

# Portfolio Management Techniques in a Nutshell

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*"What's lawful is evident, and what's unlawful is evident, and in between there are grey areas, who avoids these grey areas then it's safer for his religion and dignity, and who falls in grey areas is about to fall in the unlawful subconsciously."*

*Mohammad (PBUH)*

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# Portfolio Management Techniques in a Nutshell

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## Abstract

Portfolio management is an important discipline within any project-based organization. It's the function that keeps investments in line with the strategic goals intended to be achieved, and continually reviews the balance of costs and resources among all running initiatives. Thus, knowing how to apply several techniques of performing portfolio management tasks is essential to making the whole practice successful and with added value. In this paper, we show some of the core essential techniques used in performing portfolio management activities, ranging from initiatives evaluation and selection, to portfolio balancing and continual review. We explain the steps of performing these techniques, and how results can be interpreted and fed into portfolio decision making. It's out of the scope of this paper to discuss portfolio management practices in details, we focus on applied techniques, and readers are referred to other references for more detailed background on portfolio management as a practice.

**Keywords:** *Portfolio Management, Portfolio Evaluation and Selection, Portfolio Balancing, Portfolio Scoring, Bubble Diagrams*

## Introduction

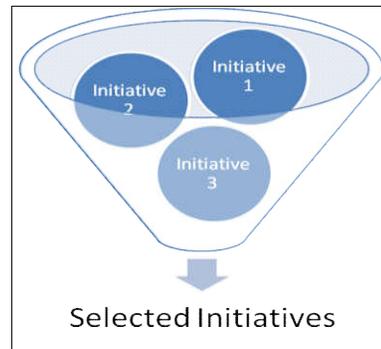
A portfolio is defined as a "collection of portfolio components grouped together to facilitate their management to meet, in whole or in part, an organization's strategic objectives" [3], while portfolio components are meant to be projects, programs, portfolios, or other related works that are included within the portfolio.

Portfolio management is a filtering and authorization process for all proposed and ongoing initiatives, with the ultimate purpose of maintaining the right mix of initiatives in the portfolio that best align with strategic objectives and lead to achieving them, while maximizing value and return, and reducing costs and resource consumption.

This function can be assigned to different roles within the organization, depending on several factors, like the organizational structure and the existing organizational units and hierarchy, as well as the organization size and maturity in the area of organizational project management. In some cases there can be an individual portfolio manager and in other cases there is a portfolio management board, and they can exist as part of the executive leadership team or some subordinate level, or reporting to the PMO if one exists. The roles and responsibilities for carrying out the various portfolio management activities need to have clear assignments in any case, so that decision making authorities related to portfolio decisions are well known to all involved.

The main processes involved in portfolio management are briefly:

- Categorization
- Evaluation and Selection
- Prioritization
- Resource Allocation
- Review and Balancing



These are the processes through which decisions are made to approve or reject new proposed initiatives, continue or stop already ongoing initiatives in progress, and re-allocation of resources or sharing resources between various initiatives based on the analysis that takes place in the regular reviews of the portfolio.

## Scoring Techniques - Evaluation and Selection

Scoring is the main method used in portfolio review meetings to evaluate each of the initiatives included within the portfolio based on various evaluation factors, and to give each initiative a total score that finally yields a ranked list of all initiatives, which is considered the prioritized order in which resources are allocated according to relative importance.

In some scoring variations, the process is based on paired comparisons of initiatives, so that each initiative is compared to each other initiative based on the defined evaluation criteria, then based on the relative scores of paired comparisons, projects are given an overall prioritization ranking, and resources are allocated accordingly.

Scoring usually takes place in group sessions involving all relevant parties to give a say in forming the final decision to be made for approving, postponing, or rejecting a certain initiative. This can be using electronic voting tools anonymously, or public open discussion for consensus, depending on the approach adopted by the management team.

First, the scoring factors need to be defined and agreed upon, and weighted according to importance and influence in the final score. Then each initiative is discussed and scored based on each scoring factor, the score is multiplied by the weight of the factor, and a total score is calculated. The top most scored initiatives are the ones that take priority to receive resources available, and lower scored initiatives are either declined or put on hold until resources are freed from the approved initiatives.

To facilitate a common base for this evaluation, there need to be a pre-defined matrix for interpreting the meaning of each scoring level for each scoring factor. For example, consider having the following evaluation aspects:

- Strategic Fit
- Estimated ROI
- Estimated Risk

We now define the following matrices for defining the meaning of each score for each evaluation factor for each of these aspects (w: weight):

Strategic Fit					
Evaluation Factor	Rating				Given Score
	1	4	7	10	
Linked to strategic goals [w=1]	Barely linked to one of the strategic goals or none	Directly linked to one of the strategic goals	Directly linked to several strategic goals	Strongly linked to high priority strategic goals	
Long term sustainable strategic position [w=1]	Results are not sustainable beyond immediate operation	Supports only short term strategy	Supports medium term strategy	Supports long term strategy	

<b>Enforcement of competitive position</b> [w=1]	Doesn't add competitive advantage	Adds minimal competitive advantage	Adds moderate competitive advantage	Adds considerable competitive advantage	
<b>Total Score</b>					

