EMPLOYEE WILLINGNESS TO CHANGE TOWARDS THE IMPLEMENTATION OF SMART CONTRACT

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DEDICATION

Allah, the Almighty

I am so grateful for being a Muslim and
hopefully to die as a Muslim

My Eternal Love, Mak & Abah

This thesis is dedicated to my first love, my mother, Soliah binti Adinan, who taught me valuable life lesson that I will never forget throughout my entire life.
To my father, Sazali bin Kandar, my strength and my forever idols who never stops educates me

My Siblings, My Kin

To my beloved siblings, I love you guys so much. Thank you for your endless support for me.

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ABSTRACT

Smart Contract is one of the latest technology introduced into construction industry which provide potential to substitute the traditional contracting method. With an increasing shift towards the adoption and implementation of this technology into construction projects, it is essential to realize how smart contracts can be used for organizational advantages. However, the implementation of Smart Contract possess challenges particularly among construction employee. Therefore, this paper tends to identify the resistance factors in embracing changes among construction employee as well as to determine the factor that influence the employee willingness to implement construction smart contract in Malaysia. Quantitative methodology has been utilized by distributing 120 questionnaire surveys to individuals that possess construction background within Malaysia. A total of 60 respondent's feedback able to be collected. Data collected are analysed by using reliability test, descriptive analysis, one way ANOVA analysis as well as correlation analysis. The findings shows that most the respondents are agreed that the factors such as employee behaviour, demographic, psychology, social as well as culture possess impact towards employee resistance towards change. Furthermore, the finding also illustrates that the all of the respondent strongly agreed to the factors that influence employee willingness to change towards the implementation of Smart Contract. The factors that influence the employee willingness to change are leadership, communication and collaboration, self-efficacy, personal valence, investment and finally employee engagement. In supposition, construction organization has realized the factors that influence employee resistance to change as well as the factors that can be practice to implement Smart Contract.

ABSTRAK

Kontrak Pintar atau Smart Contract adalah salah satu teknologi terkini yang diperkenalkan ke dalam industri pembinaan yang berpotensi untuk menggantikan kaedah kontrak tradisional. Dengan peralihan yang semakin meningkat ke arah penerapan dan pelaksanaan teknologi ini ke dalam projek pembinaan, adalah sangat penting untuk menyedari bagaimana kontrak pintar dapat digunakan untuk memberikan keuntunagan kepada organisasi. Walaubagaimanapun, pelaksanaan Kontrak Pintar mempunyai cabaran terutamanya dalam kalangan pekerja pembinaan. Oleh itu, kajian ini cenderung untuk mengenal pasti faktor rintangan dalam mengadaptasi perubahan dalam kalangan pekerja pembinaan dan juga untuk menentukan faktor yang mempengaruhi kesediaan pekerja untuk melaksanakan kontrak pintar dalm pembinaan di Malaysia. Metodologi kuantitatif telah digunakan dengan dengan mengedarkan 120 soal selidik kepada individu yang mempunyai latar belakang pembinaan di Malaysia. Sebanyak 60 maklum balas responden dapat dikumpulkan. Data yang dikumpulkan dianalisa dengan menggunakan ujian kebolehpercayaan (Reliability Test), analisa deskriptif, analisa ANOVA sehala serta analisa korelasi. Hasil kajian menunjukkan bahawa kebanyakan responden bersetuju bahawa faktor-faktor seperti tingkah laku pekerja, demografi, psikologi, sosial dan budaya mempunyai kesan terhadap rintangan pekerja terhadap perubahan. Seterusnya, penemuan ini juga menggambarkan bahawa semua responden sangat setuju dengan faktor-faktor yang mempengaruhi kesediaan pekerja untuk berubah ke arah pelaksanaan Kontrak Pintar. Faktor-faktor yang mempengaruhi kesediaan pekerja untuk berubah adalah kepemimpinan, komunikasi dan kolaborasi, keberkesanan diri, keberanian diri, pelaburan dan akhir sekali penglibatan pekerja. Sebagai anggapan, organisasi pembinaan telah menyedari faktor-faktor yang mempengaruhi rintangan pekerja terhadap perubahan serta faktor-faktor yang boleh dipratikkan untuk melaksanakan Kontrak Pintar..

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INTRODUCTION

1.1 Research Background

The construction industry is one of the industries that plays a crucial role in the development and enhancement of the economy, as well as in the development of one's own country. Construction industry has a duty and responsibility to establish the quality of life of today's advancement and the ambition of today's wealth are in the future (Dwikojuliardi, 2015). It is undoubtably fair that the construction sector is favorably linked to the success of any economy.

