparency for infrastructure development (CMEA, 2010).

Among the CLMV nations of ASEAN, Vietnam has perhaps the most promising economic future. Vietnam publicly voices its goal to establish itself as a categorically industrialized nation by 2020. According to the Ministry of Planning and Investment, the estimated necessary capital for infrastructure construction in Vietnam by 2020 is US\$400 billion, of which half will be from the private sector (ERIA, 2013). The prime minister of Vietnam issued the first, and historic, regulation to define PPP schemes in Decision 71 in 2011, characterizing them cogently as co-investments by public and private sectors to secure private sector funds for infrastructure development (ERIA, 2013), which was in addition to the regulatory framework for BOT contracts. Under this provision, the Vietnamese government can support up to 49% of BOT projects but only 30% of capital investments for PPP projects that do not transfer ownership to the public (ERIA, 2013).

Progressing from the trial PPP project involving TradeNet in 1989 to the formalized acceptance of PPP, which was introduced to Singapore in 2003, the Singaporean Ministry of Finance published its first PPP handbook that provides the public and private sector with guidelines for successfully structuring and managing PPP projects in Singapore in 2004 (Hwang et al., 2013). Since the issuance of this handbook, Singapore has completed 10 out of 13 PPP projects identifying CSFs for PPP management that provides lessons learned for other AMSs and their respective NSW projects (Hwang et al., 2013). To identify the most crucial CSFs for PPPs in Singapore, Hwang et al. (2013) conducted a questionnaire using a 5-point Likert-type scale where 1 = *least important* and 5 = *most important*. The findings based on qualified participants registered under the Ministry of National Development in Singapore appear in Table 2.

Although a *well-organized public agency* was ranked first and *share authority between public and private sector* was last, those tasked with using the results clearly perceived all these factors as being important, and though some factors won fewer marks than others, none of them warrant a perception of not being important.

Table 2

Critical Success Factors for Public–Private Partnerships in Singapore

Critical success factor	Rank
Well-organized public agency	1
Appropriate risk allocation and sharing	2
Strong private consortium	3
Transparency in procurement process	4
Clear defined roles and responsibilities	5
Clarification of contract documents	6
Favorable legal framework	7
Share authority between public and private sector	8

Note. Source: Hwang et al. (2013).

The analysis first revealed that PPP practitioners recognized a well-organized public agency as the most important CSF for PPP projects (Hwang et al., 2013). The finding recognizes that management efficiency, as well as professional expertise and competency, are necessary for the public sector to partner with the private sector. In Malaysia, a well-organized public agency would answer critics' specific concerns that leaders of PPPs need to protect public interest proactively and adequately against opposing business interests (Ismail & Azzahra Haris, 2014a, 2014b). The Ninth Malaysia Plan must not only implement its PFI concept but also dynamically organize itself to improve management oversight, improve partnership regulations and accountability, and make serious efforts to stop corruption, among many other steps

needed to create a strong public perception that a fair balance exists between public and private stakeholder interests in PPPs.

Hwang et al. (2013) determined that in Singapore, the party best able to manage the risk should take responsibility for the appropriate risk. Similarly, Wibowo et al. (2012) found that appropriate risk allocation was critical to successful PPP projects in general, which reinforces the idea that many of the CSFs for PPP projects may be relevant for other AMSs and the global community. Both common and geographically specific factors and risks affect PPP projects, regardless of location (Hwang et al., 2013).

Research clearly reveals that ASEAN national representatives are embracing PPP models for infrastructure development, including financial guarantees and participatory funding to attract foreign investors. Simply relieving governments from being the sole entity to fund infrastructure development is not the primary rationale to embrace PPPs. Because risks associated with any large-scale infrastructure project or service exist, adopting the PPP model is cautiously smart to share risks where strengths, experiences, resources, and skills can align to provide amenable risk allocation. Although no single PPP model can satisfy all conditions, the PPP model of risk-sharing, management, and skills coalescence illustrates why PPPs have gained popularity as an approach to sustaining economic growth and infrastructure development. Not only do PPPs align key attributes, but they also abate fiscal constraints that the majority of global economies experience by providing fair, negotiated contractual flexibility (UNESCAP, 2013). Every source on the ASW project notes that the increasing acceptance and successful use

of PPPs in ASEAN nations better equips them with PPP experience to engage this model for the ASW project.

Government-linked corporations and state-owned enterprises. Complicating the PPP model are the partially privatized corporations otherwise referred to as government-linked corporations (GLCs) or state-owned enterprises where the government plays the roles of regulator and shareholder, which can lead to a conflict of interest (Sam, 2010). Mitigating such possible conflicts of interest by setting up state-owned holding companies is a means to demarcate the government's role as regulator and shareholder (Sam, 2010). In the case of Singapore, Temasek Holdings Limited of Singapore represents the Singaporean state-owned holding company (Sam, 2010). The CSF of Temasek is the willingness of the Singaporean government to separate its role as a regulator and a shareholder, with Temasek assuming the latter responsibility (Sam, 2010). Temasek Holdings Limited, the Singaporean state-owned holding company, was established on June 15, 1974, and began with an initial portfolio of S\$354 million, which grew to a portfolio worth over S\$215 billion (about US\$167 billion) in 2013 (Chen, 2013; Hede, Nunes, & Ferreira, 2014).

From researching this issue of partially privatized enterprises, CrimsonLogic of Singapore and Dagang Net of Malaysia appear to be partially SOEs, which differentiates them as a hybrid of sorts compared to purely private enterprises or corporations. Nonetheless, managers of partially privatized enterprises must still cater to profitability, economic goals, and commercial objectives (Sam, 2010). Some believe that this issue puts purely private enterprises at a disadvantage when competing for PPPs, as state-

owned holding companies may be willing to take on more risk or extend higher levels of investment (Sam, 2010).

PPP comparative analysis. In the critical task of researching PPPs within the context of ASEAN's ASW, numerous issues exist, starting with a consensual, conceptual definition of a PPP, a cursory explanation of the most common PPP models, and the challenges and value of PPPs vis-à-vis ASEAN nations. Although Hwang et al. (2013) identified the primary CSFs for Singapore's use of the PPP model in a published questionnaire, several other important factors are relevant in other Southeast Asian nations in the determined effort to implement a transregional single window infrastructure. In this section, I examine the foremost factors that influence the successful use of PPPs to develop a conceptual understanding that provides needed comparison of the overt and subtle factors operating with a functioning PPP model.

An important first step in a comparative analysis relative to PPPs is to identify the operative and inferential business structure and characteristics practiced and exhibited by the partnership. The strengths of a PPP are those characteristics that give it an advantage within the specific infrastructure development sector or project it serves (Jenkins, 2012; Siemiatycki & Farooqi, 2012). The public sector of a PPP solidifies success from any benefit gained by its private partner's collaboration, including the potential to cement a long-term partnership based on positive relationships. The foremost potential strength of the PPP model is its propensity to produce a superior project faster and with less governmental expense than through traditional federal and state contracting and financing methods (Jenkins, 2012; Siemiatycki & Farooqi, 2012). Another strength of using PPPs

is the underlying framework, which targets long-term value for money that represents an appropriate risk transfer to the private sector over the life of the project. Critical in establishing a single window infrastructure, PPPs provide a platform to introduce private sector technology and innovation that provide better public services through improved efficiency (Müller & Jugdev, 2012; Sarmiento & Renneboog, 2016). The cumulative benefit of these strengths are diversification in the economy by making the country more competitive in terms of its facilitating infrastructure base and boosting its business and industry associated with infrastructure development, such as construction, automation networks, and support services (Müller & Jugdev, 2012; Sarmiento & Renneboog, 2016).

The potential weaknesses of a PPP are the characteristics that place it at a disadvantage relative to other possible business approaches (Jenkins, 2012; Müller & Jugdev, 2012; Sarmiento & Renneboog, 2016). Theoretically, a PPP exists to minimize, or avert, the bureaucratic encumbrances of the backlog waiting times that cause slow responses and delayed forward movement. This is frequently the problem in most public or governmental agencies (Jenkins, 2012). Another observed limitation that potentially impedes the performance of a PPP is a public partner that insists on maintaining the conventional top-down decision-making approach, which can lead to poor accountability and even political impasse (Ng, Wong, & Wong, 2013). Demonstrative all-party collaboration and interaction coupled with identifying roles and responsibilities have been the most effective approach to establishing successful PPPs. There is a cost associated with accrued debt. While the private sector can make it easier to secure needed additional financing, it will only be available when the operating cash flows of

the project company, the PPP, are expected to provide an ROI, as either the customers or the government must bear the cost through subsidies, for example (World Bank, 2013a). Furthermore, government responsibility is always in the limelight, as citizens will continue to hold government accountable for the quality and utility of new services (World Bank, 2013a).

Among the attractive opportunities that PPP models offer is the primary opportunity to yield higher sales and increased profits within its business market environment (Jenkins, 2012; Müller & Jugdev, 2012). In the case of infrastructure development, the private partner is the primary beneficiary, as it collects revenue for infrastructure services. The public partner tends to benefit from the opportunity-driven business ventures the private partner takes advantage of, which increases the private partner's sales, market share, and profits (Jenkins, 2012, p. 61). Most important, a clear legal and regulatory framework is crucial to achieving a sustainable solution (Müller & Jugdev, 2012).

Threats to the PPP's stability and success can arise when the private sector assumes the substantial financial, technical, and operational risk in the project. A strengths, weaknesses, opportunities, and threats (SWOT) analysis provides information that is useful in illustrating the harmonizing capacity of PPPs to harness the capabilities and resources instrumental for the long-term formulation of new PPPs (Jenkins, 2012). Private-public partnerships, like any business venture, involve risk. The longer the period and complexity of a project, the more challenging it becomes to foresee and eliminate risk. Project longevity and complexity make it increasingly difficult to identify

all possible unforeseen contingencies during project development. Unexpected events and issues may arise that are unaccounted for in the initial planning and creation of associated legal documents or by the parties at the time of the contract (Müller & Jugdev, 2012). The parties will likely need to renegotiate the contract to accommodate these contingencies. It is also possible that some of the projects may fail or the parties may terminate them prior to the projected term of the project. For a host of reasons including changes in government policy, project failure by the private operator or the government to perform the contractual obligations or due to external circumstances such as force majeure are possible (Müller & Jugdev, 2012; Verner & Abdullah, 2012). While highlighting some of these issues in the initial PPP agreement, it is likely that some will need managing during the course of the project (Müller & Jugdev, 2012; Sarmiento & Renneboog, 2016).

Most of the PPP's strengths, weaknesses, opportunities, and threats are well known and well analyzed. Statistically, PPP projects still suffer from a below-par success rate. Although the 39% project success ratings are due to numerous economic and management issues, Southeast Asian senior leaders are embracing the PPP concept as a creative method to facilitate the single window concept. However, PPP usage still lacks sufficient regulatory, contractual, and financial experience to achieve greater accomplishment. For these reasons, PPPs will remain a barrier until Southeast Asia can establish and share milestones of achievements across the regional public and private partners, thereby creating a functional business strategy.

PPP social framework. Network theory provides a powerful tool for the representation and analysis of complex PPP structures and their interacting stakeholders (Chou & Pramudawardhani, 2015; Das & Yean, 2015; Hwang et al., 2013). The significance of using the network theory on a PPP structure is evident. The theory helps to (a) identify the most important stakeholder in a PPP structure, (b) recognize systematically which stakeholders are participating in a specific agreement, (c) classify the number of stakeholders involved in an agreement, and (d) analyze structural constraints and opportunities stakeholders face in the PPP structure (Chou & Pramudawardhani, 2015; Das & Yean, 2015; Hwang et al., 2013).

From literary research focusing on collaboration and consideration of the public's concerns, using the network theory can contribute significantly to an in-depth analysis of the relationships of participating partners established through contractual agreements between financiers, government, contractors, operators, and customers (Chou & Pramudawardhani, 2015; Das & Yean, 2015; Hwang et al., 2013). Additional activities such as raising funds, linking various participants legally and financially, ensuring supply, and producing and marketing products depend on well-established financial and legal structures of PPP (Chou & Pramudawardhani, 2015; Das & Yean, 2015; Hwang et al., 2013). According to network theory, Chou and Pramudawardhani (2015), Das and Yean (2015), and Hwang et al. (2013) noted business partners can attempt to identify the factors relevant to identifying the best PPP approach, the key stakeholders, and the roles of the participating partners, thereby establishing a clear analysis of relationships between partners.

Studying PPPs from the perspective of relationship management (RM), Zou, Kumaraswamy, Chung, and Wong (2014) contended that the longer the PPP contract period is, the higher the chance major changes will occur. A greater reliance on strong and trustworthy relationships is necessary to maintain the contractual bond in PPP projects (Zou et al., 2014). Furthermore, Zou et al. defined RM as a set of comprehensive strategies and processes of partnering with selected counterparties, and project stakeholders, to create superior value for the PPP through developing sustainable relationships. Zou et al. identified the top four CSFs for RM as commitment of senior executives, clearly defining the objectives, integration of the different divisions, and establishing a multidisciplinary team. To incorporate these top four CSFs for RM according to Zou et al. (2014), PPPs must embed collaborative and interactive relationships in every aspect of the business, through policy, process, and systems. Being able to analyze, evaluate, improve, and sustain the quality of the partnerships they develop is important.

However direct the RM concept may appear, indications from the Zou et al. (2014) questionnaire indicated that industry practitioners demonstrate a lack of general understanding of concepts and applications related to RM. Increasing the difficulty of overcoming this barrier is the complexity of obtaining commitment from senior management in support of RM. The basis of this point of view is survey results that showed only about 25% of respondents thoroughly understood and were familiar with RM (Zou et al., 2014). About 30% of respondents were familiar with RM (Zou et al., 2014). The rest lacked a general understanding about applying RM (Zou et al., 2014).

Due to this lack of conceptual and applied understanding, less than 10% of respondents felt the leaders of their organization had established reliable procedures for RM (Zou et al., 2014). This misaligned conceptual understanding of RM is a serious weakness. A greater understanding of RM by program directors and organizational leaders is potentially a key to overcoming the Standish Group's (2012) finding that ICT infrastructure project completion rates have yet to surpass 39% since 2004.

Ng, Wong, and Wong (2013) described PPP as requiring a fourth dimension that incorporates social input from the people in addition to governmental structured input. This approach provides critical input otherwise overlooked and specifically addresses independent PPP observers as well as previously mentioned general Malaysian public concerns about PPPs not adequately protecting public interest against opposing business interest, thereby eroding public confidence (Ismail & Azzahra Haris, 2014a, 2014b; Ng et al., 2013). A public-private and people partnership (P4) represents more embracing, transparent engagement with full partnership across this relationship to ensure P4 deliberate all critical issues and to ensure the decisions made have strong support from the community (Ng et al., 2013). Such a public engagement framework must typically afford the public the opportunity to have input and participate in the decision-making process to mitigate citizen concerns, thereby creating a paradigm shift to reduce unilateral decisions (Ng et al., 2013). Community support can go a long way to push forward a PPP. Ignoring the community's feelings, concerns, and wishes to engage in the process can lead to the downfall of the most well intentioned, well-planned PPP. Community input and transparency are increasingly the hallmarks of wise PPP strategy.

Public–private partnerships need better methodology for improved infrastructure and service delivery (Zhang & Chen, 2013). A hybrid of networking theory, RM, and a P4 framework are all aspects of the systemic PPP social framework process, which attempts to overcome substantial controversy, criticism, and conflict over PPPs to deliver quality infrastructure development (Ng et al., 2013). One conclusion that may come from these three articles is that with a much more perceptive and informed public, the most attractive PPP is a collaborative partnership between the public, private, and community voice sector to garner open public support and ensure the public’s perspectives receive consideration. This newer P4 approach is ideal for infrastructure development projects that affect large populations and optimally catalyzes higher project completion and success rates. This can involve consolidating knowledge and experience from local experts, thereby allowing a P4 process framework to embrace a bottom-up participative strategy, in contrast to the conventional top-down approach, for each PPP stage and making public participation clearly visible and beneficial to all stakeholders (Ng et al., 2013). The P4 concept is a paradigm shift from traditional PPP strategies, which establishes a process framework that demands further research to overcome current PPP barriers to success. The focus of the next section is on literature that addresses project management and its inherent challenges related to infrastructure development.

Project Management

The purpose of this qualitative case study was to explore what strategies MNC organizational leaders use to implement ASEAN partnership contracts to complete ASW region-wide projects. The expansive digest of peer-reviewed literature on business

strategies consensually sheds light and context on the problem statement and indicated that, despite well-recognized and used advancements, refinements and sophistication in project management models, processes, tools, and techniques, actual project successes have not consequentially improved to the degree expected (Mir & Pinnington, 2014; Whitney & Daniels, 2013). Using detailed data regarding the purported efficacy and value of improved project management and project management tools and techniques, Mir and Pinnington (2014) developed a survey to examine multidimensional frameworks to measure project management performance and contributing factors to project success. Mir and Pinnington (2014) discovered that the correlation between project management performance and project success is hard to model, as it involves a disparate array of constructs, further challenged by insufficient accuracy and detail that lead to fragmented and incomplete findings (Fulford, 2013; Mir & Pinnington, 2014; Yüksel, 2012). Mir and Pinnington (2014) indicated that diagnosing project-to-project scenarios to measure success is very difficult when viewed from project managers' and stakeholders' varying perspectives. In an attempt to understand project management performance and success, Mir and Pinnington (2014) noted that project management success and performance are distinct yet interrelated concepts. The project management performance assessment model in Figure 10 consists of five enablers and key performance indicators (KPIs), which illustrates this interrelational concept (Mir & Pinnington, 2014).

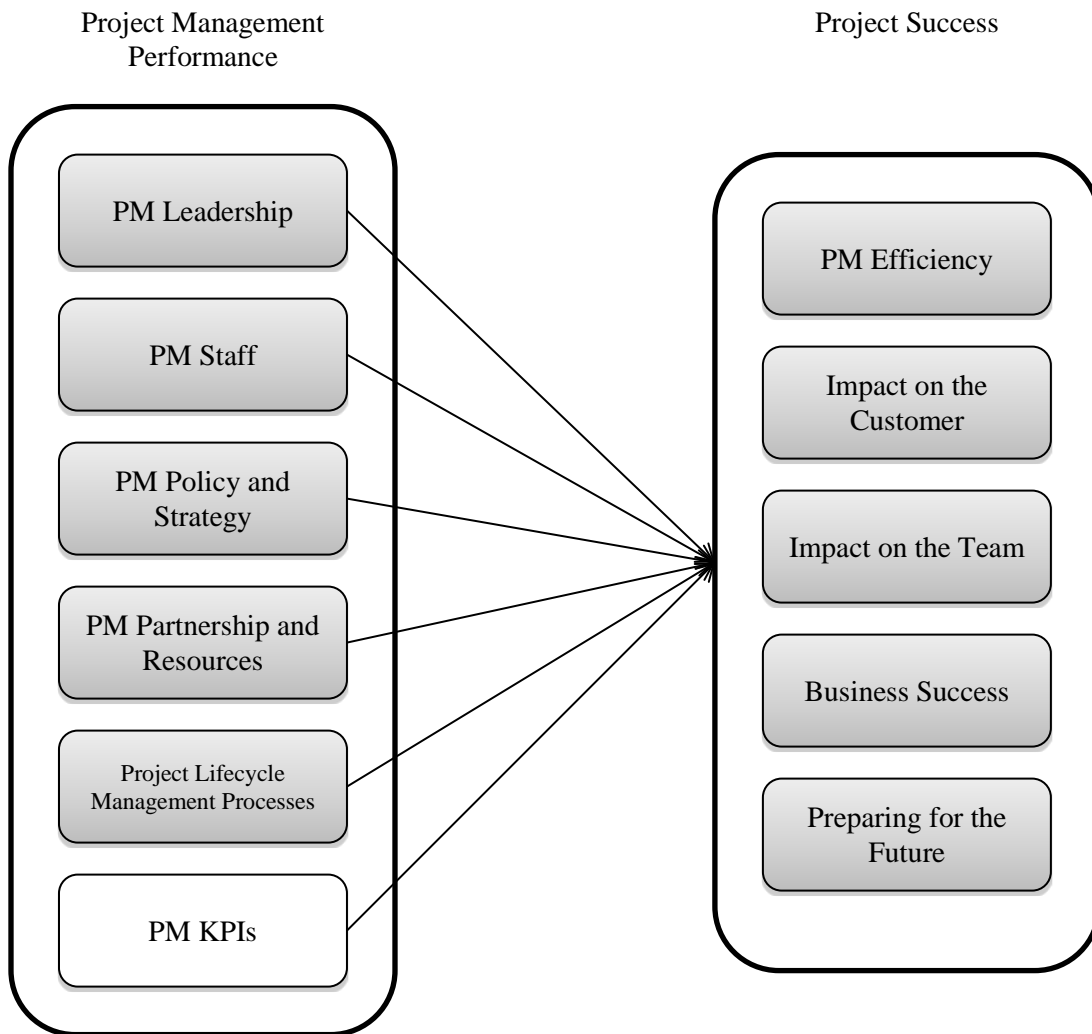


Figure 10. A hypothetical relationship between project management performance and project success (Mir & Pinnington, 2014, p. 206).

Mainstream project management study institutions, authors, and manuals have indicated that project success comes from meeting project schedules, project budgets, and project scopes. Other sources on the subject, such as Mladenovic et al. (2013), contended that project success is much more complex than the confluence of the three factors just mentioned. They noted that project success from the private sector and the public sector

stem from different criteria and objectives. In any case, there is a continuing need to identify negative and positive factors that influence project management and its success (Fulford, 2013; Mir & Pinnington, 2014; Yüksel, 2012). Information and communication technology attracts its own unique factors related to project management, project success, and failure. Whitney and Daniels (2013) contended that a primary contributing factor to ICT project failures is the inability to meet approved schedules, failure to meet budget constraints, and failure to encompass the expected project scope. To overcome these barriers, exploring CSFs will help to understand and contrast the phenomenon of project success despite a common disagreement among many researchers. Relationships between project management performance and project success are heavily dependent on the subjective and objective nature of perceiving and defining project success (Fulford, 2013; Mir & Pinnington, 2014; Yüksel, 2012).

Defining the formal hierarchy of projects, programs, and portfolios will be helpful in establishing a common understanding of the complexity involved with managing infrastructure development. A project, as distinguished from a program or portfolio, is a short-term event designed to deliver a quality product or service on time, on budget, and within the planning scope. A program is different; it refers to a project that consists of several interrelated subprojects. On an even larger scale, a portfolio is much bigger and references a business scope that assimilates various unrelated or related projects such as designing and constructing an ICT network interoperable with other ICT networks, developing secure e-payment software designed to traverse these networks, facilitating harmonized e-documentation for import and export, and developing the business process

analysis for operations. The portfolio is responsible for maintaining all projects' strategic relationships and its own net portfolio value. The term portfolio is the most definitively appropriate business term when discussing the ASW, inclusive of the senior executives who manage the various integrated parts of the portfolio. However, the ASW remains commonly referred to as a project, regardless of its portfolio size, nature, and complexity.

Definition of project management. The *Project Management Body of Knowledge* (PMBOK), introduced by leaders of the Project Management Institute (PMI) in 1986, describes project management as follows: project management is the application of knowledge, skills, techniques, and best practices to execute projects effectively and efficiently (PMI, 2013). Project management is the strategic competency of organizations that enables them to tie project results to business goals and better compete in their markets (PMI, 2013). McCann (2013) asserted that the focus of project management methodology is on cost minimization, on-time project delivery, quality project deliverables, and stakeholder satisfaction. The demand for increased project management effectiveness, particularly in the early phase of the project process, to enhance the project success rates and decrease project failure rates, is increasing among project professionals (McCann, 2013).

The subjects project management and successful project management models have generated a library of research. Though the definition of project management offered here is centrist and adheres to the most consensual understanding, the researchers of project management success are more diverse than unified. For example, Müller and Jugdev (2012) contended success is a subjective judgment from different perspectives.

Benefits of project management methodology. Project management methodology is a deliberately structured approach that facilitates obtaining many benefits. Examples of project management benefits include (a) providing a clear definition of the project; (b) increasing better control of project goals and scope; (c) identifying roles and responsibilities; (d) reducing risks; (e) establishing more efficient processes, including decision-making mechanisms; (f) setting quality-management standards; (g) mid-course correction; (h) ensuring better customer satisfaction; (i) controlling effective resource management; (j) and enabling more time for value-added activities (Kerzner, 2013a; Špundak, 2014). These are just a few of the benefits project management methodology provide.

Project management standards. Although foundation of the PMI took place in 1969, PMI researchers did not publish the first traditional project management standards until 1981. The focus of the content was on ethics, standards, and accreditation (McCann, 2013; PMI, 2013). This project management methodology became known as traditional project management and was documented in PMBOK; the publication date of the fifth and most recent edition was 2013 (McCann, 2013). The intent behind this standardization effort is to establish and maintain a set of knowledge standards referred to as the PMBOK to guide project managers.

A standard is a document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines, or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context (Garel, 2013, p. 667; Otto, Folmer, & Ebner, 2012, p. 576; PMI, 2013). In

reference to project management, PMI standards provide guidelines for achieving specific project, program, and portfolio management results (Garel, 2013, p. 667; Otto et al., 2012, p.576; PMI, 2013).

Although highly regarded worldwide, PMI is not the single ordained authority of project management knowledge, standards, methods, ethics, and so forth, as many other respected sources of project management knowledge and tools exist outside PMI. Project management knowledge grows and expands as fast as businesses diversify, especially in the fields of computer hardware, digital software, technology, communications, data storage, and connectivity. As ICT has burgeoned since the 1970s, and businesses using it proliferated, each country established agencies to accommodate the expanding ICT world. In the United Kingdom, developers at the Central Computer and Telecommunications Agency, now referred to as the Office of Government Commerce, first developed Projects in Controlled Environments (PRINCE) in 1996 that evolved into PRINCE2 in 2009 as the de facto standard for ICT project management methodology in the United Kingdom (Matos & Lopes, 2013; Siang & Yih, 2012; Young & Conboy, 2013). PRINCE2 has since expanded to Singapore, Australia, Asia, and Europe (Wells, 2012). The Association of Project Managers' Body of Knowledge maintains ethics and standards to guide project managers primarily in France, Germany, the United Kingdom, and Switzerland (Siang & Yih, 2012; Young & Conboy, 2013).

Other standards such as the International Project Management Association Competence Baseline by the International Project Management Association and International Standards Organization (ISO) 9000 also exist. Researchers at the

International Project Management Association defined competence as a collection of knowledge, personal attitudes, skills, and relevant experience needed to be successful in a certain function (Sanjuan & Froese, 2013). The International Project Management Association Competence Baseline Version 3 groups into competencies, including the contextual competency that incorporates project, program, and portfolio orientation and implementation with the organization's strategy (Sanjuan & Froese, 2013). The ISO 9000 family of standards equates to quality management and quality assurance and provides an understanding of the concepts and definitions in the family of 9000 standards (Sanjuan & Froese, 2013). Terziovski and Guerrero (2014) described ISO 9000 precisely as a series of standards that exist worldwide across all types of business sectors, and especially in global supply chains, as a means of certifying quality management principles for customer satisfaction. The benefit to such standards and principles materializes in a systems approach to management. Terziovski and Guerrero found that there were 982,832 ISO-certified companies worldwide in 2008 that complied with ISO 9000 standards to demonstrate their worldwide effect on project management performance and project success in terms of practices and outcomes. ISO 9000 certification ensures the quality of the management process by demonstrating that standards play a key role in project performance and success (Terziovski & Guerrero, 2014).

In Asia there exist another project management methodology. The Japanese use project and program management to provide flexibility with managing complex projects and programs under the Project Management Association of Japan (Siang & Yih, 2012;

Young & Conboy, 2013). PMBOK and PRINCE2 project management standards are the primary focus in this literature review.

Project management methodologies as tools. Methodologies are indispensable tools used in project management that allow project managers to measure progress and control tasks (Matos & Lopes, 2013). The most commonly employed project management methodologies in the world are the PMBOK and the PRINCE2. These methodologies provide structured processes for managing a project from start to finish and within scope.

The Institute of Electrical and Electronics Engineers (IEEE) recognizes PMBOK as the IEEE Standard 1490-2003 and the most recognized methodology in the world developed by the PMI (PMI, 2013). The UK and many European countries consider PRINCE2 the preferred method for ICT project management among the public and private sectors (Matos & Lopes, 2013). Clarifying their distinct differences, PMBOK is project oriented and defines a project as principally a knowledge-based endeavor undertaken to create a product, service, or a singular result. PRINCE2 is a process-based structured project management method and offers project management methodologies created for delivering one or more business products according to a specified business case (Matos & Lopes, 2013; Sommer, Dukovska-Popovska, & Steger-Jensen, 2014).

PRINCE2 must also scale itself to the size and needs of the particular project to meet objectives (Matos & Lopes, 2013). Studying and understanding different project management methodologies arms project managers with an understanding of the range of available skills, tools, and strategies to carry out project responsibilities to optimize time

and resources, coupled with professional experience (Matos & Lopes, 2013). Table 3, developed by Matos and Lopes (2013), includes a summary of the salient differences between PMBOK and PRINCE2.

Table 3

Comparison of Project Management Methodologies

PMBOK	PRINCE2
Origin: United States	Origin: United Kingdom
Administered by PMI	Administered by APMG
Worldwide adoption	Worldwide adoption
A knowledge based approach to project management	A process based approach to project management
Describes core practices and a wider range of techniques that can be applied to manage a project	A series of management processes defining what must be done, when and how it must be done and by whom over the life of a project
Nonprescriptive	Prescriptive, but can be custom-tailored
Focuses on project manager's role	Defines the roles of everyone involved in a project
Project management professional training organizations must comply with the PMI training syllabus	PRINCE2 training organizations must be accredited and hold a UK government license to train in PRINCE2. Accreditation requires compliance against the United Kingdom Accreditation Service (UKAS) Quality Management standard for training and certification
Trainer's competency to deliver training is not assessed	Trainers must pass an independent competency assessment before certification and are subject to independent competency assessments on an annual basis
Certification typically confirmed within a month or more of the training	Certification confirmed within approximately 1 week from the training

Note. Source: Matos & Lopes (2013).

During interviews to collect data, I sought to identify, explore, and assess what methodologies various key MNC organizational leaders have been using. I also tried to discover if any MNC organizational leaders have designed their own unique

methodology for this project that they are respectively employing. This feedback could potentially help determine if any preferences exists.

Project management processes and knowledge areas. This section includes a detailed discussion on the most common methodologies and their structures. By definition, PMBOK processes consist of five sequential categories: (a) initiating, (b) planning, (c) executing, (d) monitoring and controlling, and (e) closing (Matos & Lopes, 2013). Project managers consider these primary processes as the skeletal template for project success. In contrast, PRINCE2 processes consist of eight categories: (a) starting up, (b) directing, (c) initiating, (d) planning, (e) controlling a stage, (f) managing product delivery, (g) directing, and (h) closing (Matos & Lopes, 2013). Figure 11 shows the side-by-side alignment of the project management processes.