<b>Estimated ROI</b>					
<b>Evaluation Factor</b>	<b>Rating</b>				<b>Given Score</b>
	1	4	7	10	
<b>Calculated ROI</b> [w=2]	Negligible	Low impact on the overall cash flows	Moderate impact on the overall cash flows	High impact on the overall cash flows	
<b>Return period</b> [w=1]	Unknown or no return	Long return period	Medium term return period	Quick return	
<b>Availability of initial investment</b> [w=1]	Not available	Interested investors / lenders can be found but not confirmed	Sponsors are confirmed	Internal cash available	
<b>Total Score</b>					

Estimated Risk					
Evaluation Factor	Rating				Given Score
	1	4	7	10	
Overall risk level [w=2]	Unaffordable	High risk	Moderate risk	Low / No risk	
Risk contingency availability [w=1]	No measures possible	Difficult to secure	Partners exist to share / transfer risk with	Readily under control	
Expertise to deal with risks [w=1]	Risks not faced before, unknown expertise	Risks not faced before, expertise can be obtained	Previously experienced, resources can be obtained externally	Familiar, internal expertise available	
Total Score					

The following is an example scoring of initiatives under consideration in a portfolio review meeting:

Factor	Initiative 1	Initiative 2	Initiative 3	Initiative 4
<b>Strategic Fit</b>				
Linked to strategic goals	1	4	10	4
Long term sustainable strategic position	1	7	7	1
Enforcement of competitive position	4	4	4	10
<b>Estimated ROI</b>				
Calculated ROI	7	4	1	10
Return period	7	1	4	10
Availability of initial investment	10	7	4	1
<b>Estimated Risk</b>				
Overall risk level	10	7	1	1
Risk contingency availability	7	4	4	1
Expertise to deal with risks	7	7	10	4
<b>TOTAL SCORE</b>	<b>71</b>	<b>56</b>	<b>47</b>	<b>53</b>
<b>RANK</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>3</b>

In this example, Initiative 1 has gotten the highest score and ranked first, so it should be allocated resources first, then the other initiatives in order of overall rank. It should be noted that whenever there is an opportunity for resource sharing among initiatives, such opportunities should be sought and exploited.

## Bubble Diagrams - Portfolio Balancing

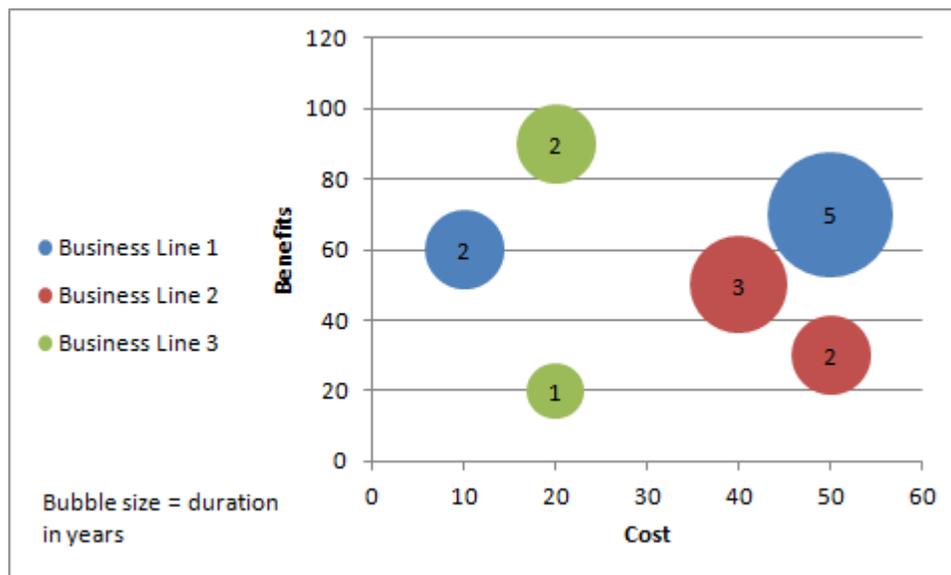
Portfolios need to be kept in balance, so that not all approved initiatives serve a specific target while there are other targets not covered, in order for the overall mix of initiatives to be of highest possible value to the organization. For example, to balance new products in research and development versus sustainability consumer products, or to balance the overall risk level of the portfolio among risk-taking and risk-averse initiatives, or to balance supply of products developed versus demand in the market, and so on.

The most common technique used to check portfolio balance and re-balance portfolio components is bubble diagrams. Those diagrams visually depict the portfolio components and the position of each on various dimensions, so that distribution of the components is reviewed and made balanced. Dimensions used in bubble diagrams should be selected to reflect the aspects of the balancing act, that's to balance what aspect against what aspect.

