

UNIVERSITI TEKNOLOGI MARA

**KNOWLEDGE RETENTION
FRAMEWORK FOR FACILITATING
CRITICAL KNOWLEDGE LOSS IN
R&D ORGANIZATIONS**

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PhD

December 2020

AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Postgraduate, Universiti Teknologi MARA, regulating the conduct of my study and research.


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ABSTRACT

In this decade onwards, some organizations have experienced, and some will be facing knowledge loss (KL) phenomena. The phenomena usually influenced by two main areas which include human resource and knowledge management (KM). Therefore, in this context, no exception that research and development (R&D) organizations would escape from these phenomena. As R&D becomes essential for innovations and important in many industries, it remains important for competitive advantage for organization's survival. KL phenomena in R&D are crucial to innovations that have direct impact on organizational performance as well as national achievement. Furthermore, the phenomena also crucial to R&D in nuclear and medical industries due to the issues of safety and security. To retain the R&D knowledge, previous works in KL and knowledge retention (KR) have been reviewed. From the review, KR frameworks were identified as the ideal and comprehensive approach to be used at the organizational level. R&D organizations were defined as not the same as other organizations because of the unique differences in terms of people, ideas, funds, and culture. Due to that, this study attempts to improve existing KR frameworks that have overlooked the organizational differences between R&D and non-R&D in the issues of adaptability. Along with that, the study also has resolved problems of understanding critical R&D KL, unstructured design and lack of technological support in existing KR frameworks. The main objective of this study is to develop a new KR framework adaptable (useful and complete) to R&D organizations. This study consists of two main phases that include exploratory and confirmatory phases to achieve the main objective. In exploratory phase, the extensive literature survey was conducted to investigate the phenomena of critical KL in R&D organizations (Objective 1) and to identify KR components for R&D organizations (Objective 2). In this phase, a set of R&D criteria and a conceptual framework are acquired as a basis for developing a new KR framework adaptable to R&D organizations. In confirmatory phase, multiple case studies were conducted in three R&D organizations to propose the new KR framework (Objective 3). The framework is synthesized through a qualitative approach using thematic analysis acquired from interviews with experts from the R&D organizations. The thematic analysis was carried out using qualitative software tool called ATLAS.ti 8. Expert reviews from academic and R&D organizations were used for framework verification to confirm the proposed framework adaptable to R&D organizations. As a result, assessment, mapping and binding, acquire and transfer, critical knowledge store, organizational memory and utilization and integration are the proposed components of the new KR framework adaptable to R&D organizations. This research contributes a new KR framework called RnD-KRef for R&D organizations developed based on the six components. In addition, a R&D value chain and two IT tools called critical knowledge expert directory (CKED) and local expert identification and verification (LEIV) are part of the research contributions discovered during the conduct of the study. The findings of this research are significant to the field of knowledge management (KM), human resources (HR), operational (OM) and quality management (QM) as well as R&D organizations to minimize the effect of KL phenomena at the organizational level.

ACKNOWLEDGEMENT

Firstly, Alhamdulillah, I wish to thank Allah swt. for giving me the opportunity to embark on my PhD and for successfully completing this long and challenging journey. My gratitude and thanks go to my distinguished supervisors Associate Prof. Dr. Wan Adilah Wan Adnan, Dr. Ariza Nordin and Prof. Dr. Nor Laila Md Noor for their excellent guidance and assistance throughout the study. Priceless thanks to Prof. Dr. Laurance Prusak, Prof. Dr. Jay Liebowitz and Ms Habibah Adnan for their encouragement in the studied research subject.

My appreciation goes to the Government of Malaysia, Public Service Department of Malaysia, Malaysian Nuclear Agency and Yayasan Bank Rakyat for their important approval, financial and study leave support for me to conduct this study. The appreciation extends to the director general, deputy director generals, deputy director of technical supports, director of technical support, HR and information management divisions, KM, IT and R&D managers, and all related staffs from studied R&D organizations for their excellent cooperation, assistance and materials during the arrangement and conduct of the interview sessions for data collection. Special thanks to colleagues, friends and whoever has directly or indirectly involved and supported this study.

Last but not least, this thesis is dedicated to Puan Hajah Zainab Binti Mat Talib (mother), Tuan Haji Sulaiman Bin Ahmad (late father), Pn. Rahimah Binti Abdul Rahim (wife), Muhamad Firdaus Hilmi (1st son) and Muhamad Furqan Hilmi Bin Mohamad Safuan (2nd son) for their endless supports.

Alhamdulillah..

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