

Program Portfolio Alignment

Executive Summary

The Projects Portfolio Alignment process is a simple yet effective approach, to determine the contribution the IT projects portfolio makes to support the organization's strategy.

Successful organizations conduct annual reviews of its long-term direction and strategies in order to direct organizational units to formulate the tactical plans that will provide coordination and allocation of resources and ensure its ongoing survival and growth. Quite often, the outcome of these reviews and tactical plans leads to the identification of transformation programs or projects sponsored by functional units, which together comprise the organization's portfolio of initiatives to be managed.

Evolving from a cost center, IT organizations are taking on the character, rigour, and practices of a business within a business. As such, IT organizations are increasingly face a major dilemma - **how to determine which projects have the highest paybacks!** Once this question is addressed, the following are inevitable:

- What process will lead to the right decisions being made to pick the right projects?
- What process can be followed to ensure that the systems/application development projects are aligned with the organization' directions?
- What is the process to allocate the right resources to the right projects?

The management of the project portfolio is usually assigned to an executive committee supported by a portfolio manager. This individual has the responsibility to aggregate and present information about all project initiatives so executives can allocate scarce resources in those areas that have the greatest impact.

Formal portfolio management is a proven process that allows to choose the right investments as they impact business performance (e.g. "do the right things"); project management ensures that those investments are properly acted upon (e.g., "do the things right")¹.

This paper assumes that the IT organization has reached awareness and a level of maturity about how to align its resources and efforts with the organizational/business strategic drivers. It discusses an approach to assist IT organizations to reach maturity level four by introducing portfolio management and rationalize how existing and new investments support organizational imperatives. It provides a structured approach to analyze the

characteristics of projects approach aimed at maximizing the IT return on investment (ROI).



Figure 1 – Portfolio Management Maturity Modelⁱⁱ

Strategic Planning Framework

Since portfolio management is designed to support organizational objectives, before the method for achieving alignment can be discussed, it is important that the principles behind strategic and organizational planning are understood. Much has been written about the art and discipline of strategic and tactical planning. A common framework can be derived from numerous books in the matter as outlined in the following diagram.



Figure 2 – Strategic Planning Framework

Organizational Aims & Values

Values are ethical principles that surround and permeate all of the organization's activities. They clearly state what senior executives believe in to guide the behaviour of its employees and stakeholders. They are sometimes explicitly stated; but more often, they are implicitly woven into its cultural and behavioural fabric.



It is very important that the stated values of the organization be perceived as real. A disconnect between the stated values and the observed behaviours (of executives/managers), leads employees to become disenchanted, embittered and lasting cultural improvement will not be credible or possible.

Purpose

The organizational purpose defines why the organization exists, and defines the role and boundaries of its interactions within the society. Before the strategic planning process may begin, senior executives must have a clear understanding and agreement about its purpose what outcomes its stakeholders expect.

The Organizational Purpose must be communicated so it is understood and accepted by all internal and external stakeholders. It provides the basis for Strategic Business Planning and to ensure that its tactical plans and actions are properly focused and aligned to the purpose – at all levels of the organization. For the organizational purpose to be of value, it must not be in contention with the ethical principles that compose the organization's stated values and practices. If these two components are not in alignment from the outset, and do not remain in alignment at all times, internal conflicts will arise impacting the achievement of the desired outcomes.

Vision

A Corporate Vision is management's declaration to the stakeholders about the desired end-state or condition of the organization at a point in the future; i.e., what it would look or feel like at the desired end-state related to its purpose and value systems. It is not a list of activities or objectives, but a statement of direction and must be shared and believed by all its stakeholders.

The Vision is the foundation of organizational leadership and it is usually set by the head of the organization (CEO), to foster its development and growth. It usually results from an in-depth examination and understanding of the outside world (environmental analysis, economic conditions, new venture opportunities, and the organization's SWOT analysis). Once defined, the Vision is synthesized and the findings are mapped into a clear and succinct Mission statement.

Mission

The Mission formalizes and communicates the underlying design, aim, or thrust of the organization to be perceived by the internal and

external stakeholders, describing the purpose or reason for being and its outcomes.

Functional units usually derive complementary mission statements that define their contribution towards achieving the organization's Mission and Vision. Each functional unit mission statement is mapped up into the Vision and the organization must then ensure that they are, and remain, in alignment.