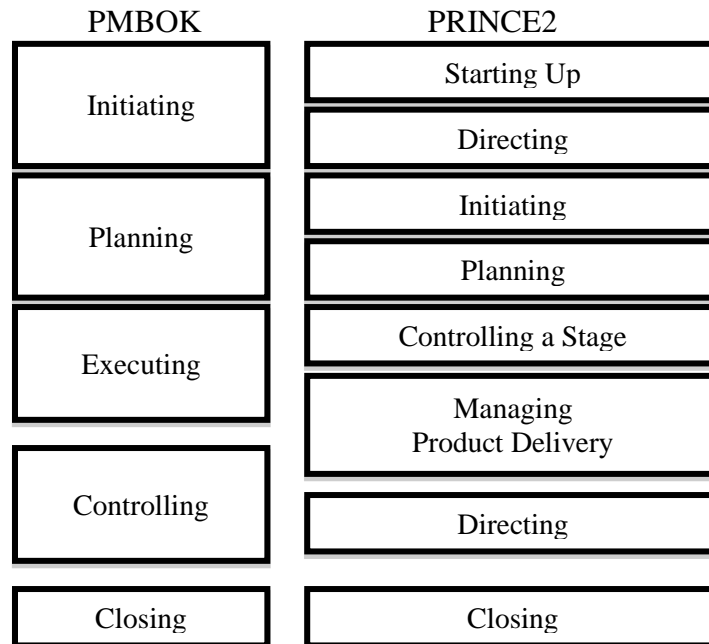


Figure 11. Project management processes shown under PMBOK and PRINCE2 (Matos & Lopes, 2013).

To illustrate the complexity of the knowledge dimension of project management, PMBOK includes 10 knowledge areas: (a) project scope management, (b) project time management, (c) project cost management, (d) project risk management, (e) project integration management, (f) project stakeholder management, (g) project communication management, (h) project procurement management, (i) project human resource management, and (j) project quality management (PMI, 2013). Embedded in these 10 knowledge areas are 47 project management processes. PRINCE2 also has component areas to aid project managers in implementing the PRINCE2 process model that closely parallels the PMBOK knowledge areas. The primary difference between PMBOK and PRINCE2 is the relevant body of knowledge provided to the project manager to make informed decisions while PRINCE2 is more dogmatic and scripted (Wells, 2012).

Theories of project management methodologies. The two primary theoretical project management principles and practices presented in this research under PMBOK and PRINCE2 are the traditional project methodology and the agile project methodology. I illustrate the traditional methodology, which is process oriented, using the well-known waterfall model, which demands implementing a sequential design approach wherein the project manager must plan and complete each phase before the next phase can begin (Binder, Aillaud, & Schilli, 2014; McCann, 2013). The basis of the agile project methodology, in contrast, is the iterative model affording project managers much more flexibility to choreograph project-adaptive tools and techniques in the most innovative and efficient manner (Binder et al., 2014). Other traditional project methodology models that I review are the overlapping and iterative models. The overlapping model supports

parallel activity, which refers to the situation wherein one phase need not be complete prior to the next phase beginning. The iterative model, in contrast, plans phases sequentially just ahead of current project activity. Another project management tool, the TOC, introduced by Goldratt in 1979, has evolved into a complete management philosophy wherein every project has at least one constraint that limits the achievement of obtaining its goal (McCann, 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). This theory works best when project managers truly understand the interdependent constraints of project scope, schedule, and budget. The critical path method (CPM) is also in this study to map the most salient and diverse project management approaches in use worldwide. Project management experts recognize CPM techniques as efficient tools for planning and scheduling, especially of very large projects (Madadi & Iranmanesh, 2012; Ravi Shankar, Pardha Saradhi, & Suresh Babu, 2013). If applied correctly from project start to completion, resources are efficiently consolidated in support of critical activities and schedules (Madadi & Iranmanesh, 2012; Ravi Shankar et al., 2013). This requirement is usually difficult to fulfill in practical situations, since many of activities will take place for the first time. There is always uncertainty about the time durations of activities in network planning (Madadi & Iranmanesh, 2012; Ravi Shankar et al., 2013), which has led to the development of the more recent fuzzy CPM.

Such a broad project management methodologies review ideally will serve as the best foundation for an understanding of project dynamics, the interdependency of project constraints, and the challenges facing all project managers (McCann, 2013). The intent is

to offer insight and clarity into each methodology's ability or inability to advance the ASW infrastructure development project.

Traditional project management models. McCann (2013, p. 12) noted that traditional project management methodology, published by PMI and documented in the PMBOK fifth edition, contains rigid standards for the project management industry and certified Project Management Professionals. This traditional methodology is under the American National Standards Institute (ANSI/PMI 99-001-2008) standards (McCann, 2013, p. 12). The five project management process groups depicted in Appendix A are necessary for successful project management (Kerzner, 2013a; PMI, 2013). This basic concept is that projects are relatively linear with well-defined boundaries, which makes it easy to plan in detail and follow that plan without much change, as the image of the smooth flow of water in an unobstructed waterfall suggests (Catania, Armstrong, & Tucker, 2013a, 2013b; Doherty, 2011; Špundak, 2014). Caron (2013) described traditional project management as an organized way of handling the typical challenges stemming from uncertainty and complexity.

The traditional project management methodology in the 1980s was the principal means of conducting project management and dominated most fields. McCann (2013) explained that traditional project management activities associated with developing rigid scheduling, including developing the work breakdown structure, defining and sequencing activities, and estimating the resources and duration, can involve using tools and techniques. Such tools and techniques provide a menu of traditional project management options. Managers of traditional projects seek to optimize project activity and efficiency

in project execution. Flexibility becomes a necessity as project complexity evolves, thereby disproving the concept of one size fits all. The one-size-fits-all idea became the most glaring disadvantage of the traditional project management methodology.

Catania et al. (2013a, 2013b) further noted that projects, similar to business environments in general, naturally become more progressively complex with higher numbers of tasks and complex interrelations. Whereas the focus of the traditional project management approach is on linear task relations, it cannot properly accommodate the complexity of current projects (Catania et al., 2013a, 2013b; Serra & Kunc, 2015; Špundak, 2014). Dynamic and unpredictable changes are increasingly inevitable, especially when project goals and objectives are not complete prior to executing a phased project. This explanation does not mean that organizational leaders cannot produce a hybrid approach coherently designed for their portfolio consisting of various different projects that incorporate different organizational processes. I discussed this specific issue during participant interviews to gain insight from experienced ASW executives and project managers to understand how they are confronting the complexity issue to achieve project success for their ASW project interoperability.

Such structured and traditional prescriptive methods make it difficult to provide successful projects considering the ever-changing business environment. Wells (2012) noted that researchers have conducted less than five studies on project management methodologies, tools, techniques, and methods and have offered little insight to why project success rates remain continuously low, as concluded by the Standish Group.

Agile project management model. There is no standardized collection of agile methodologies, in contrast to the traditional principles and practices. The core principles and practices of the agile methodology commonly focus on the fact that (a) interactions supersede processes and tools, (b) product delivery outweighs proper documentation, (c) RM and team collaboration outweigh formal contracts, and (d) designing a coherent planning process is more important than the actual plan (Doherty, 2011; McHugh, Conboy, & Lang, 2012; Serrador & Pinto, 2015; Stettina & Hörz, 2015). All these agile management principles and practices embrace the management philosophy of TOC and focus primarily on how the project managers seeks to overcome constraints. Table 4 includes a side-by-side comparison of the traditional methodology approach and the agile methodology approach.

Table 4

Differences Between Traditional and Agile Methodology Approaches

Characteristic	Traditional approach	Agile approach
Requirements	Clear initial requirements, low change rate	Creative, innovative; Requirements unclear
Users	Not involved	Close and frequent collaboration
Documentation	Formal documentation required	Tacit knowledge
Project size	Bigger projects	Smaller projects
Organizational support	Use existing processes, bigger organizations	Prepared to embrace agile approach
Team members	Not accentuated, fluctuation expected, distributed team	Collocated team, smaller team
System criticality	System failure consequences are serious	Less critical systems
Project plan	Linear	Complex, iterative

Note. Source: Špundak (2014, p. 945).

Agile methodology may appear to demonstrate vulnerability in its seemingly passive approach to risk management (Moran, 2014). The agile methodology employs

risk tailoring to identify and treat project risks as an ongoing process based on the three principles of transparency, flow, and balance that capture the essence of the agile approach to risk management (Moran, 2014). The objective of agile project management is to complete projects and provide deliverables based on flexibility faster than with traditional methods. Agile project management methodology has no project manager, as the methodology involves distributing roles and responsibilities among the project team, scrum master, stakeholders, and product owner to create a less rigid project management environment (Doherty, 2011; Serrador & Pinto, 2015; Stettina & Hörz, 2015).

Key project constraints: Theory of constraints (TOC). Scope is one of the critical project constraints directly related to schedule, budget, and risk that demonstrates the interdependent relationships that exist among these key project constraints. This interdependency illustrates that a change in one constraint will have an effect on other project measurements such as performance and project success (Fulford, 2013; Marques, Gourc, & Lauras, 2011; McCann, 2013; Mir & Pinnington, 2014; Yüksel, 2012; Zavadskas, Vilutienė, Turskis, & Šaparauskas, 2014). Project performance refers to the management of the project objectives as measured by the constraints of scope, schedule, and budget (Fulford, 2013; Marques et al., 2011; McCann, 2013, p. 36; Mir & Pinnington, 2014; Yüksel, 2012; Zavadskas et al., 2014). A change in scope can cause schedules to fall out of synchronization and produce budget overruns, which causes project managers to lose control (McCann, 2013).

Because no two projects are the same, project managers independently determine project constraint priorities. The constraint given priority over the other competing

constraints is the critical constraint to project success (McCann, 2013; PMI, 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). The lynchpin to project success is identifying a project's major constraint; once identified, all attention must address this critical constraint (McCann, 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). If the critical constraint becomes the budget due to shrinking financial resources, then risk would ensue resulting in limiting product quality or product features or accepting higher risk in the execution phase of a project. A budget associated with the required resources may change depending on the criticality of the project schedule and the associated cost of resources needed to complete the project (Rahman, 2012; Rand, 2013). The key point, according to Goldratt's TOC, is to alleviate constraints and increase performance by identifying constraints, managing constraints, and evaluating performance (Rahman, 2012; Rand, 2013). This theory is evident in the CPM to determine optimum procedural, schedule, and cost performance in addition to managing bottlenecks due to constraints within the critical path.

Critical path method. The CPM is an algorithmic means for project managers to determine critical activities on the critical path to ensure constrained resources are available and facilitate project completion on schedule (Zhou, Love, Wang, Teo, & Irani, 2013). Conditions require clear actions and timelines so that resources are at the right place at the right time, which is more complicated than most people think, meaning optimally there will be zero slack days in the process (Anantatmula & Webb, 2014; Madadi & Iranmanesh, 2012). Such interdependency validates CPM use as a method for de-conflicting scheduling issues and commonly referred to as a work breakdown

structure and Gantt chart. Appendix B includes critical activities and sequential activities. M. R. Walker of the DuPont Company developed the CPM in 1957 and then tested it in 1958 for constructing a new Du Pont chemical plant as a method for determining the critical activity and finding the critical path (Garel, 2013; Shabani & Farzipoor Saen, 2015; Vanhoucke, 2013). Once defined, CPM represents the longest chain of events required to complete a project and any delay in the CPM represents a delay in project completion and project success.

A variation on the CPM model is the fuzzy CPM approach that tries to develop an earliest activity start time and a latest activity start time based on uncertain conditions (Shi & Blomquist, 2012). The clear intent is to manage resources to focus on identified critical activities. Falling outside this prescribed window affects project costs and scheduled delivery.

Critical chain method. Critical chain is another of the many TOC techniques, such as Gantt charts, CPM, and fuzzy CPM, which differs only in its application (Zhang et al., 2012). The critical chain method's objective is to manage project schedules and variances by managing bottlenecks and critical resource constraints via project buffers concerning time and budget and resource buffers concerning people and skills (Anantatmula & Webb, 2014). This technique is especially useful in multiple-project environments to provide flexibility and protect project completion dates (Anantatmula & Webb, 2014). Anantatmula and Webb (2014) noted this newer technique is not in wide practice, as reluctance to change persists.

Methodology selection rationale. The project methodology selected to manage a project will depend on the nature of the project, the culture of the organization, and the skill of the project stakeholders (Dorairaj, Noble, & Malik, 2012; Javdani Gandomani, Zulzalil, Abdul Ghani, Md. Sultan, & Meimandi Parizi, 2015; Kompella, 2013; McHugh et al., 2012). This is because the nature of the project depends on the product's characteristics. Innovative products have uncertainties in turbulent environments, and these variables mold the entire project's environment: complexity, unpredictable activities, and change (Binder et al., 2014; Conforto, Salum, Amaral, da Silva, & de Almeida, 2014). An iterative model facilitates risk mitigation by placing priority on factors possessing the greatest risk of impeding project success. If a risk mitigation analysis determines a feature is not feasible, then project managers execute preemptive changes to redirect resources by modifying the project scope early in the project (Dorairaj et al., 2012; Javdani Gandomani et al., 2015; Kompella, 2013; McHugh et al., 2012). If the project is innovative due to its complexity, then it may require an agile project management's iterative model even though it is not accredited.

Traditional project management revolves around accredited standards and ethics, as identified in PMBOK. In March 2013, there were 525,341 certified Project Management Professionals and over 4 million PMBOK Guide editions in circulation (McCann, 2013; PMI, 2013). PMI recognizes agile project management, although it has not received official accreditation, as a certification for practitioners who use agile approaches to manage their projects (PMI, 2013). Due to the interdependency of the project constraints, TOC is a valid project management theory when confronted with

managing scope, schedule, and budget. This management philosophy balances constraints against requirements to measure project performance. The CPM is algorithmic versus heuristic and aligns tasks according to algorithmic-generated schedules in support of critical activities. PRINCE2 is capable of scaling itself to the size and needs of the particular project to meet objectives (Matos & Lopes, 2013) and accounts for more than 300,000 PRINCE2 certified project managers worldwide (Wells, 2012).

Project manager concerns. Because the agile management model is so situation dependent, the concerns of an agile project manager will constantly vary, unlike working within a traditional management framework. The focus of an agile project is more on the people and collaboration (management), while the focus of traditional projects is on the process, otherwise referred to as a waterfall model based on systematic progression (Doherty, 2011; Serrador & Pinto, 2015; Stettina & Hörz, 2015). The agile project management method clearly uses an iterative model that thrives on collaboration and progress reviews that drive a constant evaluation process that prioritizes scope, time, and budget priorities based on business value. When a project manager adds a new highly valuable feature to a project's requirements, the change to the project scope may force the project manager to drop other less valuable features because they may no longer fit within the project budget (McCann, 2013, p. 61). Such events are unproblematic for the agile project managers who embrace change as a constant, not an aberration. Traditional projects, in contrast, proceed based on completing one phase prior to initiating a new

phase in the project; therefore, a change control process must be well defined in the original traditional project-planning phase (Binder et al., 2014; McCann, 2013).

In both approaches, managers design and analyze projects based on key guidance, features, controls, and criteria input from stakeholders. After a course of action becomes final, all stakeholders receive the concept package for approval. Through collaboration, managers develop a final approved design. Only at this point does the project team receive the project for execution.

Collaboration and communication must remain constant throughout this process. In the case of infrastructure development projects, one must keep in mind the P4 concept to ensure stable, long-term relationships that incorporate and maintain the public's interest. This approach provides critical input, otherwise easily overlooked, to maintain future customer and revenue support. It is imperative that project managers take into account project failure factors with the same gravity as CSFs, as detailed in the following pages.

Failure in complex projects. The root cause of failure in complex ICT projects is the inability to mitigate unforeseen risks; a lack of adequate resources, including skilled project management personnel; and scope creep, which compounds the complexity inherent within multifaceted projects (Verner & Abdullah, 2012; Whitney & Daniels, 2013). Current research identifies two specific types of project failures. Type 1 project failures typically revolve around failing to deliver a product within a clearly defined project scope (Verner & Abdullah, 2012; Whitney & Daniels, 2013). This type of failure is of keen interest because the ASW project includes numerous clearly defined

objectives such as establishing software based on data harmonization, software in support of secure e-payments, interoperable ICT networks, cross-border customs synchronization based on radio frequency identification tracking, and defined WCO data model Version 3.1 standards. The WCO data model provides a complete set of data and data structures for customs and related agencies, such as agriculture and environmental protection (Choi, 2011; UNESCAP, 2013; Urciuoli, Hintsa, & Ahokas, 2013; van Stijn et al., 2011). The model supports developing messages that incorporate export, import, and transit operations, particularly concerning a single window project (Choi, 2011; UNESCAP, 2013; Urciuoli et al., 2013; van Stijn et al., 2011). Despite known constraints, Type 1 projects will only fail if technical expertise is lacking to handle unexpected deviations from the plan (Verner & Abdullah, 2012; Whitney & Daniels, 2013).

Type 2 projects are complex and typically have many unknowns and an unknown scope (Whitney & Daniels, 2013). For this reason, RM with stakeholders, collaborative teamwork, and experiential management skills led by the private business sector are critical to overcoming the complex constraints confronted in Type 2 projects. Whitney and Daniels (2013) noted that planning problems, especially those concerning defining the project scope, are generally the cause of failure when dealing with projects that are of the second type.

Both Type 1 failures and Type 2 failures point back to the conceptual framework discussed earlier in this study. As noted by Kerzner (2013a), project management is a systems approach to planning, scheduling, and controlling. The interdependencies of the project constraints, which include scope, schedule, budget, and risks, infer that a change

in one of the factors may have an effect on at least one of the other factors (Hartono, Sulistyono, Praftiwi, & Hasmoro, 2014; McCann, 2013; PMI, 2013; Sebestyén & Tóth, 2014; Zhang & Fan, 2014). Consequences caused by scope changes can lead to missed target dates, quality compromises, and budget overruns, for example (Hartono et al., 2014; McCann, 2013; Sebestyén & Tóth, 2014; Verner & Abdullah, 2012; Zhang & Fan, 2014). The interdependency of project constraints provides the genesis of eventual project failure or success.

The project life cycle chart in Figure 12 shows how stakeholder influence, once planning is complete, triggers increased risk imposed on the project as scope changes evolve later and later in the project process. The ability of the stakeholders to influence the final characteristics of the project's deliverable and the final cost of the project is highest at the start and becomes progressively lower as the project continues. After a certain point, cost of changes will exceed the degree to which a stakeholder can exert influence and still have a successful project. To avoid this problem, there must be a strong, constant, direct, honest, and clear line of communication between all parties in a given project.

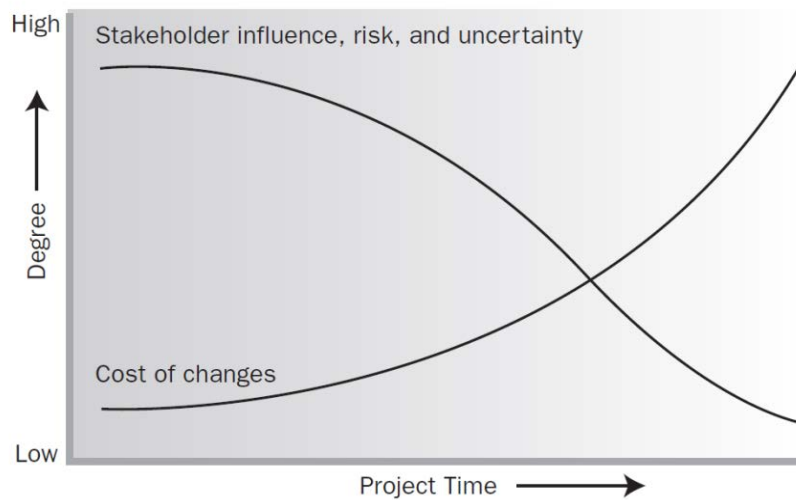


Figure 12. Impact of variables based on project time (Kerzner, 2013a).

Kerzner (2013a), who noted that failed projects are the result of some combination of both actual failure and planning failure, created the term perceived failure. Actual failure occurs because there is a discrepancy between a plan and an accomplishment (Whitney & Daniels, 2013). Planning failure occurs because there was a discrepancy between the plan and what was achievable (Verner & Abdullah, 2012; Whitney & Daniels, 2013). Kerzner acknowledged the impact of human dynamics in project management and maintained that regardless of how perfect a project plan is, interpersonal human dynamics will influence any perfect plan. Kerzner also cited many factors that undermine a project's success: (a) lackluster motivation, (b) low or retarded productivity, (c) unresolved problematic interpersonal relations, (d) a lack of employee and functional commitment, (e) delayed problem solving, and (f) unresolved policy and stakeholder issues.

Progressing from failure types and perceived failure to attributing factors provides specific clarity to why ICT projects have a well-known higher rate of failure compared to

projects in other industry fields. Whitney and Daniels (2013) highlight attributing factors for ICT project failure as having (a) unrealistic project scope given the available resources and project development experience, (b) improper management of scope creep, (c) the continuous expansion of the project scope, (d) new technology critical to the project has not been previously developed, (e) no understanding of the organization's issues, and (f) customs work or the necessary organization's business activities. Other researchers autopsied discarded projects, abandoned by either the stakeholders or the project managers, to understand what drives either of the parties to such drastic decisions. Whitney and Daniels (2013) highlighted abandonment factors: (a) unrealistic project goals and objectives, (b) poor project team composition, (c) project management and control problems, (d) inadequate technical expertise, (e) problematic technology base or infrastructure, (f) lack of executive support, (g) changing requirements, and (h) cost overruns and schedule delays.

Considering both the attributing factors and the abandonment factors of failed projects, Too and Weaver (2014) asserted that systemic project failure is a failure of organizational project governance. Project governance is about achieving optimal balance based on selecting the right projects in support of the strategy, terminating ones that do not contribute value to the organization, and providing a direct link between executives and project managers to stimulate focus on project life cycle and value (Too & Weaver, 2014). A framework that considers these key factors can serve as a powerful management tool for organizations to improve project outcomes and create business value (Too & Weaver, 2014).

Project management critical success factors. The Standish Group's *CHAOS Report* has published ICT project success and failure rates dating back to 1994, which reported a shocking 16% project success rate, 53% of projects were challenged, and 31% failed (Alias, Zawawi, Yusof, & Aris, 2014; de Carvalho, Patah, & de Souza Bido, 2015; Doherty, 2011; Eveleens & Verhoef, 2010; Hughes, 2016; Todorović, Petrović, Mihić, Obradović, & Bushuyev, 2015). Project failure rates remain high, which triggers more ICT project skeptics, although not everyone believes the statistics. Eveleens and Verhoef (2010) questioned the failure rates after obtaining their own data and reproducing the Standish Group's research to assess its validity. Results of Eveleens and Verhoef's (2010) study revealed four major problems with mainstream ICT success and failure studies: the results are often misleading, are often one-sided, pervert the estimation practice, and result in meaningless figures. This study rebukes what scientific articles and media have cited as a software development and project management crisis. A major reason for the discrepancy of opinion regarding ICT projects' ostensibly discouraging success rates mainly stems from the unique way the Standish Group researchers define a successful project. The Standish Group researchers defined success by solely considering adherence to initial forecast of time, budget, and functionality (Alias et al., 2014; de Carvalho et al., 2015; Doherty, 2011; Eveleens, van der Pas, & Verhoef, 2012; Eveleens & Verhoef, 2010; Todorović et al., 2015).

Juxtaposed against the project failure rates, Crosby (2012) conducted a metastudy of 2,800 projects to determine and rank success factors for general and high-technology projects with significant infrastructure requirements. New correlations between success

indicators and the principal drivers examined in this study in further detail revealed sometimes less obvious characteristics influencing project success (Crosby, 2012). This study was applicable to the ASW project because it purposefully targeted mega-ICT projects that must deliver technical capabilities across an infrastructure, although there was no clear definition of what constitutes a mega project. Information and communication technology project experts automatically classify mega-ICT projects in budgets ranging from multimillions to billions of dollars. Time constraints are measurable in years, such as the original 2015 and 2018 self-imposed deadlines for ASW projects. Table 5 includes an outline of Crosby's project success drivers identified by relative importance.

Table 5

Prioritized Success Drivers Ranked by Relative Importance

Key success drivers	All projects ranking	High-tech ranking
Project management control & execution in place with robust policies, planning, procedures, document control, audit, etc.	23.72	23.87
Clear project definition, requirements, goals, objectives, scope, and project mission; sound business case	23.72	19.53
Mature project communication, information systems; effective public relations management	11.34	11.18
(Top) management (or sponsor) support with sustained commitment, appropriately engaged	7.85	8.96
Project baseline, estimates accuracy, project phasing, effective project performance (reviews) and measurement	7.85	8.96
Leadership skills, project management experience & stability; motivating & socially capable project management	5.24	5.79
Agreed realistic customer / user expectations; frequent customer contact	3.17	3.37
Project management/organizational understanding and competence in project management	3.17	3.37
Adequate resourcing of the project	2.31	2.37
Aligned perceptions of project goals & success – management and team; sense of urgency installed	2.31	2.37
Effective stakeholder engagement /partnership (e.g., client, contractors, etc.)	2.31	2.37
Organizational responsibilities assigned to right sized capable team	1.68	1.64
Mature, effective project management change control process; effective deviations handling & configuration control	1.68	1.64
Understanding & continuous management of risk; visibility of risk register	0.91	1.13
Project manager and project management systems matched to project complexity and culturally aligned	0.91	1.13
Effective means of learning from experience and continuous improvement environment	0.66	0.78
Full understanding, and early engagement of host government environment and institutional requirements	0.66	0.78
Right-sized systems engineering; managing and procuring in right sized project chunks	0.51	0.78

Note. Source: Crosby (2012, p. 6).

Crosby (2012) noted that the implementation of excellent project control systems and processes such as large corporate management information systems or tailored solutions must be in place, in addition to a clearly defined project mission. Standardized project management tools facilitate project success and higher quality accomplishments. The reality of these findings is that the specific project management planning tools used are not the critical factor; having a project management environment that tightly controls operations is the key takeaway argument from this analysis.

The most powerful and obvious driver is project mission, which drives the purpose of a project with defined objectives and goals. Good communication is also important. Project communication refers to external as well as internal communications across the spectrum of stakeholders and the public sector, in addition to project team members, throughout the project life cycle. The key is to avoid communication breakdowns that hinder project success. The importance of full support and engagement from organizational leaders to help propel a project toward success exists throughout this study. Organizational leaders' commitment and presence is critical to a project's success or its failure if their management style translates into being overbearing and causing obstruction or they are unable to facilitate the funding and resourcing of qualified managers and technicians. While identifying project managers for megascale projects, it is essential to project success that they have experience, commit to project success, encompass leadership skills to instill a sense of urgency, and maintain a sense of vision.

The purpose and importance of a project baseline is threefold: (a) it serves as a basis for cost and schedule estimation for project approval, (b) serves to establish a

performance measurement reference, and (c) serves to establish appropriate expectations of project management and the project team prior to project initiation (Crosby, 2012). Reconfiguring megascale projects into manageable phases is another key management strategy that lends itself to the success of such projects. Periodic in-progress reviews are a valuable tool to catalyze project success (Kerzner, 2013a). Allowing flexibility to mitigate constraints and implement change is critical to project success. This flexibility provides a stage for more innovative processes and mechanisms to correct or prevent project failures. The adoption of allowable flexibility to address project change is a strategic success driver and requires an open-minded and innovative project manager. Crosby (2012) noted that a successful flexible environment has a direct correlation between having a risk management process in place and having an established project success percentage for the overseeing organization. Every project manager or management model must address how to react effectively and efficiently to the unexpected (known as a cognitive blind spot) and develop contingency plans.

System engineering provides a critical influence on the design phase to enable faster integration and testing; ensure interface compatibility; and reduce risk, time, and cost (Crosby, 2012). Such a success driver is critically relevant to a regional single window megascale project that encompasses 10 countries and entails a complex and challenging engineering design. Phasing is obviously necessary to complete such a massive project. The regional network interoperability concept is in Figure 13.

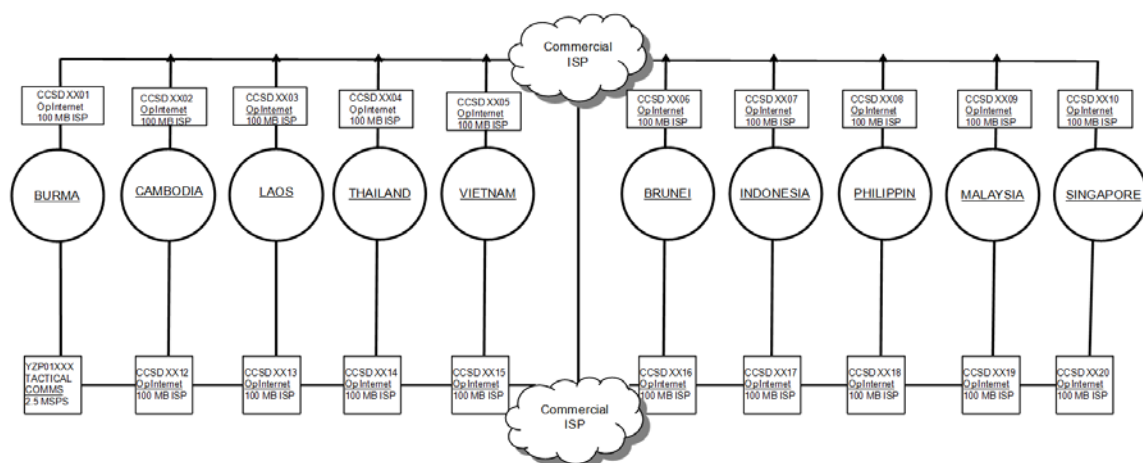


Figure 13. ASEAN single window system engineering conceptual design.

Underestimating any of these success factors increases the odds of project failure.

Both Crosby's project management success drivers and Kerzner's CSFs reinforce this statement. Kerzner's (2013a) project management CSFs are in Table 6.

Table 6

Kerzner's Critical Success Factors

-
- Adopt a project management methodology and use it consistently
 - Implement a philosophy that drives the company toward project management maturity and communicate it to everyone,
 - Commit to developing effective plans at the beginning of each project,
 - Minimize scope changes by committing to realistic objectives,
 - Recognize that cost and schedule management are inseparable
 - Select the right person as the project manager,
 - Provide executives with project sponsor information not project management information,
 - Strengthen involvement and support of line management,
 - Focus on deliverables rather than resources
 - Cultivate effective communication, cooperation, and trust to achieve rapid project management maturity
 - Share recognition for project success with the entire project team and line management
 - Eliminate non-productive meetings
 - Focus on identifying and solving problems early, quickly, and cost effectively
 - Measure progress periodically
 - Use project management software as a tool – not as a substitute for effective planning or interpersonal skills
 - Institute an all-employee training program with periodic updates based upon documented lessons learned.
-

Note. Source: Kerzner (2013a).

Kerzner (2013a) further noted that traditional project management success factors and methodologies work best in small-scale projects, but, in complex adaptive systems projects, which are nonlinear, project managers must be more adaptive than predictive. This insight refers to agile and other adaptive methodologies that deal with ambiguity, which seasoned project teams and leaders must overcome. Kerzner also appreciates the importance of recognizing the magnitude and complexity of megascale projects and their success rates. In an ideal world, adhering to known success drivers and CSFs should facilitate a heuristic environment where experienced project managers learn from past

mistakes and avoid repeating project failures. Kerzner's work demonstrated that CSF lists exist but have no detailed suggestions for their application (Davis, 2014).

Just as Kerzner identified CSFs, Parsanejad, Matsukawa, and Teimoury (2012) identified another relevant project success factor, which is the project selection process. If the project management community assumes the recommendation of Parsanejad et al. is correct, a feasibility analysis during the project selection process is just as critical and relevant to project success as budget, schedule, and scope, as it provides insight into the probability of project success. From a holistic viewpoint, there is much more to identifying project success factors than simply budget, schedule, and scope. Parsanejad et al. and others contended that project success should come from a multidimensional perspective, which is especially true for the private sector. Al-Tmeemy, Rahman, and Harun (2012) developed three success dimensions on the spectrum of short- to long-term objectives. Such a broad framework provides the essential means to evaluate project success from project management success and product success to market success that includes revenue, market share, reputation, and competitive advantage (Al-Tmeemy et al., 2012; Turner & Zolin, 2012). This approach helps to have a better understanding of the key factors of project success probability and to align success criteria to a project success road map. Figure 14 is a conceptually multidimensional roadmap that targets project success with its critical decision points highlighted as triangles. Although the concept appears linear, further discussion will demonstrate its complexity when linked to performance analysis tools.

