

**PROJECT SELECTION FOR GROUP DECISION MAKING
USING ANALYTICAL HIERARCHY PROCESS: A
PRIVATE COLLEGE PERSPECTIVE**

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**MASTER OF SCIENCE (MANAGEMENT)
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PERSPECTIVE**

By

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ABSTRACT

Selection of the right projects is considerably critical for organizations to successfully achieve their competitive advantages and corporate strategies. Due to limited resources and dynamic changes in the business environment, selection of projects is quite challenging. The main purpose of this case study was to identify the project selection criteria that best meet the requirements of a well-diversified group of companies. Decision makers need a structured approach for decision making that allows the necessary trade-offs in a systematic fashion, in light of all of the considerations at hand. One structured approach to decision making that may work well is Analytical Hierarchy Process (AHP) which uses simple judgment known as pair-wise comparison. This paper reports the results of a case study where the AHP technique was employed to support the project selection in a multi-criteria environment. Six selection criteria and four alternatives projects were identified. The selection criteria include financial aspect, strategy, risk, urgency, contractor availability and technical knowledge. The AHP technique successfully helped the group decision makers to single out the most appropriate project that best suits the organization's operational needs and prioritize these projects accordingly.

Keywords: Project selection, Analytical Hierarchy Process, Multi-criteria decision making

ABSTRAK

Pemilihan yang tepat bagi sesebuah projek adalah kritikal bagi organisasi untuk mencapai kelebihan daya saing dan mencapai strategi korporat. Disebabkan sumber yang terhad dan perubahan dinamik dalam persekitaran perniagaan, proses pemilihan projek adalah mencabar. Tujuan utama kajian kes ini adalah untuk mengenal pasti kriteria pemilihan projek yang paling sesuai memenuhi keperluan organisasi. Teknik berstruktur dan bersistematik diperlukan bagi membolehkan pihak pengurusan membuat keputusan dengan mempertimbang faktor-faktor yang mempengaruhi pemilihan tersebut dengan sewajarnya. Antaranya ialah Proses Analisis Hierarki yang menggunakan perbandingan. Laporan kajian ini memperincikan keputusan satu kes kajian di mana teknik AHP digunakan untuk memilih projek yang mempunyai pelbagai kriteria. Enam kriteria pemilihan projek dan empat projek dipertimbangkan. Kriteria pemilihan projek terdiri daripada kewangan, strategi, risiko, urgensi, kesediaan kontraktor dan pengetahuan teknikal. Teknik AHP telah berjaya membantu sekumpulan pembuat keputusan membuat keputusan dalam memilih projek yang paling sesuai bagi memenuhi keperluan operasi organisasi dan menilai projek yang perlu diberi keutamaan.

Kata Kunci: Pemilihan projek, Proses Analisis Hierarki, Kriteria berbilang membuat keputusan

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LIST OF ABBREVIATIONS

AHP	Analytical Hierarchy Process
CA	Contractor Availability
CI	Consistency Index
CR	Consistency Ratio
FN	Financial
IRR	Internal Rate Return
IT	Information Technology
NPV	Net Present Value
PPM	Project Portfolio Management
R&D	Research and Development
RI	Random Index
RK	Risk
ROI	Return on Investment
ST	Strategic
TK	Technical Knowledge
UR	Urgency

CHAPTER ONE

INTRODUCTION

Chapter one gives an overview of decision making, group decision making, project selection, importance of project selection and issues in project selection. This chapter also highlights the problem statement, objectives, research questions and the scope of this study.

1.1 Decision Making

Decision making is important for any organization. Many organizations are now expanding their operations involving project management. To implement the project management and the expansion of the operations, a manager must choose the best segment or project among the existing projects. In complex project environments, decision making can be challenging (Ricardo, 2010). Therefore, making a good decision is imperative for the project to be successful (Al-Subhi, 2001).

Ang (2005) defined decision making as the cognitive process of selecting an action from several alternatives that exist. According to Wikipedia (2014), decision making can also be regarded as a problem-solving activity through a follow-up action. Explicit in this assumption is that decision making is a reasoning or emotional process which can be rational or irrational.

Making a decision is the result of a mental process of choosing some actions from several alternatives. Every decision-making process produces a final choice of action or opinion.

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