Critical Success Factors

CSFsⁱⁱⁱ (often defined as goals) are the areas in which satisfactory results will ensure the successful competitive performance for the individual, department or organization; the key areas where "things must go right" for the organization to flourish and for the vision to be attained.

CSFs are usually described at the corporate level and also at the divisional, functional and individual level providing coordinated focus and attention for action. For CSFs to provide focus and drive strategy development, they should be limited in number – usually 2-5 and no more than eight.

CSFs must be formulated and expressed in terms of environmental, strategic, and temporal conditions. Each CSF clearly specifies the critical measurements, the success, acceptance, and completion criteria for the organization, so that its members will have clear direction and goals to work toward. Furthermore, these measures must be specific enough so that success will be easy to evaluate and so that participants will know that they have succeeded and be entitled to their rewards. Since they are the areas that require careful and constant attention of the business managers, Critical Success Factors must be carefully gauged, attainable and, most importantly, be frequently monitored. Key performance indicators (KPIs) must be assigned to each CSF to determine whether the organization is indeed performing in a way to achieve the CSFs.

Objectives

Objectives describe major measurable divisional/functional accomplishments that must be delivered in pursuit of the missions and critical success factors. They are quantifiable and measurable "aimed at" targets.

Strategies

Strategies define a future state via a set of strategic imperatives (drivers) and outcomes representing the critical approaches and milestones built around decisions and events that describe how to get from the current state to the future state. They are used for horizontal

integration and vertical deployment and alignment of the objectives.

Many organizations confuse strategic planning with strategy. Elements of strategy include uncovering undefined customer needs, identifying “white spaces” in the market to occupy and exploit three to five years out, and defining future competitive direction based on identifying and evolving internal core competencies.

Tactics

Tactics are specific actions that are invoked to implement the strategy and accomplish the objectives. Tactics comprise the definition and implementation of management systems, business processes, as well as the identification of programs and projects. It is also used for horizontal integration and vertical deployment and alignment efforts.

Portfolio Alignment Process

The foundation of any Portfolio Management approach is the conviction that the selection and prioritization of projects should be driven by the highest priority corporate aims. These high priority aims must be driven by the Critical Success Factors.

Step 1 - CSFs Prioritization

While all CSFs are key areas where things must go right, not all CSFs have the same weight or importance. As such, the first action in the planning process is the ranking of Critical Success Factors (CSFs). This is effectively resolved by assigning pair comparisons, in an analytical hierarchy process evaluation based on the Analytical Hierarchy Process (AHP) developed by Saaty, as shown in the following example.

Organizational CSF to Achieve the Mission	CSF	CSF Correlation Factors				
		A	B	C	D	E
CSF 1	A		1.43	3.33	2.00	5.00
CSF 2	B	0.7		3.33	1.00	2.00
CSF 3	C	0.3	0.3		1.00	5.00
CSF 4	D	0.5	1.0	1.0		0.50
CSF 5	E	0.2	0.5	0.2	2.0	
Column Total		2.7	4.2	8.9	7.0	13.5

Figure 3 – CSF Prioritization

The value at each intersection is set at “1” as on CSF can have a preference over itself. Starting with the first CSF (“A”), a ranking is assigned as to

the degree of preference/importance over the next CSF (“B”) using the following general criterion.

Importance	Weight
Maximum	5
High	2
Equal	1
Limited	.5
Minimum	.2

Typically the ranking is determined by the average of all rankings given by the management group (usually 3 to 5) assigned with determining the priorities. Once a priority ranking is assigned to a given pair, the inverse is true when looking at the pair in the reverse order

The second step involves the normalization of the table by dividing each value by the total of each column, resulting in the normalized rankings.

CSF	Normalized Factors					Total	AVG
	A	B	C	D	E		
A	0.37	0.34	0.38	0.29	0.37	1.74	34.8%
B	0.26	0.24	0.38	0.14	0.15	1.16	23.3%
C	0.11	0.07	0.11	0.14	0.37	0.81	16.2%
D	0.19	0.24	0.11	0.14	0.04	0.71	14.3%
E	0.07	0.12	0.02	0.29	0.07	0.57	11.5%

Figure 4 – Normalized CSFs Preferences

In this example “A” has a weight/relevance of 34.8% whereas “E” only ranks at 11.5% relative to the other CSFs.