It can be described as some persuasion of economic engine for improving and developing economies. The construction sector continues to play a substantial importance in the production of wealth and the improvement of the quality of life of the nation, which is vital for the development of the nation. It also correlates to the emergence of massive employment in the economy (Khan, Liew & Ghazali, 2014).

Moreover, with the emergence of technological advancement nowadays, construction industry possess even more potential to grow. In recent years, progressions in the use of computers in construction have become a significant, even dominant, goal of research and development. This is precisely displayed in the series of related research initiatives, published scientific papers and curriculum content. There are dozens conferences dedicated to construction computing and integration issues (Koskela & Kazi, 2003).

There is a need in the construction industry to improve construction efficiency through the adoption of innovative strategies (Oad, 2016). Information and communication technology and their implementation may assist to improve construction productivity and resolve distinctive challenges such as sustainable

construction and its management. The construction industry is recognized for its extremely volatile and competitive atmosphere (Kalinichuk, 2013).The architecture, engineering and construction industry has demonstrated considerable attention in accepting emerging technology for visualization, data analysis, knowledge exchange, communications and collaborative activities (Thomassen, 2011).

These ICT technologies help to improve client satisfaction by reducing coordination faults and providing clear comprehension between project participants in terms of effective managing of issues and specifications (Vasista & Abone, 2018). One of the latest technology emerged along with the technological innovation in construction is digital contract or smart contract. The term smart contract applies to a computerized protocol that negotiates, validates and automates the performance of the contract (Fox, 2016).

Smart contracts can have more confidentiality than traditional signed paper contracts (digital archiving), can be modified (flexible) throughout project and are easier to manage (diminished transaction costs) in comparison to current contracting practices (Fox, 2016). The concept also involves defining contracts that can be electronically or paperless negotiated, distributed and signed. While electronic contracts alter paper documents dramatically, they do not bring any major innovation to the contracting process. They actually simplify the way people create contracts, not the way they intend or use those contracts.

Apart from that, "change" has become normal and widespread in most organisations, but is often resisted by employees leading in confrontation and decreased organizational efficiency. The capacity of any management to optimize the benefits of change relies in part on how efficiently it establishes and maintains an environment that minimizes resistant conduct and promotes acceptance and support (Coetsee, 1999). Therefore, in order for construction player to continue in adopting the latest technology, they must understand the effect of resistance to change among employees which can become major problem in embracing the change.

1.2 Problem Statement

Technology is rapidly evolving and it is very complicated to maintain the pace of the latest technological developments and to be consistently aware of them. Technology is constantly changing and corporations will constantly enhance their ability to perform tasks faster, better and cheaper all the time (Singh, 2015). Communication is no longer limited due to the barriers of geography and time. Information is broadly and more rapidly distributed and received than ever before. This is where computerized commerce gives the corporate environment flexibility in terms of location, time, space, distance, and reimbursement. With the rise of e-commerce, there is a significant progress in the utilization of digital, smart or e-contracts (Varadharaj and Amrutha, 2018).

However, as mentioned by Beer and Nohria (2000), change is occurring rapidly than most workers are concerned with change or its impact. Many workers do not desire change because they believe that change will often bring a negative effect (Singh, 2015). When it comes to embracing new ideas, especially creative developments, it is often the fear of the unknown and the change in mentality that are the greatest obstacles to overcome. Many who wish to maintain the styles in which things are done are usually reluctant to change (Buildingtalk, 2019). Manuela and Clara (2003) suggested that the more transformational and drastic the changes, the greater the resistance to such change.

Introducing new mechanisms into an organization requires changing the culture of an organization that includes with it risks and obstacles that are not limited to financial considerations, but can require the consistency or versatility of the people and structures of the organization. (Eadie, Odeyinka, Browne, McKeown & Yohanis, 2014). This involves a significant change in culture within the company (Rowlinson et al, 2009, Watson, 2010). Employees are avoiding change due to their poor tolerance levels, which indicates that they are unable to learn the new skills and attitudes needed in the new situations arising from the change implemented (Paul, Mike & Rodger, 2006).

Moreover, resistance to change was primarily seen as an attempt to preserve the status quo, and research has historically regarded resistance as a negative force that must be resolved. (Courpasson, Dany, & Clegg, 2012). People are hesitant to accept changes and individuals in every organisation are resisting change. As mentioned by Egan and Fjermestad (2005), it is a human characteristic to resist changes because it's 'resistance' as the human normal reaction to change. People get interested in comfortable styles of conducting activities, including how they initially thought they were slow, expensive or ineffective.