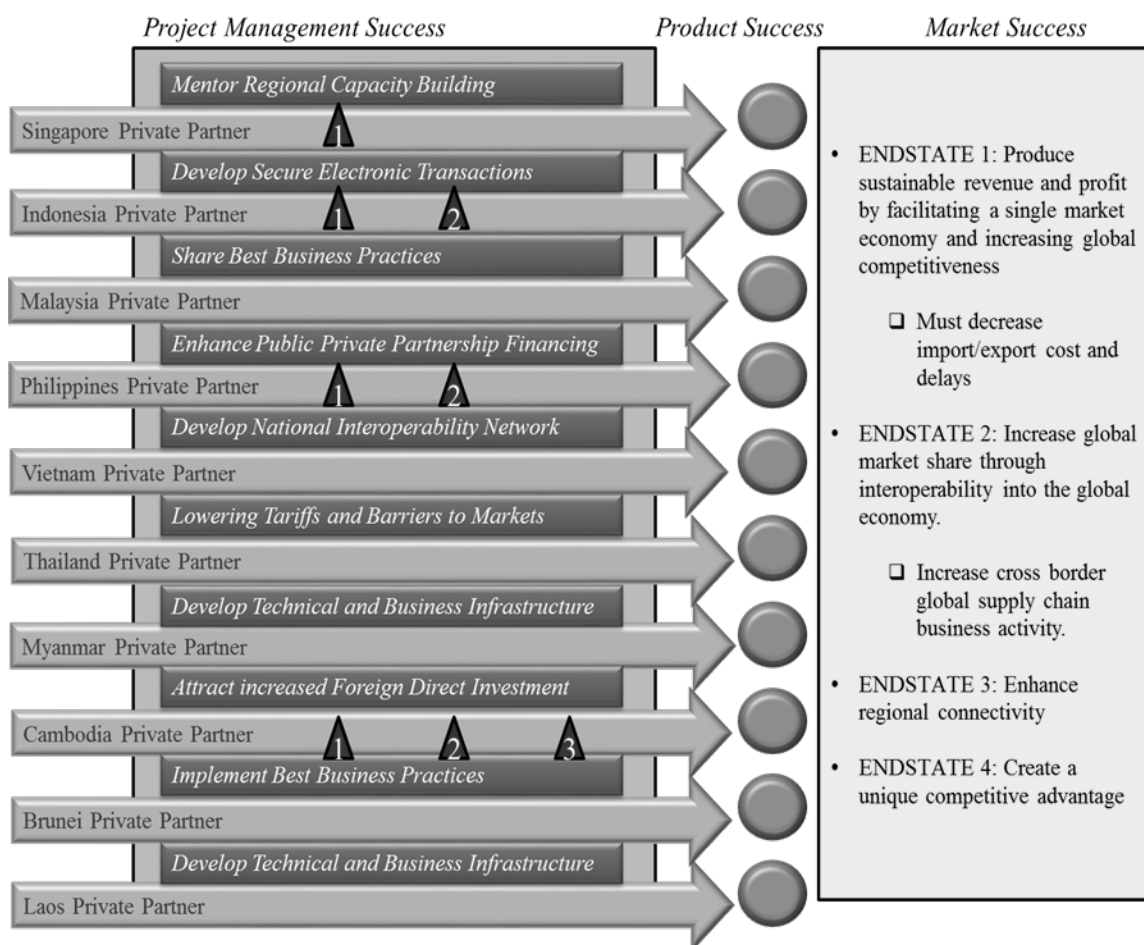


Figure 14. The dimensions of project success.

Even more basic than CSFs and multidimensional approaches to project success, Hwang and Ng (2013) asserted that competent project managers with core competencies (e.g., cost management, scheduling management, risk management, and ICT management skills) predict and accomplish a project's success. The myriad of other business components of a project should not minimize or overshadow such competencies. Consequently, for several different reasons, the project management practices that could and would make a project succeed rather than fail might not always be the ones most frequently employed (Crosby, 2012; Mir & Pinnington, 2014).

While conducting a literature review, Davis (2014) found that case studies on project success or project management processes only represent 2% of 7,000 Harvard Business School case studies, which indicated that there is insufficient coverage of project management as a research field. Davis also noted this insufficient coverage is true in both business schools and top management journals. Davis indicated that ultimately through research, current theories are not translating into practice; more case study reviews will help managers increase project success rates.

Project performance tools. Alias et al. (2014), de Carvalho et al. (2015), and Marques et al. (2011) noted controlling project performance using the components of the old iron triangle (budget, schedule, and scope) has proven insufficient in megacomplex projects and highlighted Davis's (2014) comment that the project management field needs more research. There are a myriad of reasons why project management has a historical deficit of project success but the inundation of data and how to manage the data is the common justification for reducing project management to the application of project management software tools (Caniëls & Bakens, 2012; Marques et al., 2011). Bana e Costa, De Corte, and Vansnick (2016) highlighted MACBETH as one of the premier analytical project performance management systems (PPMS) that uniquely analyzes project performance based on the project manager's performance. This specific vantage point reconfirms the criticality of selection rationale for identifying the right qualified and certified project manager. Using PPMS performance tools requires that the project be of major scope and be well structured for performance tools to be useful (Bana e Costa et al., 2016). The evolution from the iron triangle in Figure 15 and the complex three-

dimensional PPMS cube in Figure 16 conceptualize the complexity and mental dexterity required of project managers to obtain project success.

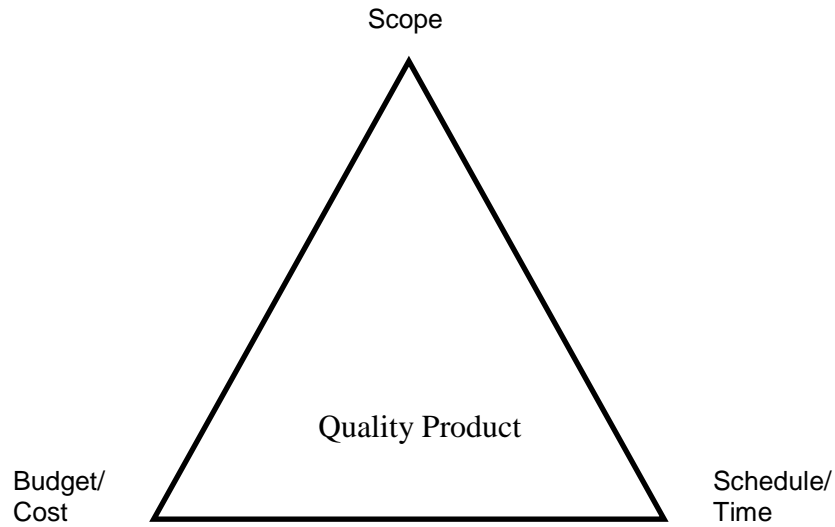


Figure 15. The iron triangle of budget, schedule, and scope.

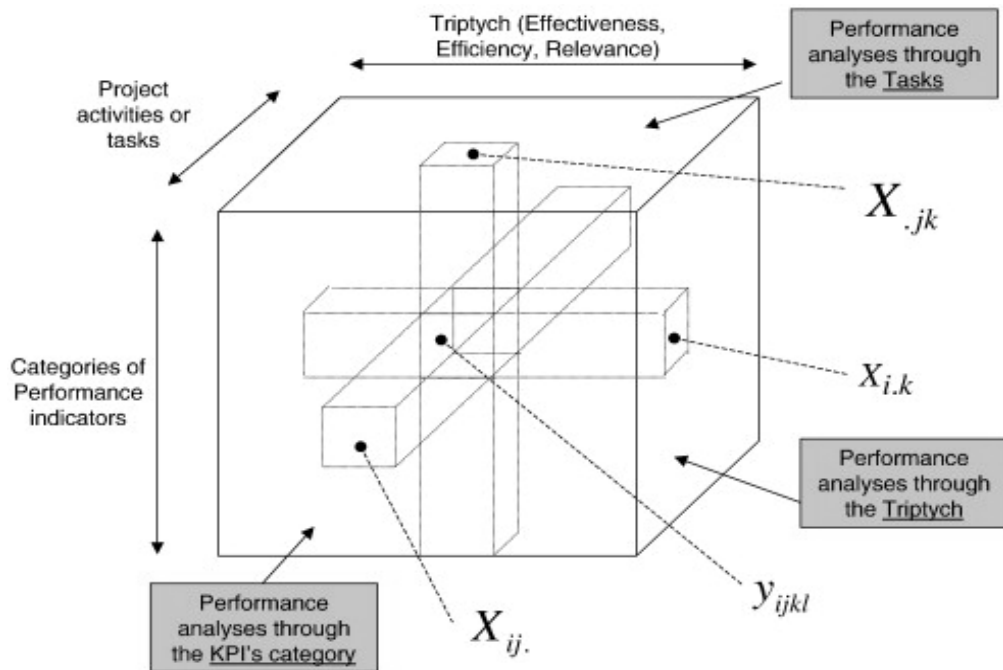


Figure 16. Multidimensional project performance management systems targeting project management and performance analysis (Marques et al., 2011).

As illustrated, PPMS measures can be completely encompassed in one cube defined by the multidimensional aspect, including each cell that represents a KPI of a given activity (Bana e Costa et al., 2016; Marques et al., 2011). The triptych (effectiveness, efficiency, and relevance) defines each KPI relative to its corresponding KPI task that facilitates a consolidated performance control, allowing project managers to achieve project success (Bana e Costa et al., 2016; Marques et al., 2011).

Golini, Kalchschmidt, and Landoni (2015), Guerra-López and Hutchinson (2013), Choong (2014), and McLeod, Doolin, and MacDonell (2012) indicated that traditional performance measurement via the iron triangle is no longer applicable to measuring performance on large infrastructure development projects and highlights a key barrier for the single window project, which is complexity. The solution is to manage the KPIs for large-scale project success (Choong, 2014; Golini et al., 2015; Guerra-López & Hutchinson, 2013; McLeod et al., 2012). Many KPIs are qualitative, which makes establishing benchmarks difficult and results in a need for more research on establishing a comprehensive benchmarking system to measure the performance of large development projects and associated operational issues. Another key requirement is to establish a clear link between CSFs and KPIs that target various procurement systems such as the PPP BOT or DB, which are relevant to single window projects (Choong, 2014; Golini et al., 2015; Guerra-López & Hutchinson, 2013; McLeod & MacDonell, 2012; Rodriguez & Soeparwata, 2012).

Dimitriou, Ward, and Wright (2013) conducted research on 30 case studies concerning megatransport projects across Europe, the United States, and Asia Pacific

looking beyond the iron triangle to identify what constitutes project success. After 5 years of research and analysis, Dimitriou et al. found a widespread misunderstanding of the project boundaries and changing objectives over time, a common failure to align short- and long-term expectations, and significant limitations of conventional formal megaproject planning and appraisal practices. A common theme among numerous researchers is the need to employ more holistic approaches to decision making in all stages of the project life cycle to improve project performance (Dimitriou et al., 2013). A summation of Dimitriou et al.'s (2013) findings centers on how well managers address risk, uncertainty, and complexity to achieve project success.

Correlation of strategies. Section 1 has covered a vast terrain. With the exploration of the business strategies that challenge ASEAN's ambitious ASW project as the axis of this study, I have discussed the complex strategies of ASW's challenges in detail, citing dozens of researchers who have made this field and this project their professional work. Finding the right fit business strategy and the appropriate PPP strategy was challenging. Management experts and management schools have libraries filled with studies to find the winning strategies and formulas for projects around the world, but simple solutions are elusive. The advantages of agile management versus traditional management for an ICT project of ASW's magnitude are unique. The importance of paperless communications and advanced ICT remain the most critical components in profitable global trade. Adopting cutting-edge ICT is one of the critical determinants of logistics companies' competitiveness and growth (Hazen & Byrd, 2012; Tongzon & Nguyen, 2013; Wiengarten, Pagell, Ahmed, & Gimenez, 2014), especially

for the ASEAN countries as their leaders pursue the goal of regional economic development and integration (Tongzon & Nguyen, 2013). Leaders in public and private sectors must align visions and profitability strategies with a customized and winning single window business model to create and capture value and to acquire the potential benefits achieved through regional ICT networks over long-term strategic agreements that benefit all parties.

Researchers have demonstrated the equally essential importance of implementing BPM to forecast potentially critical risks to overcome future project constraints. Making these risk factors transparent is an advantage, not a disadvantage, to multinational corporate executives interested in ASW infrastructure projects designed to harness technological networks to create cost-cutting efficiencies. Because such value is not simply a result of numerical analysis, the private sector must take a holistic approach to deliver projects on time, on budget, and in scope of established contractual requirements and determine a realistic feasibility factor. Further complicating the task of overcoming trade barriers, interested corporation leaders must understand that the core foundation to partnering and achieving project success is to construct a business model that uniquely facilitates the types of PPPs that best fit the strategic vision. Accomplishing this task enhances the likelihood of executing a successful single window project despite the fact that no more than 70 corporations in the world have successfully implemented similar large-scale projects. Increasing the level of complexity, each single window project must be interoperable across Southeast Asia while using independent management schemes such as the PMI or Prince 2, which then can incorporate a traditional project management

technique or an agile project management technique. Studies tend to agree that implementing CSFs is the best method to overcome key project constraints and acquire a positive ROI and effort; success requires collaboration. The ASW is navigating in uncharted waters with identified, as well as unknown, barriers for the leaders of the entrepreneurial PPP to overcome. The progressive vision of the ASW integration scope to establish a regional single window that facilitates import–export trade facilitation via B2B, B2G, G2B, and G2G may in essence establish a new paradigm of collaborative and paperless trade based on an ICT regional network. The ASW ICT network must reduce business transaction costs, reduce business transaction time, and extend digital connectivity while overcoming trade barriers such as low responsiveness to customers, organizational inefficiencies, insufficient funding, low FDIs, soft ICT infrastructures, and a still uncompleted, harmonized framework to promote regional business growth (Das, 2012b). Many barriers have been unveiled regarding the region-wide ASW infrastructure project.

Project managers and business leaders must understand the risks and complexities of the task and then try to engineer the method to implement it. Leaders of private companies interested in collaborating with ASEAN and its member states need to recognize the context of the ASW's complex and unpredictable megascale characteristics and beware of using older business methodologies where agile systems are more successful and appropriate worldwide. More research in the field of complex project management is necessary (Davis, 2014).

Transition and Summary

Section 1 of this case study began with a description of the background that surrounds ASEAN's ASW project, including the single window business model, numerous viable business partnerships, and the BPM process. This approach indicated that more than just sophisticated software and compliant infrastructure is necessary to implement a state-of-the-art regional trade facilitation system. The success of ASW demands well-engineered PPPs and superlative megascale project management methods to support the scope and variables of this project, which is the challenge for ASEAN and MNC organizational leaders. Challenge is a diplomatic word for what administrators more bluntly refer to as a set of barriers. The most immediate and looming barrier was the ambitious projected dates of implementation, 2015 and 2018. The problem statement introduced the general and specific business problems as (a) an inability for MNC organizational leaders to demonstrate to ASEAN partners their business capability to manage and complete on schedule region-wide infrastructure projects as immense as the ASW and (b) implement the business strategies necessary to complete ASEAN partnership contracts. The discussion included the mechanics of how private businesses and government can work together to manage megascale, complex infrastructure projects efficiently and effectively, within budget, time, and scope constraints. I addressed the critical interests of all stakeholders, including the premier stakeholder, ASEAN, whose leaders are committed and determined to implement the ASW. The focus of this study was on each business strategy to manage and contribute equitably to a regional infrastructure project. The nature of the study and conceptual framework jointly

delineated the design and approach method as qualitative rather than quantitative, which justified the approach. The conceptual framework detailed the structural analytic microcomponents of the study such as PPPs, the various project management methods applicable to the ASW project, and the relevancy and use of the TOC.

I framed the interview questions to elicit responses that would help answer the research question. Section 1 also included key operational definitions, along with the assumptions, limitations, and delimitations. The study could be significant and offer ASEAN and MNC organizational leaders an analytical tool for key implementation administrators.

Section 2 includes a restatement of the purpose of the study, the role of the researcher, and the selection of the research method and the research design. Also described are the participant criteria, sampling techniques, data collection, and data collection techniques. The section also includes reliability guidelines to help validate the findings from the data collected.

Section 3 encompasses a presentation of findings based on research, the implications and expectations for business strategy advancement if implemented, and recommendations for further research. Section 3 includes a description of the discovery process, recommendation for implementation, and the critical impact regional trade facilitation could play in the Southeast Asian supply chain market.

Section 2: The Project

The purpose of this qualitative case study was to explore what strategies MNC organizational leaders are using to implement ASEAN partnership contracts to complete ASW region-wide projects. Employing a qualitative research method, I conducted interviews targeting informed MNC organizational leaders in Southeast Asia. The impact of this study may generate a greater cognizance of ASW's managerial barriers and catalyze the adoption of more effective business strategies to expedite ASW's timely implementation. The potential for this case study contributing to social change began with a thorough exploration and highlighting of MNC business strategies. If employed, the ASW has a greater chance to succeed on schedule and ultimately boost ASEAN's regional economy through increased trade. As personal incomes and trading companies' profits rise and government revenues increase, more public and private money will be available for education, health care, and social programs that serve the disadvantaged.

With a thorough understanding of business models, PPPs, and project management methods apropos to the ASW project, I will proceed to describe the research process for this case study. The first step is identifying the role of the researcher, followed by establishing criteria for qualified participants in the study. In the case of this study, MNC organizational leaders were the prime targets for feedback and insight.

The interview methodology consisted of using open-ended questions that provided all interviewees the opportunity to elaborate on strategies related to the single window business model, public-private partnerships employed, ASW project management critical constraints, and ICT interoperability. A specific intent of the

interviews was to understand the managerial strategies associated with the ASW measure and the fast-approaching implementation deadlines.

This study included field notes from personal observations to assess the feasibility of business leaders implementing the ASW project, except Cambodia, Lao PDR, and Myanmar. The personal field notes and observations helped link the interview feedback and secondary data to provide a better analytic context for the findings and research conclusions. The intent through the efforts of this study is to be supportive of ASEAN's initiatives for social change by advocating for stronger regionalism via ICT-specific networks that facilitate a seamless regional and global supply chain infrastructure. An interactive ASEAN regional economic strategy based on an understanding and interpretation of ASW, project management, and ICT alignment appears in Figure 17.

Role of the Researcher

I served as the primary interviewer for the duration of this qualitative multiple case study and was responsible for collecting, organizing, analyzing, and interpreting all data (Faircloth, 2012; Kyvik, 2013). Prior to executing any of these tasks, I set a solid foundation. I completed online training to help ensure I established a clear ethical climate surrounding this study, including the Family Health International 360 Research Ethics Training Curriculum (see Appendix C) and the National Institute of Health's Office of Extramural Research Protecting Human Subject Research Participants training (see Appendix D).

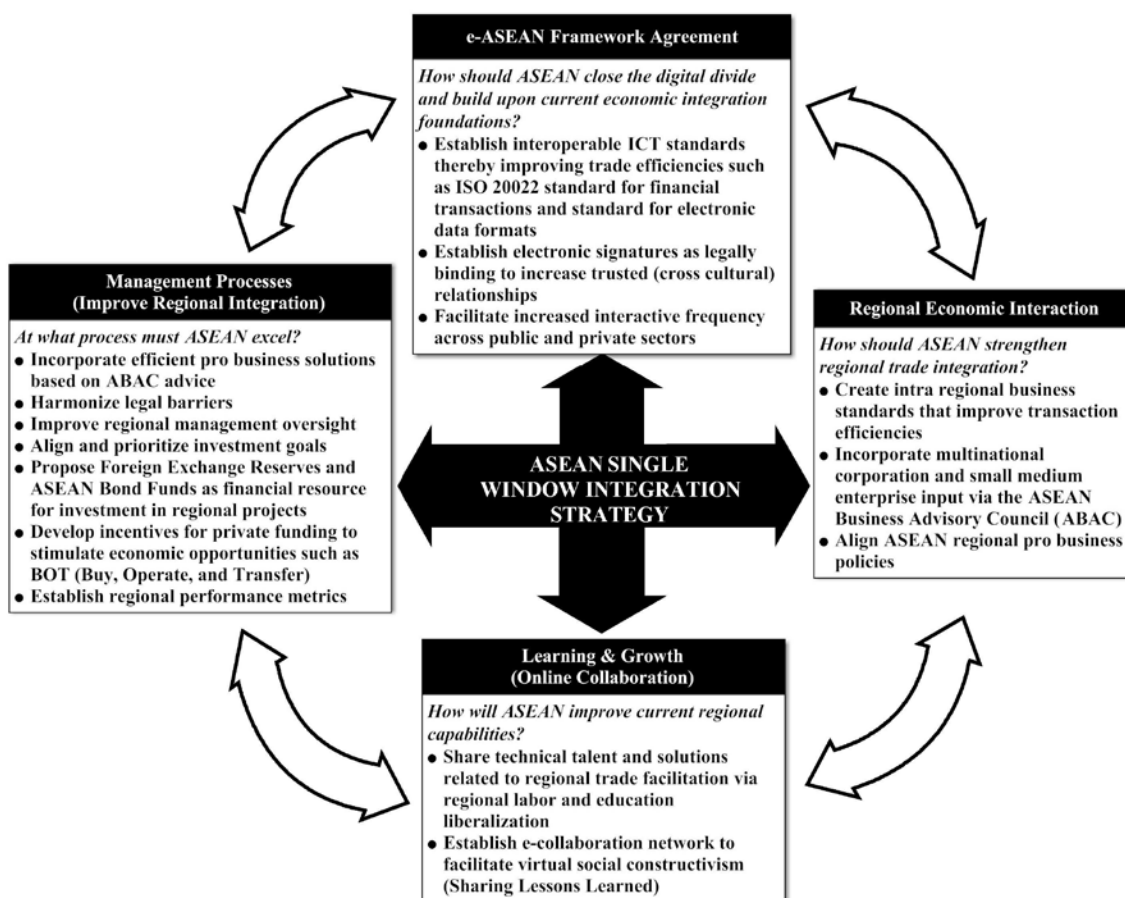


Figure 17. ASEAN single window, project management, and ICT alignment strategy.

Ethical researchers must be aware of the vulnerability factor. Participants and communities are not naturally familiar with research data collection and interview processes. It is the ethical duty of researchers to insulate them from any form of coercion or manipulation or from participating without being aware of the study and its ethical guidelines. Therefore, I consistently obtained informed consent from all participants, which safeguarded their confidentiality and privacy (Marzano, 2012). The informed consent form developed for each participant also discussed confidentiality and privacy (see Appendix E). An informed consent form is a means to annotate the participants'

understanding of the circumstances surrounding research (Kaiser, 2012; Marzano, 2012). The informed consent form also ensured protections for participant privacy. I was the primary instrument of data collection, and I minimized ethical difficulties. Researchers mitigate researcher bias best through a stringent adherence to a systematic methodology, such as an interview protocol guide (National Commission for the Protection of Human Subjects of Biomedical Behavioral Research, 1978; Yin, 2013a). The specific interview protocol guide (see Appendix F) created for this study helped ensure I obtained data without influence or bias during the in-depth interviews.

I adhered to the ethical principles and guidelines published in *The Belmont Report* where research involved human subjects (National Commission for the Protection of Human Subjects of Biomedical Behavioral Research, 1978) to provide the highest ethical standards to participants and this study. Protecting participant confidentiality and discussing in detail all aspects of the informed consent form helps maintain respect for human subjects (Kaiser, 2012; Marzano, 2012; National Commission for the Protection of Human Subjects of Biomedical Behavioral Research, 1978). Not exploiting participants for the good of research minimizes risks (National Commission for the Protection of Human Subjects of Biomedical Behavioral Research, 1978). The primary areas of application for the ethical standards are informed consent, assessment of risks and benefits, and the guidelines established for selecting human subjects (Kaiser, 2012; Marzano, 2012; National Commission for the Protection of Human Subjects of Biomedical Behavioral Research, 1978).

After the foundation was complete and interviews began, I instituted a formal practice of listening during in-depth interviews while omitting my own ideologies or preconceptions (Talmage, 2012; Yin, 2013a). Being prepared to ask thoughtful questions based on a mastery of the issues involved helped me address the unexpected in the interview responses and maintain focus on capturing clarity, understanding meaning, and framing central themes while listening for congruence or contradictions (Talmage, 2012). Although I am not a Southeast Asia expert, I do possess a higher than average understanding about the region. For example, in June 2013 during a conference hosted in Indonesia, I took the opportunity to travel to the ASEAN Secretariat Headquarters in Jakarta, Indonesia, and facilitated an informal discussion about the ASEAN Economic Community and its progress. This discussion, along with another informal discussion at ERIA in Jakarta, Indonesia, helped me narrow the focus of the study. I met with the secretary general of the Thai Bankers' Association and the vice president of application support for the Bangkok Bank to discuss ICT interoperability associated with secure financial transactions related to the ASW 2015 timeline. My background in interoperable telecommunication networks gave me credibility in these discussions. I already had limited knowledge of PPP and project management activity related to NSWs and the ASW.

Despite conducting interviews and observations, this was not enough to provide authoritative insight. I was also aware of the need to understand the complexities of social interaction within the Southeast Asian business culture to understand the underlying business-related issues of Southeast Asia. This knowledge came gradually

from conducting document reviews and enrolling in Southeast Asia study courses.

Traveling and interacting were critical to putting the pieces of the puzzle together. Since 2008, I have worked extensively in Southeast Asian and East Asian countries such as Indonesia, Thailand, Philippines, Japan, Taiwan, and Singapore, and I lived in South Korea, which validated personal insight and biases over numerous years in the region.

Just as important as understanding the regional business environment, networking with single window experts provided intellectual stimulation and insight related to this research (Kyvik, 2013). Online conference review opportunities also enhanced the networking aspect of this research, as did informally communicating with experts on this region when opportunities arose (Kyvik, 2013). After interviews were complete, I used NVivo to compile, code, and analyze the collected data. I then interpreted and reported the study findings (Yin, 2013a).

Participants

Multinational corporation organizational leaders, which included senior executives, program directors, and project managers with critical project management expertise and decision-making authority directly involved in ASEAN's ASW trade facilitation project, were the targeted interview participants in this case study. As this was a multiple case study, voluntary participants originated from two homogenous multinational corporations instituting a single window project. Identifying, vetting, and qualifying each interview participant's required level of key management authority relative to the ASW project was essential. Many qualitative study constructs indicate that participant sampling should proceed up to the point of saturation, which refers to the

point when data and information become repetitious and add no more consequential information to the study. Yin (2012) contended that saturation, not the number of participants, is the yardstick of quality data sampling. For example, 100 people marginally involved will yield a fraction of the valuable data that one key manager possesses and is willing to share. Yin explained that some research-study authors forward the notion that there exist formulaic solutions to determine an appropriate sample size. Yin objected to this in case studies and contended that no such formulas exist.

This saturation concept highlights why theoretical and thematic saturation is the key to identifying adequate sample sizes. Beitin (2012) insisted that many qualitative researchers have shifted from a clearly defined, predetermined number of participants to a focus on the research process as informing the ultimate number of participants; otherwise stated, interviews must continue until saturation or thematic redundancy is obvious. Discrepancies in answering this question demonstrate that there are several debates concerning what sample size is the right size (Dworkin, 2012, p. 1; Rapley, 2014). Through studying the question of how many interviews are enough, most maintain that researchers should have a pragmatic approach and concede only once saturation has occurred (Beitin, 2012; O'Reilly & Parker, 2012; Rapley, 2014).

Lucas (2012) reported that with effective probes, in-depth interviewers can often attain greater precision than larger sampled surveys might attain, and hence in-depth interviews were the chosen method to garner critical information from participants. The authors of these peer-reviewed references demonstrated that qualitative research rigor is not expressible in quantitative terms (Cox, 2012). Patton (2015) recommended

specifying a minimum sample size “based on expected reasonable coverage of the phenomenon given the purpose of the study” (p. 314; see also Merriam & Tisdell, 2015). Although my initial inquiry aimed for an approximate sample consisting of three to five in-depth interviews, the numbers do not drive the research, albeit understood that the more interviews there are, the greater is the confidence or certainty in a study’s findings. If reemerging themes among the four sections of interview questions do not materialize after numerous in-depth interviews, then the process must continue; but if reoccurring theoretical themes do materialize during this process, then the process may end. This method reinforces the argument that researchers must measure the quality and validity of qualitative research with qualitative measuring criteria, not criteria for other types of research (Beitin, 2012; Rapley, 2014).

I based the recruitment criteria of MNC organizational leaders with decision-making and project management authority on extending invitations to decision makers who possessed informed knowledge about the challenges associated with ASW project constraints (see Appendix G). Having used similar methods in Indonesia, Thailand, and Singapore for informal discussions, I was confident I would be able to schedule the requisite amount of participants for in-depth interviews to complete this study. During the formal research phase, I was able to establish contact with potential organizations where I received permission to conduct interviews, and I rendered all documentation to the Walden University Institutional Review Board (IRB) once signed.

Kerzner (2013b) explained why project managers and those with project management certifications are critical to certain studies. Project managers have

intimately knowledge about strategic business models and thus are able to make critical business decisions (Kerzner, 2013b). They are also responsible for bridging business strategy with project execution, participating in the portfolio selection of projects and capacity planning activities, and providing a core competency necessary for the growth and survivability of corporations (Kerzner, 2013b). Kerzner further noted that project managers require certifications other than simply being Project Management Professionals. Current project managers must often have a resume portfolio of demonstrated business management skills, such as (a) program management experience, (b) business process aptitude, (c) capability to manage complex projects, and (d) implementation efficiency certifications associated with Lean Six Sigma certification (Kerzner, 2013b). Because of these requirement parameters, project managers were able to provide the strategic business model insight, PPP strategic insight, and project management insight critical to this qualitative research. My approach aligned with Kerzner in my selection of a purposive sampling strategy of private sector participants. Each participant had some direct oversight of the ASW project, understood the challenges associated with the ASW project, was cognizant of the PPP partnership, and was part of the ASW project management team responsible for critical performance issues. I used a technique similar to a Delphi technique, and my target population provided independent and expert feedback based on their experience as experts in the field of import–export trade facilitation projects across Southeast Asia.

The preferred data collection method for in-depth interviews is face-to-face. In the case of this study, face-to-face interviews were not feasible, so all interviews were

videoconference sessions. I established the sample pool using a deliberate, nonrandom purposive sampling method (Merriam & Tisdell, 2015; O'Reilly & Parker, 2012; Rapley, 2014) due to the difficulty scheduling interviews across Southeast Asian with senior personnel with relevant insight and perspective concerning the business strategies associated with the single window business model, PPPs, and project management related to ASW's 2015 timeline. The goal was to meet with private sector senior management leaders engaged in regional trade facilitation partnerships in Southeast Asia, and I succeeded. A protocol guide helped reduce interviewer and participant bias and ensure uniformity throughout in-depth interviews with the voluntary participants (Pezalla et al., 2012).

Just prior to conducting interviews, I discussed confidentiality to the satisfaction of the intended participant to help ensure a complete understanding during the recruitment phase (Kaiser, 2012). After the prospective participant was comfortable with the confidentiality measures afforded all participants, I discussed a number of other items, including the intent of the study, the purpose of the research, expectations of the participants, expected risks, the protection of confidentiality, and who the participants could contact with questions about the research (Kaiser, 2012). Given such disclosure, the potential participants were able to make an informed decision to consent or not. The consent form is in Appendix E.