- 4-D Bubble Diagrams:

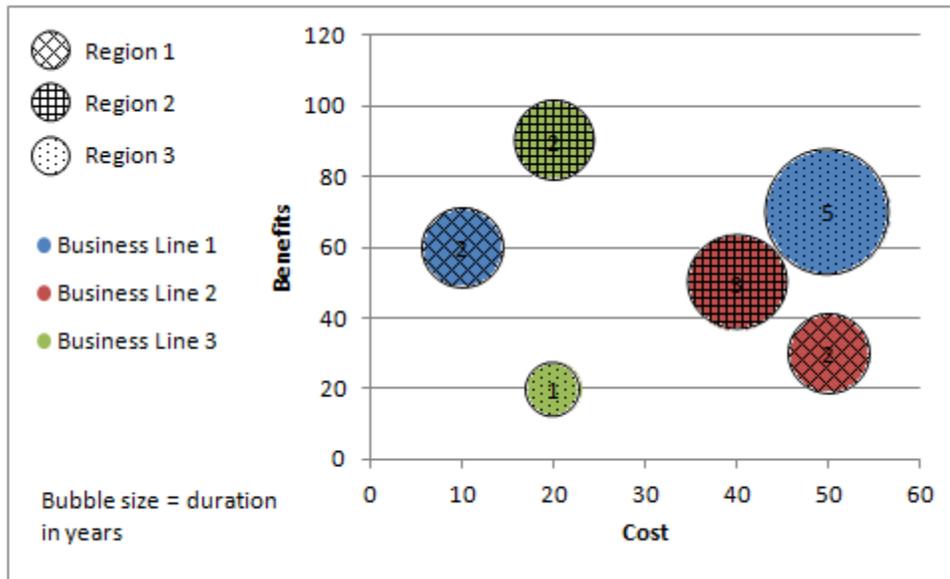
The standard of the bubble diagram is to be of 4 dimensions, namely:

1. X-axis
2. Y-axis
3. Bubble size
4. Bubble color



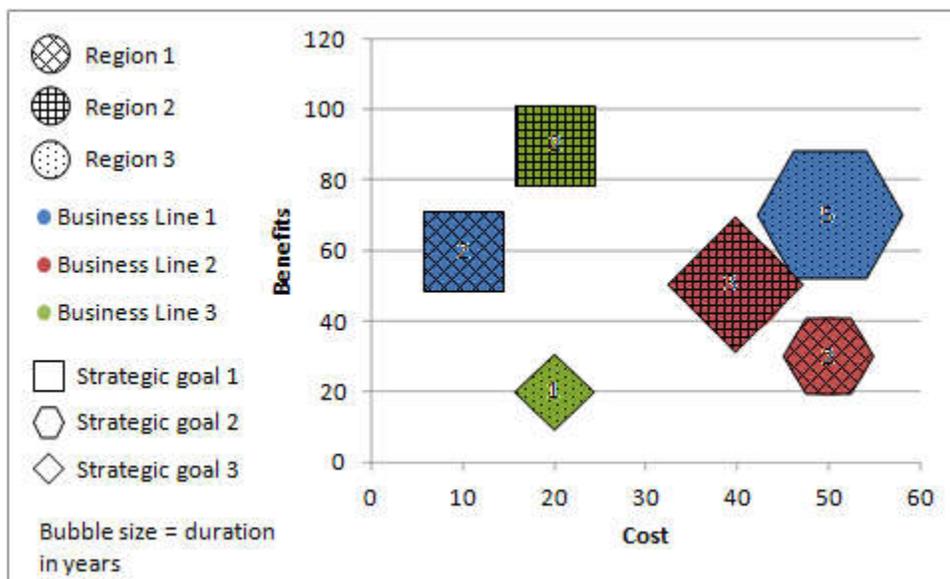
- 5-D Bubble Diagram:

With a simple tweak to the standard bubble diagram, we can make it more capable of presenting additional information, that's by adding a 5th dimension in the form of bubble fill pattern in different color categories:



- 6-D Bubble Diagram:

Furthermore, considering the shape of the bubble as yet another categorization dimension, we can add more capacity to the diagram:



- Extra Dimensions Bubble Diagrams:

The same reasoning can continue to add extra dimensions to the diagram, consider for example adding a Z-axis and using 3-D shaped bubbles with variable heights, you can make the diagram 7-D, and 8-D, and more.

In the above example diagrams, the portfolio components are uniformly distributed among business lines and regions, evenly satisfying different strategic goals, and balanced in terms of range of costs, and time span for short-, medium-, and long-term initiatives. In other cases, portfolios may not be well balanced in one or more dimension, in which case the list of initiatives will need to be reconsidered, and initially approved initiatives may be cancelled or put on hold in favor of proceeding with other initiatives that will lead to better balance within the portfolio.

Decisions made out of reviewing and re-balancing the portfolio can be considered fine tuning of decisions made out of the scoring for initiative evaluation and selection. Otherwise, scoring could be done from the beginning within specific categories separately, so that there is a pre-determined number of initiatives to be authorized in each category, to make sure there is balance among various categories of initiatives, thus balance is consequently achieved within the overall portfolio and re-balancing is kept to minimal afterwards.

Moreover, all these steps are repeated periodically at regular portfolio review meetings, taking in consideration any changes in the organizational internal and external environments, strategic direction, market trends, etc.

## References

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