A survey from Janeiro Digital reported that cultural resistance to digital transformation is the greatest obstacle, not simply a lack of opportunities or current technology implementations as signifies by The Modernization Gap: Digital Innovation and Transformation in Supply Chain and Logistics. Respondent feedback mentioned that unrealistic budgets as well as lack of support as some of the important obstacles in the adoption of new technology (Lazarus, 2018).

Furthermore, the legacy of technology that most companies have in operation causes difficulties, particularly on a global level, to carry out a digital experience simultaneously. If it's too complicated, there's obviously a desire to turn back into the traditional way of operating business, rather than accepting change. The lack of willingness on the part of the company as a whole to move together is pushing down the development (Jensen, 2018). Resistance to the introduction of technologies is 'anticipated' and can be seen as the reverse side of innovation success factors which have been highlighted in research on the implementation of technology in Information System (Samhan, & Joshi, 2015 ; Bintoro, Simatupang, Putro & Hermawan, 2015).

Besides, the implementation of sophisticated technology leads to job insecurity among construction industry workers (Mathebula et al., 2012). Within sectors, professions, and education classes, computerization is correlated with the reduction of labor input of routine manual and routine cognitive services and increased labor input of non-routine cognitive services as mentioned by David, Levy and Murnane (2003). Technology can never substitute man, and the usage of the technology tends to lead to

man's need to be less demanding, which can lead to workers being reduced (Mathebulaa, Mukukab, Aigbavboac & Thwalad, 2015).

It is becoming a challenge for individual who are lacking in technological skilled to take on such roles. An increasing number of public media analysts have claimed that modern technological and economic changes, such as enhanced international competitiveness, labor market reform and the growth of the internet, have boosted job insecurity in developing countries, leaving some society groups worse off (Matouschek, Ramezzana and Nicoud, 2003).

Therefore, this research tends to identify the significant factors that influencing the employee resistance to adopt changes as well as the factors that influence the implementation of digital or smart contract within Malaysian's construction industry.

1.3 Research Questions

From the problem statements discussed in the previous section, the research questions have been attempted to answer as below :

i. What are the resistant factors in embracing changes amongs construction employee?

ii. What are the factors that influence the employee willingness to implement construction smart contract in Malaysia.

1.4 Research Objectives

With regard to the issues, questions and problems raised concisely in the prior section, it can be concluded that the research must be designed to achieve the following two objectives:

i. To identify the resistance factors in embracing changes among construction employee.

ii. To determine the factor that influence the employee willingness to implement construction smart contract in Malaysia.

1.5 Research Scopes and Limitations

In order to ensure the research to be more effective and efficient, the scope of research has been limited to:

i. The populations and samples of survey respondents targeted in this research are individuals that possess construction background in Malaysia.

ii. This research will be focusing on individuals who are involved in construction organizations which located throughout Malaysia.

iii. This research aims to identify the resistance to change factors among construction players as well as to determine the factors that influence the implementation of smart contract in Malaysia construction industry. Thus, the respondents of this research will not only limited to professional such as architect, engineer and quantity surveyors, but also involves personnel who are directly involves in contract management in their company.

1.6 Research Significance and Contribution

Through this study, the resistance to change factors among construction players as well as the factors that influence the implementation of smart contract in Malaysia

construction industry are identified and analyzed in such meaningful knowledge that can help to create an efficient implementation approach in construction organizations. With an in-depth analysis and evaluations of both objectives, construction stakeholders and researchers could enhance better understanding factors that influence the willingness to implementation of smart contract to provide various solutions for overcoming the issues and problems faced by the construction industry. Similarly, this study on the resistance to change factors among construction employee also could help to provide better understanding towards the importance of construction employee contribution towards embracing the new change.

1.7 Research Methodology

A straightforward, organized and systematic orientation to research methodology is the success factor in satisfying the research objectives and questions raised. This can be achieved through a well-defined research structure that will aid to establish a straightforward guide to the researcher in his findings. As a result, several stages have been planned to explain each operation in the research process as shown in Figure 1.1.