Critical to all participants was the ability to trust that I would implement the ethical and confidential protections described in the informed consent form (Kaiser, 2012; Marzano, 2012). I clarified that I would be the only person with access to raw data

acquired during the data collection process to maintain the confidence and protection measure. Data coding maintains the confidentiality of interview participants to avoid deductive disclosure (Kaiser, 2012) and, as the researcher, I was the only person with access to decode the participants linked with their associated data. The thematically categorized data reports appear in the appendices, and I coded the data to protect the confidentiality of all interview participants. If future researchers should need access to the raw data, they would need to contact me directly. All informed consent forms and data coding will remain encrypted and secured online for a period not less than 5 years before the final destruction of the data occurs. After interviews are complete, I compared and contrasted interview responses against the primary research question, as the integrity of accurate participant feedback was vital to the value of this research.

Research Method and Design

This research was a qualitative multiple case study. A qualitative approach supports a conceptual framework best tailored to explore the various detectable business strategies that challenge the implementation of Southeast Asia's trade facilitation project. I explored project management methods, use of PPPs, employment of CPM, and the TOC. These business management methods and tools are especially relevant for a trade facilitation project of ASW's magnitude, which is nearing its targeted completion date. The qualitative research method involves collecting, organizing, and analyzing surrounding data. The collection process, after clearly defining the problem, progresses into a thorough literature review to present background data that underscore the problem statement and facilitate the next step of the study, which is original data collection. The

foundational peer-reviewed material included scholarly studies, dissertations, and professional reports within the Information Technology and Innovation Foundation, ASEAN BAC, OECD, Institute of Southeast Asian Studies, ERIA, World Economic Forum, and other organizations.

The interview process involved interviews with senior-level executives and project managers engaged in the ASW project. The interviewees were leaders of key MNCs who were capable of discussing critical issues such as interoperable electronic fund payments across Southeast Asian regional currencies. Together with field notes from observing online conferences, the interviews wielded the deepest insights into the extant strategies facing ASW implementation. Comprehensively through observations, interviews, research documentation, and opportunistic discussions, I extracted the existing business strategies from informed personnel and assessed them. The reason for conducting the discussions with the project's most elite representatives was to incorporate their views of the business strategies facing the ASW project, especially management strategies such as public-private roles and responsibilities.

Procedures for conducting interviews began by introducing myself as the researcher, this study, and a summary discussion about the interview consent form and confidentiality, which the volunteer participant needed to comprehend and sign before the interview could commence. I formally recognized the individual's participation at that point and started the interview after the participant gave final consent. The preferred method to record data from interviews reliably is traditionally to use digital voice recorders with a safety backup of simultaneously writing notes of participants' replies.

The initial statement, after the recording devices were operational, identified the interview participant and the subject of the interview. The method selected to secure the most information from the interviewee was to ask open-ended questions followed by follow-up questions to show sincere interest and prod for more information. In qualitative research, the free-flowing exposition of views and thoughts is preferable to short answers. Each interview closed with the same final question: Who do you recommend be interviewed next and who could provide additional information for this study? I completed an information sheet after each interview to record details and information that would be helpful in the event of a follow-up session by phone, e-mail, or in person if something was unclear in the transcript data. This follow-up process also extended validity to the research findings.

Aside from interviews and observations, I also referenced the most current peer-reviewed and non-peer-reviewed data on business strategy, best business practices, PPPs, project management methods, project success, and technology that introduce a hierarchy among nations incorporating innovation and information technology in Southeast Asia. After I collected data via all sources and methods, I organized and analyzed the data using a qualitative data analysis program. Several software programs can assist with analyzing captured data. I used the program NVivo 11 Pro for Windows developed by QSR International for this study. Researchers use NVivo 11 Pro to import notes, audio recordings, video recordings, and photos to facilitate establishing themes with the relevant data to support those themes (Davidson, Paulus, & Jackson, 2016; Gibbs, 2014; Odena, 2013; Silver & Rivers, 2015; Woods, Paulus, Atkins, & Macklin, 2015). I

transcribed audio-recorded interviews and filtered them to use only interview data that contributed to addressing the original research question and leave aside irrelevant interview data (Kowal & O'Connell, 2014). Using the identified themes, I identified subcategories that support a comparison to establish reliability between the software-generated themes and subcategories and the manually generated themes and subcategories. Using this same process not only with interviews but also with field notes from online conference observations and document reviews provided reliability and validity to the initial findings.

A quantitative approach would have involved collecting and analyzing quantitative data using statistical procedures to observe and measure numerical information, to examine the relationship between two or more variables, or to confirm whether data support or refute hypotheses (Jenkins, 2012; Yin, 2013a). The quantitative method was not appropriate for the study, as there were no archival quantitative data related to project management methods or to exploring and describing MNC business strategies. A mixed-method methodology involves a combination of collecting and analyzing quantitative data using statistical procedures with the analysis of qualitative data (Jenkins, 2012; Yin, 2013a). The absence of relative quantitative data also excluded a mixed-methods methodology from consideration (Jenkins, 2012, p. 100; Yin, 2013a).

Research Method

When conducting qualitative case study research, three steps serve as a framework to study a complex phenomenon: (a) defining the case, (b) selecting the case study design, and (c) deciding to use or not use theory to refine the case study design or

define the relevant data to collect (Halkier, 2013; Yin, 2013a). The intent behind this case study was to define and explore viable business strategies and explore how to implement these strategies using a variety of data sources. Merriam and Tisdell (2015) and Patton (2015) noted the research method should be as simple as possible because the complexity of research lies in the research problem, especially in exploratory inquiries. If the method is complex, then its many parts and phases might overwhelm the subject under study (Merriam & Tisdell, 2015; Patton, 2015; Reay, 2014). This subjective method is different from the quantitative method, which is objective, confirmatory, and predictive (Merriam & Tisdell, 2015; Patton, 2015).

The study included three data collection techniques to get to the root of the problem: in-depth interviewing, online conference observations annotated in field notes, and research documentation. In-depth interviews support open-ended questions, which provide the maximum flexibility to interviewees to expound freely and penetratingly on each question. The objective was to obtain the optimum amount of detailed information from the interview participants until no new themes or patterns were evident. I encouraged candid comments and conversation that created a congenial atmosphere. The relationship between the researcher and the participant reflects why case study researchers focus on a constructivist paradigm and demonstrates how social collaboration is paramount in a case study approach. Such collaboration facilitates gaining trust and gauging the tone of the interview, how to present oneself during the interview, phrasing awkward questions, managing respondents who falter at answering the interview questions fully, keeping respondents interested in the interview, and getting feedback

(Mikecz, 2012). Because the focus of this study was on the business acumen of senior executives, program directors, and project managers, quality feedback was valuable to understand the project's management and technological strategies.

Research Design

The research design chosen for this multiple case study was empirical, which is one of many designs within the qualitative research method. A case study is empirical when it is an inquiry about a contemporary phenomenon (e.g., a case), set within its real-world context, especially when the boundaries between phenomenon and context are not evident (Fulford, 2013; Gioia, Corley, & Hamilton, 2012; Yin, 2013a). Yin (2013a) further noted that case study research includes an assumption that examining the context and other complex context conditions related to the case are integral to understanding the case. Case study research is explanatory, descriptive, and exploratory and can use a combination of the six data sources to best explore and understand a case: document reviews, archival records, interviews, observations, participant observations, and physical artifacts (Yin, 2013a). The three principles of collecting data for case study research to enhance the reliability of the case study are as follows: use multiple sources of evidence, create a case study database, and maintain a chain of evidence, (Yin, 2013a). Multiple sources allow researchers to address a broader range of issues that support more convincing and accurate findings (Merriam & Tisdell, 2015; Patton, 2015; Yin, 2013a). The chain of evidence concept appears in Figure 18. This design was ideal for this study that involved exploring the business strategies facing single window senior management.

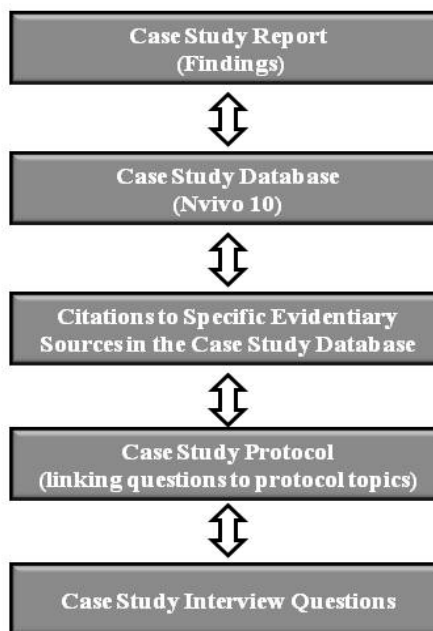


Figure 18. How researchers maintain a chain of evidence and support findings (Yin, 2013a).

Other design approaches were not applicable. Grounded theory is the study of concepts and therefore not a descriptive method (Gioia et al., 2012; Jantunen & Gause, 2014). Grounded theory generates a theory from analyzing collected data. This generated theory produces a new conceptual framework or theoretical explanation that explains a practice, an action, or an interaction about a significant topic (Barbour, 2014; Gioia et al., 2012; Jantunen & Gause, 2014). Synthesized, grounded theory is a type of qualitative data analysis that takes data and creates a theory based on said data. Because the focus of this study was not on creating a broad theory or an explanation of a process, grounded theory did not align with the objective of this study and was not appropriate for exploring the business strategies in the international business sector or the public sector. Because the focus of this study was not on creating a broad theory or an explanation of a

process, grounded theory did not align with the objective of this study and was not appropriate to explore the business strategies in the international business sector or the public sector. I made this acknowledgment despite the fact that grounded theory is rich with observational data and extensively resourced by management and business studies (Jantunen & Gause, 2014).

Phenomenological research involved identifying a shared experience and is interpretive. The focus of research questions under phenomenological research is on individual or collective experiences, thereby validating the use of snowball sampling to identify new participants. Qualitative research methods include interviews, discussions, and participant observations to collect data based on personal experiences. Gathering experiences and perceptions makes phenomenological research extremely useful in challenging or supporting current beliefs or actions. This process might be ideal for researching patients' experiences related to coping with pain related to an illness or addiction related to pain relief medication, all based on a phenomenological research approach. This approach would not have correctly targeted the objectives of the research question for this case study. The phenomenological research design was not appropriate for this study because it is too highly subjective oriented, whereas I sought to explore, find, and verify nonsubjective findings regarding MNC business strategies specifically related to scheduling, budgetary constraints, scope, and other managerial issues.

A qualitative research design was the best fit due to its flexibility and ability to address multifarious issues and to my ability to analyze data in an effort to address the original research question to handle complex issues such as implementing a regionally

interoperable trade facilitation project. Case study supports executing original fieldwork to understand the complex issues associated with the research. Qualitative research requires intense planning and, because of the flexibility previously mentioned, this specific research design would be difficult to duplicate. The data came from in-depth interviews with MNC organizational leaders that included posing open-ended questions in an unbiased manner about the facts of ASW management methods related to business strategies confronting ASW objectives. Seeking data saturation from in-depth interviews involved member checking using the following process: conduct the initial interview, synthesize the participant feedback, offer the opportunity for the interview participant to validate data synthesis, and repeat this process with each interview participant until there were no new data to collect (Barbour, 2014; Kowal & O'Connell, 2014).

Additional data came from field notes after reviewing online conferences involving AMS, nongovernmental organizations such as UNNExT or UNESCAP, the ASEAN BAC, and others. Further analytical data came from research documentation. Such data sources supported a methodological triangulation of evidence input into a database called the ASEAN Single Window Case Study Database, allowing future researchers to review coded data and not be limited to the findings of this case study (Denzin, 2012; Gioia et al., 2012). Executing theoretical saturation with the assistance of NVivo, I reviewed the collected data, field notes from online conference observations, and research documentation to determine if new themes and patterns emerge using a pattern matching analysis (Beitin, 2012; Rapley, 2014, p. 21). Analyzing this feedback and data from the aforementioned data collection methods allows common themes to

emerge and provides descriptive answers regarding what strategies MNC organizational leaders use to implement the ASW partnership contracts to complete ASW region-wide projects. This empirical research design is the hallmark of case study research with multiple data sources, which also enhances data credibility (Merriam & Tisdell, 2015; Patton, 2015; Yin, 2013a).

NVivo plays a prominent role in targeting patterns and themes based on audio transcript reviews, field notes, and document analysis. Individual interviews serve as the evidentiary base for doctoral studies, and the pattern matching analyses provide the insight for the study (Yin, 2013a). Pattern matching highlighted the most beneficial aspects of a business strategy encompassing single window business models, PPPs, and the implementation of project management methods across various NSW and ASW projects.

The roadmap design behind interviews anticipated execution with two volunteer MNCs in contract to execute a NSW project in Southeast Asia. If face-to-face interviews are not possible, then video teleconferences or telephone conferences are a valid alternative for data collection. I anticipated conducting observations while reviewing conferences related to ASW business issues or other online ASW conferences. The single-case and multiple-case study design concepts appear in Figure 19.

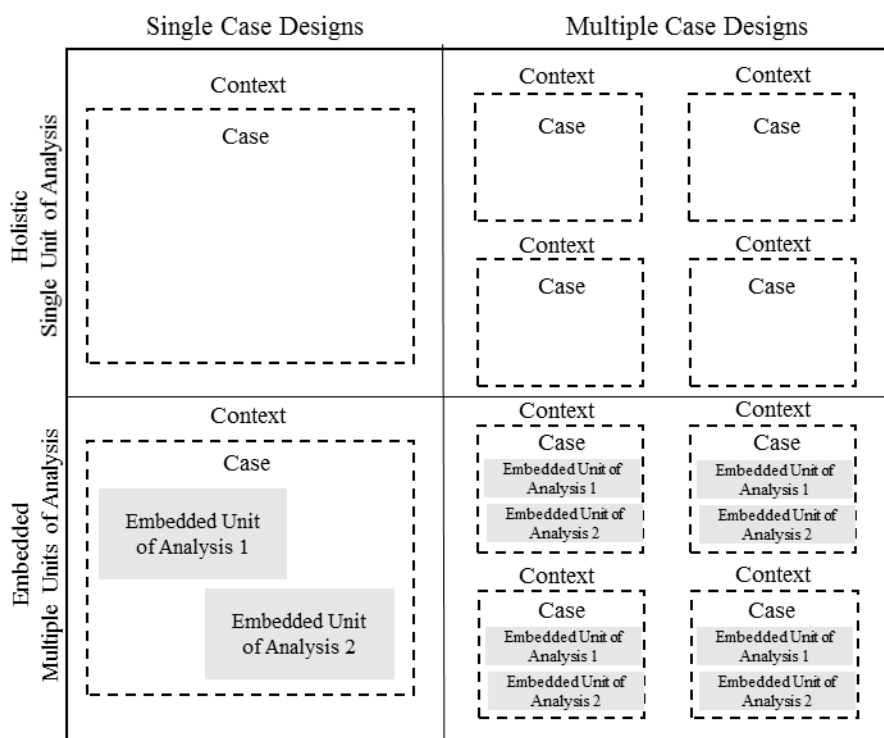


Figure 19. Depiction of single and multiple case study designs (Yin, 2013a).

Until this study was complete, I continued to monitor and review ASW conferences online to gain up-to-date insight from panelists discussing business strategies and their implementation. I added the new insights to data gathered from interviews and research documentation. The detailed research design helped avoid misleading results and wasting valuable resources (Ioannidis et al., 2014). The system of influences on the final decision to select a multiple case study as a qualitative research design appears in Figure 20.

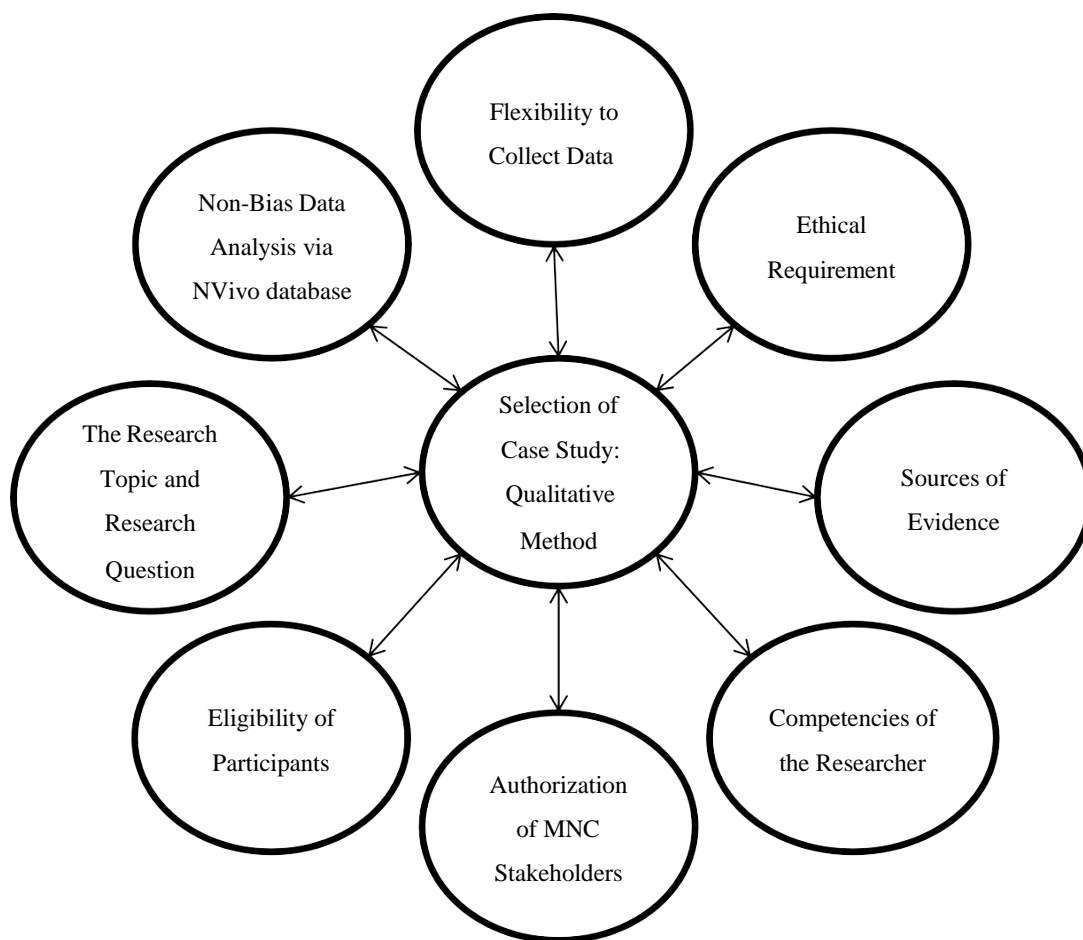


Figure 20. System of influences on research design.

Population and Sampling

In qualitative research, sample size tends to be relatively small compared to other mainstream research methods, particularly quantitative research (Beitin, 2012; Griffith, 2013; Patton, 2015; Talmage, 2012). Quantitative research places a premium on quantity of sampling and data size input as the most important foundation to support, negate, or clarify an inquiry. Qualitative research entails quality input sampling, not quantity.

Within this view of the disciplines of qualitative sampling, there exist two archetypal and demanding types of sample modalities: probability sampling and

nonprobability sampling. The process requires a definition for the population of concern in both cases. The process includes a sampling frame, a sampling method to determine the sample size, a design for interpreting the sampling and data collection, and a specific framework to review and assess the sampling process (Merriam & Tisdell, 2015; Rapley, 2014; Yin, 2013a).

Using nonrandom purposeful sampling (Beitin, 2012; Merriam & Tisdell, 2015; O'Reilly & Parker, 2012; Rapley, 2014; Yin, 2013a), the eligibility criterion required for becoming part of this target interview population was to be, or have been, an MNC trade facilitation executive, program director, or a project manager who participated in the ASW infrastructure development of Southeast Asia. This process of specifying creates a sampling frame from which to identify potential interview participants. Once I confirmed the sampling frame, I determined the sample size followed by the sample method. Sampling logic employed to determine the appropriate sample size of a qualitative inquiry is of importance in ensuring the broadest range of information and perspectives are obtainable on the subject of study (Jenkins, 2012, p. 111; Rapley, 2014; Yin, 2013a). I state again for emphasis that Patton (2015) recommends specifying a sample size based on expected reasonable coverage of the phenomenon given the purpose of the study (Merriam & Tisdell, 2015). Because of a limitation involved in acquiring qualified MNC organizational leaders serving within ASW and NSW projects, I deliberately sought three to five volunteer participants (or until data saturation occurred) from two of the multinational corporations currently managing single window projects in Southeast Asia (O'Reilly & Parker, 2012; Yin, 2013a). Nonrandom purposeful sampling

occurs when choosing a sample occurs in a deliberate manner (Jenkins, 2012, p. 111; Yin, 2013a). Obtaining three to five private-sector volunteer participants was the goal for deliberate sampling because the private-sector volunteers possessed professional information and insight concerning the challenges associated with ASW and NSW implementation (Jenkins, 2012; Yin, 2012, 2013a).

A nonrandom purposeful sampling method provided the latitude needed to select the appropriate personnel based on their expertise, experience, and knowledge from the limited pool of available MNC organizational leaders working on the ASW trade facilitation project (O'Reilly & Parker, 2012; Rapley, 2014; Yin, 2013a). The number of participants directly relates to the holistic design of a case study that involves more than one unit for analysis (Jenkins, 2012; Yin, 2013a). Yin (2013a) noted that this occurs when researchers give attention to subunits. National single window projects were subunits of the pan-ASEAN ASW project in this case study. Data from NSW trade facilitation executives were a vital source of information because NSWs are the building blocks of the greater ASW construct. I interviewed both NSW and ASW multinational corporate organizational leaders to obtain evidentiary data for this study's holistic findings. This study was complex and encompassed both major and minor components. I was singular in my objective to probe the axial problem statement, which concerned MNC organizational leaders' inability to demonstrate to ASEAN partners their business capability to manage and complete the ASW partnership contract on schedule.

The conclusive assessment from the extensive literature research underpinning this study was that researchers have performed less than five studies that involved

tackling and examining project management strategies, performance metric tools, and KPIs (Wells, 2012). Collectively, the studies offer only a modicum of knowledge into why the project success rates of the ASW remain consistently low, as noted by researchers at the Standish Group (Wells, 2012).

The goals of this research study were to (a) fill a significant gap where insufficient research exists that might explain the perceptions of factors in the project management decision-making process, (b) gain a specific and clearer understanding of the influences and factors considered by senior decision makers in monitoring project management metrics and KPIs, (c) ascertain the perceptions of best practices held by these project managers, and (d) report on the knowledge gained concerning project management CSFs. This study involved exploring the experiences and perceptions of MNC organizational leaders working on NSW or ASW projects in Southeast Asia to facilitate reaching these goals. Among the population of private sector project managers and business executives available across the various PPP structures established with AMS, I sought two MNC organizations managing a single window project and within those MNCs interviewed a minimum of three nonrandom qualified volunteer participants. Yin (2012) repeatedly explained that although some researchers contend that there exist formulaic solutions to determine an appropriate sample size, he took exception to this argument and insisted that no simplistic sampling formulas exist in case studies. Yin asserted that theoretical and thematic saturation from superlative sources and participants is the surest way to secure the optimal sample size. For this reason, Yin noted that participant goals are goals, not requirements.

The eligibility criterion for participation in this study was current MNC organizational leaders directly involved in ASEAN's ASW and NSW trade facilitation project who possessed critical project management expertise with decision-making authority. If MNC organizational leaders presently engaged in the ASW and NSW project were unavailable, then I would locate MNC organizational leaders with the most current working knowledge and experience to serve as participants. Reoccurring employee turnover during the ASW project within the private sector might have required the inclusion of participants who were not in their current position when the existing single window partnerships were formed. However, this was not a problem. This precautionary consideration underlined the need to conduct in-depth interviews persistently until theoretical or thematic saturation was attained (Jenkins, 2012; Rapley, 2014; Yin, 2013a).

The embedded subunits of case study research must be logically identifiable and afford a researcher the ability to draw forth sufficiently clear measures from data collection efforts (Jenkins, 2012; Yin, 2013a). An individual, group, organization, country, or nation can be a subgroup in a case study (Jenkins, 2012; Yin, 2013a). Though an individual, such as a project manager, can be the sole member of a subgroup and represent a case, two or more subgroup members naturally produce a better and more significant representation in most case studies (Jenkins, 2012; Yin, 2013a). Yin (2012) noted the smallest subgroups facilitate covering key issues intensively and in great depth. The smallest number of participants in each subgroup is one, and the corresponding smallest number of participants is three (Jenkins, 2012; Yin, 2013a). Although my initial

inquiry aimed for two to three MNCs with three to five in-depth interview participants, the number of participants does not guarantee the most effective research. I was cognizant that the more interviews I completed, the greater confidence and probable certainty would exist in the findings. I was pleased with the number of participants I was able to interview, as well as their extensive grasp of the ASW's machinations and challenges. In summary, I determined that if reemerging themes among the interview questions did not appear after three in-depth interviews, then the process would continue. If reoccurring theoretical themes were clearly identifiable earlier in the process, then the process was successful and would end at this point, which indeed happened (Beitin, 2012; O'Reilly & Parker, 2012; Rapley, 2014).

Locations avoided as interview settings included public places such as coffee shops, hotel lounges, and workplace common areas. Preferred interview settings consist of private settings, no ambient noise, no ambient conversations, and no extraneous personnel in the room to improve the transparency of the interview setup (Potter & Hepburn, 2012). The desired location had a minimum of two chairs, a desk dividing the researcher and interview participant, and adequate lighting. Minimal noise supports quality transcription of digital recording for all interviews. The table supported a microphone and digital recording device, in addition to note taking, and lastly chairs helped construct a relaxing and professional environment. Ambient lighting is necessary to analyze body language and facial expressions that coincide with interview feedback. Because the interview environment is crucial to a successful in-depth interview session, these attributes with similar conditions were mandatory. However, due to the dispersion

of the participants all interviews were conducted as videoconferences with each participant participating from their office locations which were recorded and later transcribed.

Ethical Research

I informed all prospective interview participants that Walden University's IRB process requires submission and university approval of the IRB packet before a researcher can conduct research and collect data to accomplish research associated with exploring MNC business strategies (Jenkins, 2012). The purpose for this disclosure was to validate the authorization from Walden University to conduct research based on a formal approval process. The disclosure demonstrates that the researcher did not simply review ethical safeguards but rather implemented them to protect the participants (Hammersley, 2013; Nind, Wiles, Bengry-Howell, & Crow, 2012; Roberts, 2015). This disclosure process is specifically evident in the efforts made to protect the confidentiality of interview participants, affording them latitude to speak candidly without fear of retribution (Kaiser, 2012). After confirming protections for confidentiality were in place, the next hurdle was to assess the likelihood of any physical or psychological threats to the participants (Hammersley, 2013; Nind et al., 2012; Roberts, 2015).

After these safeguard strategies were in place, I rendered invitations to MNC headquarters via e-mail. The e-mail provided an introduction about me, written details concerning the purpose of the research, my role as researcher, the expectations of the interview participants, and a formal request for the MNC senior leaders to volunteer interview participants. The objective of sending out invitations to MNC headquarters

was to obtain access to three in-depth interview participants to participate on a voluntary basis.

Each participant received an informed consent form for adult participants 18 years of age and older that also discussed confidentiality along with a blank volunteer information sheet (see Appendices E and G) to ensure clarification of the participants' role in the research. All electronic invitations rendered a delivery receipt and read receipt to confirm delivery. When accepted, I rendered calendar invitations via e-mail as a reminder of the pending interview. To minimize any bias, I did not offer any incentives to the participants for their participation in this study. The targeted objectives of this research based on single window business models, business process analysis, PPPs, and project management methods that appear to be most effective were intriguing enough to attract corporate participation.

I notified the participants that they had the right to withdraw from the study at any time by contacting me and that they could withdraw by sending an e-mail, placing a phone call, or talking to me on the day of the interview and stating a desire to withdraw from the interview (Marzano, 2012). If participants decided to withdraw during the interview, I would destroy all information they contributed to this study (Marzano, 2012), which would include destroying any electronic recordings and leaving any documents with the interviewee. I reiterated that withdrawing from this process would be without prejudice to any volunteer participant (Marzano, 2012). I reiterated that neither their names nor the names of their respective organizations would be identifiable in the study (Marzano, 2012). Deliberate coding reinforced that only I had knowledge and access to

the names of the individuals and organizations involved in the study. I ensured completed information sheets remained secured by a password and on a secure website to protect confidentiality. All research findings related to these interviews refer only to the coding master key, which allowed clear insight into the NVivo automated coding and corresponding findings.

As per protocol, I did not ask any interview participant anything that could compromise their personal well-being or professional status, and I continuously reminded participants of the right to refuse to answer any question that could cause an ethical dilemma based on compartmentalized professional or trade policies. Regarding confidentiality, I discussed in detail that the data collected from all interview participants associated with the study would remain within a secure data storage website for at least 5 years. Only after the 5-year period has elapsed would data destruction transpire. Such steps are critical to establishing validity as a fundamental factor in establishing trustworthiness as a measure of qualitative research (Elo et al., 2014; Timulak, 2014).

Data Collection Instruments

This research encompassed three different types of data collection instruments. Semistructured in-depth interviews served as one data collection instrument, field notes from online conferences served to annotate observations, and relevant research documentation offered facts relevant to single window business strategies. The critical advantage of in-depth interviews is the ability to query participants about their opinions and insights concerning occurrences in addition to inquiring about the facts of a matter (Gioia et al., 2012; Jenkins, 2012, p. 116; Yin, 2013a). The potentially divergent

opinions and impressions that stem from different interview participants answering the same questions can result in a diverse range of answers and circumstantial interactions between the participant and the interviewer (Jenkins, 2012; Yin, 2013a). An in-depth interview protocol involves creating semistructured interview questions based on the foundation of a thorough literature review (Jenkins, 2012, p. 116; Yin, 2013a). The interview protocol guide (see Appendix F) included not only the interview questions but also probing follow-up questions to the interviewee's first response to elicit full and complete responses during the interview. Upon completion of interviews, NVivo served as an organizational and analytical instrument based on transcriptions. Imported field notes from observations into NVivo facilitated the ability to analyze data for subtler patterns, themes, and nonverbal affirmations or denials (Davidson et al., 2016; Gibbs, 2014; Odena, 2013; Seale & Rivas, 2012; Silver & Rivers, 2015; Woods et al., 2015). Coffey (2014) defined documents in qualitative research as covering a potentially broad spectrum of literary or textual information, data sets, or even visual devices such as photos that enable information sharing, and thus documents in this sense are all artifacts. I imported these documents into NVivo to organize the large amount data.

The strength of semistructured interviews is that the researcher has control of the topics and the format (see Appendix F), which is useful for inexperienced interviewers. Researchers select the semistructured interview to elicit patterns and themes related to the most effective business management styles and techniques but will not elicit scores (Jenkins, 2012; Yin, 2013a). I needed to be proficient in the art of conducting interviews

as the data collection facilitator and to set the appropriate tone to gather valuable data. It was critical to conduct rehearsals using the interview protocol guide.

Field notes are descriptive, without inferring personal views and biases. I noted personal views and biases later in a personal journal, thereby maintaining separation from personal insight and struggles as the research was taking place. As the process of transcribing notes and interviews took place, an initial form of analysis simultaneously started to appear. Employing a process of triangulating data collected from semistructured interviews, field notes from conferences posted online, and research documentation ensured greater validity of findings. I used this collection of instruments throughout the case study.

Data Collection Technique

The three principles of collecting data for case study research are (a) use multiple sources of evidence, (b) create a case study database, (c) and maintain a chain of evidence that enhances the reliability of the case study (Jenkins, 2012; Yin, 2013a). Gioia et al. (2012) highlighted three techniques for adding qualitative rigor to data collection: (a) give extraordinary voice to informants and treat them as knowledgeable agents, (b) preserve flexibility to adjust interview protocol based on informant responses, and (c) backtrack to prior participants to ask questions that arise from subsequent interviews. Such member checking techniques will help ensure rich data are available.

