

Implementation of Portfolio Management Across Various Type of Industries

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ABSTRACT

The objective of this research is to reiterate the portfolio management and its fundamentals, understand various industry types, analyze how portfolio management can be implemented across various domains and propose solutions to implement and benefit projects selection across various type of industries.

Various Structures and methodologies have been analyzed through literature review. This has clarified ways regarding proposal, development and governance of new projects which can be utilized and adopted to benefit industries in terms of their strategic planning, policy considerations, capacity and capability management, stakeholder engagement, value optimization and navigating changes and risks.

A survey was generated based on identification of different portfolio governance and projects selection factors from literature review. The survey was distributed to people who work in different industrial dynamics. After all data collected from the respondents via Delphi and interview techniques, all data were analyzed to establish the relationship between projects selection, governance and industrial dynamics.

Portfolio Management involves doing the right projects so the biggest challenge for all the industries is the selection of right projects to undertake that could lead to sustainable and far reaching tangible and intangible benefits.

The portfolio of various industries has been studied primarily considering three dynamics: Scoring Model, Portfolio Balance and Strategic Alignment alongside Governance criteria.

Industries analyzed include Pharmaceutical Industry, Product Development Industry, Financial Industry, Energy and Logistics Industry, Telecommunications Industry, Government Sector and Professional Services Industry.

Keywords: Business Management, Risk Management, Portfolio Management, Strategic Alignment, Scoring Models, Projects Prioritization, Governance, Portfolio Management Office (PMO), Resource Management, Capacity Planning.

1. INTRODUCTION

1.1 Background

Portfolio management is a very broad topic which covers projects, programs, sub-projects as well as operations, which all form the dynamics and critical systems of various type of industries, therefore it is important to manage and leverage the lifecycle of all investments to ensure outcomes achieve desired results.

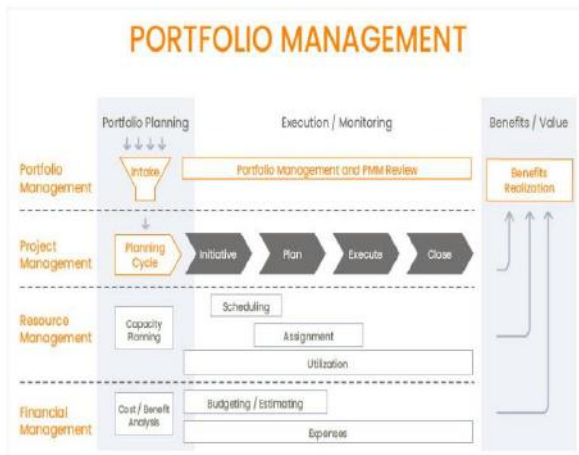
The number of ideas that emerge in any industry almost always exceeds its internal capacity (financial and human resources) to manage them.

Often the desire of executives to push through as many projects as possible into the infamous resource bucket results in projects with insufficient resources, which in turn leads to budget and schedule overruns.

The inability to choose the best projects and, consequently, to kill the bad ones, causes problems with industrial bottom lines.

The answers to all these lie with portfolio management but due to lack of adequate understanding in executive circles or a naive perception that simple installation of portfolio management software package can address all of the problems faced by modern industries,

portfolio management has not become mainstream as compared to say project management.



1.2 Research Gap and Rationale

This research's rationale is to create the close relationship between portfolio management and project selection in various type of industries.

What is happening in the industry due to lack of popularity of Portfolio Management is;

- 84% of companies neither conduct business cases for their projects nor perform them on select key projects.
- 89% of companies are flying blind with no metrics in place except for financial data.
- 84% of companies are unable to adjust and realign their budgets with their business needs. (Cooper, 2003)

This is due to the following reasons;

- Project Portfolio Management is still not widely recognized in the company.
- There is a lack of understanding of Portfolio Management.
- Frequently Portfolio Management is viewed as something academic, cumbersome, and costly.
- The benefits of Portfolio Management may not be obvious to the CXO-level people.
- The task of creating and implementing Project Portfolio Management is frequently delegated to the mid-level managers. (Jamal Moustafaev, 2017)

1.3 Problem Statement

Industries are unable to undertake the right projects or leverage the full potential of their projects due to non-adoption of portfolio management practices.

There is misalignment between projects and intended benefits due to non- consideration of strategic goals.

This has dismantled managerial decision making, caused governance failures and lead to industrial closures including small scale and large-scale industries.

Exemplifying the scenario in the form of sniper analogy can be that instead of placing a few well aimed shots from a high-quality machine gun, industries tend to fire multiple blasts from shotgun with hope that at least some of the bullets will hit the target.

