feature

Resource Planning: The Key to Effective Portfolio Management

Approving projects without assessing their resource requirements is like driving without a fuel gauge. You know you'll run out of resource for your projects at some point in time...you just don't know when.

Alarmingly, MOST companies don't integrate Resource Planning with their Project Portfolio Planning cycle and are effectively driving blind!

Three Goals of Effective Portfolio Management...

1. The primary goal of Portfolio Management is **Value Maximisation**.
2. The second goal is to achieve **Portfolio Balance** by having an appropriate selection of projects which will deliver both short term and long term **value.**
3. The third goal relates to having a **strategically aligned** portfolio which accommodates the requirement for non-economic factors to influence project selection.

(Reference 1)

Across all 3 goals there is an underlying requirement to quantify the VALUE of projects in the portfolio.

VALUE (or Relative Worth) is a productivity measure and is calculated as the ratio of $ Inputs to $ Outputs. For Innovation Projects, Input costs can include the costs of Market Research, Technical Development, Design, Development, Production Trials and Capital Expenditure. In addition to capital, Resource cost is a significant element of the total input cost for most development projects and is often the primary constraint.

> "The productivity index provides a sound economic rationale for determining the optimal portfolio of innovation projects."

Determining the output value of a project requires a measure of its benefit or return and is typically calculated as Net Present Value (NPV) over a defined time period such as 3 years.

By measuring the ratio of input to output costs, alternate opportunities within the innovation portfolio can be ranked. This ratio is referred to as the Productivity Index and is used to assess the relative merit of possible investments or the "Bang for Buck" on alternate innovation projects. Given scarce resources and the opportunity cost of backing poor projects, the productivity index provides a sound economic rationale for determining the optimal portfolio of innovation projects for any business.

The challenge for most companies is that the cost of gathering the input costs is often perceived as out-weighing the benefits. There are several possible approaches which can lighten the load and reduce the cost of defining these inputs including the 3 methods outlined below.

Three Methods For Resource Estimation...

Approach One - Constraint Management:

The key objective in this approach is to find the constraint or bottleneck and manage the constrained resource pool rather than all resource pools. The 80:20 rule applies well in resource constraints and it is often the case that there are one or two resource pools which are the genuine constraint. For example, in many companies the constraints are most often in the R+D or technical team and/or in the Marketing teams.

In constraint management, traditional approaches to resource effort estimation are viable due to the smaller number of resources being managed. Good technical managers will often develop, (out of necessity), simple spread-sheets which provide an estimate of resource effort over time which is aggregated across projects. Despite good intent, these efforts are often frustrated by change. In the dynamic nature of the business world, projects are killed, put on hold, or accelerated while at the same time resources are redeployed or become unavailable for a variety of reasons. The key problem with this traditional transactional approach to resource management is that even when used intelligently across only the key resources, the effort to keep up to date in maintaining an accurate 'spread-sheet' system is unrelenting.

Approach Two - Project Classification:

The key objective in this approach is to simplify the assessment of projects and their resource requirements using a high level classification system. This has sometimes been referred to as "Shirt-sizing" projects and typically uses the classifications such as 'Small', 'Medium', 'Large' and 'Extra Large' to quickly approximate resource effort per project and therefore the total project capacity.

While this is a valid and logical starting point for many companies seeking to do at least some

resource capacity estimation across projects, the classification is often too coarse and leads to the concern that portfolio prioritisation decisions based on this data may be inaccurate.

Approach Three - Resource Profiling:

The key objective in this approach is to pre-define the resource requirements or resource profile for a project based upon a set of variables. A simple variant may be the process model the project is following, for example:

Process Model	Development Time
5 Stage Process - Full Development	9-12 months
4 Stage Process	3-6 months
Fast Track Process	2-3 months

In addition to the overall development time, the resource demand for any given function or resource pool (R&D, Marketing, Supply Chain etc.) will vary based upon a set of identifiable parameters, tailored to each business. Typical parameters include::

- Degree of Technical risk
- New technology development or
- Use of existing (proven) technology
- Degree of Market and Commercial risk
- New to market
- New to company
- New or existing Supply Chain
- Capital required or not required
- Testing & stability periods

For any project the different functions required to complete project deliverables are drawn from resource pools. The profile then defines the resource intensity over time for each resource pool. A simple example of a resource profile can be seen in Figure One (above right).

Resource Profile	4 Stage Process					
Resource	Month					
	1	2	3	4	5	6
Marketing	0.5	1.0	0.25	0.25	0.25	1.0
Technical	0.25	0.5	1.0	1.0	0.5	0.25
Supply Chain	0.0	0.25	0.0	0.5	0.25	0.25
Regulatory	0.0	0.1	0.0	0.1	0.0	0.0

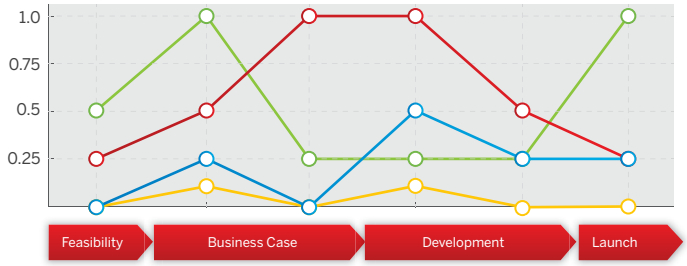

Figure One: Example of resource profilling for a 4 stage process.

In many companies the requirement for shelf life or extended product testing will impact the resource and elapsed time profile for new products. In regulated markets such as pharmaceuticals and neutraceuticals, different regulatory approval times in different target markets will impact the resource profile, making launch market a key determinate of the appropriate resource profile.