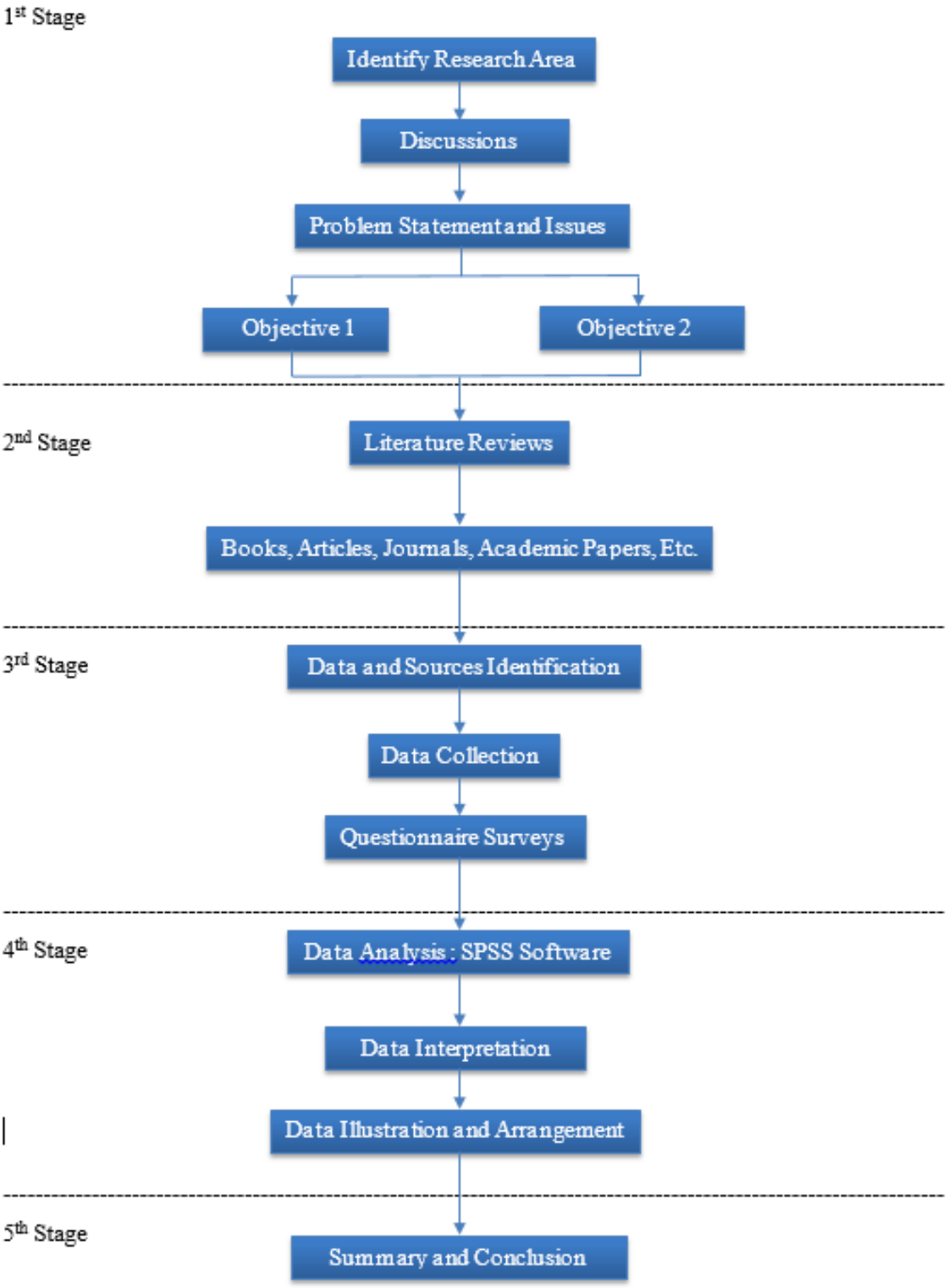

Figure 1-1 Research Methodology for this research summary

First and foremost, this research is divided into 5 separate phase or stages. For the first stage, problems and research goals are established as issues or problems are identified. The first stage is thus to evaluate the problem statement in every study

to be conducted. Next, the second stage is where literature review study is conducted which explain the essence of the whole study. At this stage, existing information and materials are collected and used as evidence to support the objectives of the study or otherwise. Sources such can be obtained through reading articles, journals, books, brochures and pages web. Literature review can also help in improving understanding of studies to be conducted.

The third stage is data collection. The required data is identified and transformed into questions that shall be answer by the respondent. For this research, questionnaire surveys shall be conducted by distributing set of questionnaires to respondent in order to obtain the data to answer the research questions.

Next is the fourth stage where after data collection is done, all the data is analyzed in order to obtain the results. Data analysis is done in order to achieve the research objectives. This stage is important to get the results of the survey done. The data obtained are reviewed, processed and analyzed using SPSS software.Last but not least is the fifth stage which is the conclusion and recommendation. In this stage, the analysed data is summarize and suggested whether the data and research able to answer or fulfill the research objectives.

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