Step 2 – Objectives Alignment

Having defined the weighting of each CSF, the next step involves the mapping and ranking of the organizational stated objectives against each of the CSFs. In other words, the degree of correlation of each objective with respect to the CSF it supports.

Again, a group of individuals agree to give each objective a degree of correlation factor to all CSFs it impacts, with 9 being the maximum correlation and 1 the minimal correlation. No value is given if the objective has no correlation at all.

When all of the values have been assigned each value is multiplied by the corresponding CSF preference weight and totaled for each objective which results in the normalized totals, as shown in the sample calculations below.



			Objectives Alignment to CSF						
			1	2	3	4	5	6	
Critical Success Factors	CSF 1	A	34.8%	9	5	7	1	2	3
	CSF 2	B	23.3%	8	4	3	9	2	5
	CSF 3	C	16.2%	9	3		3	1	
	CSF 4	D	14.3%		9	3	2	2	
	CSF 5	E	11.5%	2		4	5		9
Column Total			100.0%	668	444	402	379	161	324
Correlation of Goals to CSFs				28.1%	18.7%	16.9%	15.9%	6.8%	13.6%

Figure 5 – Correlation of Objectives to CSFs

At this point, the strength of each Objective in relation to each CSF is known. This example shows Objective 1 with the highest correlation to all CSFs, and Objective 5 is highlighted as having a correlation below the average of all objectives, denoting a minimum relevance as an objective.

Step 3 – Projects Alignment

Not all projects are the same. Projects are usually categorized in accordance with their type as shown in the following table:

Category	Code
Legislated/Regulated	L
Strategic	S
Core	C
Discretionary	D
Non-discretionary	N
Venture/Growth	V

Table 1 – Project Category Codes

Using the similar approach, each project is given a value related to the contribution it makes toward the normalized objectives, resulting in the following table.

Portfolio Example		Project ID	Division	Priority	Type	Portfolio to Objectives Alignment							
						Alignment		1	2	3	4	5	6
						Pts	Ratio	28.1%	18.7%	16.9%	15.9%	6.8%	13.6%
Project Portfolio	Project 1	P1	C	L	480	13%	9		9	7	2		
	Project 2	P2	H	C	233	7%	3	3		2	1		
	Project 3	P3	H	C	282	8%		2		9	9		
	Project 4	P4	M	N	312	9%	4	2	6		9		
	Project 5	P5	H	D	323	9%	1	8	7		2		
	Project 6	P6	C	S	449	13%	7	9	5				
	Project 7	P7	M	S	610	17%	8	8	4	5	3		
	Project 8	P8	L	V	478	13%	9	6		5	5		
	Project 9	P9	M	C	397	11%	7		5	3	2		
Weak Portfolio to Objectives Alignment					396		150	79	68	42	27		

Figure 6 – Projects Alignment

This process results in determining the degree of alignment of each project towards objectives and CSFs, as well as the degree of alignment and

contribution to organizational aims of the portfolio of projects.

In this example, only two projects of the set (1 & 2) provide the highest alignment (above the 60% weight), two projects (3 & 5) have weak alignment (above 40% of the weighted total) and two are below (4 & 6) with poor alignment. The normalized summary of this portfolio shows a weak contribution to overall objectives, requiring the further examination of at least two of the projects.

Step 4 – Expenditures Alignment

The next step involves the determination of the distribution of expenditures, by tabulating the planned expenditures (\$000's) and total organizational effort (p/days) defined in the project charters, to determine the degree of alignment of each project.

Portfolio Example		Div Pty	Alignment			%		Planned Expense	
			Type	Pts	Ratio	\$'s	Effort	\$(000's)	Effort
Project Portfolio	Project 1	C	L	480	13%	11.3%	11.3%	750.0	250.0
	Project 2	H	C	233	7%	9.1%	9.0%	600.0	200.0
	Project 3	H	C	282	8%	3.8%	2.3%	250.0	50.0
	Project 4	M	N	312	9%	25.7%	33.8%	1,700.0	750.0
	Project 5	H	D	323	9%	0.8%	0.9%	50.0	20.0
	Project 6	C	S	449	13%	1.1%	1.4%	75.0	30.0
	Project 7	M	S	610	17%	37.7%	27.0%	2,500.0	600.0
	Project 8	L	V	478	13%	7.5%	13.5%	500.0	300.0
	Project 9	M	C	397	11%	3.0%	0.9%	200.0	20.0
Weak Portfolio to Objectives Alignment				396				6,625.0	2,220.0

Figure 7 – Portfolio Expenditures Alignment

The table indicates that the planned expenditures of three of the projects in the portfolio (2, 4 & 7) have a very poor alignment and thus may need to be reconsidered or refocused. The effect is better perceived by plotting the results.