1.4 Aims and Objectives

The objectives of this study are:

- 1) Understanding portfolio management and its main areas and aspects
- 2) Critically analyzing the dynamics and crux of various industry types
- 3) Devising a process or criteria to benefit the portfolio governance aspect in industries
- 4) To use the qualitative method through the literature review to identify the ways to select the best projects for any industry.
- 5) To test and confirm the data gathered in qualitative by applying a quantitative method using multivariate scoring models.
- 6) To propose a checklist to facilitate Governance process alongside industrial operations

1.5 Research Scope and Questions

There is a large multitude of potential problems an industry encounters without proper portfolio management in place. Initially, lack of portfolio management manifests in terms of reluctance to kill weak project proposals, projects being selected based on politics or emotions, and lack of strategic criteria in the project selection. (Jamal Moustafaev, 2017)

Initially, someone at the company has a project idea. That person should assess his or her initiative from three aspects—project value, desired portfolio balance, and strategic alignment, and capture all of this information in a business case.

The business case is then submitted to the portfolio selection committee whose mandate is to reevaluate the project according to the approved company's

scoring model, portfolio balance requirements, and strategic alignment prerequisites. If the project is approved, the project manager is assigned, and from this point, both project management and Portfolio Management run concurrently. The “job” of the project management is to ensure that the project is delivered on time, on budget, and with only minimal defects, while the “responsibility” of Portfolio Management is to verify at the end of each stage that the assumptions made about the project value, balance, and strategic fit are still true. This is also ensured via Portfolio Governance during the course of industrial projects via defining and monitoring the framework and adequate checklists compliance under the structure in which the projects execute.

2. LITERATURE REVIEW

This section of the research presents a review on the existing literature on portfolio management and its implementation. The available is mostly theoretical and somehow does not describe the ways for actual implementation of Portfolio practices. (Jamal Moustafaev, n.d.)

2.1 Portfolio

A portfolio is a component collection of programs, projects, or operations managed as a group to achieve strategic objectives. The portfolio components may not necessarily be interdependent or have related objectives. The portfolio components are quantifiable, that is, they can be measured, ranked, and prioritized. (Project Management Institute, n.d.)

A portfolio is a collection of projects programs subsidiary portfolios and operations managed as a group to achieve strategic objectives. Portfolio management is a centralized management of one or more portfolios to achieve strategic objectives. (Project Management Institute, 2017)

2.2 Strategic Alignment

A strategy is a big-picture plan of action with the aim of achieving something. A strategy is usually focused on the long term. Strategic formulation is the process for a business to determine its strategy. (Kazmi, 2008)

It is critical for industries to have projects which are strategically aligned with the company values, mission and goals and fill the gap which is preventing the company from reaching its desired objectives. Environmental scanning as well as continuous implementation of established policies and procedures lead to strategic alignment of projects in an industry.

2.3 Industry

Group of productive enterprises or organizations that produce or supply goods, services, or sources of income. (The Editors of Encyclopaedia Britannica, n.d.)

2.4 Governance

A cross-functional and integrated governing body determines and authorizes the scope of portfolio management governance to direct portfolio management oversight and operational activity. (Project Management Institute, 2017)

For industries to achieve success, most crucial prerequisite is to have a structured, centralized project management methodology in place, as an article says;

- Seventy percent of the CEOs fail not because of poor strategy but because of poor execution.
- A study of 200 companies in the United Kingdom found that 80% of company directors felt they had the right strategy, but only 14% believed that these strategies were implemented properly. (Colvin, 1999)

2.5 Project Portfolio Management

PPM is the science and the art of selecting the best projects for the organization and maintenance of the project pipeline subject to internal and external constraints. (Jamal Moustafaev, 2017)

Project selection is the process of evaluating and choosing projects that both align with an organization’s objectives and maximize its performance.

Prioritization refers to ranking or scoring projects, based on certain criteria, to determine the order of execution. However, the terms “prioritization” and “selection” are often used interchangeably, as the two processes are intertwined. (Anon., n.d.)

Project portfolio management is the management of the organization’s projects to maximize the contribution of projects to the overall welfare and success of the enterprise subject to internal and external constraints by maximizing the project value, balancing the portfolio and aligning it with overall company strategy. (Jamal Moustafaev, 2017)

The three pillars of Project Portfolio Management are:

1. Projects selected must maximize the value for the company. (Financial Models/ Scoring Models)

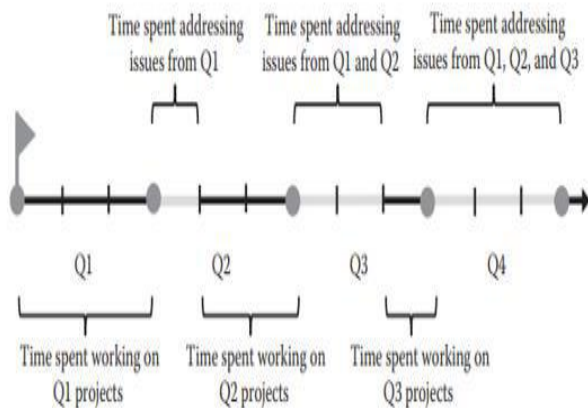
2. Projects selected must constitute a balanced portfolio.
3. The final portfolio of projects must be strategically aligned with the company's overall business strategy. (Jamal Moustafaev, n.d.)

2.6 Technical Debt Phenomenon

Another phenomenon that eclipses all of the high value project work that industries can deliver is the accumulation of technical debt.