A case study database is an increasingly useful analytical tool that strengthens the reliability of case study research (Davis, 2014; Yin, 2013a). Database management involved using three separate kinds of collected data. First, I imported evidentiary-based

data acquired from in-depth interviews using the NVivo software as a means for independent future study using coded raw data or the support of independent inspections of coded raw data. The second and third kind of data consisted of case study field notes from observing ASW conferences posted online and research documentation. The data collection process highlighted a legitimate effort to build a formal database consisting of evidentiary-based data, case study field notes, and research documentation. NVivo's data management process enhances reliability by processing all data into its software-generated database for analysis (Odena, 2013; Seale & Rivas., 2012; Woods et al., 2015; Yin, 2013a). All handwritten or computer typed notes were scanned using a PDF format for electronic storage to minimize document fragility (Yin, 2013a). Using an electronic storage process supports efficient retrieval.

Several observation strategies are available in support of case study field notes. This study involved implementing an observation technique for data collection that involved observing online conferences related to ASW business strategies. My observational fieldwork also included collecting observations from in-depth interviews and the surrounding environment as the opportunity arose (Walshe, Ewing, & Griffiths, 2012). A key practice of accurately recording observations, whether reviewing online conferences, speeches, or during interviews, is to be conscientious and actively quote participants verbatim. Marvasti (2014) noted the best method to represent observations is to describe them as eyewitness accounts where researchers collect data, information about the situation, and what it means while separating out inferences, which take observations and lend explanations and judgment to them. I executed my observational

plan exactly to record observations accurately. The ASW observational protocol template is in Appendix H.

Qualitative observational data collection can contribute to data triangulation (Walshe et al., 2012), as highlighted by the overlapping effect of data that provides reliability and validity to any findings without solely relying on either independent source of data (Marvasti, 2014), which is what this data collection plan accomplished. Reviews of all field notes were complete within 48 hours of terminating interviews or observing conferences to reflect on observations and to safeguard the data. An audio recorder supports capturing and reviewing data from in-depth interviews.

A logical review process helps in preparing interview questions to establish linkages that create, review, and validate specific questions incorporated into the actual interview process (see Appendix I). I developed relevant interview questions based on UN/CEFACT's (2006) *Case Studies on Implementing a Single Window* to meet the needs of this study and to increase validity. I successfully collected sufficient data from all sources to ensure enough evidentiary evidence existed. Based on the data collection technique, the distances between the countries involved, the adoption of existing interview questions, and the time constraint of a 2015 deadline, there was no pilot study. Effective data management facilitated my conclusive findings within this contextual case study of MNC business strategies.

Data Organization Techniques

I typed, saved, and backed up all forms of data collection using the online data service Dropbox. Scanning all handwritten field notes mitigated the fragility of physical

notes and maintained a paperless concept. I used a research log in the form of a spreadsheet to sort data based on specified queries to organize collected data. A database matrix facilitated establishing linkages between literature reviews, data themes, subcategories, and coding systems. Analyzing the feedback and data from the data collection methods led to common themes emerging and to descriptive answers about the strategies MNC organizational leaders use to implement the ASW partnership contracts to complete ASW region-wide projects.

I then compared the manual database, referred to as the ASEAN Single Window Case Study Database, to NVivo's automated coding and classification process to ensure validity and reliability in the coding and classification process. According to Saldaña (2012), manual coding requires seven personal attributes that all qualitative researchers must have, in addition to cognitive and analytical abilities: organization, perseverance, an ability to deal with ambiguity, flexibility, creativity, ethics, and an extensive vocabulary.

I employed the computer-aided qualitative data analysis software (CAQDAS) NVivo to enhance my ability to establish an automated database in support of organizing the data that I coded to identify themes, categories, and subcategories. Coding from NVivo comes in the form of quotes as opposed to descriptive codes, initial (first impression) codes, process codes, index codes that help organize data, and analytical codes subjectively derived from patterns in the data (Gibbs, 2014; Odena, 2013; Seale & Rivas, 2012; Woods et al., 2015). The competing processes validate the requirement to use the automated and manual coding processes.

A straightforward, methodical approach is preferable to a more complex method that, through its own complexity, can complicate the complex subject matter and does not ensure a superior design or superior analysis (Merriam & Tisdell, 2015; Patton, 2015). I therefore made the research design coherent, clear, and simple. I avoided creating too many confusing codes that detract from the qualitative analysis. I will safeguard all data for a period not less than 5 years. After 5 years have elapsed, I will destroy all data.

Data Analysis

Qualitative data analysis is a complex and challenging part of the research process (Dierckx de Casterle, Gastmans, Bryon, & Denier, 2012). Due to the significant degree and volume of variables required to execute pilot testing across ASEAN's region, I adopted relevant questions from the UN/CEFACT's (2006) *Case Studies on Implementing a Single Window* to meet the needs of this study. Semistructured interviews established insightful perceptions on whether the private sector could facilitate business strategies to overcome ASW barriers by the target dates of 2015 and 2018, depending on the country.

I validated questions from an extensive review of the scholarly literature, books, and observations throughout the region related to the business strategy of semistructured interviews. The first business strategy targeted single window business models geared toward creating an effective business strategy to implement an interoperable and profitable trade facilitation network. The focus of Strategies 2 and 3 was on PPPs and project management methodology for the single window implementation phase. The fourth business strategy was to explore the correlations between the first three strategies

to identify what other private businesses must achieve to implement and manage such a complex regional infrastructure project successfully. The primary purpose of the investigative questions was to gather qualified feedback based on a purposeful sampling of experienced insight focused on the best-suited management strategies for an ASW project. Appendix I helped to organize the complete listing of interview questions.

Throughout this case study, interim analyses and interpretations served as the primary means of collecting and organizing data. Patterns that emerged became the indicator of when adequate data exist in each specific area of concern (Braun & Clarke, 2012; Willig, 2014). Only within this analytical process did data become meaningful through interpretation (Braun & Clarke, 2012; Willig, 2014). The six techniques for data analysis are pattern matching, linking data to propositions, explanation building, time-series analysis, logic models, and cross-case synthesis. Identified patterns and themes from the six techniques of data analysis highlighted the most success-oriented business strategies to overcome existing barriers and effectively implement individual NSW projects and a collective ASW project across Southeast Asia. Willig (2014) described thematic analysis as the process of identifying themes in the data that capture meaning that is relevant to the research question and perhaps to making links between such themes. Gibbs (2014) and Woods et al. (2015) identified seven techniques for data analysis: constant comparison analysis, classical content analysis, key-word-in-context, word count, domain analysis, taxonomic analysis, and componential analysis.

Regardless of which technique a researcher implements, Bazeley and Jackson (2013) explained how NVivo supports the analysis of qualitative data in five principal

ways: managing and organizing data, managing ideas, querying data, graphically modeling the ideas and concepts being built from the data, and reporting from the data. NVivo provides deep and flexible analysis with one major advantage, which is how it offers a single storage location that can be offline on the computer's hard drive, which includes risks, or alternatively online, which also includes risks. Both data storage methods can store large amounts of data with consistent coding schemes (Paulus, Woods, Atkins, & Macklin, 2015). Although consistent in approach, a significant amount of time is necessary to comprehend the functionality of data analysis software (Paulus et al., 2015). NVivo is a tool that researchers use to determine consistency and nonconsistency in data analysis (Davidson et al., 2016; Odena, 2013; Paulus et al., 2015; Seale & Rivas, 2012; Silver & Rivers, 2015; Woods et al., 2015). NVivo helps overcome data overload, provides confidence in findings, and identifies uneven reliability (Odena, 2013; Paulus et al., 2015; Seale & Rivas, 2012; Woods et al., 2015). To ensure I properly configured the NVivo database and learned its various features, I participated in one-on-one tutoring with a NVivo professional consultant to enhance my knowledge of this qualitative software tool.

Yin (2013a) explained that using an extensive array of sources of evidence, such as interviews, observations, and research documentation, provides a broad range of data that assist in developing triangulation and corroboration. Among data triangulation methods using the aforementioned sources of data, methodological triangulation and data source triangulation are perhaps the most popular triangulation methods compared to researcher triangulation and theory or perspective triangulation (Yin, 2013b). I chose

methodological triangulation, which researchers use to code, analyze, and manage data from in-depth interviews, observations, and research documentation to determine if any overlapping and convergent data exist. This process lends qualitative rigor to a purposively designed triangulation process to validate if the findings are convergent and overlapping (Yin, 2013b, p. 324). Achieving qualitative rigor is incumbent on the research design and the researcher, as no benchmarks or operational procedures exist to define when methodological triangulation is complete or incomplete while seeking to establish quality in this qualitative data analysis (Barbour, 2014; Yin, 2013b, p. 324). Roulston (2014) reinforced this concept by indicating that there is no one correct way to analyze qualitative interview data and therefore supported relying on the analytical design to address an exhaustive data analysis.

Figure 21 highlights and demonstrates the distinct differences between simply having multiple sources of data and conclusions and using methodological triangulation to corroborate data (Yin, 2013a). Research is a triangulation procedure, as researchers identify theoretical themes from qualitative data analysis and support them using more than a single source of evidence. Triangulation also addresses construct validity issues (Yin, 2013a). Further justifying my methodological triangulation selection, Yin (2013b) noted that of the four types of triangulation, the methodological and data source types are the most likely to strengthen the validity of a case study evaluation.

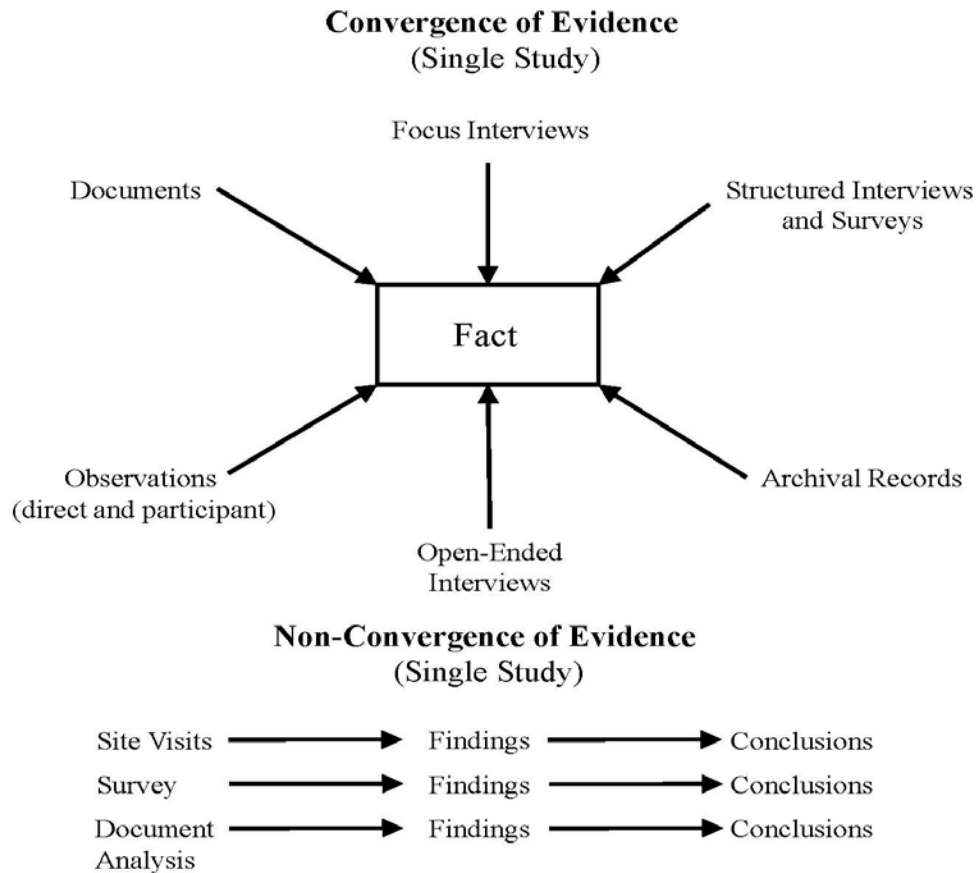


Figure 21. Convergence and nonconvergence based on multiple sources of evidence (Yin, 2013a).

As NVivo software data triangulation supports importing audio and video interviews, verbatim transcripts, research documents, and word-processed field notes, NVivo ideally facilitated identifying theoretical themes as a result of its ability to organize large quantities of qualitative data, which I manually analyzed for viable corroboration and correlation. Using NVivo's automated tools produced a frequency tag cloud that identified the most frequently occurring words, phrases, or other characteristics from the various qualitatively coded data sources to highlight correlations from an

automated method. I also conducted simultaneous analysis to extend validity and reliability (Santiago-Brown, Jerram, Metcalfe, & Collins, 2014).

To highlight the intensive data analysis conducted, the detailed description of the numerous reviews begins with the first pass of the data analysis, data familiarization, that encompassed transcribing interviews, examining and reexamining interview data, video data, and reports (Braun & Clarke, 2012; Granot, Brashear, & Motta, 2012). The second pass, open coding or generating initial codes, encompassed writing initial descriptive thoughts to develop open coding. I subsequently conducted the third pass of data analysis, categorization of codes and searching for themes, that helped to merge similar codes into possible themes. Another key task that I needed to do during this phase was developing specific definitions for the codes so that subsequent analysis was consistent. Phase 4, which involved breaking codes into subcategories and reviewing themes, required analyzing how to break down the codes into subcategories for more substantive insight. One example from interview feedback represented the understanding of interview feedback as aspirational or reality highlighting divergent views. Such detailed analysis conducted to execute data management produced a higher understanding of the qualitative aspect examined. The fifth pass of data analysis, data reduction and defining and naming themes, encompassed consolidating codes into refined themes for the final findings. The sixth and final pass, producing the report, involved extrapolating meaning to write the analytical memos used to produce Section 3 findings and produce a robust and cohesive codebook. The data analysis process demonstrated how I used the NVivo software as a tool to organize data but not as a tool to conduct phased and iterative

analysis, which I conducted specifically. The rigorous thematic analysis of triangulated sourced data executed to develop Section 3 findings appears in Figure 22.

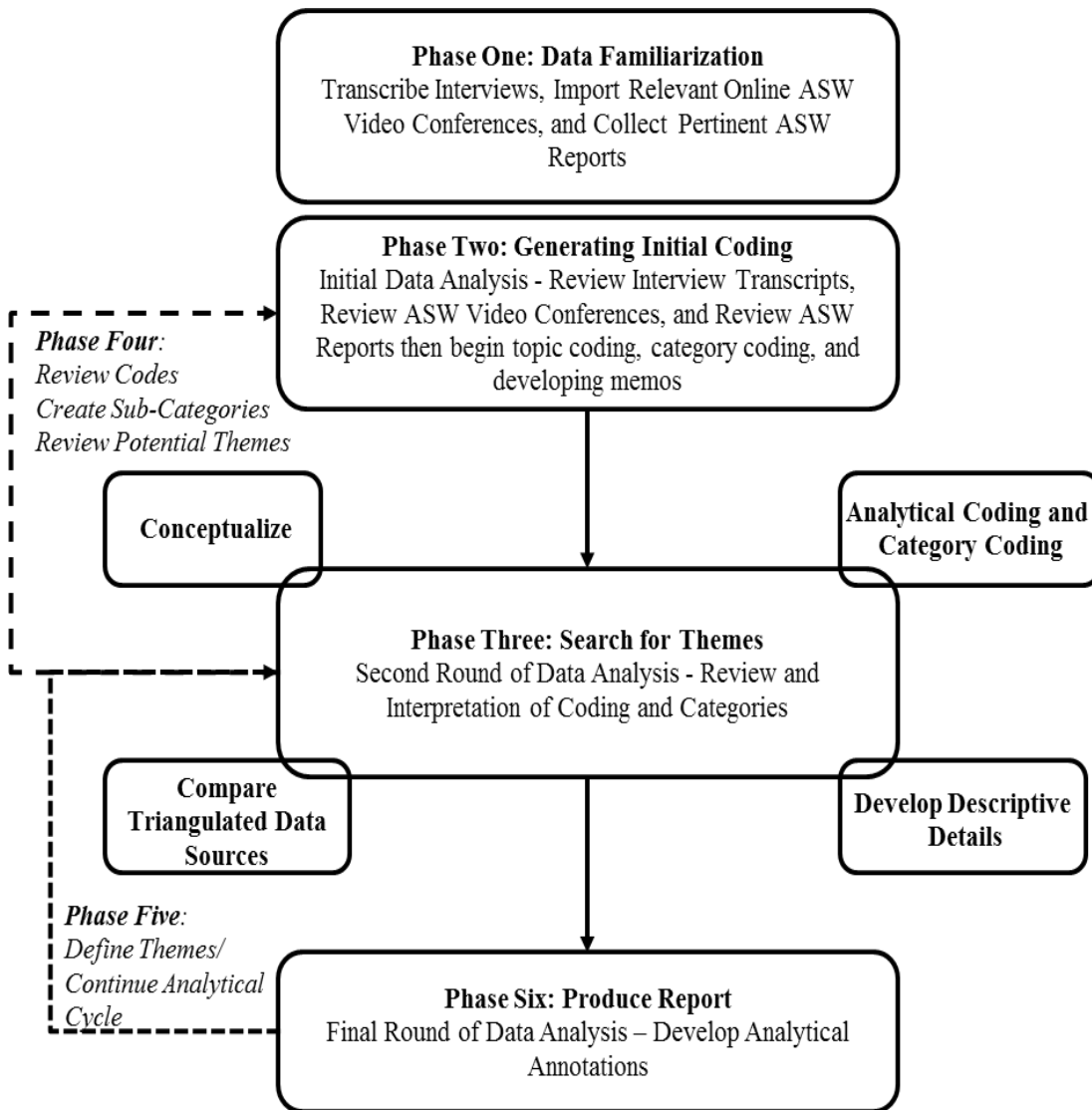


Figure 22. Thematic analysis process cycle (Braun & Clarke, 2012).

Reliability and Validity

Reliability

During the period I collected and organized data, I also simultaneously reviewed and analyzed data using qualitative data analysis software. Several software programs

are available to analyze qualitative data, but I used NVivo software by QSR International for data analysis. Researchers use NVivo to import notes, audio recordings, video recordings, and photos to organize and establish themes from research data (Davidson et al., 2016; Gibbs, 2014; Odena, 2013; Paulus et al., 2015; Seale & Rivas, 2012; Silver & Rivers, 2015; Woods et al., 2015). The automated aspect of analyzing data expedites the process of identifying themes from the various sources and forms of data. I captured reliability by conducting various reviews of field notes and interview notes, in addition to repetitiously reviewing transcriptions of audio-recorded interviews (Gibbs, 2014; Odena, 2013; Paulus et al., 2015; Seale & Rivas, 2012; Woods et al., 2015). By employing this method, a clear direction of convergence and themes appeared during data collection. Using these themes, I identified subcategories and compared them with automated results to provide reliability between the software-generated themes and manually generated themes. I implemented this comparison process with interviews, field notes from observing online conferences, and document reviews to provide validity to the initial findings. The objective of research reliability is to ensure that if another researcher follows the same procedures for a case study, the researcher would arrive at the same or similar findings and conclusions (Yin, 2013a). Following this objective, the goal is to minimize errors and biases in the study (Yin, 2013a). A reliability roadmap of this study would facilitate replication by developing and using an interview protocol guide, transcribing in-depth interviews to facilitate transcription review, conduct member checking to confirm the accurate synthesis of data, and use NVivo to generate nonbiased

and reliable findings. The goal of reliability is to minimize errors and biases by strictly following case study protocol (Yin, 2013a).

A research study is valid when (a) a researcher properly collects and analyzes data and (b) the conclusions accurately characterize, reflect, and correspond to the real world phenomenon under study (Jenkins, 2012; Yin, 2013a). The next section includes the research steps taken to ensure validity in this multiple case study. It also helps to provide confidence in the research process.

Validity

I implemented this comparison process with interviews, field notes from observing online conferences, and document reviews to provide validity to the initial findings. Triangulating the data provided the validity required for this study (Denzin, 2012) via the collection of a multiplicity of data on the same subject matter with the objective of coalescing multiple perspectives, views, or theories to generate data saturation that is more than achieving corroboration or consensus (Gringeri, Barusch, & Cambron, 2013; Houghton, Casey, Shaw, & Murphy, 2013; Jenkins, 2012, p. 141).

Due to the complexity of qualitative research, duplicating the results would be extremely difficult, so the reliability roadmap discussed is essential. I could not confine the variables in this study and the variables could not remain constant, as outcomes naturally vary within such a complex study.

Credibility refers to the trustworthiness and plausibility of research findings (Elo et al., 2014; Timulak, 2014; Tracy, 2010). Achieving the highest credibility requires detailed, multitiered, and extensive planning using numerous methods (Tracy, 2010).

Paramount to credibility is the ability to adapt and implement design methods, collection techniques, and analysis practices used in comparably related research (Yin, 2013a). There are some similarities between my research foundation and design methods and those of Husin Tjhiong Sie. Husin Tjhiong Sie focused on forging an economic integration among the ASEAN Economic Community, which provides distinct symmetry with my study on the business methodologies and associated business hurdles MNCs face in successfully implementing a single window trade facilitation platform.

Before I started my research, I was able to conduct a preliminary visit to the Thai Bankers Association. This meeting helped me build a fundamental familiarity and understanding of the electronic financing side of ASW's business challenges. I met the secretary general and the chief of ICT projects to discuss their role in the electronic payment portion of the ASW project, and I visited the Thai NSW call center in Bangkok. Both opportunities provided invaluable insight relevant to this study at an early stage.

To provide more credibility, triangulation of in-depth interviews, field notes from online conference observations, and collecting pertinent documents helps compensate for gaps or shortcomings in any one data collection method to reach data saturation (Denzin, 2012). Researchers triangulate data to review the same data from different perspectives to determine confirming and disconfirming evidence (Tracy, 2010). Critical to obtaining maximum benefit from in-depth interviews, corporate documents provided objective insight to this research. The intent of such actions is to provide concrete and rich detailed data that are diverse in perspective but still directly relevant. Although diverse data converge, they lend credibility to research (Elo et al., 2014; Tracy, 2010; Yin, 2013a).

In an attempt to establish trustworthiness and openness, researchers give each participant the opportunity to decline participation to ensure data gathered do not undergo undue influence (Elo et al., 2014; Yin, 2013a). This credibility process also improves the legitimacy of the data collected and the research findings. To reduce participants' concerns, I made it clear that I had no association or relationship with any corporations involved with NSW or ASW projects and that the research was academic. During the interviews, I used an iterative approach, which means that as I collected feedback, some responses required returning to previous questions to gain better clarity or identify inconsistent answers (Dierckx de Casterle et al., 2012). Highlighting inconsistencies demonstrates transparency, credibility of the research findings, and a means to validate transcript accuracy. Throughout the research process, I maintained contact with my mentor to receive guidance and to discuss perceptions as I collected initial findings. This process served as a forum to discuss and potentially reveal concerns or biases. The most important aspect of credibility is member checks (Barbour, 2014; Elo et al., 2014; Tracy, 2010; Yin, 2013a). Member checks are a method to confirm data saturation while providing volunteer participants an opportunity to review data synthesis (Barbour, 2014; Kowal & O'Connell, 2014). Although some methodologists question this practice as a threat to validity, this procedure is an ethical technique to ensure proper representation of participants' intentional replies to the interview questions (Elo et al., 2014). Procedurally, researchers may ask interview participants to explain patterns observed to protect the validity and the emergence of accurate findings. Such analysis and verification of emerging theories and inferences are vital to the validity of this

evolutionary process and the eventual findings (Elo et al., 2014). I alleviated the impression of undue influence in support of credibility by acknowledging that I received no public, private, or not-for-profit funding in its execution.

Transferability refers how research findings of one study may be applicable to another study (Elo et al., 2014; Tracy, 2010). Due to the qualitative nature of this study, it is difficult for future researchers to replicate the same conditions and influences, though similarities exist. Researchers at JASTPRO conducted a broad survey in 2012 of the ASW project and provided specific insight for the leaders of the respective MNCs facilitating the single window projects on behalf of public sector partners. Ke (2013) earned a doctor of philosophy after conducting a study titled, *ASEAN Economic and Political Integration: Legal and Institutional Enquires Into Prospects for Deep Integration* in support of the ASEAN Economic Community. Perhaps most relevant, Husin Tjhiong Sie received a doctor of business administration in 2002 for a study titled, *Forging an Economic Integration: The Case of ASEAN*. Husin Tjhiong Sie examined the economic integration of AMSs using a Pearson's correlation coefficient to study the business cycles of each AMS to overcome the 1997 Asian Financial Crisis. Although these dissertations and professional findings do not structurally align with this study, there are significant portions that lend themselves to the transferability of relevant and broad concepts and research methods. Each of these reports demonstrated the urgency that the Southeast Asian region is forging to enhance economic growth through increased international business opportunities using sophisticated business management models and advancing global supply chain avenues. I constrained the focus of this study to explore

single window business models, PPPs, and the project management aspect of import and export integration challenged by constricting schedules, budgets, and scope requirements across the AMS region.

A high level of dependability indicates that if a researcher repeats research under the same conditions with the same participants, the results would be compatible (Elo et al., 2014). Although qualitative research findings are difficult to replicate, rich descriptive methods must be available to ensure any future study could accurately reconstitute the setting to resemble the existing study environment. This process is also relevant to offering a detailed view of each research step planned and executed, and if it is effective upon review. I presented the same interview questions to all participants using the interview tool developed to elicit detailed feedback through repetition. Data imported into NVivo provide a database of dependable data and findings if researchers rely only on software-generated patterns and themes.

Confirmability indicates that the findings of any research are objective, that the findings derive from the information collected, and that the findings do not reflect the bias or prejudice of the researcher (Elo et al., 2014; McCann, 2013; Yin, 2013a). A self-reflective journal of thoughts and perceptions or the morphing of those perceptions as research takes place reveals how data collected determine the findings, which may or may not coincide with initial thoughts (Berger, 2013; Finlay, 2012; May & Perry, 2014; Tracy, 2010). Triangulation is the best method to minimize researcher bias (Denzin, 2012).

I made every attempt to maintain credibility, transferability, dependability, and confirmability to ensure I adhered to academic and ethical integrity to throughout this study, which helps ensure this study will extend academic knowledge to international businesses by trying to develop, implement, and maintain long-term infrastructure projects in Southeast Asia. These four quality criteria for the reliability and validity of qualitative research form the standard for trustworthiness (Elo et al., 2014). Table 7 indicates how employing tactical criteria ensures quality in the research design.

Table 7

Case Study Tactics

Tests and case study tactics	Phase of research in which tactic occurs
Construct validity	
Use multiple sources of evidence	Data collection
Establish chain of evidence	Data collection
Have mentor and key informants review draft of case study report	Composition
Internal validity	
Do pattern matching w/ NVivo	Data analysis
Do contextual explanation building	Data analysis
Use replication logic	Data analysis
External validity	
Use theory in multiple case studies: Sampling generalizations is not compatible with this small sample population	Research design
Reliability	
Use case study protocol e.g., data collection procedures	Data collection
Develop case study database w/NVivo	Data collection

Note. Source: Yin (2013a).

The three forms of validity are construct, internal, and external. Researchers use construct validity to recognize attributes they measure, cannot directly observe, yet consider worthwhile concepts of a study (Hitchcock, Onwuegbuzie, & Khoshaim, 2015).

Combining multiple sources of evidence, establishing a chain of evidence, and having a mentor will measures of construct validity. Key informants also reviewed my case study findings.

Internal validity provides insight based on the research design, while CAQDAS helps take patterns and inferences from that design and develop logically constructed models in support of such data analysis (Gibbs, 2014; Paulus et al., 2015; Seale & Rivas, 2012; Woods et al., 2015). Internal validity facilitated exploring business strategies to highlight if data collected through observations, in-depth interviews, and document research provided evidence to overcome ASW-specific business barriers. The strength of a case study lies in its high degree of internal validity (Tsang, 2013; Yin, 2013b).

External validity was not fully achievable due to the small, nonrandom, purposive sampling population that targeted a specific population of MNC senior project managers, MNC senior business executives with relevant project management experience, or former MNC project managers with specific experience related to single window projects in Southeast Asia. Due to outside factors, the sample may not have accurately supported analytic generalizations for the entire regional trade facilitation population concerning single window projects (Yin, 2013a, 2013b). If future researchers can continue the current research to extend the sampling population, then generalization is a possible outcome.

Researchers use data saturation in qualitative research to explore the range of opinions and different representations of an issue (O'Reilly & Parker, 2012). Within this qualitative method, specifically target data saturation meaning that data should be

concertedly gathered until nothing new is discovered or emergent patterns are discovered (Rapley, 2014). This definition indicates that data saturation is more complex than indicated in the literature (O'Reilly & Parker, 2012). NVivo and other CAQDAS are tools that assist with such complexities and with the ability to establish a comprehensive and exhaustive audit trail of their analysis (Sinkovics & Alfoldi, 2012). CAQDAS facilitates researchers sharing, revisiting, and extending a project, thereby facilitating transparency that offers a considerable advantage this study will incorporate (Sinkovics & Alfoldi, 2012).

Transition and Summary

This section included a detailed discussion of the data collection process. I also explained how I organized the data gathered through interviews using software, reflective diaries, notebooks, and journals, as well as how I analyzed the data. Every researcher understands the complexity of the task. I focused on determining the best critical sources that would yield the most relevant and current data and constructed the data collection processes and measurement techniques to help ensure the integrity of the data. Integrity was critical to the process, as it encompasses the careful, conscientious efforts to adhere to a host of ethical concerns, such as those related to interviewees that include protecting confidentiality and validating competence to be an interviewee. Integrity also includes the validation of interview questions. Data analysis requires constructing methods to identify reliable themes to deduce inferences in response to the original problem statement and research question.

Section 3 includes a presentation and discussion of the study's findings and conclusions. I will relate the findings to broader fields of study and findings on this subject, support and defend similar findings, and dispute findings I determine are misleading or ostensibly fallacious. Section 3 includes a discussion on the applicability of the study. The findings may also be useful for other business strategies needed by the ASW project. These findings may provide implications and have a potential impact on social change. A successful ASW, made possible by adopting the most intelligent, advanced, and appropriate business strategies to accomplish its goals, could positively affect the social fabric of ASEAN nations and their populace. ASW's goal is to replace an archaic trade construct beleaguered by red tape that discourages trade partners with a regional and worldwide magnetic sphere of streamlined trade efficiency. The ASW, if accomplished, could exponentially improve trade profits in the region. Economic prosperity improves the social climate, so people feel happier, more secure, and more confident. Section 3 also includes recommendations for actions for leaders of ASW agencies and participating partners, as well as recommendations for further study by other business management researchers in areas that this study did not encompass. Section 3 includes my appraisal of this research, and I address possible preconceived ideas, biases, or both. Section 3 closes with a message regarding the potential value and applicability of this research, as well as the possible relevance and utility for ASEAN's ASW principle business architects and all associated participants.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple case study was to explore what strategies MNC organizational leaders used to implement ASEAN partnership contracts and complete ASW region-wide projects. This study is unique in that, although single windows do exist in various countries, there is no existing single window for import and export trade facilitation specifically designed for a single multinational geographical region. Previous research conducted by researchers for UN/CEFACT (2006), *Case Studies on Implementing a Single Window*, served as the basis for additional, exhaustive scholarly research related to the ASW project. By conducting independent interviews with senior executives managing ASW projects, studying online ASW implementation conferences, and examining strategic documents, I conducted a methodological triangulation to offer significant rigor to the thematic analysis and findings discovered as ASEAN partners implemented strategies to develop a regional single window across Southeast Asia.