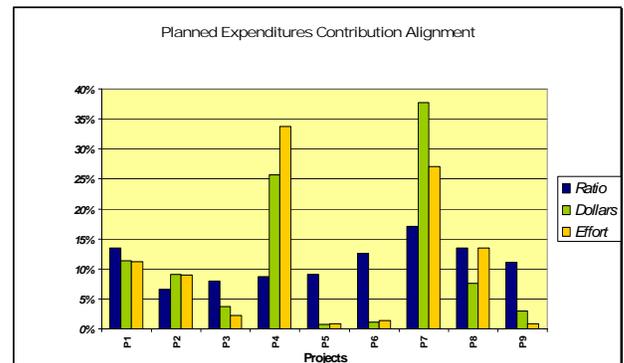


Figure 8

In this example the percentage distribution of planned expenditures are compared. The costs of Project 1 are lower in absolute terms relative to its contribution. Projects 3, 5, 6, 8 and 9 show a positive alignment to expenditures with 5, 6 and 8



providing the “best bang for the buck”, whereas 4 and 7 are very questionable. Project 2 may require reconsideration to bring costs into line.

If there is pressure to reduce expenditures, projects 4 & 7 are projects with both the lowest alignment to objectives and consuming a disproportionate amount of resources relative to the contribution to organizational objectives. Project 7 should be considered first or be eliminated altogether. Even though Project 7 shows the second best alignment to objectives, the effort in both dollars and people resources is way out of line in regards the contribution provided by other projects. The example also shows the need to re-profile project 2.

The next chart shows the distribution of projects expenditures to business value.

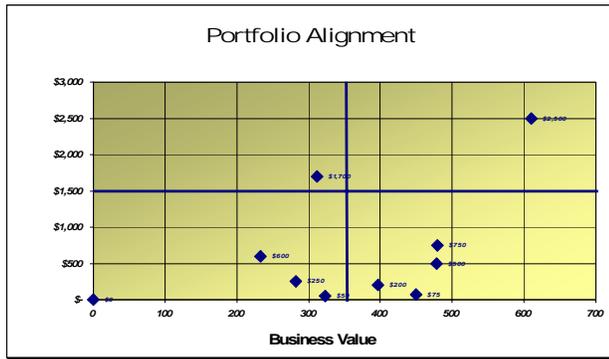


Figure 9 – Business Value to Cost Distribution

Step 5 – ROI Assessment

Once the project expenditures are known the Return on Investment of each project, based on net present values are tabulated and analyzed against the internal rate of return of the organization – typically around 15%.

Portfolio Example		Type	Alignment		NPV ROI Assessment		
			Pts	Ratio	Costs	Benefits	ROI
Project Portfolio	Project 1	S	480	13.5%	956.3	900.0	-5.9%
	Project 2	C	233	6.5%	834.0	550.0	-34.1%
	Project 3	C	282	7.9%	302.5	400.0	32.2%
	Project 4	N	312	8.8%	1,810.5	2,000.0	10.5%
	Project 5	D	323	9.1%	74.0	75.0	1.4%
	Project 6	S	449	12.6%	84.8	80.0	-5.6%
	Project 7	S	610	17.1%	2,560.0	3,000.0	17.2%
	Project 8	V	478	13.4%	610.0	550.0	-9.8%
	Project 9	C	397	11.1%	247.6	175.0	-29.3%
Weak Portfolio to Objectives Alignment			396		7,479.6	7,730.0	3.3%
					Internal Rate		15.0%

Figure 10 – ROI Assessment

Any projects showing a negative return are displayed in red and projects that exceed the IRR

are shown in green. In this example, the second project shows a negative return, but it may be acceptable condition as it is categorized as “Core.”