For example, last year a company delivers 24 projects, so management says let us deliver 36 projects this year in order to exceed expectations! These are striking and catchy words, but anarchy is that nobody bothers to check the complexity of these projects against the old ones. It is imperative to question first as to how successful the industry was with the 24 projects, they delivered last year.

With such broad assumptions, people are forced to navigate through complexity with no actual value addition for the industries as most of the time is lost in just addressing issues from previous projects.



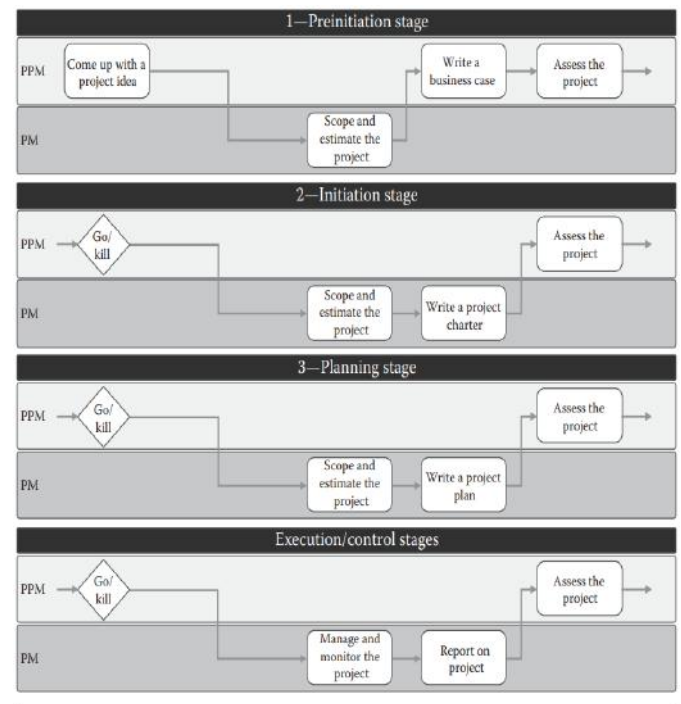
2.7 Joker Project Concept

This methodology puts a project candidate at the top of the ranking list of probable projects even if it scores low in the industry/s scoring model.

Sometimes, the portfolio steering committee has a proposal that scores low across almost all of the scoring criteria, and yet the key decision makers feel that it is an important and valuable initiative that can become the next breakthrough project that would generate millions, if not billions, of dollars for their company. (Jamal Moustafaev, 2017)

Based on the literature, the conceptual framework to be adopted by this research is shown in the Figure below.

The framework was devised based on the common findings of the studies reviewed.



Example of Go Ahead and Kill Decisions with respect to project phases

2.8 Optimism Bias

The affinity towards 'optimism bias', which is a phenomenon defined as;

The managers tend to overestimate the value of the projects they propose and/or underestimate the complexity (e.g., budgets, resources, timelines, risks) of the said ventures. (Jamal Moustafaev, 2017)

Many executives in the company including the rest of employees and C level decision makers tender to suffer from this optimism bias.

Said ventures mean projects planned for initiation in the companies. The three theories namely Cognitive Dissonance Theory, Mass Delusion Theory and Machiavelli Factor theory provide possible explanation for this, where it was found that due to political pressure, executives make these mistakes and are found unwilling to accept external fair estimates.

2.9 HALO Effect

While scoring portfolio model and determining project ranking, the halo effect shall be kept in mind as this undermines industry ability to undertake correct projects and initiatives. The halo effect tends to skew an organizational scoring model towards specific expertise of people who make up a majority of that

industry staff. For example, people with financial and accounting backgrounds will propose more variables of financial nature (i.e., ROI, NPV, and payback) whereas IT professionals would propose variables like (“size and complexity,” “risk,” and “dependencies on other departments”) which are all highly correlated and could have been clubbed as one. (Höglund, 2015)

Due to this, all large number of strategic initiatives as well as “stay-in-business” maintenance projects get dropped to the bottom of the portfolio and are saved by invoking the “joker” powers. (Jamal Moustafaev, 2017)

3. METHODOLOGY

The research utilized the following methodology;

3.1 Primary Data Collection

Preliminary scoring models were developed for consideration and utilization via various industry types. This included balance of portfolio description as well as explanations for strategy alignment top down, bottom up and combined approaches. The data collection process template was shared within a month time. Since the participants were in the working industry sector, the researchers conducted this exercise facilitated through online channel as well as physical meetings.

3.2 Sampling Method

Various companies from different industries were contacted and there was liaising done with SMEs and steering committee members. The participants of the study were employees from various industry types. People holding key positions in pharmaceutical industry, product development, financial industry, energy and logistic industry, telecommunication sector, Government and not for profit sector as well as professional services industry participated. In that manner, they were classified to be most fitting to undertake the exercise because they have enough knowledge in the projects involved.