The four main themes encompassed (a) business models and processes, (b) PPPs, (c) project management methodologies, and (d) a correlation of themes. The analytical findings offered insight into ways to overcome the ASW's constraints and barriers. I digested these strategic themes into a list of CSFs and a summary list of principle business strategies and best practices.

Presentation of the Findings

The research question for this study was as follows: What strategies do MNC organizational leaders use to implement the ASW partnership contracts to complete ASW region-wide projects? To uncover these strategies, I based my conceptual framework on the TOC to target constraining business strategies related to implementing a regional single window. To collect the necessary data for this study, I interviewed three senior-level executives working for MNC organizations with direct experience related to single window implementation in Southeast Asia. I also reviewed four ASW and NSW conferences and symposia presented by prominent businesspeople in Southeast Asia and posted online as videos. The third data source was several professional documents acquired from interviewees and global business leaders who declined to participate yet provided assistance in the form of professional documentation. The basis of my data analysis across triangulated data sources was the principles of thematic analysis (Braun & Clarke, 2012). This process involves an attempt to learn from similar cases and to explain insight gathered, not simply providing broad generalizations. To provide such valuable insight, it would be wrong to assume the qualitative analysis software performs the analysis; rather, it is simply a tool of efficiency for managing data, as the analysis and coding are completely reliant on the researcher and provide traceability and transparency to future researchers. The NVivo generated coding matrix across triangulated sources appears in Appendix J.

The first main theme related to business strategy findings provided insight into viable business models and supporting critical factors such as business process analyses

used to develop data harmonization related to single window projects currently implemented, BPM, and risk management. The second main theme related to business strategy findings provided insight about public–private partnership structures and supporting critical factors such as partnership fit, change management, and risk allocation. The third main theme related to business strategy findings included insight about project management methodology and supporting critical factors such as budget constraints, schedule constraints, scope constraints, and KPIs for monitoring progress. This process also indicated that ASEAN was establishing a Project Management Office (PMO) at the ASEAN regional level to serve as a regional consultant for NSW systems to ensure regional interoperability across the ASW environment. Finally, the fourth theme related to business strategy findings included insight about such critical factors as the SWOT analysis, in addition to current strategic lessons learned. The complexity related to implementing these business strategies highlights how my conceptual framework related to working within constraints and limitations while attempting to demonstrate to ASEAN that MNC leaders can implement a regional single window project across borders.

To mitigate research bias, I linked the findings to the existing literature and the TOC to explore and execute a complete analysis using multiple data sources. Researchers commonly use conceptual frameworks to link the literature, theories, and findings of a study to mitigate research bias (Yin, 2013a). The findings of this study aligned with existing literature on the complex business strategies required to implement a regional single window project for import, export, and transit trade facilitation.

Conceptual Framework Linkage

The conceptual framework for this research was the TOC pioneered by Goldratt (Naor et al., 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). According to the TOC for projects and operations management philosophy, every system (e.g., corporation or project) has at least one constraint and serves as a dynamic management theory or a powerful systemic problem-structuring and problem-solving methodology that supports solutions using intuitive power and analytical rigor to boost performance (Naor et al., 2013; Rahman, 2012; Rand, 2013; Zhang et al., 2012). In the case of the ASW project, the primary constraints are developing a business model strategy that supports the needs of the single window, establishing a public–private partnership strategy, and establishing a project management strategy that supports single window implementation.

With respect to the conceptual framework, this study includes additional in-depth research that may contribute to understanding the complex business strategies required to implement a regional single window environment across 10 NSWs to facilitate import and export trade facilitation. Importing my entire literature review and findings into NVivo provided access for further valuable research with key links to facilitate this. The NVivo word frequency diagram in Figure 23 highlights how all this information can be useful for targeting the nonbiased findings linked to the TOC.

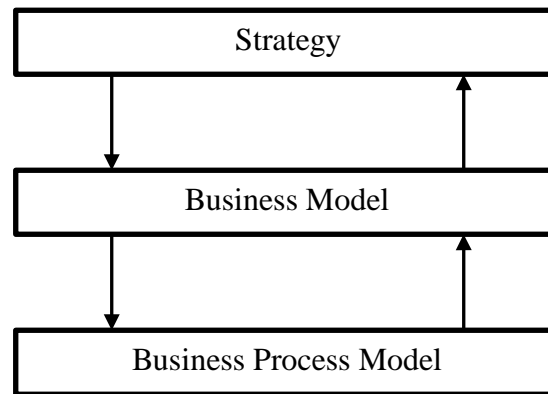


Figure 24. Business models serve as intermediaries between strategies and business processes (Veit et al., 2014).

Therefore, although I discovered specific business templates and clear insights into management styles being implemented, these should not serve as the ASW's solutions to overcoming its extant barriers. These discoveries of existent ASW and global business strategies should only provide a portrait of what is occurring, both successfully and unsuccessfully. Leaders of globally leading organizations fashion or implement many processes and they can yield good roadmaps but not fireproof solutions. ASEAN Single Window is unique and, as shown in this study, needs customized schemes and strategies. Hopefully the findings will reveal more of this.

Emergent themes using all the discovery software features provided in NVivo from business models revealed specific critical factors such as NSW and ASW business models, business process analysis, data harmonization portraits, BPM models, and risk management techniques. However, all contracts are unique concerning requirements, constraints, and environments. Therefore, although I discovered specific templates and insights as currently implemented, they should serve not as the global solution but rather

as a roadmap based on strong business strategies from globally leading organizations in the field of import and export trade facilitation.

NSW Business Models

I describe the current business models implemented across Southeast Asia in support of the ASW project, which I discovered while collecting reliable data related to ASW business models. The videotaped UNESCAP conferences were Implementing Case 1 for Single Windows—Indonesia, Implementing Case 3 for Single Windows—Malaysia, and Implementing Case 4 for Single Windows—Singapore. Participants 1, 2, and 3 (P1, P2, and P3, respectively) validated the content of these videos via interviews and the conceptual business model literature (Arend, 2013; ASEAN Secretariat, 2012b; JASTPRO, 2012; Kindström & Kowalkowski, 2014; Trimi & Berbegal-Mirabent, 2012; UNESCAP, 2015a, 2015b, 2015c; Veit et al., 2014). In this single window process, the business model concept serves as the competitive advantage and tool for innovating, employing, and evaluating business logic within the organization, especially in information-technology-enabled or digital industries (Veit et al., 2014).

No Charge Model

The company PT EDI Indonesia has a no-charge model for the Indonesian NSW, funded by the national budget for customs and the Indonesia NSW, overseen by CMEA (CMEA, 2010; UNESCAP, 2015a). The Bureau of Customs and UK contract partner Crown Agents operate the Philippine NSW and execute a no-charge model for this digital service, although customers are required to pay duties and value added taxes.

The Thailand government operates the Thailand NSW and executes a no-charge model for this digital service when accessed via the web. However, leaders who access the service via a value-added service provider (intermediary) incur a service fee. Although not yet instituted, it is highly likely that the Thai Customs Department will have to impose some amount of fees for its single window services. The country's increasingly high volume of import and export traffic will make the no-charge models too burdensome on its national budget.

PPP Model

CrimsonLogic is a GLC that operates the Singapore NSW called TradeNet and receives funding from governmental stakeholders and private stakeholders. Accessing NSW is free of charge for small businesses, but the fee for larger scale businesses essentially links the corporate business network to the NSW network, facilitated by a value-added service provider (intermediary) who also charges the large-scale businesses a fee for the network-to-network connectivity. To garner more income, CrimsonLogic senior executives established an intermediary company called e-Trade to increase the profitability of the Singapore NSW process. There is also a one-time set-up fee established for physically connecting the two private networks and a registration fee. Another option mentioned by various interview participants and at single window conferences was an annual subscription fee to mitigate individual per-use fees to attract long-term business (P1, P2, P3, UNESCAP, 2015a, 2015b, 2015c).

Dagang Net Technologies is similar to CrimsonLogic, as it operates as a GLC, serves as an EDI service provider, and facilitates e-commerce with a business process

perspective partially funded by the Malaysian government, while GLC-generated income funds any remaining requirements (UNESCAP, 2015b).

The Nippon Automated Cargo and Port Consolidated System is a GLC created to enhance the efficiency of international supply distribution and to enhance the competitiveness of Japan's trade facilitation by creating a NSW. Due to Japan's success, Vietnam has partnered with the Nippon Automated Cargo and Port Consolidated System to establish the Vietnam Automated Cargo and Port Consolidated System and the Vietnam Customs Information System. According to P2, this PPP partnership is flourishing due in part to national leadership support.

Private Sector Profit Model

Laos PDR is currently developing a BOT contract with Bureau Veritas, a subject matter expert that will completely fund and source the NSW endeavor. However, over time Bureau Veritas will recover expenses through fees collected from NSW customers during the lifetime of the contract to show a profitability prior to contract completion and transfer of responsibilities to the Lao PDR government. Contracts of this nature typically include service-level agreements to establish the quality control of the services offered within acceptable standards.

ASW Business Model

ASEAN project managers have not completed ASW regional testing between all NSWs, but according to P2, ASW users will pay a fee each time they transmit data such as an electronic certificate of origin from the exporter to the importer and its government agency (e.g., customs). Initially, the ASEAN Secretariat operational budget or equal

contributions of member state donations will finance any shortfalls for ASW regional services to maintain the financial sustainability of the ASW environment. As the ASW environment matures, all interview participants indicated that regional management requirements may be subcontracted to provide PMO services and Regional Services to provide stability, continuity, and interoperability across all ASW projects. ASEAN senior leaders will develop a pricing scheme that is reasonable for the sustainability of regional supply distribution and garners a fair RoI. An innovative idea volunteered by P3 in a discussion of business models was for ASEAN to collect advertising fees in various areas of its operations to generate new funds, a new RoI, and consumption-based fees and other administrative fees for the convenience of using e-payments via national banking services.

Business Process Analysis

A description of the CrimsonLogic 4-step Business Process Analysis (BPA) indicates how to approach data harmonization for single windows conceptually to align with the WCO data model and the ASEAN data model to facilitate G2G, G2B, B2G, and B2B transactions, which increases efficiency while eliminating duplication of effort (Dumas et al., 2013; Hogg, 2014; see Figure 25). Other efficiencies include coordination across OGAs (other government agencies) and sharing data via Extensible Markup Language (XML), which is a universal protocol that facilitates mapping data across various formats in support of data harmonization (Henderson & Venkatraman, 1993; van Stijn et al., 2011). The key takeaway from discovering the BPA process that CrimsonLogic project managers employ is that the basis of this BPA is alignment

principles discussed earlier in the literature review for this study, which confirms an actual strategy MNC organizational leaders are employing for the ASW project. A more detailed explanation follows of how the BPA process functions to establish data harmonization in support of maritime, road, air, and rail transport and supply distribution.

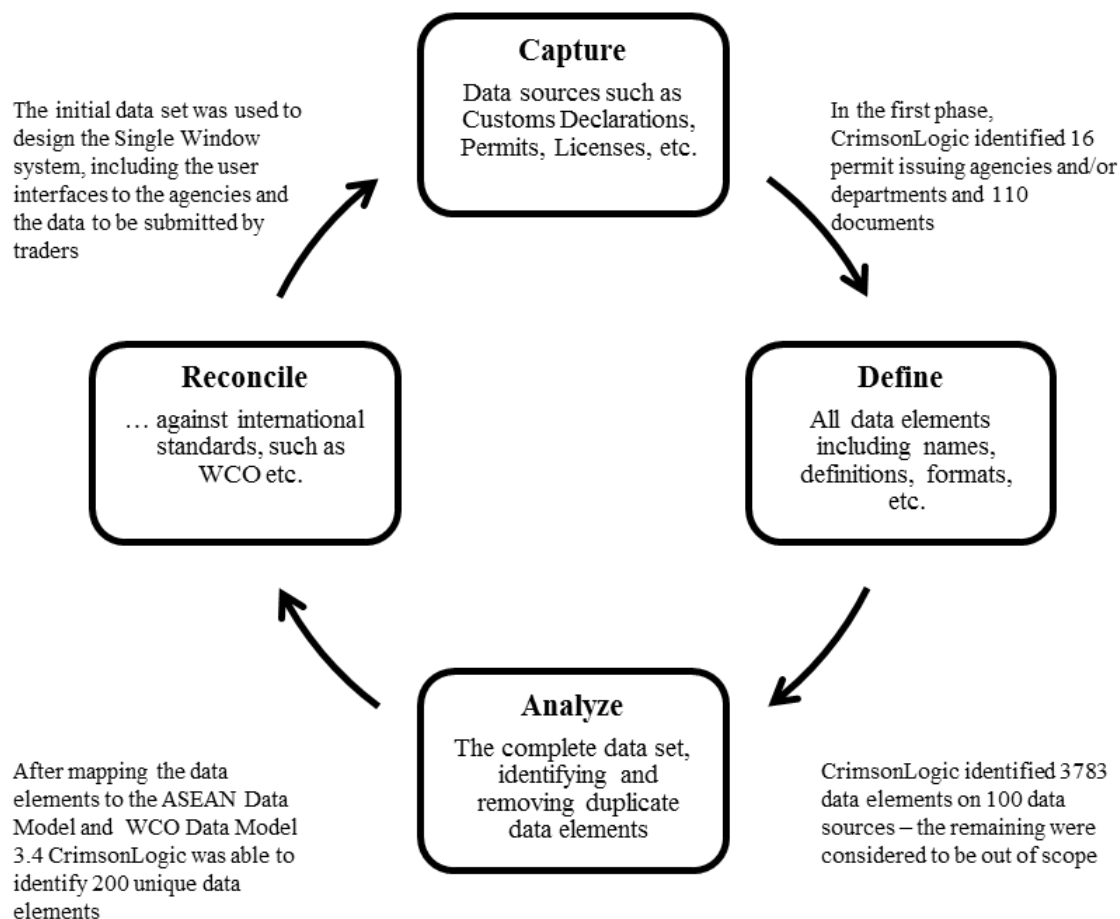


Figure 25. Data harmonization serves as a subset for business process analysis (Hogg, 2014).

Step 1 (Capture Data Sources): Identify all data requirements and agencies necessary to facilitate an automated process for regional trade procedures associated with import, export, and transit. CrimsonLogic senior executives highlighted some of the

prominent government stakeholders for a single window, including customs, OGAs, port authorities, and financial institutions (Hogg, 2014).

Step 2 (Define): Establish a common explanation of data elements widely understood to form a regional foundation for data harmonization and accurately coded and aligned with a corresponding agency. This process will also accommodate eliminating data redundancy requests. The task of accurately defining data elements and creating commonality facilitates access to the proper data at the proper time for cargo import, export, or transit. CrimsonLogic senior executives establish data harmonization within contracts by establishing a database of data elements, such as creating unique reference codes for each data element and the data source (Hogg, 2014).

Step 3 (Analyze): In the case of the ASW, data harmonization specialists must map data to the ASEAN data model and the WCO data model to provide a widely accepted database aligned with the corresponding agencies. This analytical process is critical to establishing a final product that attracts business and offers improved efficiencies (Hogg, 2014).

Step 4 (Reconcile/reengineer): The final product in the form of a database will provide a user interface and a government agency interface and will facilitate efficient data transfer using common coding reconciled with the WCO data model Version 3.4 and other international standards (Hogg, 2014).

Similar to the BPA process, data harmonization serves as a subset of the BPA and, at the regional ASW level, the focus is specifically on empowering a regional platform that authorized personnel from each NSW system can use to exchange cargo

border documents encompassing the electronic certificate of origin (e-ATIGA Form D) and the electronic ASEAN customs declaration document (e-ACDD), which forwards regional logistics requirements to the proper agency (Benjelloun, Pantastico, & Wong, 2012; Nathan Associates, 2013). These electronic documents serve as regionally accepted templates to expedite cargo clearance. The process of filling in electronic documents is easy to understand but complex in its execution to ensure data received via the ASW align and are properly transferred to support G2G and B2B providers with such information as bills of lading using Cargo XML to support air cargo, rail cargo, and maritime cargo (Benjelloun et al., 2012; Nathan Associates, 2013).

P1 and P3 indicated that more in-depth business process analysis is necessary to gain maximum benefits from the single window capabilities. To maximize such benefits business process analysis needs constant examination and discussion among senior peer leaders. Innovation, customizing business strategies, and weaving together high-speed technologies should be the paramount focus, not the repetitive promotion of single window regional and international rewards. A focus on the basic issues and barriers that exist will help break down old barriers and help develop a best case scenario of aligning technology with business processes and thereby hatching the best business process model. However, a give-and-take environment among all stakeholders is necessary to negotiate the correct priorities and requirements openly, giving the technology innovators a goal to achieve. For this reason, I realize the first iteration of the single window will not be the last, as improvements to the business process model are creating improved integration that may improve optimum performance.

Business Process Management

The BPM used for the single window is complex when implementing it across borders. However, the competitive advantage garnered if the electronic data exchange is correct captures a business value for the region and customers and strengthens risk management while efficiently validating certificates of origin for cargo versus highlighting suspicious certificates of origin (Benjelloun et al., 2012; Dumas et al., 2013; Nathan Associates, 2013; Škrinjar & Trkman, 2013). According to CrimsonLogic, the business process starts by customers (importers, exporters, freight forwarders, and customs brokers) submitting an electronic trade declaration to TradeNet, the CrimsonLogic NSW system that reduces the number of documents from four to 35 to one e-form (UNESCAP, 2015c). TradeNet processes the request using the 8000 business rules or syntax checks, and as appropriate, certain data fields filter data to certain agencies, and if the request meets all business rules, then a final check of the status of declarations gains approval and fee payment occurs electronically, which allows the user to print the permit and clear cargo (UNESCAP, 2015c). On the initial declaration, NSW database personnel must first validate the documents. If the declaration does not pass the 8000 business rules for any reason, then a more detailed process including cargo inspections or document reviews by the Singapore Customs or various OGAs take place (Hasnain, 2015; Koh, 2009; UNESCAP, 2015c). P1, P2, and P3 confirmed that the ASW will not be a centralized processing of information but the electronic cross-border exchange of data between ASEAN stakeholders to expedite cargo clearance (Benjelloun et al., 2012; Nathan Associates, 2013).

Risk Management

P2 stated that because each NSW is responsible for its national data means where issues arise, the first stop is to the origin country of the cargo and e-documents. It seems natural that as this new ASW environment becomes essential to maintain the pace of import and export trade facilitation over time, timelines mean each NSW must show efficiency, effectiveness, and improved risk management checks and balances. The fact that each NSW is a national program that partners with MNCs and in some cases national organizations highlights the potential disparity and hence the risk.

NSW senior executives are also implementing a safety and efficiency measure so clients with authorized economic operator (AEO) certification acquired from respective customs agents can validate if customers meet compliance from the distant location that mitigates risk moving through the CrimsonLogic NSW TradeNet 4.1 (Benjelloun et al., 2012; Coen et al., 2013; Nathan Associates, 2013). Such trusted agents can validate high- or low-risk cargo containers and shippers. These features all play into the risk management techniques by creating risk profiles and identifying high-risk groups (Benjelloun et al., 2012; Coen et al., 2013).

P3 noted that due to the consensus vote required among AMSs, the standard established for managing and protecting data is at the NSW level; therefore, ASW process disperses data management to the NSW host nation instead of centralizing it. This technique for risk management affords each NSW network the ability to secure its own data while also accepting the risk where failure or security incidents arise with that data. Therefore, it is incumbent on each entity managing that data to develop a robust

risk management system, and, in this case, each NSW may have its own risk management approach very different from its NSW partners.

Another feature of risk management is that the initial operational ASW network will have limited features that are not overly sophisticated or nation-centric, so that as the network matures and the customer population grows in size, the scalability and expandability can grow with it without hindrances. This scaled-down user-friendly approach minimizes risks and allows all 10 NSW systems to mature together and share lessons learned while the ASW environment also grows to scale to support more traffic reliably.

Because the NSW/ASW project is collaborative, it supports risk management capacity building (lessons learned) via ASW-level conferences and might be the most critical aspect of implementing best practices and sharing the insight. At the regional level, there is training on risk management to provide baseline exposure to the expectations each NSW must achieve and share lessons learned. Collaboration leads to trust among NSW partners and customers as a viable region-wide system and affords contractors the best opportunity to meet regional standards and coordinate them with national requirements.

The convergence of commercial documents, freight papers, and other B2G cross-border data exchanged across electronic borders would allow traders, through the NSW, to cross-reference commercial documents, freight papers, and other cross-border data with customs declarations to increase compliance and reduce double-encoding errors (Benjelloun et al., 2012). This cross-border data would allow government officials to

cross-check different documents to support risk management activities (Benjelloun et al., 2012).

In some circles, there seems to be an attempt to shift the burden for entering customs information from importers to exporters, as importers cannot always vouch for goods manufactured, packed, and shipped by exporters (Benjelloun et al., 2012). This shift extends the realm of performing risk profiling at the point of origin or exporting country against the current practice of performing risk management at the importing country upon arrival of the goods (Benjelloun et al., 2012). ASW Regional Services would allow a member state's Bureau of Customs on the import side to conduct real-time validation of, or access information about, authorized cargo clearance actors on the export side to support their risk profiling and targeting, which relates to the point above (Benjelloun et al., 2012). This would be difficult to perform on a bilateral basis without an ASW because countries would not normally allow access to their system for trading partners to check economic operator data (e.g., added exporters or importers, suspended brokers, and cancelled logistics providers; Benjelloun et al., 2012).

According to CrimsonLogic (UNESCAP, 2015c), TradeNet Version 4.1 aligns permit fields with the WCO data model for globally interoperable systems to meet global standards and other procedural improvements to remain relevant. TradeNet handles over 9 million trade declarations or transactions per year, with the goal of improving business via trade-related transactions with the government (UNESCAP, 2015c). TradeNet Version 4.1 processes more than 90% of transactions in less than 10 minutes per service-level agreement (UNESCAP, 2015c).

Risk management is difficult for CrimsonLogic due to TradeNet incorporating over 8000 business rules based on integrating 35 OGAs so the final product met all requirements for the WCO data model, which explains why CrimsonLogic recommends addressing risk management by customs versus embedding it in the TradeNet software, although that option does exist (UNESCAP, 2015c). This recommendation highlights the importance of negotiating risk management so the best prepared entity takes on that risk and contributes to success (de Bakker et al., 2012).

A technique for assessing risks is establishing risk profiles, and identifying high risk groups is a best practice for risk management. Monitoring the effectiveness of the risk management process through KPIs is also a best practice to reduce cargo inspections to about 1% of consignments, which is the preferred target (UNESCAP, 2015c). This technique serves to mitigate risks while processing over 9.3 million consignments per year (UNESCAP, 2015c).

Emergent themes from PPPs produced insights and revealed relationships regarding (a) public-private partnership fit, (b) change management, and (c) risk allocation. The basic concept of a PPP is a contractual agreement between a public organization and a private sector organization, including critical and fragile factors of risk allocation. Additionally, the public sector transfers certain risks involving trust to the private sector based on best practice skill sets in exchange for compensation. Although representatives from CrimsonLogic in Singapore declined to participate in interviews, I was able to learn about the method of thinking- and planning-based information shared by CrimsonLogic executives who participated in a videotaped conference hosted by

UNESCAP called *Implementing Case 4 for Single Windows—Singapore* and presented at the Asia Pacific Trade Facilitation Forum 2014 in Bangkok, Thailand, which describes the CrimsonLogic perspective of PPP basic principles for single windows.

Similarly, representatives from PT EDI and Dagang Net also declined to participate in interviews, although I obtained valuable and current information from a key senior executive of PT EDI and Dagang Net who participated independently in videotaped conferences hosted by UNESCAP called *Implementing Case 1 for Single Windows—Indonesia* and *Implementing Case 2 for Single Windows—Malaysia*. Senior corporate executives also presented these briefings at the Asia Pacific Trade Facilitation Forum in Bangkok and described the Indonesia and Malaysia business perspective for single windows.

Public–Private Partnership Fit

Public–private partnerships are critical for the ASW to succeed. To succeed, the goal has to be clear, despite the myriad details and barriers that impede and challenge the goal. I like P1’s simplicity in understanding the goal of the ASW should be the centerpiece of all PPP dealings and the reminder to fit and hold them in alliance. P1 further indicated that the ASW should make life easier for traders in terms of cost reduction for them and processes being more efficient by reducing time and cost for traders. P1 stated the ultimate goal for a single window is from a trader perspective and everything else flows from that. Therefore, as trade increases, then revenue also increases. From a private sector point of view, MNC senior executives expect to make some profit and recoup initial investments to make their involvement in the partnership

more effective, but if that is happening at the expense of the commitment to the end goal of the traders and reducing cost and time for traders, then it is not a successful PPP. If a PPP arrangement where the key criteria and KPIs are clear and align with the private sector's objective, then that agreement could be more successful. The partnership fit must ensure both public interests and private interests align in a symbiotic method, but this does not intrinsically mean that only state-sponsored GLCs or international development organizations are most suitable for such nationally funded projects. The leaders of such infrastructure-type projects must deliver what they are supposed to in terms of reducing time and cost for traders. P1 further stated that having the right KPIs based on the end state explains the importance of establishing and sustaining a successful partnership fit.

CrimsonLogic is a GLC sometimes referred to as a special purpose vehicle. The CrimsonLogic approach to structuring a PPP contract under a special purpose vehicle structure appears in Figure 26, but I discovered no other PPP contractual structural approaches during data collection. Of interest in the CrimsonLogic model is the advantageous structure that highlights equity investors in addition to the lenders with links to the national government who offer an advantageous partnership.

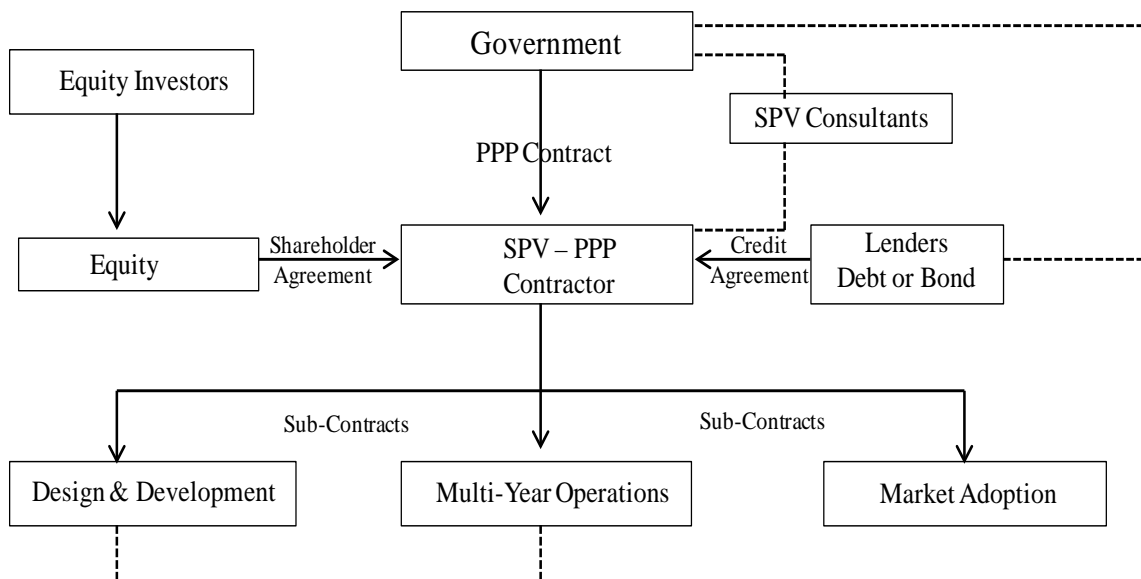


Figure 26. SPV-PPP typical structure for single windows (Koh, 2009; UNESCAP, 2015c).

From the opposite approach, establishing partnership fit via contracts with the private sector requires an extensive amount of time. The interviews I conducted provided insight regarding the robust level of planning required to partner with the private sector. Viewing professional documentation and CrimsonLogic's conference explanations confirmed this by providing the rigor sought to demonstrate how to execute the contracting process to contract the best private partner. CrimsonLogic has become successful serving as a GLC, a global leader in single window implementation, and has uniquely experienced insight about garnering private sector contracts. Figure 27 includes a robust planning process diagram depicting the amount of time and effort afforded a selection process to partner with a competent entity that both understands the intricacy of the task and the intended end state. According to CrimsonLogic, this contract selection

process includes three phases: the feasibility phase, the procurement phase, and the contract and change management phase (Benjelloun et al., 2012; Koh, 2009).

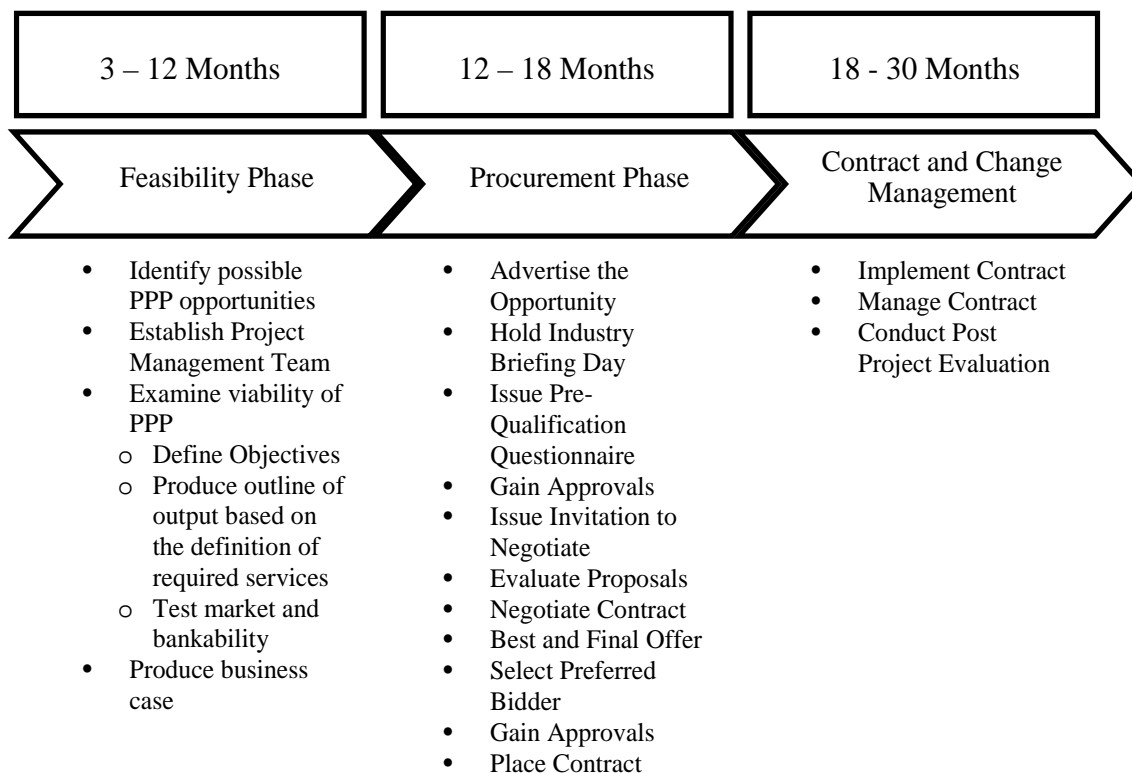


Figure 27. The PPP robust planning process for single window contract implementation (Koh, 2009; UNESCAP, 2015c).