The key requirement in developing resource profiles is to understand which variables impact the resource demand across projects. Once defined, the selection of project attributes through key variables allows detailed resource definition based upon the minimum set of inputs.

Figure Two (below), shows the impact of the Productivity Index in changing the ranking of projects based on the Return on Investment rather than net sales or margin (contribution). In this example, the productivity rank is determined by the ratio of inputs (development cost) to outputs (3 year margin).

Project	3 Year Sales	NSV Rank	3 Year Margin	Contribution Rank	Development Cost	Productivity Rank
Project A	$2,000,000	1	$450,000	2	$150,000	2
Project B	$1,500,000	2	$600,000	1	$50,000	1
Project C	$1,000,000	3	$150,000	3	$65,000	4
Project D	$750,000	4	$40,000	5	$30,000	6
Project E	$350,000	5	$50,000	4	$20,000	3
Project F	$150,000	6	$20,000	6	$10,000	5
	RANK BY NET SALES VALUE		RANK BY MARGIN CONT.		RANK BY ROI	

Figure Two: An example of portfolio ranking using the Productivity Index (3 Year Margin / Development Cost)

Portfolio Optimisation

The goal to achieve a strategically balanced portfolio of innovation projects requires the definition of 'Strategic Buckets' or discrete project portfolios. Strategic targets are set which define the proportion of the total development spend which will be allocated to each 'bucket' or portfolio.

Projects within each 'bucket' compete only against projects in the same bucket. The use of the Productivity Index (enabled by resource estimation) ensures that the ranking of projects within each bucket delivers the optimal return on the total investment in innovation.

In any business the optimisation of development productivity or return on investment is the truest measure of the relative financial value of any portfolio of projects. Financial measures should be used in conjunction with strategic measures to optimise the total innovation portfolio.

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70%
NEW TO COMPANY
[LINE/RANGE EXTENSIONS]

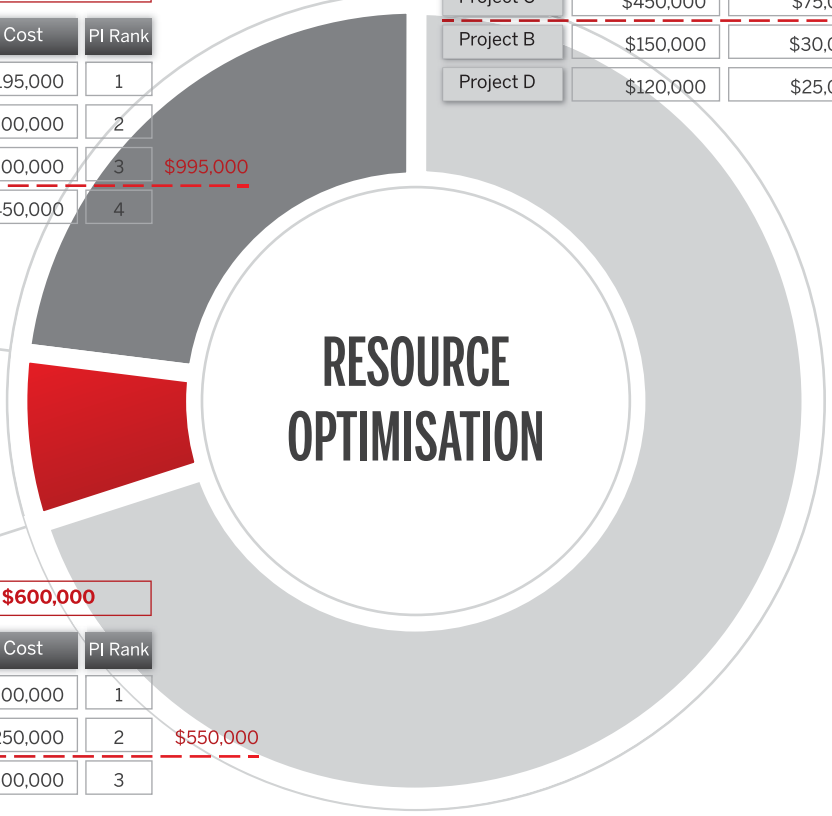
Development Budget	$230,000		
Project	3 Yr Margin	Dev Cost	PI Rank
Project H	$250,000	$10,000	1
Project E	$220,000	$10,000	2
Project A	$250,000	$20,000	3
Project G	$600,000	$50,000	4
Project F	$240,000	$30,000	5
Project I	$180,000	$25,000	6
Project C	$450,000	$75,000	7
Project B	$150,000	$30,000	8
Project D	$120,000	$25,000	9

$220,000

23%
NEW TO MARKET
[NEW PRODUCTS]

Development Budget	$1,000,000		
Project	3 Yr Margin	Dev Cost	PI Rank
Project N	$1,500,000	$195,000	1
Project P	$3,300,000	$500,000	2
Project M	$1,700,000	$300,000	3
Project O	$900,000	$450,000	4

$995,000



7%
NEW TO WORLD
[NEW TECHNOLOGIES]

Development Budget	$600,000		
Project	3 Yr Margin	Dev Cost	PI Rank
Project J	$1,800,000	$300,000	1
Project I	$2,500,000	$250,000	2
Project L	$1,500,000	$500,000	3

$550,000

Reference List:
1. R.G. Cooper, Winning at New Products: Creating Value Through Innovation, 4th edition, New York, NY: Basic Books, Perseus Books Group, 2011.