3.3 Research Instrument

Information and feedback were collected via Delphi technique, virtual interviewing as well as face to face meetings. Logical reasoning as well as Socratic technique was used. In this style of Socratic inquiry, the team does not provide immediate answers to problems. Instead, they ask a series of questions designed to flesh out the best solutions by encouraging the party to consider the additional information that is outside his or her current understanding.

3.4 Data Analysis

To analyze the data and facilitate implementation, aggregate statistical analysis has been done. This resulted in deeper insights regarding industrial considerations.

4. THEMES

The themes used to ascertain the portfolio management implementation and efficient project selection involved the following;

4.1 Scoring Model

This model includes definition of several factors to assess the value of proposed projects in an industry. These factors are defined based on the type of industry and the work it performs. A typical scoring model can involve for example;

- Product and competitive advantage
- Market attractiveness
- Leverage of core competencies
- Technical feasibility
- Financial reward
- Strategic fit
- Resources required
- Riskiness

These factors are assessed with respect to the value they add to the industry enabling adequate selection of projects to yield benefits as intended by industry.

The essence of the scoring model approach is to have several variables that the executives consider important when assessing the value of their future projects. (Atkinson, 2006) This is usually done during a project portfolio workshop where the facilitator first explains the theory behind the scoring approach, provides several examples of scoring models developed by other companies, and then asks the executives present to engage in a brainstorming exercise. The essence of this exercise is to generate as many relevant criteria as possible and record them on the whiteboard or a flip chart. (Jamal Moustafaev, 2017)

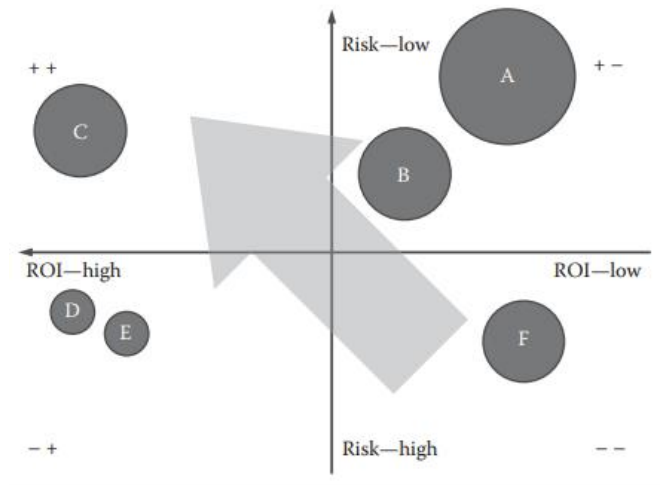
| | 1 Point | 5 Points | 15 Points |
|----------------------|---|---|---|
| Strategic fit | Low Fits one of the criteria | Medium Fits two or three of the criteria | High Fits four or more of the criteria |
| Possible synergies | Low Cannot combine sales of the proposed product with other product families | Medium Can combine sales of the proposed product with one other product family | High Can combine sales of the proposed product with two or more other product families |
| Financial value | Minor 0 < NPV < \$1 million | Medium \$1 million < NPV < \$5 million | Major NPV > \$5 million |
| Technical complexity | Very difficult Significant external expertise is required | Somewhat difficult Will need some external expertise | Easy Can be implemented by internal employees |
| Market attract | Low Less than 10 requests | Medium Between 11 and 30 requests | Major More than 30 requests |
| Competition and IP | High Many competitors Weak IP protection | Medium three or four competitors Normal IP protection | Medium zero or two competitors Strong IP protection |

Sample Scoring Matrix

4.2 Balance of Portfolio Model

Balance of Portfolio is usually assessed using 2- D graphs with different values towards the vertical and horizontal axis. The most popular pair in this regard is project risk and its financial reward. It segregates projects with respect to low risk-low reward, low risk-high rewards, high risk-low rewards and high risk-high reward. (Glueck, 1984)

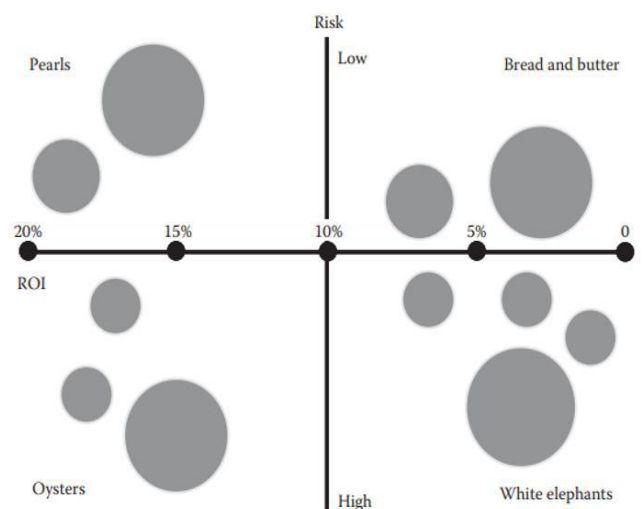
This sets the tone for risk tolerance and thresholds for any industry before they pursue initiation of strategic, compliance or emergent projects. Every industry in the long run desire to refrain from undertaking only low risk-low risk zone projects (e.g., shoebox type projects) and have high risk-high reward zone projects (e.g., like Burj Khalifa) on their brochures to show industrial resilience, sustainability of their business model, showcase strength and ability to deliver results.



