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Managing project portfolios

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Portfolios are part of the bedrock of any financial services company. Yet, other industries are now starting to use a similar approach – not with stocks and bonds, but with business projects. **Martin Lockett, Bert De Reyck** and **Andrew Sloper** think it's a great idea, but only if it's done right.

In finance, the idea of managing a "portfolio" goes back to the 1950s. Simply put, assembling a portfolio of stocks, bonds and other financial instruments can be a way to balance the risk a manager is taking with any one of the investments: while the value of one holding may plunge, the value of another might soar. Risks and rewards offset one another. A properly constructed portfolio increases returns and promotes a better night's sleep. Now portfolio management is making its way into the vocabulary of non-financial managers, and the concept is generating excitement. The term to add to your vocabulary is *project portfolio management (PPM).*

Applying a tested model

Harry Markowitz, in a seminal paper written in 1952, laid down the basis for financial portfolio theory. Markowitz's model, which determines the mix of investments generating the highest return for a given level of risk, revolutionized the finance world. He justly received the 1990 Nobel Prize in Economics.

Over time, a few people not directly involved in finance started to apply the model to a portfolio of business projects. Companies in the pharmaceutical and energy industries have long recognized the value of project portfolio management; and they are using sophisticated methods and software tools to support this process, sometimes with great success. Such project portfolio management processes are now also being adopted by other industries and functions, for example, for IT projects and organizational change programmes. The movement has gained impetus. For example, Gerald Kendall and Steven Rollins' book on the subject, *Advanced Project Portfolio Management and The PMO: Multiplying ROI at Warp Speed* (J. Ross Publishing, 2003), outlined the generic approach one could use for a portfolio of projects instead of financial instruments:

- Determine a viable project mix
- Balance the portfolio
- Monitor the projects in the portfolio
- Analyze and enhance project performance
- Evaluate new opportunities against the current portfolio, taking into account capacity, and
- Provide information and recommendations to decision makers

However, successful project portfolios are never the result of a generic approach. We have often observed that project portfolios in organizations often contain projects that do not adequately support the strategic intent; suffer from overlap and duplication; compete for limited resources; do not share capabilities adequately; or exceed the organization's capacity for change. Therefore, despite the success of portfolio management in finance, other fields and industries seem to have different concerns and portfolio management requirements, making it impossible to directly apply methods that have proven themselves in finance. So, despite the power of the insights from portfolio theory and their impact in finance, they cannot be applied in a naive way to other types of portfolio. This is because financial instruments such as stocks, bonds or options are very different in nature compared with projects.

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Stocks versus projects

What are the key difference in managing a portfolio of financial instruments versus a portfolio of business projects? Let's profile the two kinds of portfolios under review. The main characteristics of investing in financial instruments include:

- **Simple interdependencies** The interrelationships between different investment opportunities can typically be captured by (a) the correlation between the assets' returns and (b) their financial value.
- **Passive participation** Investing in financial instruments is typically a passive form of participation: the decision is mainly whether or not to invest and how much.
- **Availability of information** Much information is available about financial assets in the form of historical performance and fundamental analyses concerning the future outlook.
- **Tradability** Most financial instruments are tradable assets, resulting in agreed-upon valuations and opportunities to sell assets that do not fit your portfolio.
- **Clear objectives** The main objective is to maximize the risk-return performance of your portfolio.
- **Contractual clarity** Clearly defined terms exist for investing in a financial instrument, outlining the rights of the parties involved relying on established market rules.

- **Divisible investments** Financial instruments allow investment in small portions of an asset, rather than being all or nothing.