Change Management

Change management will be necessary to execute new strategies to improve regional trade facilitation over the historical strategies while seeking true integration. P2 stated that true integration will require a regional contract to run regional service teams (data management), call centers (customer interface), 24/7 technical support (network management), and a regional operations center. P2 further noted that the prime contractor had already subcontracted the ASW gateway service to AXWAY B2Bi, which

is the gateway software solution implemented by the ASW. The purpose is to ensure the integration of information between all NSWs in an efficient, effective, comprehensive, and secure manner achieved by integrating NSW transactions and processes with enterprise business applications such as Oracle or SAP software that are internationally scalable as the network grows. The fact that AXWAY B2Bi is compatible with ebXML (Electronic Business using Extensible Markup Language) supports the primary foundation of data harmonization across the entire ASW architecture and denotes true change is a good example of the ASW employing cutting-edge business practices.

Change can be difficult and is always challenging. As corporation leaders realize the potential opportunities to increase supply chain predictability, such innovative capabilities will inspire them to move more quickly to partner with government agencies incorporating technology with new best business practices.

The disparity between each nation indicated by P2 justified the need for a Regional Services construct to validate data exchanges and ensure fidelity of the data sets, which primarily includes pushing security updates across all NSW networks. Although the ASW facilitates the gateways between each NSW network, the gateway protocol ensures data transfer occurs only after the exchange of secure digital certificates between networks to establish security and fidelity. Regional Services also provides a regional data set of ASEAN Harmonized Tariff Nomenclature and other common codes that provide a common meaning so all understand the ASW transfer communication language. These words or codes might refer to a type of data exchanged, such as country codes, which indicates if that exchange will have a tariff fee or if the country in question

is an AMS. Participants reiterated that such changes from current import and export business practices would require an oversight entity such as a regional domain.

In addition to P2 and P3, the *ASW Task Order Final Report* (Nathan Associates, 2013) explained that a regional domain consists of a closed secure ASW architecture, ASW gateway, and Regional Services that will entail a completely new approach to regional trade that requires each NSW to meet interoperability requirements with transparency.

The Regional Services consist of a set of applications that will be accessible by the respective NSW states via the ASEAN closed secure network (Benjelloun et al., 2012; Nathan Associates, 2013). Regional Services do not participate in the business transactions between member states; rather, they provide supporting services to the ASW. A description of these applications appears below and is in the *ASW Task Order Final Report* (Benjelloun et al., 2012; Nathan Associates, 2013).

A Reference Data Services application serves to manage the master copy of the regionally agreed reference data and disseminate updates to all ASW gateways (Benjelloun et al., 2012; Nathan Associates, 2013). Reference data cover both national reference data such as a list of customs office codes or AEO codes that representatives of each member state are responsible to maintain and update, and a regional management team would maintain common reference data (e.g., ASEAN Harmonized Tariff Code, country names and codes, currency codes; Benjelloun et al., 2012; Nathan Associates, 2013).

Management information system software serves to maintain the master copy of the trusted Public Key Infrastructure (PKI) certificate list and to disseminate changes to all ASW gateways in the ASW network (Benjelloun et al., 2012; Nathan Associates, 2013). The management information system application also allows the collection and consolidation of relevant statistics and makes them available to member states. Moreover, the management information system enables the management of the master copy of the unavailability data and disseminates changes to the ASW network (Benjelloun et al., 2012; Nathan Associates, 2013).

The shared portal dashboards allow authorized personnel to make changes or view changes to reference data, PKI trusted certificates, and management information (Benjelloun et al., 2012; Nathan Associates, 2013). The national domain represents the network infrastructure hosted by each member state, including existing national customs systems. The individual member state and associated partners will be responsible for the national domain network and for securing that domain network (Benjelloun et al., 2012; Nathan Associates, 2013).

The external domain refers to the network used by economic operators and the trading community (Nathan Associates, 2013). The external domain does not have direct access to the regional domain for the purposes of preserving the integrity and confidentiality of the data exchanged through the regional domain (Nathan Associates, 2013). This extensive list of changes regarding how import and export trade will take place throughout Southeast Asia constitutes instituting major change management procedures.

Risk Allocation

Producing maximum risk allocation via PPP allows the government to transfer risk from the public sector to the private sector by requiring the private sector to produce an output of services or products that meets criteria established by the hiring agent or public sector. The scope of outputs can extend from designing, developing, operating, maintaining, and possibly transferring all responsibilities back to the public at the end of the contract. Risk allocation to a government-created GLC is a technique used in the public sector to transfer risks to quasi-private companies while the public sector uses assets on other priorities or maintains them in a protected status. In this strategy, all stakeholders profit from GLC project success and provide viability for the GLC or business to remain operationally functional based on the RoI. Risk allocation is a key strategy to mitigate taking on too much risk by partnering and working with the private sector but the private sector can transfer the risk back to the public sector at any point. Optimal risk allocation increases value for money while achieving design, construction, and operational synergies (Hwang et al., 2013; Koh, 2009). A CrimsonLogic typical PPP model for risk allocation appears in Figure 28.

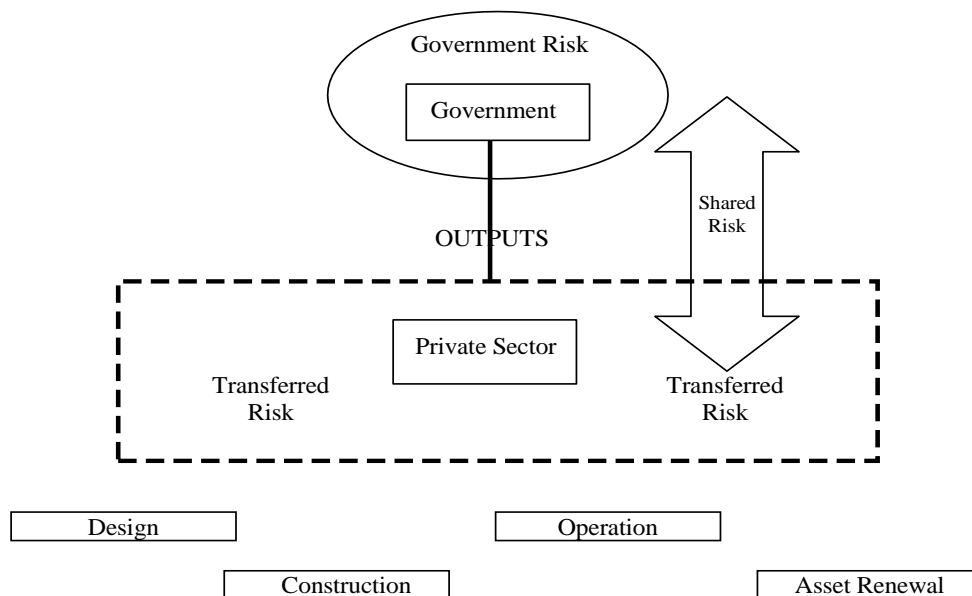


Figure 28. Typical PPP model for risk allocation (Koh, 2009; UNESCAP, 2015c).

Emergent themes from project management canvassing the entire Southeast Asian region produced the concept of implementing a regional PMO in addition to managing within budget constraints, schedule constraints, and scope constraints while monitoring KPIs. Chaos research from 2002 to 2010 indicated that only 37% of the information technology projects studied were successfully complete based on scope, schedule, and budget (McCann, 2013; Standish Group, 2012). However, the leaders of 44% of the projects struggled to meet all required features and reported schedule or budget overruns (McCann, 2013; Standish Group, 2012). Feedback from all participants indicated that a failure to manage changes in scope, schedule, and budget contributed greatly to this problem. Establishing a formal, well-staffed PMO may provide the strategic oversight required.

Project Management Office

For organizational leaders to create optimal value from their investment in projects, there must be a clear link between the outputs created by the projects and the requirements of the organization's business strategy (Too & Weaver, 2014). Thus, organizations that have a structure in place for aligning project deliverables with their organizational goals will be better placed to realize their investment in projects and achieve the value defined by their business strategies (Too & Weaver, 2014). P2 stated that the consensus long-term constraint for the ASW project is insufficient funding. Therefore, establishing entities such as a regional PMO and regional domain services including ASW B2Bi gateway software are value-added services directly linked to the ASW strategy and indirectly mitigate insufficient fund concerns. These capabilities must be sustainable to maintain critical ASW services. Therefore, ASEAN senior leaders are contracting an ASW PMO to consult and regionally manage ASW associated projects, operational interoperability, project governance, and services throughout Southeast Asia. This responsibility also includes providing assistance to ASEAN to address the financial sustainability of the system and the training of relevant ASW staff indicated in the PMO study that will manage the ASW regional operations services.

Key Performance Indicators

A review of historical KPIs according to CrimsonLogic's experience in identifying historical designing and developing costs in addition to historical operating costs to forecast anticipated budget requirements using current currency evaluations appear in Figure 29. As noted in the literature review, scope, budget, and schedules are

typical constraints that require full-time oversight. KPIs also perform a critical role in managing these constraints to facilitate a consolidated implementation control (Koh, 2009).

<p><u>Design & Development Costs</u></p> <ul style="list-style-type: none"> • US\$15M to 20M <p>Cost increases if ...</p> <ul style="list-style-type: none"> • Single Window (to Customs only) • Single Window (to Customs & 20+ OGAs) • Single Windows + Customs Management Backend <p>Time to implementation</p> <ul style="list-style-type: none"> • 2+ years ? 	<p><u>Operating Costs</u></p> <ul style="list-style-type: none"> • US\$ 2M per annum <ul style="list-style-type: none"> • Operate, Support & Maintenance of Single Window assets • Drive Adoption & Training • Minimum 40 to 50 staff members • Continual support for Network, Systems, Security, Training • Servicing to Trading Community; Customs, OGAs
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Figure 29. CrimsonLogic cost estimates for single window implementation and operation (Koh, 2009; UNESCAP, 2015c).

In the case of the ASW project, KPIs serve as a roadmap so the client has visibility snapshots of positive project progress or negative project progress. This technique highlights when the project is on the correct glide path as established in planning and reaches established milestones. This performance technique also indicates when the project is out of tolerance and not projected to reach key milestones. Defining the KPIs in a terms-of-reference document affords clients the ability to ensure the plan meets expectations with tangible data. The ASW is a long-term region-wide project that justifies the need for the short- and long-term KPIs produced.

P1 provided a detailed explanation of how World Bank leaders publish an annual *Doing Business Report* that ranks countries based on an index. In theory, this index includes time and cost, but it is a perception index, which means it is only for traders and

inspects sections of how long it takes to do something or how much it costs to do something. The index is not quantitative in terms of time relief studies. Relief studies indicate how long something takes and how much it costs to trade goods across borders. They are rare but serve as the studies that will give the best metrics to judge whether a single window project has been successful.

Using a perception index, P3 stated that in 2010 the average days to import and export for trading across borders among AMSs was 21.7 days. In 2015, it was down to 17.6 days, and the target by 2018 is to average 12 to 13 days, which is close to the average of OECD countries. Providing similar KPI data, the World Bank (2015) *Doing Business* survey indicated that imports and exports for trading across borders were at 21.8 days and down to 17.6 days in 2015, which demonstrated consistency among the two data sources. The target for 2018 is 12-13 days and lowered costs. Monitoring such performance measurements also provides visibility snapshots of positive or negative project progress. However, the most difficult issue is determining what quantitative metrics found in time relief studies produce the most accurate insight for improvement versus survey data that taint the output to determine project success.

End-to-end cargo clearance consists of four stages: document preparation, customs operation, port operations, and domestic transport. Initially the trader prepares and submits cargo documentation. After receiving clearance from customs the customs certification is sent to the port operator, who issues a gate pass; then the trader processes the arrastre charges for transiting, receiving, shipping, loading, or unloading merchandise and arranges for domestic transport with logistics forwarders to deliver the goods or

loading at the export side. Keeping track of the established import and export trade activity on average afforded ASEAN senior leaders the ability to use that activity as the established measuring stick to determine efficient and effectively improved processes across the region-wide project.

Emergent themes from the correlation of business-related strengths, weaknesses, opportunities, and threats (referred to as SWOT analyses) of the ASW project provided several CSFs. Strengths included the characteristics that provided the businesses and project with certain advantages. Weaknesses included the characteristics that provided the businesses and project with disadvantages. Opportunities entailed the characteristics that the business or project leaders could exploit to their advantage. Threats entailed issues that could cause complications for the businesses or projects. Conducting a SWOT analysis provides an informative view of the steps needed to achieve business and project objectives.

The ASW SWOT analysis served as an opportunity to identify via a structured planning process the strengths, weaknesses, opportunities, and threats related to the ASEAN regional single window project. The intent was to highlight each factor to understand how business leaders could manipulate these factors for the business or organization's benefit. The strengths of the cross-border exchange of data, whether through the ASW or other means, are (a) efficient supply management; (b) pre-arrival clearance; (c) uninterrupted customs transit; (d) end of hard-copy submissions; (e) convergence of commercial documents, freight documents, and other B2G cross-border documentation; (f) track and trace; (g) unique reference keys; (h) trade-driven processes

using historical documentation to increase processing; (i) minimized storage fees; and (g) data validation (Benjelloun et al, 2012).

P2 and P3 were helpful in identifying strengths that the ASW environment and NSW systems possess. They have project champions included ASEAN regional leaders, Southeast Asian heads of state (national leaders), import and export business communities, customs subject matter experts, and contract project leaders. Another strength is the frequent regional interoperability meetings established to align integration and discuss any inconsistencies. These may originate from the government standpoint, from the business standpoint, from a technical standpoint, or from a legal standpoint. I explored each issue to ensure standardized progress for NSW and to provide clear direction for ASW and NSW projects.

The other strength was the architecture. The architecture model agreed upon by all NSWs and ASEAN senior executives was to have a direct exchange of data between countries, but there would be a regional service. The regional service is a server that monitors the exchange of data and ensures data integrity. Standardized regional data aligns to the ASW environment so it can feed the country codes into the system so the system is able to recognize data elements coming from the region. The data exchange is bilateral, but monitored at the regional level, so the architecture is a strength. The Organization for the Advancement of Structured Information Standards is the international standard used to facilitate standards for XML protocols between the ASW closed networks and the private business networks.

As noted in several instances throughout this study, the basis of the ASEAN data sets was the WCO data model Version 3.4 to harmonize the exchange of trade data that support expandability and scalability. Understanding the established standards supported the decision to contract with AXWAY to provide the AXWAY B2Bi software and is a facilitating infrastructure strength for the live exchange of data. Such interoperability and standardization align business and ICT strategies for a unified effect and sustainability, in addition to facilitating data harmonization across import and export agencies, thereby establishing an SQL database to route key data elements to the corresponding agencies for permits and customs to minimize processing time and garner customer support.

Collaboration between public and private partners to establish regional roadmaps that maintain interoperable data sets is another strength. However, P3 clarified that the collaboration strategy for Singapore is unique. Singapore has an existing and working single window system, so CrimsonLogic senior executives are more careful in handling transition issues when implementing new ICT systems. The strategy for integration testing is not to tell existing clients that the NSW will stop all production servers and the production environment for 2 days to conduct testing. It is necessary to undergo a parallel testing activity in two environments to ensure the results are the same and to ensure underlying technical changes and upgrades are transparent to users and clients. After the results are the same and accepted by the AMSs, the current environment will stop, and the proposed environment will cut over to a live operation environment.

Perhaps the greatest strength was identifying the requirement for a PMO and establishing a regional domain. The ASW PMO provides the solution to long-term

regional management of the ASW-related projects within ASEAN. This includes providing assistance to ASEAN to address the issue of financial sustainability. The regional domain and its personnel manage the ASW architecture, the ASW gateway, and the regional services all established to facilitate project success.

P2 and P3 described the ASW environment as being only as good as the effect of the risk management features of each NSW system in terms of ASW project weaknesses. Other concerns include information security policies and standards across the ASW. This is the justification for not having any information maintained at the regional level; rather, respective NSW personnel must secure its data. A key weakness that has been challenging to overcome is that each NSW system needs to meet its own timelines in various phases of its NSW structuring. Each NSW project manager must meet its deadline goals to create the ASW environment and piece together a highly sophisticated program. Certain NSW nation projects chronically falter in progress. Only synchronicity in development, meeting deadlines, ensures ASW success. The synchronized meeting of deadlines is not happening fully. For this reason, ASEAN senior leaders instituted an intelligent and realistic phasing approach to validate some nations were meeting goals and deadlines and others were lagging behind, which helped keep the ASW from falling into disarray. Perhaps the most important weakness is insufficient funding. To overcome this crucial weakness, many NSW projects have had private-sector organizations as partners to raise capital and transfer risk.

P2 and P3 optimistically described ASW's future opportunities as eventually expanding as data volumes start to increase. They foresaw business opportunities

emerging in the form of needing a more robust method to manage network traffic. One example is multiprotocol label switching, which is a high-powered network management concept that supports high-performance ICT networks and directs traffic via one node to the closest node based on short path labels rather than long network addresses. The process avoids complex manual use of routing tables. This process is also the most cost efficient, as there is no current equipment to replace or routing tables to modify, which means that secondary locations not yet connected to the NSW networks could include multiprotocol label switching routing equipment. This process will also provide opportunities for competitive contracts to extend and grow the NSW networks, better manage the ASW traffic load, and minimize network vulnerabilities. The possibility of updating network equipment also exists, but the complexity, costs, and synchronization of swap overs to increase routing reliability across a large complex network will be much more difficult while supporting live customer traffic (Whitney & Daniels, 2013). Other opportunities include international supply chain and ICT establishments that might potentially reap regional business opportunities by demonstrating an ability to store data securely in a standardized format at a single electronic entry point to fulfill all trade facilitation regulatory requirements.

All interview participants indicated that the primary ASW threats to the ASW project were financial sustainability and customer responsiveness. Risk allocation and transfer received approval in reply to this threat by establishing partnerships either with the private sector or with GLCs as a means of mitigation. In the end, I derived a compilation of CSFs from the cumulative amount of data found during the process of

collecting data from interview participants, the ASW final report, ASW and NSW conferences, and data embedded in the literature review. The derived CSFs appear in Table 8.

Table 8

Critical Success Factors for Regional Single Window in Southeast Asia

-
- Analyze the problem first then develop properly aligned goals and strategies
 - Establish project champions/senior management support
 - Establish a collaborative and efficient approach to partnership roles and responsibilities via a detailed business plan/contract
 - Identify performance and service level agreements
 - Execute a transparent and competitive bid process for the contract via Request for proposals
 - Negotiate revenue streams
 - Pricing risk transferred to private sector, within built contractual mechanisms for variations
 - Private Sector must understand the customer's end state (empathy)
 - Reduce costs of trade
 - Reduce business process/time requirements
 - Increase efficiency
 - Establish regional standards for cross-border trade
 - Public and private sectors are committed to achieving success for stakeholders e.g., customers and employees
 - Embrace risk management and data security
 - Accept operational evolution of processes (change management)
 - Establish a regional staff of qualified professionals/consultants
 - Build communication channels with stakeholders and trade community to develop a useful product/service
 - Implement scalability and expandability (anticipate success)
 - Develop an ASEAN data model that is compatible with the WCO data model and XML schema for data standardization and harmonization across private networks
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Note. Information from Koh (2009), Nathan Associates (2013), NCPMP (2014), and Standish Group (2012).

Implications for Social Change

The full manifestation of ASW, which is a regionally collaborative single window digital-based trading environment, will be momentous for Southeast Asia and will open enormous economic growth options. The increased prosperity it will generate over years will uplift the general social fabric, which for years has been a basic survival mode of living. The ASW has never promoted itself as a social panacea. Greater prosperity does not cure social malaises. But when nations prosper economically, and the general populace shares the prosperity, a healthier, more secure mind-set has historically emerged.

As it comes into fuller manifestation, the ASW will offer opportunities such as trade liberalization and a demand for more highly skilled labor, both blue collar and white collar. This could be socially uplifting. More and better paying jobs would be a strong contribution to the ASW. Observers have foreseen the ASW's implementation will positively affect generations of citizens in Southeast Asia. Besides creating new and higher skilled jobs that require more education and training, salaries are likely to rise in tandem with higher quality jobs. A higher income affords people greater self-respect and the ability to care for their family's needs, from health care to education. A historian should be able to demarcate a rise in the general standard of living after years of the ASW's successful operations.

The ASW should also have a lasting impact on the private sector by attracting private-sector investment and partnerships that can continue to inject foreign investment into the region as new trade business opportunities arise. A successful ASW will act as a

solid basis of trust, having taken so many years to construct with men and women of great faith and determination, learning to trust each other as negotiations went through difficult stages. Such PPPs can and will further demonstrate how to establish value across the collaboration continuum for the public and private sectors.

The implications for social change with a successful ASW are manifold. The government can expect greater tax revenue; can budget more toward health care, education, and public services; and fund its own basic budgetary commitments. The economically interdependent region that the ASW will create will also inject a second tier of a constant desire for peace in the region. Conflict erodes peace, but peace promotes prosperity, as history has shown. The ASW will one day be accorded its contribution countering to the region as a peacemaker or at least a peace protector mechanism. A minor but important social impact created by the ASW will be the immediate result of neighbors working together when natural disaster occurs or when petty conflicts threaten the peace. The ASW will include strong bonds and friendships that will manifest their strength when tested. Not every citizen who lives in the 10-nation ASEAN region will feel the ASW's impact consciously each day. The region is still village-oriented and agriculturally based, but few would question that a successful ASW will empower the region's pride as an economic trading powerhouse, sophisticated, cutting edge with a system, the ASW, constructed to engage internationally with full confidence. Social change is intangible, but the ASW is tangible. Although there is no guarantee that a tangible will make an intangible greater, the ASW will be a force of positive social

change as a catalyst for increased prosperity if the majority of informed observers are correct.

Recommendations for Action

As described in the literature review, the original design of the architecture for the ASW was that each NSW network could bilaterally exchange data with other NSWs in Southeast Asia. However, as the project progressed and matured, P2 stated that a regional PMO would be beneficial in aligning individual NSW efforts to maintain the pace and meet timeline requirements to ensure the network maintains its unique capability to be interoperable across the entire region based on common standards and procedures. I strongly recommend establishing a PMO entity, if this has not already occurred, and not undergo dismantling even when the ASW becomes fully functional. The PMO should continue to exist and provide managerial oversight as the architecture evolves. A reduction in staff may be possible, but its existence is important to detect many areas that can easily go off course. Its scrutiny might reveal unnecessary overhead, indicate unnecessary time lags, and, while seeking to reduce business costs and business transaction times further, and be quick to suggest new procedures when existing ones are failing. I trust that a PMO would pay its cost to exist by troubleshooting and identifying lost-profit operations while establishing regional standard operating procedures.

I also recommend creating a formal regional domain to provide a constant managerial presence with respect to the ASW architecture, ASW gateway, and Regional Services. Regional Services serve to manage the master copy of the regionally agreed reference data and disseminate updates to all ASW gateways to mitigate errant and

fraudulent data and thereby instill data integrity and customer confidence (Benjelloun et al., 2012; Nathan Associates, 2013). Reference data refer to reference codes, which are a list of national customs agency codes or private sector AEO codes. Regional Services are responsible for maintaining and updating such data, along with other common reference data (e.g., country codes and currency codes) maintained by a regional management team (Benjelloun et al., 2012; Nathan Associates, 2013). In reference to AEO certified personnel encompassing importers, exporters, brokers, and intermediary agents, these critical personnel can recommend approval of cargo shipments that meet customs compliance regulations from the distant end cargo ports. The basis of such cargo compliance is meeting customs-specific WCO trade parameters and security parameters to speed up the customs clearing process for nonsuspicious shipments, which is an authorized risk management technique. Associating this process with the ASW to distribute digital cargo data to the proper agencies faster and more reliably is another potential benefit to customers. Each of these PMOs, regional domains, and AEO functions could result in establishing vital subject matter expert contracts to facilitate stability and enhance supply chain management. Each entity would charge a fee for the service to remain sustainable while providing a valuable service.

The recommendation for the NSW business model is to create a value-added service that offers a competitive advantage based on business logic within the organization to facilitate B2G and G2B transactions. No matter how complex this concept may appear, opportunities such as providing intermediary services are critical. CrimsonLogic technicians provide an intermediary service that connects private business

networks to the Singaporean NSW network. Although in the course of this study, I discovered that GLCs such as CrimsonLogic, Dagang Net, PT EDI, and NACCS, partially or entirely funded by state entities, are managing many NSWs. Such organizations permit the business to avoid facing the same survivability requirements of a pure business in the private sector. However, even with a GLC-based PPP, there is still a need for GLCs to provide an effective service that produces an ROI for stakeholders. Based on such concepts and developing profitable expertise with various national partners around the world, CrimsonLogic senior executives have executed PPPs and BOT partnerships to the point of functioning more like a pure private business than anything else. Laos PDR government officials partnered with Bureau Veritas through a BOT contract and, similar to GLCs, the provider must offer expertise in change management and risk management to meet customer and contractual requirements. The recommendation for the ASW business model is to create a value-added service to establish a PMO and Regional Services management. From each perspective, business leaders must develop a business model that fits current capabilities and customer needs when approaching NSW- and ASW-like opportunities.

Those managing a per-use fee create revenue by charging users a fee each time they transmit data. For example, if a user sends an electronic certificate of origin from the exporter to the importer and its government agency (e.g., customs), there will be a fee for the user. Additional charges will include registration fees, one-time set-up fees for intermediary service to connect private networks to the NSW network, and an option for clients to choose a subscription-based fee. Additionally, contractual clauses will need

negotiating to cover any shortfalls below minimum thresholds to ensure the partner receives a minimum RoI, and I concur with these recommendations. With regard to ASW PMO and Regional Services, P2 and P3 indicated that these services will be potentially contracted to the private sector to provide stability, continuity, and interoperability across all ASW projects. However, because these services are transparent infrastructure-type services, I recommend negotiating a firm fixed price with the ASEAN Secretariat and with AEO business partners who provide a critical service for the respective destination NSWs.

The overarching recommendation is that the public sector in any region attempting to implement a regional single window to reduce supply distribution costs, processing time, and converging commercial documents to facilitate just-in-time shipments develop risk management techniques such as partnering with the private sector that takes on the insufficient fund risk, security risk, and operational management risk stated in contractual service-level agreements. Because the interview questions for this research were created in 2006 and authorized by UN/CEFACT for this study, a copy of this study will allow UN/CEFACT to compare pre-ASW findings with the 2016 findings of this study (10 years later). Additionally, dissemination of the findings associated with this study will be available to academic research journals, international trade publications for the import–export industry, international project publications, and private practitioner publications for global supply chain management. The purpose of this availability is to provide UN/CEFACT, private import–export practitioners, and international project managers the ability to review any new data that may be useful for related regional single

window projects. The results of this study could be valuable to related regional single window agreements such as the Trans Pacific Partnership, Regional Comprehensive Economic Partnership, and other import and export initiatives, thereby broadening its influence.

Recommendations for Further Research

I based my research on a qualitative case study format, as it directly supported the ability to explore the strategies MNC organizational leaders use to implement ASW partnership contracts to complete ASW region-wide projects. I recommend that the basis of future research related to ASW region-wide projects should be examining business process analysis outcomes to enhance harmonized data procedures and improve supply chain distribution while identifying areas of concern that may require improved risk management. I also recommend that interviewing future PMO consultants and regional domain managers at the ASW regional level may provide an extensive understanding on where innovative and successful management techniques and procedures currently under one NSW could become the standard for all ASEAN members still implementing NSWs. Future researchers could conduct interviews with the PMO consultants and regional domain managers to explore a more mature ASW to learn which initial management techniques were successful and which were unsuccessful or hard to maintain across the region. Acquiring these interviews would be critical to influencing future research on the ASW regional project. I caution any researcher undertaking future study of the ASW not to be too aggressive or overbearing, as the best access will be available to individuals

being polite, respectful, and sincere. The ASW is an exclusive circle of leaders on the cutting edge of import and export trade.

Another area that warrants deeper study is the field of improving risk management techniques for the ASW. I suggest starting with a focus on data security, which is a fragile field. Although ASW project managers are implementing PKI and digital certificates to establish secure connections, similar to conducting electronic payments for online purchases, the ASW currently does not support digital signatures, which indicates that the adoption of digital signatures is still in a quagmire between the old guard and the international business thinkers who see electronic signatures as ubiquitous. Interviewing personnel who support either side of this issue might be a good topic. Remediating digital signatures could enhance data validation and could validate AEO cargo clearance recommendations for customers who meet customs compliance from a distant location that mitigates risk and accelerates the import and export process. Because digital signatures are legally binding and provide optimism for future opportunities, aligning electronic business process laws on custom issues is another critical topic to enhance cross-border trade.

Reflections

Throughout the process of researching business strategies for the ASW project, I was able to travel throughout Southeast Asia and meet with senior leaders at the ASEAN Secretariat Headquarters and the ERIA in Indonesia, as well as with MNC senior business leaders in Indonesia, Thailand, and Singapore. Meeting these professionals in the field of import and export trade facilitation provided invaluable information about

current business strategies surrounding the ASW. They volunteered their valuable time to help me, when there was no obvious gain for them. Such gestures played a critical role in helping me understand the strengths, weaknesses, opportunities, and threats of the ASW regional project. Strengths, weaknesses, opportunities, and threats exist within the cultures in which they arise. These kind professionals even took the time to lead me to key documents and corporate presentations online that played a role in triangulating the data used to develop such rigorous findings.

My choice of import and export trade facilitation via a digital network within ASEAN came about because my career as a senior communications architecture director focused on the Asia-Pacific region and offered many opportunities to travel to the region. As my study progressed, I used my time-off to synchronize meetings in the discovery phase of this process to study the problems business leader were facing in implementing a regional single window across 10 sovereign nations in Southeast Asia, the ASW. That part went well. Finding interview participants as one of the formal thesis requirements was more difficult, time consuming, and frustrating, but this also worked out well. Those authorized by their agencies, companies, or organizations to participate as volunteer interviewees exhibited a keen and professional passion for the complex subjects I queried them on: single window business models, PPPs, project management, BPA (activity integration), data harmonization, risk management, and change management. These person-to-person interactions brought forth a level of clarity to this study that my literature searches did not. Aligning these interviews with ASW conferences led by key business leaders and other key professional documentation led to the conclusion that I

had a grasp of the issues and potential winning business strategies. I presented all my research, findings, and conclusions in this study. I hope I was able to contribute the most effective business strategies for implementing the ASW in Southeast Asia and that I provided insight for similar opportunities in other global regions.

Conclusion

Based on the analysis of almost 1 gigabyte of collected data from private sector stakeholders across Southeast Asia, including recorded and transcribed in-depth interviews, downloaded ASW conferences, and professional documentation, I identified vital business strategies for the ASW. Table 9 includes business strategies discovered during this ASW case study. A requirement of the ASW regional project is integrating the NSW systems from each AMS. According to P2 and P3, the main issue was making sure that when integrating NSW systems across the ASW environment, the basis of the foundational platform is international standards of interoperability. The Organization for the Advancement of Structured Information Standards served as the basis for information format and the standard for data exchange that incorporates XML as the common web protocol.

Table 9

ASW Business Strategies and Best Practices

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- Establish a business model that supports long-term vision, goals, and sustainability
 - Create an import and export infrastructure based on global standards and data harmonization to facilitate interoperability across the global business environment
 - Regional/public–private collaboration highlights the criticality of aligning integration efforts across each NSW and the ASW to overcome individual NSW disparities
 - Initial scope of integration thresholds must be established to maintain continuity
 - Each NSW entity is responsible for its data security
 - Data security supports gaining customer confidence and establishing credibility
 - PPPs must support sustainability and mitigate risks
 - AEO operators mitigate risks by recommending approval of cargo shipments from the distant end cargo ports based on meeting custom specific WCO trade parameters and security parameters in order to reduce supply distribution delays
 - Implement a 4-step business process analysis (supports data harmonization and digital documentation of all cargo support documents)
 - Cargo manifest
 - Commercial invoices
 - Purchase orders
 - Advanced shipping notices
 - Packing lists
 - Bill of lading
 - Digital certificates of origin
 - Database support for frequent user profiles
 - Execute business process management (create efficient trade transactions)
 - Adopt integrated risk management for cross border supply distribution to minimize cargo delays
 - Implement change management to convert from current standard operating procedures to new standard operating procedures and techniques
 - Implement a regional PMO to ensure regional ASW project oversight
 - Implement a regional domain in support of the network architecture, the gateway software, and regional services
 - Identify KPIs (e.g., manage burn rate for the project budget and overall improving import and export services over time and costs)
-

The WCO data model Version 3.4 and the ASEAN data model set the standard for data formatting that allows recognition of the exchange of data by the sender and the receiver in the format of alphanumeric codes to support data standardization and harmonization. Another critical requirement before clients can exchange electronic data is that each NSW system must be able to provide verifiable data security measures. If a certificate of origin comes from the Singapore NSW run by CrimsonLogic and goes to the Indonesia NSW run by PT EDI, then Indonesia must be able to protect the data because CrimsonLogic senior executives wants to make sure no one misuses the data about its trader on the other side. The leaders of each organization must institute data protection.

