Using Portfolio Management to Boost Innovation
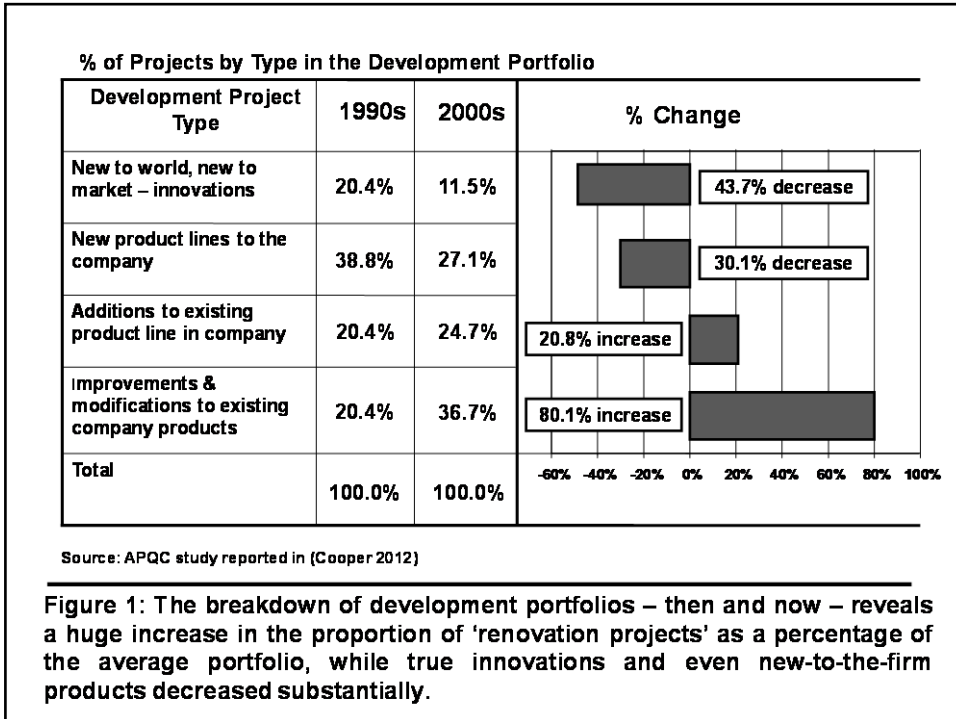**(based on his article in *Research-Technology Management,* Sept 2013 – **
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The Challenge

Most businesses' development portfolios have far too many projects, and often the wrong ones, according to a major APQC study (Figure 1). The fact is that, over the last 15 years, portfolios have drifted from moderately balanced to a huge imbalance, with far too many small projects and few major or breakthrough initiatives.

Development Project Type	1990s	2000s	% Change
New to world, new to market – innovations	20.4%	11.5%	43.7% decrease
New product lines to the company	38.8%	27.1%	30.1% decrease
Additions to existing product line in company	20.4%	24.7%	20.8% increase
Improvements & modifications to existing company products	20.4%	36.7%	80.1% increase
Total	100.0%	100.0%	

Source: APQC study reported in (Cooper 2012)

Figure 1: The breakdown of development portfolios – then and now – reveals a huge increase in the proportion of 'renovation projects' as a percentage of the average portfolio, while true innovations and even new-to-the-firm products decreased substantially.

A major part of the problem lies with portfolio management – how executives make their R&D investment decisions, relying largely on financial approaches, including NPV, ROI, and payback period. These methods are fine for evaluating traditional and "known" projects. However, an overreliance on these popular financial approaches favors incremental projects (whose financial forecasts are reasonably reliable), but will tend to kill all but the sure bets. The result is an anemic portfolio of development projects!

A related portfolio cause is the failure to set aside strategic resources to undertake these major initiatives and breakthrough projects. After the portfolio allocation exercise, resources are already over-committed, and thus there are few or no resources available to do the breakthroughs … and so they get postponed or put on hold.

Portfolio Solutions

First is the recognition that there is indeed a problem: A solid portfolio review is a good place to begin – a *current state assessment* of the breakdown of projects. Develop pie charts showing breakdowns of resource allocating across projects types, and also pie charts revealing sales revenues or profits, again broken down by project type. The results are often provocative, showing a real shortage of higher impact, major new products.

Fencing-Off Resources: Resources are often not available to do larger projects simply because they are totally consumed by too many small projects. One solution is an organizational one, namely to fence off people who working 100% on major developments or breakthroughs. A second solution is a portfolio approach, namely *strategic buckets*. Here, management makes a strategic decision to set aside resources for different types of projects including breakthroughs. This strategic approach is based on the premise that "strategy becomes real when you start spending money"…. so make the spending (allocation) decisions! (*Strategic buckets* is explained more in the main article (Cooper 2013) and at the my seminar "Deciding Your New Product Portfolio").

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Scoring Models For Early Go/Kill Decisions: Another solution is to use a *scoring mode*l for evaluations at early-stage portfolio reviews or gates. The goal is to protect more venturesome projects in the early days – to get them through the "valley of death" – until the project team has something tangible to show management and customers. A second goal is to reduce the over-reliance on financial models in the case of breakthrough initiatives, where so little is known with certainty, especially in the early stages.

Scorecards place more *emphasis on non-financial factors,* the theory being that certain projects have a winning profile, and that *profiling via a scorecard* is a much better predictor of success than financial projections. (Tried-and-proven and research-based scorecards will be demonstrated at the portfolio seminar; see also Cooper 2013).

An Options Approach: What some managers miss is that, at the early stages of a venturesome project, they are not making an all-or-nothing Go/Kill decision, but rather a relatively small investment to undertake a preliminary investigation – to "test the waters". Thus the initial investment decisions do not need the rigor of later-stage decisions. Think of the idea-to-launch process as "buying a series of options" on the project, rather than "buying the whole project outright"; and buying options is one way to mitigate risk. Thus a gating or *buying options* approach helps to manage the risk of breakthrough development projects.

If you view development investment decisions as a series of "options purchases" from beginning to end of project, then it becomes immediately apparent that traditional NPV and related financial techniques are wrong for this type of investment decision. NPV is a standard *capital budgeting technique* which assumes an all-or-nothing decision: Should we build the new factory or not? By not building in the risk mitigating strategy of buying options, NPV and related financial techniques tend to undervalue (penalize heavily) venturesome projects…. and so these projects get killed!

A more realistic financial model is the Expected Commercial Value (ECV) which looks at risks and probabilities, but most important, takes the investment a step-at-a-time via a decision tree approach. By considering the options-buying nature of new-product projects, which mitigates risk, the ECV method will value venturesome projects much more fairly (usually much higher) than do NPV methods (More about this powerful financial method at our portfolio seminar, and also in Cooper 2013)

Not Enough Breakthroughs? -- Some Good Solutions Are Available
Portfolio management offers some of the solutions:
- Employing strategic buckets to preferentially set aside resources for big, risky projects.
- Using scoring models for early gate decisions (instead of over-reliance on financial models).
- Adopting a step-wise approach to investment decisions to mitigate risk
- Using the right financial models (options models) such as Expected Commercial Value.

References:

Portfolio seminars: see www.stage-gate.com and www.chalmersprofessional.se

Cooper, R. G. (2012). Creating bold innovation in mature markets. *IESE Insight*, Third Quarter, Issue 14: 20-27.

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