These characteristics are not shared by a typical project portfolio, which can be characterized as follows:

- **Complex interdependencies** Complex interdependencies and interactions exist between projects. Project outcomes are subject to synergies, and investment decisions may affect the options available in related projects.
- **Active participation** Investing in projects requires active management. Besides making a go/no go decision and setting a budget, numerous decisions will have to be made during the project lifetime that will have an impact on the outcome.
- **Lack of information** Since projects are unique, not much information is available on related past projects and predicted future performance.
- **Non-tradability** Projects cannot be easily sold, resulting in a lack of valuation information and lock-in situations.
- **Fuzzy objectives** Projects are typically governed by a multitude of objectives, both financial and non-financial, and typically include qualitative objectives.
- **Contract ambiguity** Project investments may result in disagreement concerning who is entitled to which benefit, with multiple stakeholders holding different views.
- **Discrete investments** Investments in projects are non-divisible, increasing the impact of an investment decision on your portfolio.

As a result, conclusions derived from financial portfolio management – for example, the value of diversification in reducing risk – cannot simply be transferred to other areas, nor can the methods of financial portfolio management be used without adaptation. How, then, do we think about managing a project portfolio?

Bottom-up or top-down?

Financial portfolio theory is essentially based on a bottom-up approach. In theory, all possible investment opportunities are valued independently in terms of how much value they add to the portfolio, and a selection is made based on which collection of investments maximizes the return for a given risk limit or minimizes the risk for a desired return. But a pure bottom-up approach is not always suitable for PPM.

First, when dealing with projects, there is no such thing as a collection of all possible projects. Projects can be created and performed in many different ways. As a result, projects cannot be evaluated based simply on return and risk, because of the possibility of reshaping a project during execution. Also, the interdependencies between projects are far too complex to be captured using concepts such as correlation, as they include synergies and projects that are complementary or substitutes. Moreover, the outcome of a project is influenced by the organization's core competences, so that doing a similar project in one organization rather than another can dramatically affect the project's outcome. This requires a top-down approach, where projects are created, shaped and selected based on top-down direction and priorities.

We believe that the key to successful PPM lies in the appropriate combination of top-down and bottom-up approaches.

Top-down portfolio management approaches have been suggested by developers of strategic frameworks, mainly for analysing a multi-business-unit firm as a portfolio of businesses. The first of such frameworks was the Boston Consulting Group matrix, which has led to similar frameworks such as the GE/McKinsey matrix and the Shell/Directional Policy Matrix. The matrix portfolio management approach was developed as a substitute for the purely financial investment criteria that were highly popular in the 1960s. The main purpose of these portfolio management frameworks was to be able to allocate resources across business units and products, formulate a coherent business unit strategy, set performance targets and analyse the portfolio balance.

Some of these objectives were driven by bottom-up thinking, like cash flow balancing across the businesses driven by matching cash flow requirements and cash flow generating products. However, the main goals of these approaches were, firstly, to visualize the current portfolio, and, secondly, to identify the major strategic issues facing the corporation based on the current competitive positioning. Shaping of the portfolio was largely driven by top-down directives that captured the company's strategy and translated it into specific investment recommendations. Clearly, top-down approaches are highly relevant →

→ for managing project portfolios, since the projects that a company invests in should directly reflect and support its high-level strategy.

However, a pure top-down approach for PPM has its limitations. Often, a centralized, strategy-driven portfolio management approach may prevent new ideas being generated outside the usual realm of pursued projects, which may add substantial value despite their apparent lack of fit with the rest of the organization's activities. For instance, even though most pharmaceutical companies have a strategic focus, they do not necessarily enforce it, because the R&D process is essentially opportunistic, as the funding of research in the strategic focus area does not guarantee discovery of interesting compounds. Therefore, one should allow for a strategic focus to shift based on emerging developments. Also, one has to be careful that a strategy-driven, top-down approach to PPM is not used as a justification for initiating or continuing a project that does not make financial sense, even though it provides personal benefit for the people involved.

So, we believe that the key to successful PPM lies in the appropriate combination of top-down and bottom-up approaches, combined with the choice of appropriate techniques dependent on the nature of the portfolio.