A list of collaborative CSFs for a regional single window in Southeast Asia appeared in Table 8, which portrayed insight based on data collected. Table 9 included a summary of the principle business strategies and best practices that current MNC leaders use to implement the ASW partnership contracts to complete ASW region-wide projects.

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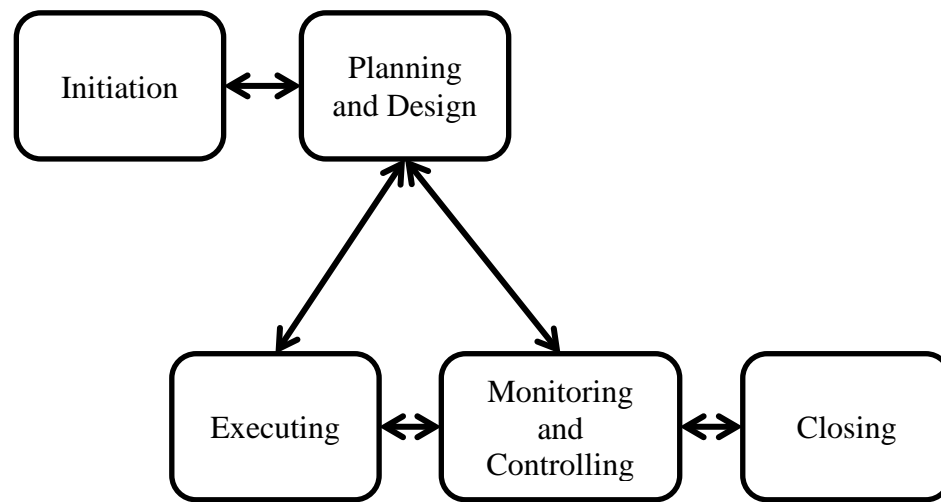
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Appendix A: Traditional Project Management Processes

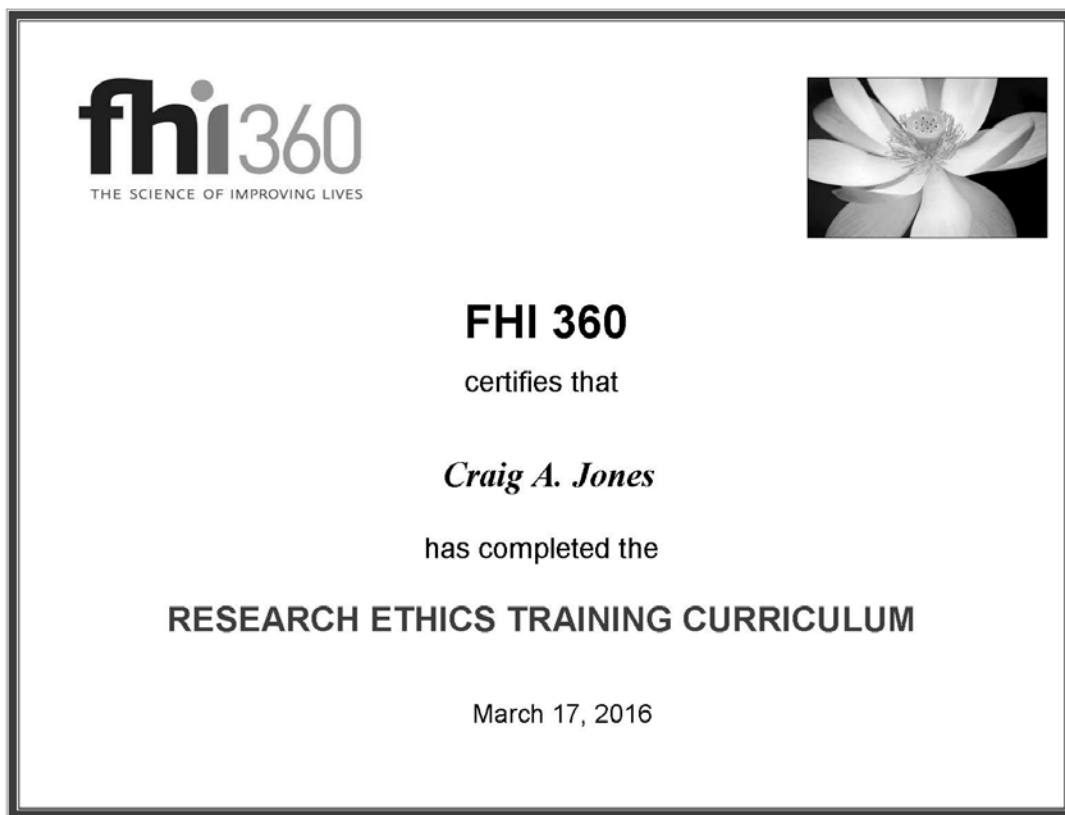


(Kerzner, 2013a)

Appendix B: Project Depicting a Work Breakdown Structure and Gantt Chart

	Task	Start	End	Dur	Gantt Chart		
					2013	2014	2015
	Main Topic	10/10/13	12/30/15	557	[Gantt bar spanning 10/10/13 to 12/30/15]		
1	ASEAN Single Window	10/10/13	12/30/15	557	[Gantt bar spanning 10/10/13 to 12/30/15]		
1.1	ICT Infrastructure Integration	10/14/13	8/10/15	458	[Gantt bar spanning 10/14/13 to 8/10/15]		
1.1.1	Establish Information Assurance	10/14/13	7/25/14	196	[Gantt bar spanning 10/14/13 to 7/25/14]		
1.1.2	Install fiber infrastructure	11/10/13	1/10/15	291	[Gantt bar spanning 11/10/13 to 1/10/15]		
1.1.3	Install satellite and microwave transmission infrastructure	12/23/13	8/11/15	411	[Gantt bar spanning 12/23/13 to 8/11/15]		
1.1.4	Establish regional interoperability	9/30/14	5/27/15	164	[Gantt bar spanning 9/30/14 to 5/27/15]		
1.2	Economic Integration	10/10/13	12/30/15	557	[Gantt bar spanning 10/10/13 to 12/30/15]		
1.2.1	Establish Trade Liberalization	1/11/15	12/30/15	245	[Gantt bar spanning 1/11/15 to 12/30/15]		
1.2.2	Establish Skilled Labor Liberalization	10/22/14	8/10/15	202	[Gantt bar spanning 10/22/14 to 8/10/15]		
1.2.3	Establish PPPs for risk mitigation and diversity	10/10/13	10/10/14	252	[Gantt bar spanning 10/10/13 to 10/10/14]		
1.3	Financial Integration	12/18/13	8/10/15	414	[Gantt bar spanning 12/18/13 to 8/10/15]		
1.3.1	Establish Investment Liberalization	12/18/13	1/7/15	264	[Gantt bar spanning 12/18/13 to 1/7/15]		
1.3.2	Establish Capital Liberalization	5/28/15	8/10/15	53	[Gantt bar spanning 5/28/15 to 8/10/15]		
1.4	Regional Policy Integration	11/21/13	4/21/15	354	[Gantt bar spanning 11/21/13 to 4/21/15]		
1.4.1	Establish Non Tariff Barriers	11/21/13	4/22/14	104	[Gantt bar spanning 11/21/13 to 4/22/14]		
1.4.2	Establish Regional Custom Policies	2/22/14	4/21/15	292	[Gantt bar spanning 2/22/14 to 4/21/15]		
1.5	Milestone - Quarterly Review 2013	12/9/13	12/10/13	2	[Milestone dot at 12/9/13]		
1.6	Milestone - Quarterly Review 2014	4/6/14	4/8/14	2	[Milestone dot at 4/6/14]		
1.7	Milestone - Quarterly Review 2014	6/13/14	6/16/14	2	[Milestone dot at 6/13/14]		
1.8	Milestone - Quarterly Review 2014	9/17/14	9/18/14	2	[Milestone dot at 9/17/14]		
1.9	Milestone - Quarterly Review 2014	12/19/14	12/22/14	2	[Milestone dot at 12/19/14]		
1.10	Milestone - Quarterly Review 2015	3/23/15	3/24/15	2	[Milestone dot at 3/23/15]		
1.11	Milestone - Quarterly Review 2015	6/25/15	6/26/15	2	[Milestone dot at 6/25/15]		
1.12	Milestone - Quarterly Review 2015	9/27/15	9/28/15		[Milestone dot at 9/27/15]		

Appendix C: Research Ethics Training Curriculum (RETC)



(Research Ethics Training Curriculum, 2016)

Appendix D: National Institutes of Health Certificate of Completion for Protecting
Human Research Participants



(National Institutes of Health, 2015)

Appendix E: Informed Consent

Title of Study: Business Strategies for ASEAN's Single Window in Southeast Asia

Principle Researcher:

Craig A. Jones

Doctoral Candidate with Walden University

Background:

If you have served as senior management or in a position that studies, advises, or oversees issues concerning Project Management (PM) related to the ASEAN Single Window (ASW) project I would like to invite you to take part in this doctoral research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please take the time to read the following information carefully.

The purpose of this qualitative case study is to explore what strategies MNC organizational leaders use to implement ASEAN partnership contracts to complete ASW region-wide projects. This trade facilitation project is perhaps one of the most important among the various measures aligned under the ASEAN Economic Community (AEC) and will not only financially benefit the region, but also facilitate improved regional and global trade along with establishing transportation and ICT infrastructure connectivity. Furthermore, by streamlining processes, eliminating tariff barriers, reducing the amount of documentation, and expediting import and export timelines means that ASW project potentially becomes an economic cornerstone for AEC's single market if interoperable business strategies are successful.

Study Procedure:

The expected time commitment for this interview is anticipated to take no more than 1 hour and the interview will be recorded. If after transcribing the interview a response is unclear, a follow-up session via an email, telephone call, or second interview could be required to ensure clarity. This process is also referred to as member checking or respondent validation to confirm credibility, transferability, dependability, and confirmability of information provided.

From a macro view, this study will develop a triangulation of data sources compiled from in-depth interviews, secondary performance data, along with observations of ASW conferences posted online that discuss project performance to form a consolidated case study database. The most important key to my observational fieldwork is to remain opportunistic and gather observations at any opportunity thereby allowing the design to emerge flexibly.

Risks:

The risks of this study are minimal and equate to those you experience when disclosing work-related information with fellow professionals. The topics in the interview are very direct but may upset some respondents and in that case you may decline to answer any or all questions and terminate your involvement if you choose. However, as stated before, all interview information will remain confidential.

Restating the most important fact, being in this study should not pose a risk to your safety or well-being because of your participation.

Benefits:

There will be no direct benefit to you for participating in this study. However, I hope that the information obtained from this study may lead to a better understanding of the business barriers the ASW project confronts and the feasibility of its implementation based on Public–Private Partnerships and effective business strategies.

Additionally, in an era of intensifying business and trade globalization, by adopting fluid ICT networking, many anticipate that by extending a competitive advantage to transport and logistical companies, many intermediary participants will profit across Southeast Asia. Other tangible benefits in the field of import/export trade facilitation include error reductions, service quality improvement, customer satisfaction, and better integration in the overall supply chain.

Alternative Procedures:

If you do not want to be in the study, you may choose not to participate.

Confidentiality:

For the purposes of this research, your comments will remain confidential by means of the following:

- I will not disclose or discuss any confidential information with others, including friends or family.
- I will not in any way copy, release, sell, loan, alter, or destroy any confidential information except as properly authorized.
- I will not discuss confidential information where others can overhear the conversation. I understand that it is not acceptable to discuss confidential information even if the participant's name is not used.
- I will not make any unauthorized transmissions, inquiries, modification, or purging of confidential information.
- I agree that my obligations under this agreement will continue after termination of the job that I will perform.

- I understand that violation of this agreement will have legal implications.
- I will only access or use systems or devices I am officially authorized to access and I will not demonstrate the operation or function of systems or devices to unauthorized individuals.

More pointedly, all participants will be assigned code names that will be used on all researcher notes and documents.

Notes, interviews, transcribed notes, transcriptions and any other identifying participant information will be secured in an online repository where only I as the researcher will have personal access. When no longer necessary for research, all materials will be destroyed.

Information from this research will be used solely for the purpose of this study and if desired each participant will be provided the opportunity to obtain a transcribed copy of their interview by simply informing the researcher if a copy of the interview is desired.

Otherwise, participant data will be kept confidential except in cases where the researcher is legally obligated to report specific incidents. These include, but may not be limited to, incidents of abuse and suicide risk.

Person to Contact:

Should you have any questions about the research or any related matters, please contact the researcher at craig.jones@waldenu.edu. If you want to talk privately about your rights as a participant, you can call Dr. Leilani Endicott. Dr. Endicott is the Walden University representative who can discuss this with you. Her phone number is 001-612-312-1210 (for participants outside the US) and is 612-312-1210 (for US based participants). Walden University's approval number for this study is 11-12-15-0154223 and it expires on 11/11/16.

Voluntary Participation:

Your voluntary participation in this study is strictly voluntary. It is up to you to decide whether to take part in this study or not. If you decide to take part in this study, you will be asked to sign an informed consent form. If you decide to take part in this study, you are still free to withdraw at any time and without giving a reason. More importantly, you are free to bypass any question or questions if you choose not to answer.

Unforeseeable Risks:

There may be risks that are not anticipated. However, every effort will be made to minimize any risks.

Costs to Subject:

There is no cost or monetary compensation to you for your participation in this study.

Consent:

By signing this consent form, I confirm that I have read and understood the information and have had the opportunity to ask questions. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without cost. I understand that I will be given a copy of this consent form and I voluntarily agree to take part in this study.

Printed Name of Participant

Date of consent

Participant's Signature

Researcher's Signature

Appendix F: Interview Protocol Guide

The following is the interview protocol guide developed to explore the business strategies MNC organizational leaders use to implement the ASW partnership contracts needed to complete ASW region-wide projects.

<p>Introduction Key</p> <p>Components:</p> <ul style="list-style-type: none"> • Thank You • Your name • Purpose • Confidentiality • Duration • How interview will be conducted • Opportunity for questions • Signature of consent 	<p>I want to thank you for taking the time to meet with me today. My name is Craig Jones and I am conducting a doctoral research study on business strategies of the ASEAN Single Window project and will be exploring relevant business models, public-private partnerships, and project management methodologies within Southeast Asian region.</p> <p>The interview should take about 1 hour.</p> <p>Although I will be taking notes during this session, I cannot possibly write fast enough to capture all of your replies and therefore will be digitally recording the interview session. The purpose of the digital recording is because I do not want to miss any of your comments. Next, because we are being recorded, please be sure to speak clearly, so that I do not miss your comments.</p> <p>Key to this interview is the fact that all responses will be kept confidential. This means that your interview responses will not be shared and information used in my report will not identify you as the respondent. Remember, you do not have to talk about anything you do not want to and may end the interview at any time.</p> <p>Are there any questions about what I have just explained? Are you willing to participate in this interview?</p>
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Questions	Investigative Interview Questions
<ul style="list-style-type: none"> • No more than 26 open ended questions • Ask factual before opinion • Use probes as needed: <ul style="list-style-type: none"> ○ Would you give me an example? ○ Can you elaborate on that idea? ○ Would you explain that further? ○ I am not sure I understand what you are saying. ○ Is there anything else? 	<p>Business Strategy 1. Explore effective Single Window Business Models and processes that support the ASW project.</p> <ol style="list-style-type: none"> <li>1. What is your current Single Window Business Model? (Please describe the business process model...) <li>2. How is your Single Window Business Model leveraging foreign direct investments and best business practices for the NSW/ASW project? <li>3. How is your Single Window Business Model aligning with ICT strategies/expertise for the NSW/ASW project? <li>4. What is your model of payment? (fixed price per year, price per transaction, combination, other model and using which currency) <li>5. How are stakeholders kept informed about the project's success/return on investment? <li>6. Utilizing the SWOT (Strength, Weakness, Opportunity, and Threat) analysis concept, how do you perceive your organization's ability to meet ASEAN Single Window goals? <p>Business Strategy 2. Explore effective PPP models that support the ASW project.</p> <ol style="list-style-type: none"> <li>1. What managerial roles and responsibilities were agreed upon for this complex NSW/ASW infrastructure development project? (If your organization is a Government Linked Corporation/State Owned Enterprise, what unique managerial roles and responsibilities were established vis-à-vis the public partner?) <li>2. How did your organization determine which PPP implementation/management model was best for your partnership? (e.g., design-build-operate-

	<p>maintain (DBOM), operate, maintain, and manage (OMM), build-operate-transfer (BOT), etc. for the NSW/ASW project)</p> <ol style="list-style-type: none"> 3. How well has NSW/ASW risk and complexity been treated to acquire a competitive business advantage? 4. What are your defined PPP success criteria? 5. What public agencies are involved with your NSW/ASW project? 6. How are you garnering public support as future clients? <p>Business Strategy 3. Explore effective project management methods that support the ASW project.</p> <ol style="list-style-type: none"> 1. How did your organization determine which project management guides and standards would be implemented? (e.g., PMBOK, Prince2, Adaptive Enterprise Project Management, or any other project management standard or certification) 2. What project management methodology is being used to implement your NSW project? (e.g., Traditional Project Management, Agile Project Management, the Critical Path Method (a mathematical algorithm for scheduling), the Fuzzy Critical Path Method, Theory of Constraints (used to exploit weak links), or any other unmentioned project management methodologies) 3. Describe what factors influenced your organization to use the current project management methodology? (e.g., scope, scheduling, budget, risk, product quality, customer satisfaction, or some other factor) 4. What are your critical constraints for the NSW/ASW project? 5. How do you overcome NSW/ASW critical constraint issues that may trigger retardation or deviations in project scope, project schedule, or project budget?
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6. Considering project management is becoming metric driven and KPIs (Key Performance Indicators) serve as early warning systems to inform project managers of unfavorable risk conditions requiring attention, what KPIs are you monitoring to make informed decisions?
7. How are your metrics aligned to support business objectives and project objectives?
8. How can aligning project management knowledge areas (e.g., risk management, integration management, or scope management) with metrics and KPIs support project success?
9. What certifications are necessary for today's project managers who require more business acumen than traditionally required to facilitate project success? (e.g., business process certification, business management certification, complex project certification, cost-benefit analysis certification, lean six-sigma certification, etc.)

Business Strategy 4: Explore the correlation between the Single Window Business Model, PPPs models, and project management methods on project success.

1. What are the main lessons learned from NSW and integrating with the regional ASW project? (e.g., Strengths, Weaknesses, Opportunities, Threats)
2. What are the critical success factors for implementing a business strategy such as the single window project? (e.g., shared responsibility between public and private sector, risk allocation, effective management controls, and project economic viability)
3. Utilizing adaptive or prescriptive procedures, how did/will you overcome historically low project success rates involving ICT projects?

	<ol style="list-style-type: none"> 4. What technology is being used in the NSW/ASW project to dominate information management? 5. What is being done to mitigate unnecessary risks and single points of network failure?
<p>Closing Key Components:</p> <ul style="list-style-type: none"> • Additional comments • Next Steps • Thank you 	<p>The <i>closing questions</i> are:</p> <ol style="list-style-type: none"> 1. What additional information would you like to share about NSW and ASW business strategies that I did not ask? 2. Whom do you recommend I talk with to learn more about the NSW and ASW business strategies? 3. Finally, according to <i>member checking</i> validity, I would like to schedule a follow-up meeting to validate the synthesis of your comments to ensure my findings are accurate. <p>I will be analyzing the information you and others gave me and submitting a draft report in one to two months. I will be happy to send you a copy to review at any time and provide feedback if you are interested.</p> <p>Thank you for your time.</p>

Appendix G: E-mail Letter of Request to Participate

Dear XXXXXX,

My name is Craig A. Jones, and I am a doctoral candidate at Walden University. I am working towards completing my Doctor of Business Administration degree in International Business and am conducting a qualitative research study, which identifies, explores, and assesses what strategies MNC organizational leaders use to implement the ASW partnership contracts to complete ASW region-wide projects.

Because of your role and responsibilities as a senior business executive, program director, and/or project manager, I am seeking your voluntary participation in an in-depth interview on the subject of business strategies for the ASEAN Single Window project. I believe that your contribution and expertise will make a significant contribution to academic research, this doctoral study, and trade facilitation advancement. Specifically, the intent of this research is to further the understanding of the ASW business model, successful PPPs, and the key performance indicators that project managers implement to meet the constraints of project budget, scope, schedule and other risks. This participatory research request seeks to extend the body of knowledge that you can provide. If you agree to volunteer, more specified details will be provided in the informed consent form. This interview will be coordinated between October - November 2015 and the in-depth interview will only last approximately 1 hour, and more importantly, I will work closely with you to coordinate a specified date that your calendar permits.

Finally, hoping for your positive reply, I look forward to your endorsed approval to participate in my doctoral study as I seek to complete my doctoral research in the field of International Business. If you have any questions or concerns, I can be contacted via email at: craig.jones@waldenu.edu.

Best regards,

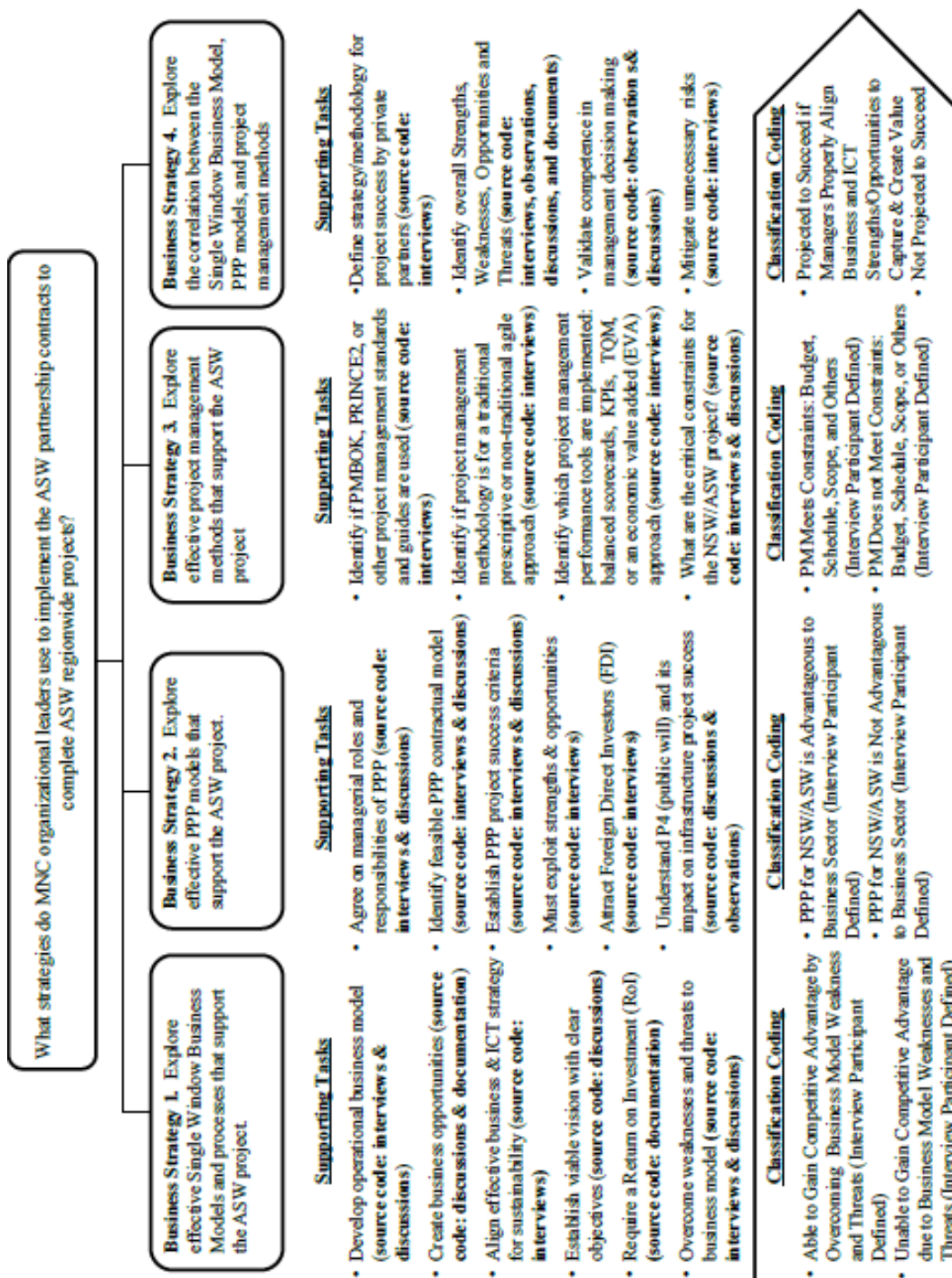
Craig A. Jones

Appendix H: ASW Observational Protocol

- Event/Activity of observation:
- Site/Address:
- Observer:
- Date and time of observation:
- Length of observation:
- Place of observation:
- Define what is being documented in observation:

Guideline	Field Observation Notes (Target processes and problems relevant to the research question)	Reflective Notes
<ul style="list-style-type: none"> • Description of participants • Description of atmosphere 	RQ: What strategies do MNC organizational leaders use to implement the ASW partnership contracts to complete ASW region-wide projects?	Emerging Themes or Issues

Appendix I: Generation of Data Classification Coding



Appendix J: Theme 1 Through Theme 4 x Collected Data

(NVivo Generated Coding Matrix)

	Documents	Interviews	Videos
B1 Q1a - Identify Business Models	3	5	4
B1 Q1b - Identify Viable Business Vision with Clear Objectives	1	5	11
B1 Q2a - Identify and Attract Foreign Direct Investment (FDI)	0	2	1
B1 Q2b - Identify Business Process Management	13	8	8
B1 Q3a - Identify and Align Business & ICT Strategy for Sustainability	4	11	9
B1 Q3b - Identify and Align Business Strategy	2	11	6
B1 Q4 - Identify Payment Model	0	4	0
B1 Q5 - Identify Return on Investment	1	5	2
B1 Q6a - Identify SWOT features of ASW	3	2	0
B1 Q6b - Identify Weaknesses and Threats to Business Model	5	7	3
B1 Q6c - Identify Business Opportunities	6	12	8
B2 Q1 - Identify PPP Managerial Roles and Responsibilities	0	17	1
B2 Q2 - Identify PPP Contractual Models (while meeting Service Level Agreements)	1	11	2
B2 Q3 - Identify Risk Allocation	4	10	4
B2 Q4 - Identify PPP Success Criteria	5	17	0
B2 Q5 - Identify and Exploit PPP Strength and Opportunities	7	10	9
B2 Q6 - Identify P4 (Public & Private Will)	8	7	0
B3 Q1 - Identify Which Project Management Standard or Guide	0	6	0
B3 Q2 & Q3 - Identify if Using Agile PM or Traditional PM Approach	0	3	0
B3 Q4 & Q5 - Identify Critical PM Constraints	3	11	0
B3 Q6 Q7 & Q8 - Identify if Using PM Performance Tools - Balanced Scorecards, KPIs, TQM, or EVA (Economic Value Added) Approach	0	12	0
B3 Q9 - Identify Certifications for NSW-ASW Project Managers	0	3	0
B4 Q1 - Identify and Validate Competence In Management Decision Making	8	4	1
B4 Q1 - Identify Lessons Learned	11	10	1
B4 Q2 - Identify Critical Success Factors	12	16	5
B4 Q3 - Identify Strategy or Methodology for Project Success by Private Partners	11	17	3
B4 Q4 - Identify and Align NSW and ASW Integration	3	26	0
B4 Q4 - Identify Data Harmonization Techniques	55	6	2
B4 Q5 - Identify and Mitigate Unnecessary Risks	16	14	3

Appendix K: Volunteer Participant Information Sheet

Name: _____

Date: _____

Position: _____

Mailing Address: _____

Email _____

Telephone: _____

Appendix L: Initial Research Strategy

Strategy	Description
Researcher	Role of the researcher is to seek information from all relative sources without relying on personal biases
Field Work	Relentlessly note in detail observations and transcribe to computer followed by backing data up on hard drive and online using the online repository dropbox.com
Low Inference	Compare manual interview coding with Computer Assisted coding (qualitative analysis software) to provide validity to research findings
Data Triangulation	Categorical themes identified from qualitative software analysis compared with categorical themes identified by manual data analysis will be studied for correlations based on interview feedback, observations, and research documentation
Method Triangulation	Data reduction (using a practical approach), coding data, and data management (matrices)
Theory	A multiple case study focusing on the Theory of Constraints as related to businesses developing a trade facilitation network within defined time constraints and the role it plays in meeting ASW contractual goals.
Peer Review	Proofread interview questions and provide feedback
External Audit	Mentor will provide positive or negative comments and guidance on research approach
Reflection	Personal Inferences

Appendix M: Glossary of Acronyms

ABAC – ASEAN Business Advisory Committee

AEC – ASEAN Economic Committee

AEO – ASEAN Economic Operator

AMS – ASEAN Member States

APM – Association of Project Managers

ASEAN – Association of Southeast Asian Nations

ASW – ASEAN Single Window

B2B – Business to Business

B2G – Business to Government

BISE - Business Information Systems Engineering

BPA – Business Process Analysis

BPM – Business Process Management

CADP – Comprehensive Asia Development Plan

CAQDAS – Computer Assisted Qualitative Data Analysis Software

CBA – Cost-Benefit Analysis

CCM – Critical Chain Method

CPM – Critical Path Method

ERIA – Economic Research Institute for ASEAN and East Asia

FER – Foreign Exchange Reserves

FDI – Foreign Direct Investment

FTA – Free Trade Agreement

G2B – Government to Business

GLC – Government Linked Corporations

ICB – IPMA Competence Baseline

ICT – Information and Communication Technologies

IPMA – International Project Management Association

ISO – International Standards Organization

ITIF – Information Technology and Innovation Foundation

JASTPRO – Japan Association for Simplification of International Trade Procedures

KPI – Key Performance Indicators

MNC – Multinational Corporation

NACCS – Nippon Automated Cargo and Port Consolidated System

NIH – National Institutes of Health

NSW – National Single Window

OASIS – Organization for the Advancement of Structured Information Standards

OECD – Organization for Economic Co-operation and Development

P1 – Participant 1

P2 – Participant 2

P2M – Project and Program Management

P3 – Participant 3

PM – Project Management

PMBOK – Project Management Body of Knowledge

PMI – Project Management Institute

PMO – Project Management Office

PPMS - Project Performance Management Systems

PPP – Public–Private Partnership

PT EDI – Electronic Data Interchange (Indonesia)

RCEP – Regional Comprehensive Economic Partnership

RETC - Research Ethics Training Curriculum

RS – Regional Services

RoI – Return on Investment

SME – Subject Matter Expert

SPV – Special Purpose Vehicle

SWOT – Strengths, Weaknesses, Opportunities, and Threats

TOC – Theory of Constraints

TPP – Trans Pacific Partnership