The example shows an acceptable ROI based on the IRR threshold. These values can also be displayed graphically to show their distribution against the objectives alignment, again showing in this example that the bulk of the portfolio ROI has a weak alignment relative to organizational objectives.

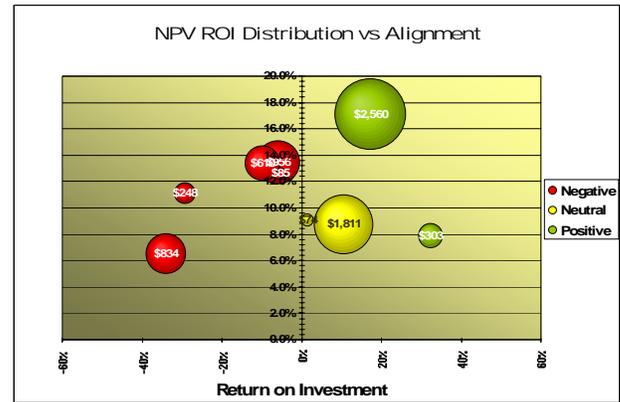


Figure 11 – ROI to Objectives Alignment

Step 6 – Risk Assessment

IT portfolio management is based on reducing IT investment risk. It is very alarming that half the companies surveyed by the META Group, risk management as non-critical to starting or doing IT portfolio management.

The first step in the process is to determine the risk tolerance thresholds of the organization to analyze the portfolio, as shown in the table.

Defaults	Risk Threshold		%
	Moderate		10.0%
	High		20.0%
	Critical		30.0%
L5 Severity Penalty		50.0%	

Figure 12 – Organizational Risk Tolerance

Any project has inherent risks based on the degree of uncertainty that things will go as planned. Risk is calculated by determining the likelihood (probability) of an event occurring and the impact consequence (severity) of the event to the organization. The severity is measured using the following factors.



Severity	Level
Critical business disruption	5
Service/Performance disruption	3
Limited disruption	1

A risk assessment is usually conducted using a standard series of factors which measure the organizational capacity to successfully deliver projects.

	Type	Alignment		Risk Adjustment Factor			
		Pts	Ratio	Pb'ty	Sev'ty	RAF	
Project Portfolio	Project 1	L	480	13.5%	25.0%	1	27.5%
	Project 2	C	233	6.5%	30.0%	3	39.0%
	Project 3	C	282	7.9%	15.0%	4	21.0%
	Project 4	N	312	8.8%	5.0%	3	6.5%
	Project 5	D	323	9.1%	40.0%	2	48.0%
	Project 6	S	449	12.6%	10.0%	3	13.0%
	Project 7	S	610	17.1%	2.0%	2	2.4%
	Project 8	V	478	13.4%	20.0%	1	22.0%
	Project 9	C	397	11.1%	17.0%	4	23.8%
Project Portfolio is High Risk		396		18.2%	2.6	22.6%	

Figure 13 – Risk Adjustment Factors

Since projects may have several exposures and impacts, a judgment is made in regards the probability and impact assigned to each project based on the worst scenario. Once these factors are known, the risk of the overall portfolio can be determined. It is also useful to plot the normalized risks, as shown in Figure 13, combined with the financial impact and objectives alignment as shown in the following diagram.

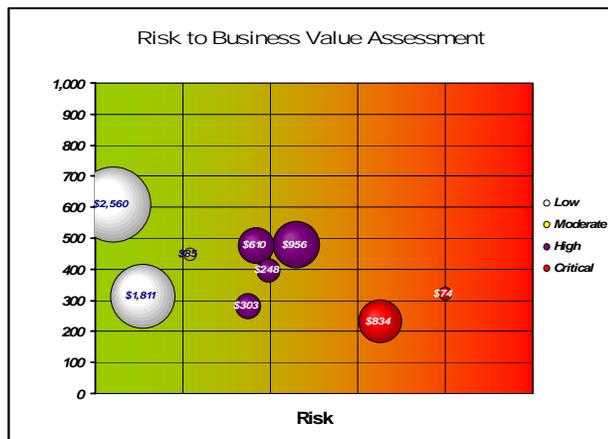


Figure 14 – Portfolio Risks to Business Value

Based on this analysis, projects 2 and 5 may have to be seriously reconsidered as they have the risk outside the organizational risk tolerance.

