

UNIVERSITI TEKNOLOGI MARA

**EVALUATION FRAMEWORK FOR PUBLIC
R&D PROGRAM**

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ABSTRACT

There is an increasing pressure on policymakers to demonstrate objectivity in the evaluation of the public R&D investments in order to improve the effectiveness and performance of R&D towards achieving better results. Previous literature indicates that evaluation approach for public R&D program would vary among countries as it is highly contextual in nature and country-specific. This study aimed to examine R&D evaluation practices in the given context, building on the body of knowledge in R&D management and program evaluation. An extended new research in this area shall address the question: *How can we evaluate public R&D program for improved performance?* The underlying objective of this study was to develop an appropriate framework to evaluate the public R&D program within the given country context. Through application of the conceptual framework to a case study, this study examined the main components and the dynamic process of performance evaluation of the public R&D at program level. This study therefore will demonstrate the importance of program evaluation in improving the performance of the public R&D program. This study employed case study, mixed method design to collect data and address the research question. Logic model and cross case analysis techniques were employed to analyze the case study at both the project and program levels. The findings and results at the project level were then aggregated and synthesized at the program level. There are several findings from this study. Firstly, the study examined the current evaluative practices and identified the requisite key evaluation components and evaluation process needed in evaluating the public R&D program. Secondly, the analysis identified the challenges, issues and knowledge gaps in the current evaluative practice with respect to program evaluation process and program design and delivery in the given context. Thirdly, validation and refinement of thematic *key factors* from literature has been applied to the case study to determine suitable thematic key factors that were suggested to influence the performance of the public R&D program. Additionally, the results from case study identified the critical missing components and process in the current evaluative practice that are prerequisites to developing an objective evaluation framework. Finally, this research synthesized all the findings and suggested the design of an evaluation framework that is appropriate for the given country context. Guided by the initial conceptual framework, the findings contributed to the development of an objective and systematic evaluation framework for the public R&D program together with improvement plan for the given country context.

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CHAPTER ONE

INTRODUCTION

Research and Development (R&D) has been a key driver for economic growth and national competitiveness, and is a critical factor in driving significant investments from the government in the public R&D programs. With competing priorities for the increasingly strained national resources, and greater demand and mandate for accountability in the management of public funds, there is now an ever increasing pressure on policymakers to demonstrate efficiency and transparency in managing public R&D investments and in evaluating R&D performance to ensure the achievements of its set goal/objectives as well as the targeted returns on investments. Evaluation of public R&D program is both an important and challenging problem towards effective R&D. The question of how to improve R&D evaluation and in turn R&D performance has now become the theoretical front and key issues attracting wide attention and interest in this field. These issues form the topic of enquiry of this study.

1.1 BACKGROUND AND CONTEXT OF INQUIRY

R&D increasingly plays an important role in today's highly competitive global environment. The evolving global landscape that is defined by rapid technological changes, fast-turning technological innovations, changing consumer lifestyle and dynamic markets poses increasing challenges to policymakers to gain comparative advantage for sustained national competitiveness. This competitive advantage can only be achieved through the right investment in R&D as well as innovation. It is recognized that new technological knowledge and innovation can be gained through a well-planned and systematic allocation and use of the limited national resources for R&D investments, in both the private and public sectors. This brings to fore the question of how to most effectively manage R&D to achieve the targeted goals. A country or an organization's ability and competence to effectively manage R&D performance are of paramount importance for its growth and future competitiveness. Nonetheless, one cannot manage R&D effectively without having the capacity to evaluate R&D