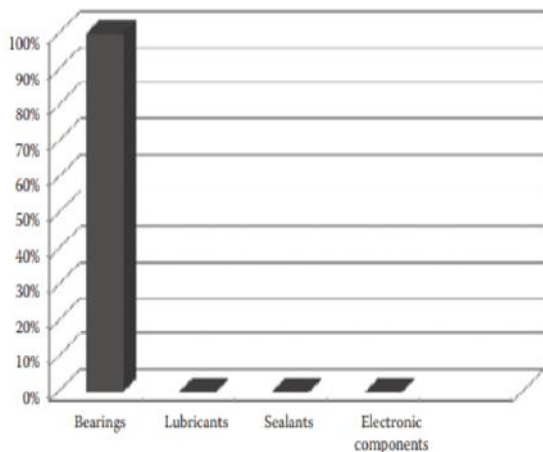
Portfolio balance—generic example.

The research has been done based on risk reward diagram which distributes all project proposals into four quadrants:

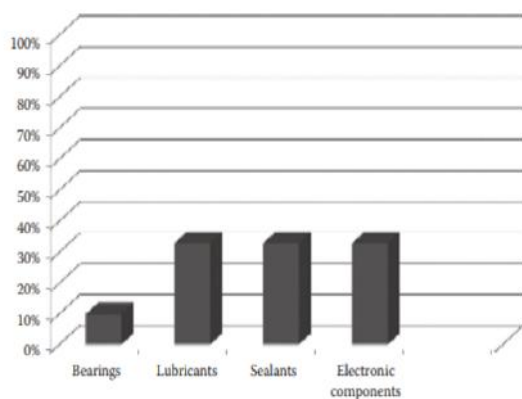
1. “white elephants,” low-reward and high-risk projects
2. “Pearls”, high reward and low risk projects
3. “bread and butter,” low reward and low risk
4. “oysters”, high reward and high-risk projects



Sample Risk – Reward Diagram, Circle Radius = Project Size



Portfolio Balance - Before



Portfolio Balance - After

4.3 Strategic Alignment Model

All of the industrial projects must in one form or the other assist the implementation of company strategy. To understand this, it is critical to understand the project alignment and non-alignment.

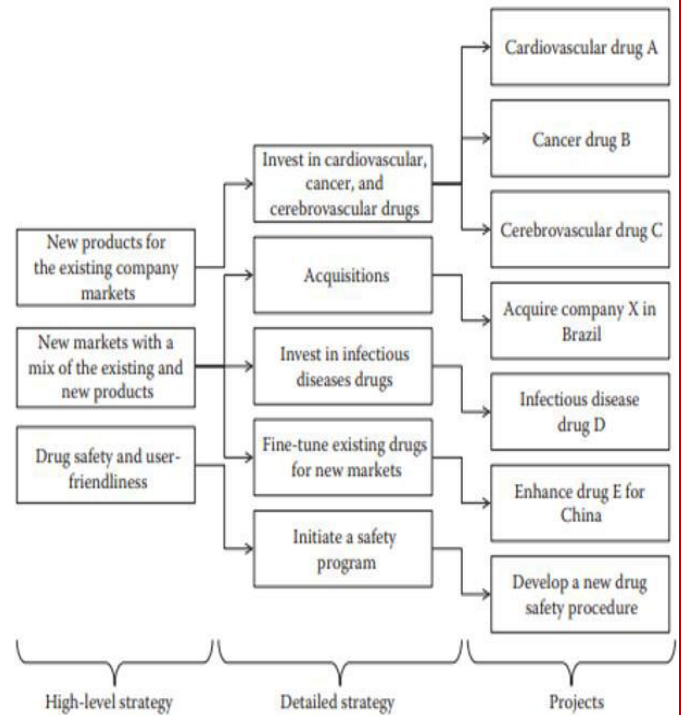
All the projects shall be linked with the company objectives. Failure of linkage between initiatives authorized or proposed endeavors with strategy leads to projects nonalignment and customer dissatisfaction. The uncanny cannibalization of resources from one division of an industry to another division leads to non-alignment with strategy and portfolio management failures. (Ansoff, 1990)

The three strategic alignment methodologies used in the modern project portfolio management domain are;

1. Top-down approach

2. Bottom-up approach

3. Combined top-down, bottom-up approach



Strategic Alignment Example – Pharmaceutical Company

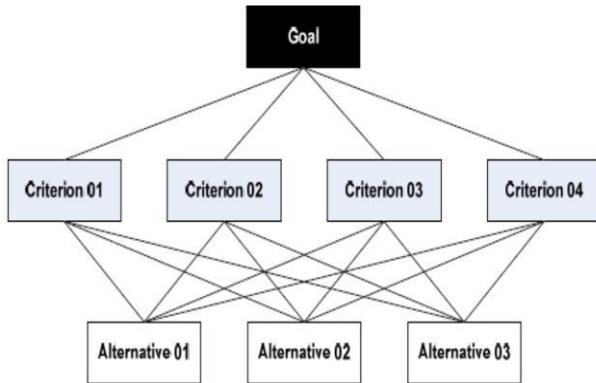
4.4 Analytic Hierarchy Process (AHP) Technique

AHP combines subjective elements with mathematical models to provide a more holistic technique than the ranking or scoring methods. Used commonly in many decision-making scenarios, it lends particularly well to complex project evaluations. (Anon., n.d.)