Step 7 – Dependencies Analysis

Most projects within the portfolio have important dependencies. Dependencies can be either one or two way (mutually dependent). Dependencies add a measure risk to the portfolio. These dependencies would play a critical role in finalizing the funding of the IT portfolio.

Figure 15 shows that project one and eight, given that the expenditures are near or below the alignment ratio and have a negative ROI, were placed on the “funding bubble.” These projects have also dependencies, which would be require consideration in deciding whether they are to be funded.

Step 8 – IT Portfolio Funding Analysis

The last step in the process is to decide which projects are to be funded and the level of funding required to implement them.

That you have a nominal allocation of \$3M, projects one, four, six, and eight need to be examined in light of their dependencies as well as budget limitations.

ProjID	Div P'ty	Alignment		%		ROI	Override	Dependencies	Portfolio Funding			
		Type	Pts	Ratio	\$'s				Effort	In	Bubble	Out
P1	C	S	480	13%	12.8%	12.6%	-5.9%	F	2	956.3		
P2	H	C	233	7%	11.2%	11.0%	-34.1%			834.0		
P3	H	C	282	8%	4.0%	2.4%	32.2%			302.5		
P4	M	N	312	9%	24.2%	31.6%	10.5%	F	1		1,810.5	
P5	H	D	323	9%	1.0%	1.2%	1.4%			74.0		
P6	C	S	449	13%	1.1%	1.3%	-5.6%	F	1		84.8	
P7	M	S	610	17%	34.2%	24.3%	17.2%					2,560.0
P8	L	V	478	13%	8.2%	14.5%	-9.8%	F	1		610.0	
P9	M	C	397	11%	3.3%	1.0%	-29.3%			247.6		
			396				3.3%			1,458.1	1,651.0	4,370.5

Figure 15

Assuming that these projects must be funded, then the budget required to implement the portfolio is \$4.9M, this requiring to resolve a \$1.9M shortfall or have management decide what projects should go.

ProjID	Div P'ty	Alignment		%		ROI	Override	Dependencies	Portfolio Funding			
		Type	Pts	Ratio	\$'s				Effort	In	Bubble	Out
P1	C	S	480	13%	12.8%	12.6%	-5.9%	F	2	956.3		
P2	H	C	233	7%	11.2%	11.0%	-34.1%			834.0		
P3	H	C	282	8%	4.0%	2.4%	32.2%			302.5		
P4	M	N	312	9%	24.2%	31.6%	10.5%	F	1	1,810.5		
P5	H	D	323	9%	1.0%	1.2%	1.4%			74.0		
P6	C	S	449	13%	1.1%	1.3%	-5.6%	F	1		84.8	
P7	M	S	610	17%	34.2%	24.3%	17.2%					2,560.0
P8	L	V	478	13%	8.2%	14.5%	-9.8%	F	1		610.0	
P9	M	C	397	11%	3.3%	1.0%	-29.3%			247.6		
			396				3.3%			4,919.6		2,560.0

Figure 16

 www.prsi.ca	<i>Performance Program Management</i>	<i>Page 7</i>
	<i>New Millennium Thinking* - White Paper</i>	<i>JUN 2005 Rev 5</i>

Conclusions

The portfolio alignment process (and supporting tool) provides a simple, technique to sort through the significant number of variables that may be present during the planning and prioritization stages of a project portfolio.

While a comprehensive Portfolio Management process is much harder to implement and maintain, the above technique is comparably easier to implement, and facilitates the determination of where to assign scarce resources when difficult choices need to be made. This deterministic approach removes guessing and ensures that no omissions, ambiguities, conflicts, or contradictions are introduced as each step in the portfolio analysis is completed.

Edgardo Gonzalez, MEng, CMC, ISP, PMP
ed.gonzalez@prsl.ca

Note

The portfolio analysis was produced using a tool developed by PRSL, and can be made available under license for a nominal fee.

References

-
- ⁱ *IT Investment Management: Portfolio Management Lessons Learned - META Group White Paper - 2002*
 - ⁱⁱ *Martin Curly – Managing Information Technology for Business Value, 2004*
 - ⁱⁱⁱ *John F. Rockart, Center for Information Systems Research, MIT Sloan School of Management – White Paper No. 1220-81 – CISR #69 / Harvard Business Review Apr-Mar 1979*