Seeing a spectrum

To characterize the diverse types of portfolios that exist in organizations, we have developed a portfolio spectrum, summarizing the nature of the investments and projects that form portfolios in organizations. This spectrum is based on the nature of the investments, rather than their level of risk or return:

- **Financial instruments** Portfolios of financial instruments, for example, proprietary trading
- **Assets** Portfolios of more or less tradable assets that can in principle be exploited by anyone with the right skills, for example, oil and gas fields in their exploration phase or commercial properties
- **Products and services** Portfolios of new or existing products and services that are tied to some degree to a specific organization, for example, new pharmaceutical products in the development phase or a food company's brand portfolio
- **Change projects** Portfolios of projects inside an organization that seek to improve performance through organizational, systems and business process change, for example, change projects enabled by information technology (IT) systems or new businesses grown organically in a company

The portfolio spectrum (see Figure 1) also highlights three of the key features that differentiate the different types of portfolios. To discern the nature of one portfolio from another, one has to ask:

- Are the components of the portfolio generally independent or interdependent?
- Are the owners of the portfolio passive or active in running its components, in the sense that their actions affect the outcome?
- Are the components of the portfolio easily tradable or more specific to an individual organization?

Thus, much depends on what *kind* of portfolio you're managing. The kind of portfolio, in our experience, dictates the methods, approach and style that a manager should use:

- **Methods** The more the components of the portfolio are towards the left-hand side of the spectrum, the greater the value of tools and techniques in optimizing the value of the portfolio. In managing a portfolio of financial instruments and assets, the main focus is on valuation (such as, "mark to market" methods) and risk analysis, which is ideally suited to quantitative analysis. On the contrary, in portfolios of IT-enabled change projects, the value of portfolio management software and tools is typically limited, unless they are supported by organizational processes involving senior management.
- **Approach** The relevance of top-down, strategy-driven approaches versus bottom-up ones changes across the spectrum. While a combination of both is necessary, the relative importance of top-down increases as the components of a portfolio are interdependent, with results depending on the actions of their owners in a specific organizational context.
- **Style** The management style and skills required shift as you move across the portfolio spectrum. The importance of specialist and scientific analysis decreases as you move towards the right-hand side of the spectrum, where leadership and influencing become more important.

It's important to see the portfolio spectrum not just in terms of composition but also in terms of the proper techniques required to manage it.