Similar to the scoring model, AHP works with a long list of selection criteria. However, it does a pairwise comparison, putting every two criteria against each other, which reduces the possibility of errors and biases. After this apples-to-apples type of comparison, values are normalized, and the weighted score is computed. (PMI, n.d.)

Analytic hierarchy process’ strong reliance on quantitative techniques is its strength, as it translates an abstract problem into numbers and makes the reason behind a decision transparent. As the number of criteria increase, the math can get clunky, but this isn’t something that the right Project Portfolio management tool can’t solve.

AHP is a more mature and recommended approach for complex decisions than the other two methods as it aims to understand the relative importance between two criteria rather than rank everything in absolute terms. (Anon., n.d.)

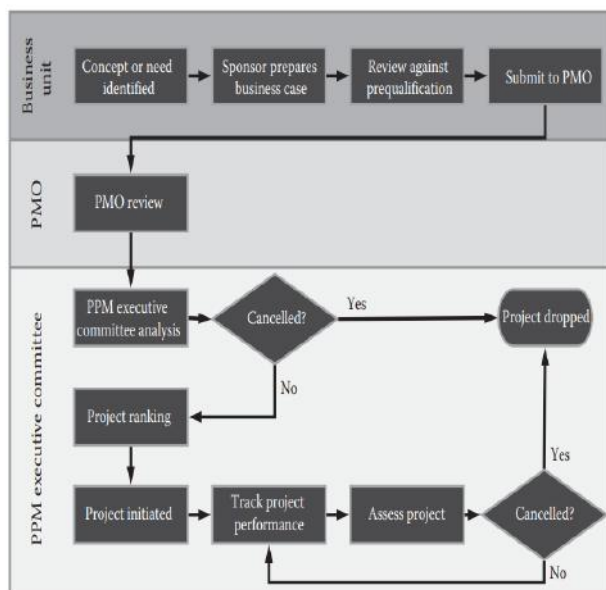


4.5 Governance Model

The Governance can be achieved by the implementation of portfolio management and establishing a portfolio management office to govern certain standard defined criteria in industries. (Jamal Moustafaev, n.d.)

Governance enables management oversight and decision making. Governance can be achieved with the help of PMO whose role is to ensure adequate framework and policies at Executive, Execution and Delivery level of Industries.

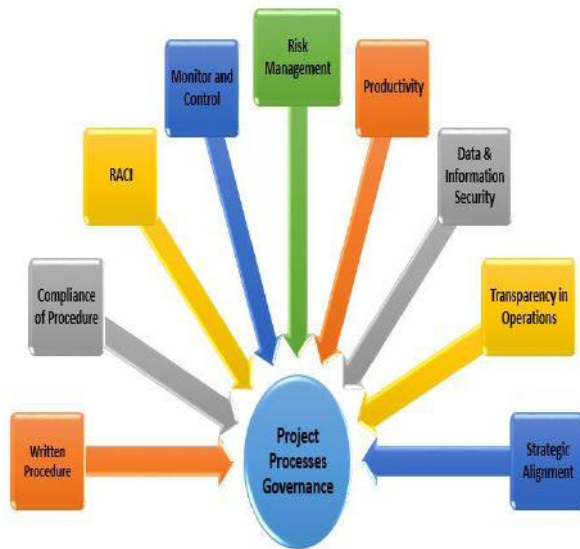
Role of PMO, Executive Committee and Business Units in portfolio management can be understood by following;



Standardized Governance Criteria with proposed Checklist;

| Sr.# | Checklist Points |
|------|---|
| 1 | Availability of Written Procedure - Work Flow of Activities (blueprint availability) - Guidelines and Procedures - Level of Awareness of the procedure among individual stakeholders |
| 2 | Level of Compliance of the Procedure by stakeholders, in terms of: - Time (completion/responding the activities in timely manner) - Ownership (for defined activities) - Communication & Reporting |
| 3 | Process based RACI (Determining clear responsibilities and accountabilities) - Well defined Accountabilities and Responsibilities of stakeholders - Limit for authority for decision making - Clear and Up to date Authorization Levels |
| 4 | Mechanism/Methodology to monitor and control the results/outcomes - Target setting and review - Mechanism for handling complains, suggestion and learned lessons |
| 5 | Implications of Risk Management Methodology - Defined process of Risk Identification and Analysis - Reviewing Period for Risk Maturity Status and Mitigation Plan - Process of Track and Control Risk Response Plan |
| 6 | Effectiveness of Process and Productivity of associated team members |
| 7 | Adherence of policies related to Data and Information Security by all stakeholders |
| 8 | Mechanism to ensure transparency in operations (conflict of interest) |
| 9 | Compliance with Strategic Alignment within the operations of departments |