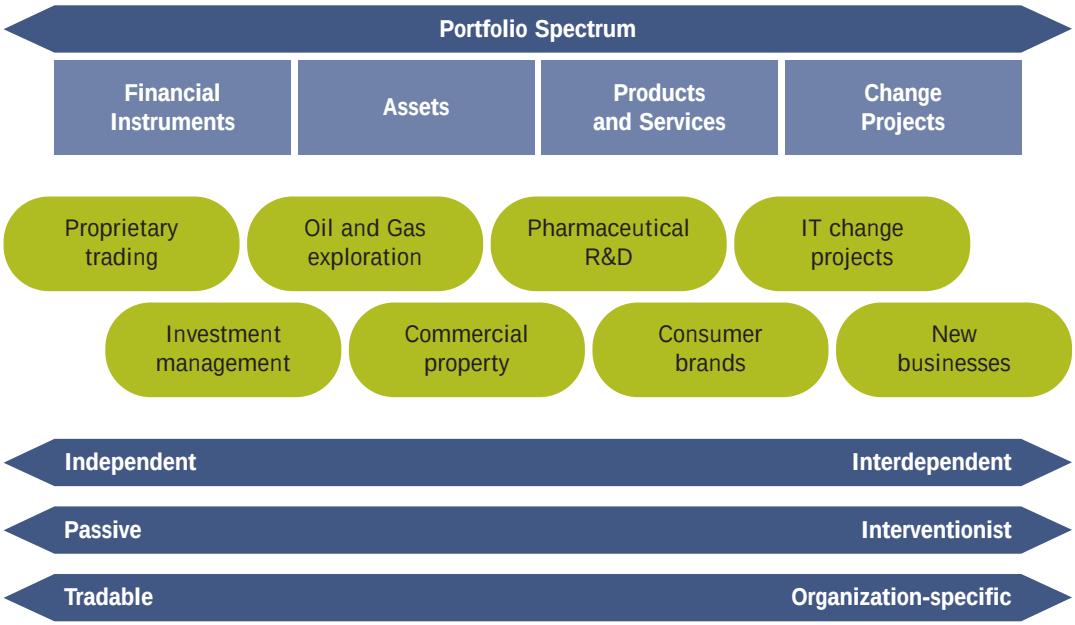

Figure 1: The Portfolio Spectrum

Thus, it's important to see the portfolio spectrum not just in terms of composition but also in terms of the proper techniques required to manage it, as illustrated in Figure 2.

Portfolio management in action

Where can one see PPM in action? There are many companies and industries we can point to. However, it might be helpful to illustrate the value of managing your company's projects in a portfolio fashion, first, by discussing the way IT functions often utilize the concept.

Organizational process In the retail division of one bank, one of the most powerful tools was looking at the proposed portfolio from the viewpoint of the resource commitments of different groups involved and affected. In contrast to expectations, this revealed that IT resources and finance were less important constraints than management time to ensure good design in the short term and the capacity to implement IT-enabled change as the portfolio was implemented.

Top-down with bottom-up In many organizations, projects are constructed and managed to meet functional goals without an overall view of strategic alignment and organizational impact. In one case, a review of projects underway showed that the approved projects would lead to an organization running with a negative number of staff. In another organization, many of the projects were not aligned with any of their corporate objectives. However, a simple top-down approach that tries to develop a portfolio based on strategic priorities is flawed, too – for example, one of the projects identified within the IT function that fell outside the top-down strategic priorities not only had exceptionally high returns at low risk but also opened up the potential for a new business area.

Leadership In one case, the internal team was led by a senior executive responsible for one of the main lines of business. This had major impact on improvement of the portfolio at critical points in the process. For example, one project was an obvious candidate for inclusion in the portfolio as it gave high returns at low risk – but for it to work, several million euros of profit would be shifted from one division to another. Specialist expertise was of no value in such issues but leadership was – in this case, the senior executive asked the team "Who is going to tell the CEO why we have excluded the project from the portfolio?"

What the doctor ordered

Yet, it's important to note that entire companies – not just functions – can achieve higher levels of success by engaging in widespread PPM. All of the world's leading life sciences companies use formalized PPM approaches to manage their portfolio of drugs in development. A portfolio review group convenes on a regular basis to review the portfolio and to decide on the shape and content →

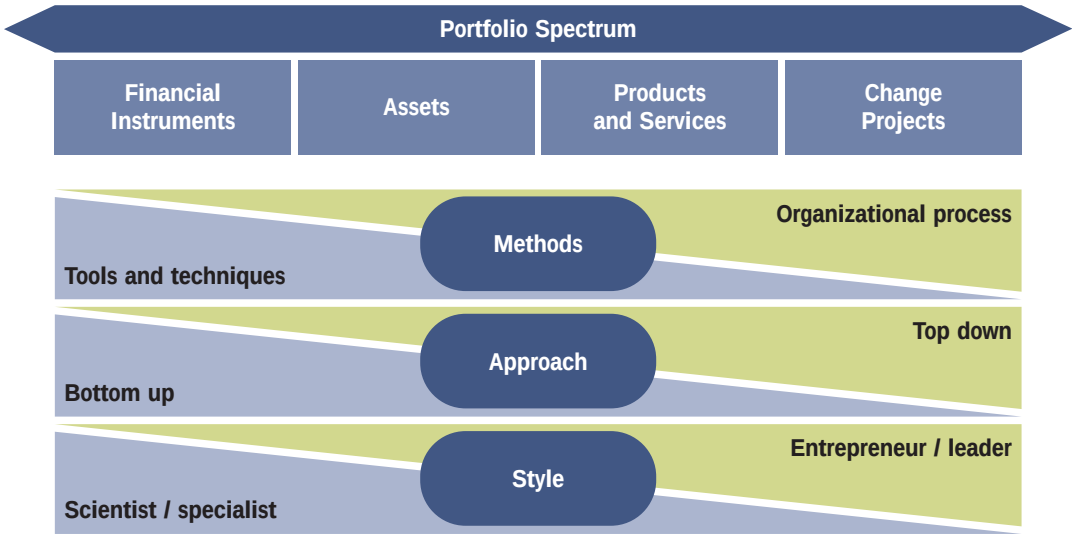

Figure 2: Managing the Portfolio Spectrum

→ of the project portfolio by deciding which compounds to develop, which projects to accelerate or delay and how to prioritize them when giving access to resources. The portfolio review group is an important decision-making body because it shapes the future of the company by determining its product pipeline. A well-managed product pipeline is essential to support sales and profits, making PPM a crucial success factor. Because of the long R&D lead-time, a good performance today is actually determined to a large extent by the portfolio decisions made 10 years ago.

Pharmaceutical companies use a wide variety of criteria to assess and prioritize their project portfolio. These include financial value measured by the projects' net present value, sales and growth potential with a special focus on potential blockbusters, pipeline balance over time and over different therapeutic areas, risk, unmet medical need and strategic fit, expressed as a desire to build strength in certain therapy areas. Some of these criteria reflect a bottom-up approach to portfolio management, with portfolio decisions driven by individual project valuations, while others are based on strategic considerations and managed in a top-down way.

The bottom-up process is typically managed as follows. Before the annual portfolio review group meeting, each of the business units submits an individual business plan with financial data on each of the projects within the unit. This data includes estimates of costs, sales and risks, resulting in a net present value for each project, as well as capital and resource requirements. This data is consolidated by the portfolio review group, which deals with annual budgets of up to $10 billion, considering hundreds of projects executed in several development sites worldwide. An array of sophisticated tools are used to support this analysis, including net present value, decision analysis, Monte Carlo simulation, real options analysis and optimization.

The portfolio review group then combines bottom-up analyses with top-down directives coming from the strategic marketing and strategic planning groups. Strategic alignment is assessed based on the strategic plan in which areas of therapeutic interest have been highlighted as a result of a disease and competitor analyses. As population composition and disease prevalence change, pharmaceutical companies adapt their research focus. This explains why many companies have

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been concentrating on chronic diseases such as hypertension and cholesterol control since the mid-1990s.

For example, in Novartis, although active in a wide range of therapeutic areas and boasting one of the broadest product pipelines in the industry, focus has recently shifted towards cardiovascular diseases and cancer. Apparently, this strategy has paid off, as Novartis now has a strong portfolio in those areas with several recent and upcoming blockbusters. Although most pharmaceutical companies have a strategic focus, they do not necessarily enforce it rigidly, because the R&D process is essentially uncertain: funding of research in the strategic focus area does not guarantee discovery of interesting compounds. Therefore, any top-down portfolio strategies need to be complemented with bottom-up portfolio analyses.

As a result of their positioning in the portfolio spectrum, a natural tension often exists in portfolio management in pharmaceutical companies between the scientist/specialist style approach and the entrepreneur/leader style. This can be observed in portfolio review meetings, where the views and mindsets of scientists, financial analysts, marketing and senior management have to be reconciled.

Tailoring to fit

Project portfolio management can provide significant value in improving organization performance across a wide range of investments and projects. However, due to the different nature of investments and projects in different industries, in order for PPM to be successful, the approach adopted needs to be tailored to the specific situation at hand. A pure bottom-up approach, useful for managing a portfolio of financial assets, is not necessarily suited to managing a portfolio of products in development, IT projects or organizational change projects in which a combination of bottom-up and top-down thinking is required. The portfolio spectrum we use provides insights into the appropriate approach, method and management style needed to manage different types of portfolios. ■

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