Governance shall cover at least the following areas in Industries;



4.6 Strategic Resource Estimation for Project Portfolios

One of the most important things that the industry executives must keep a note of before embarking on any portfolio management activities is that uncertainty lies in the heart of the project estimation process. (Perkin, 2020)

The methodology to ascertain resource needs includes the Wideband Delphi (SMEs give estimate based on their knowledge and expertise anonymously) and PERT (Progressive Evaluation and Review Technique) which includes calculating the mean based on the pessimistic, optimistic and most likely estimates. (Dr. Prasad S. Kodukula, 2014)

5. RESULTS AND DISCUSSION

5.1 Project Portfolio Management in the Pharmaceutical Industry

5.1.1 Most Popular Scoring Variables

| Variable | Frequency (%) |
|--|---------------|
| Financial value (e.g., NPV, IRR, ROI, payback) | 100 |
| Strategic fit | 67 |
| Market attractiveness | 67 |
| Risk | 67 |
| Technical feasibility | 67 |

5.1.2 Most Popular Balance Dimensions

| Variable | Frequency (%) |
|----------|---------------|
| Reward | 80 |
| Risk | 40 |

5.1.3 Strategic Alignment

Most companies in the sample selected top down approach.

5.2 Project Portfolio Management in the Telecommunications Industry

5.2.1 Most Popular Scoring Variables

| Variable | Frequency (%) |
|--------------------------------|---------------|
| Financial reward | 100 |
| Strategic fit | 75 |
| Customer/market attractiveness | 75 |
| Technical feasibility | 75 |
| Resources | 50 |

5.2.2 Most Popular Balance Dimensions

| Variable | Frequency (%) |
|---------------|---------------|
| Reward | 100 |
| Risk | 50 |
| Strategic fit | 50 |

5.2.3 Strategic Alignment

Most companies in the sample selected top down and bottom up approach.

5.3 Project Portfolio Management in the Financial Industry

5.3.1 Most Popular Scoring Variables

| Variable | Frequency (%) |
|--------------------------------|---------------|
| Strategic fit | 100 |
| Financial reward | 100 |
| Risk | 60 |
| Customer/market attractiveness | 40 |
| Technical feasibility | 40 |

5.3.2 *Most Popular Balance Dimensions*

| Variable | Frequency (%) |
|----------|---------------|
| Reward | 100 |
| Risk | 67 |

5.3.3 *Strategic Alignment*

Most companies in the sample selected top down approach.

5.4 Project Portfolio Management in the Energy and Logistics Industries

5.4.1 *Most Popular Scoring Variables*

| Variable | Frequency (%) |
|--------------------------------|---------------|
| Strategic fit | 80 |
| Financial reward | 80 |
| Risk | 60 |
| Customer/market attractiveness | 60 |
| Technical feasibility | 60 |
| Competitive advantage | 60 |

5.4.2 *Most Popular Balance Dimensions*

| Variable | Frequency (%) |
|----------|---------------|
| Reward | 86 |
| Risk | 57 |

5.4.3 *Strategic Alignment*

Most companies in the sample selected top down approach.

5.5 Project Portfolio Management in the Government and Not-for Profit Sector

5.5.1 *Most Popular Scoring Variables*

| Variable | Frequency (%) |
|-----------------------|---------------|
| Strategic fit | 100 |
| Risks | 100 |
| Resources | 100 |
| Financial reward | 75 |
| Technical feasibility | 50 |

5.5.2 *Most Popular Balance Dimensions*

| Variable | Frequency (%) |
|----------|---------------|
| Risk | 82 |
| Reward | 45 |

5.5.3 *Strategic Alignment*

Most companies in the sample selected top down approach.

5.6 Project Portfolio Management in the Professional Services Industry

5.6.1 *Most Popular Scoring Variables*

| Variable | Frequency (%) |
|-----------------------|---------------|
| Strategic fit | 100 |
| Financial reward | 100 |
| Risks | 33 |
| Technical feasibility | 33 |

5.6.2 *Most Popular Balance Dimensions*

| Variable | Frequency (%) |
|----------|---------------|
| Reward | 80 |
| Risk | 20 |

5.6.3 *Strategic Alignment*

Most companies in the sample selected top down and bottom up approach.

5.7 Project Portfolio Management in the Product Development Industry

5.7.1 *Most Popular Scoring Variables*

| Variable | Frequency (%) |
|--------------------------------|---------------|
| Strategic fit | 86 |
| Financial reward | 86 |
| Customer/market attractiveness | 86 |
| Synergies | 71 |
| Technical feasibility | 71 |
| Competitive advantage | 43 |

5.7.2 Most Popular Balance Dimensions

| Variable | Frequency (%) |
|----------|---------------|
| Reward | 100 |
| Risk | 71 |

5.7.3 Strategic Alignment

Most companies in the sample selected top down and bottom up approach.

5.8 Aggregate Statistical Analysis

5.8.1 Most Popular Scoring Variables

| Variable | Frequency (%) |
|--------------------------------|---------------|
| Financial | 90 |
| Strategic fit | 87 |
| Tech feasibility | 60 |
| Customer/market attractiveness | 53 |
| Risks | 43 |
| Resources | 23 |
| Competitive advantage | 20 |
| Synergies | 17 |

5.8.2 Most Popular Balance Dimensions

| Variable | Frequency (%) |
|------------------|---------------|
| Financial reward | 79 |
| Risk | 68 |
| Others | 26 |
| Strategic fit | 15 |
| Cost | 6 |
| Resources | 6 |

5.8.3 Strategic Alignment

There was a massive inclination of most companies in the industry towards top down where strategy is driven from top and cascading down.

Bottom up approach is also found in companies having business to customer model of operations. Stakeholders involved mostly understood their strategic framework.

6. INTERPRETATION OF FINDINGS

It was observed after analyzing almost 70 companies operating across various industries that scoring model variables considerably vary based on the requirements and mode of operation of the industry.

Most companies operate on the variables like risk and reward and tend to strike a balance between these to achieve their goals.

Strategic alignment is usually driven from top and cascades down to working teams.

Based on the above, aggregate statistical analysis had been done and most popular variables were concluded, which can help any industry to better manage their decisions of project selection. Financial Reward is the most pronounced scoring variable and balance dimension, followed by strategic fit risk, technical feasibility and customer /market attractiveness amongst others.

In terms of governance, it was found that only 15% of organizations track project performance against benchmarks. This basically implies that once the proposal receives a “go ahead” from the executive committee, it becomes a “proverbial runaway train”; no one bothers to stop it at a specific station in order to ensure that whatever assumptions and predictions made at the very inception of the project still hold true. (Jamal Moustafaev, 2017).

The phase gate or health checks are not conducted at adequate intervals to track the projects’ progress in industries.

7. CONCLUSIONS AND RECOMMENDATIONS

- 1) After analysis of the Portfolio Management elements including associated scoring matrix, portfolio balance and strategic alignment models and their implementation across industries, it was observed that the project portfolio management is important for organizations that want to thrive in the future by being competitive, innovative, and financially driven.
- 2) While doing the portfolio alignment exercise, companies shall avoid using the generic, bland and overused words like cutting edge, state of the art, pioneer in innovation, creativity and sustainability and industry leaders etc. as they do not articulate company goals and hamper strategic alignment. These

fancy words can reflect nicely in marketing and sales pitches, but they are too broad and ambiguous to lay the foundation for future decision, project authorization and activities.

- 3) It was found that direct executive management involvement is mighty important in taking part while making the project prioritization models like scoring matrix, balance and strategic alignment models to ensure there is continuous buy-in for all the projects to be initiated, there is transparency and no chances of uncertainty up to management level about any of the projects initiation and authorization. In case, the direct executive management will not be involved in prioritization models, there could be faint chances or undermining of credibility of the ranking criteria in the eyes of the senior management. This is therefore a two-way coordinative effort where both direct executive management and other portfolio managers shall be involved.

Additionally, this eliminates mistakes or skew towards one more influential or powerful department or executive.

- 4) It is very critical and advisable for each industry to institutionalize project charters and establish portfolio cycles and checkpoints at the end of each of the initial project stages as well as regular gates or health checks during project execution phase.
- 5) This study also indicated that business case for every project proposal shall align with the industrial strategy and facilitate answer to the following for decision makers;

Shall we accept the project proposal?

Shall we reject or kill the project proposal?

Shall be postpone this project and rework its scope, timeline or budget in order to make it feasible and acceptable?

- 6) The research also indicated that the estimates in project proposal shall also include financial and/or resource variables. Also, proposal author shall also include pessimistic, most likely and optimistic estimates incase the industry decides to use PERT technology.
- 7) The industry related risks as well as generalized portfolio management risk which

include underestimation of size and complexity, subject matter external expertise requirements, missing scope and optimism bias shall be checked and managed at timely intervals.

- 8) A famous American scientist once said;

“If you want to have good ideas you must have many ideas. Most of them will be wrong, and what you have to learn is which ones to throw away.” (Pauling, n.d.)

Therefore, a key principle in Project Portfolio Management is to generate as many project proposals as possible to improve portfolio selection. The submission process for portfolio proposals shall be made simpler and as transparent as possible.

- 9) Portfolio Monitoring is equally critical and essential for acquisition of intended business value for industries.
- 10) Portfolio Governance or PMO also plays a significant role in industrial portfolio management implementation as its main role is to filter all the incoming project proposals. It can point out inconsistencies and inadequacies in the project proposals, but it cannot accept or deny a proposal as that responsibility rests with the steering committee executives. Additionally, PMO can guide the project champions to write and sell their project proposals.
- 11) Portfolio Governance shall consider Lessons Learned from previous project selection reviews and ensure the technical debt from previous reviews shall not get transferred to current projects planned in pipeline.

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