Eight Rules for Effective Portfolio Management

A Path to a More Valuable R&D Portfolio

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Here is no silver bullet for portfolio management—every company will face different challenges and find its own ways to address common difficulties. But there are mistakes worth avoiding and best practices worth replicating. In our nearly two decades in the field, we’ve seen how adopting some simple approaches can streamline the process and help companies avoid the major pitfalls.

We’ve distilled these principles into eight lessons:

1. Avoid incomplete strategies.
2. Build an actionable strategy.
3. Don’t buy in to bubble plots.
5. Use a variety of methods.
6. Present a range of compelling portfolios.
7. Ask the right question.
8. Build risk into your forecast.

Of course, these eight simple statements capture a host of challenges. Some of them will call for deep changes in the way teams, and the organization as a whole, think about portfolio management. But in our many deployments of the Enrich Analytics Platform, we’ve found that clear thinking about these eight principles can drive a much more efficient and effective portfolio management process.
Avoid Incomplete Strategies

A mission or vision statement is not a strategy.

- We will hire the best, most qualified staff and reward them richly.
- We will provide a great place to work and solve challenging problems.
- We will leave the world a better place and have fun doing it.

When written with care, mission and vision statements can set the tone for the subsequent definition of a strategy, but they aren’t strategies themselves. Statements like these offer the illusion of clarity, but they’re not actionable—and thus not useful as strategies.

Product plans are not a strategy.

- We will build version 4.1 of our product platform.
- We will launch a customer portal next quarter.
- We will deploy self-service kiosks in five metropolitan areas.

Product plans shoot right past strategy and straight down into roadmap territory. These are tactics—short-term, highly focused goals for particular items that must be accomplished to support the strategy. It is important, at some point, to describe the specific products and services you want to build and sell, and your goals for their market performance, but each offering needs to be conceptualized and prioritized in the context of your strategic goals.

Growth is not a strategy.

- We will have 15% year-on-year revenue growth.
- We will have 5% quarterly profit growth.
- We will launch ten new products within five years.

Goals for growth are an important part of a strategy, but they are not a strategy in themselves. They often don’t answer critical questions—Is the growth targeted for new or existing markets? Will the product launches piggyback on an existing product line, or will they be novel additions to the portfolio?—and they don’t put the growth in the context of overarching, long-term goals.

If the strategy can’t be used to select the set of products that best fit the organization’s goals, it is incomplete. At best, incomplete strategies aren’t useful, and at worst they can have unintended consequences (see sidebar). In order to be effective, incomplete strategies need to be honed until they are actionable.

Confusing Growth with Strategy

In its quest for growth, Biotech firm Abgenix set a goal for the number of compounds it would promote into the clinic for patient testing, and made that goal public—creating great pressure to meet it. The company made its number, but spent millions on trials for unpromising compounds that were in the pipeline only to meet a narrowly defined goal. Abgenix was acquired by Amgen not long after.
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Build an Actionable Strategy

**ONCE YOU UNDERSTAND** what's not a strategy, it's time to build an actionable strategy to guide your portfolio management process. Building an actionable strategy is a three-step process that begins with new-product goals and ends with a spending plan to support those goals.

**Step 1. Define new-product goals.**

New-product goals might include the percentage of revenues to come from new products or the number of new products or technology platforms to be developed, allowing for technical and commercial uncertainties. These goals need not be financial— aspiring to disrupt an existing value chain or revolutionize a manufacturing process is an actionable goal. In some cases, the aim may be to create a new product category or value chain that can exploit a new platform or deliver revenue growth in the long term. Some typical new-product goals might be:

- **In five years, 30% of revenues will come from products that do not exist today.**
- **Within four years, we will develop a new application platform for our Photonics product line.**

**Step 2. Name the arenas.**

It’s important to define where you want to play. The relevant arenas might be technology platforms, market segments, or product categories. For each arena, it is also important to distinguish between activities centered on your current business (core or maintenance), those adjacent to your current business (extending), and those disruptive to your current business. For example, it may be determined that in order to generate 30% of revenues from new products, at least 20% of the budget must be spent on disruptive technology platforms (see table). The target of 20% can then be compared to current spending—which in our example is only 14%.

<table>
<thead>
<tr>
<th>Arena</th>
<th>Core</th>
<th>Extending</th>
<th>Disruptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Photonics</td>
<td>29%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>LMDS</td>
<td>19%</td>
<td>6%</td>
<td>4%</td>
</tr>
<tr>
<td>LTE</td>
<td>17%</td>
<td>8%</td>
<td>6%</td>
</tr>
</tbody>
</table>

**Step 3. Plot the course for each arena.**

In the next step, funding must be apportioned to each arena and the specific activities for each arena listed. This exercise expands the diagram from Step 2, replacing actual spending with aspirational spending targets (see table, next page). What additional disruptive activities should be funded with the additional 6% of spending, and what core/extending activities should be defunded?
<table>
<thead>
<tr>
<th></th>
<th>Core</th>
<th>Extending</th>
<th>Disruptive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photronics</strong></td>
<td>Maintain top 5 product lines</td>
<td>Acquire 2 second-tier switch manufacturers</td>
<td>Fund regional quantum tunneling initiative</td>
</tr>
<tr>
<td></td>
<td>Double EU sales team</td>
<td>Develop 3 new products in 1000+ ft category</td>
<td>Partner with DARPA for X-Prize</td>
</tr>
<tr>
<td></td>
<td>Upgrade to new CRM system</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LMDS</strong></td>
<td>Maintain top 2 product lines</td>
<td>Extend XPS product into Japan, Korea</td>
<td>Fund Projects X and XY for accelerated development</td>
</tr>
<tr>
<td></td>
<td>Upgrade to new DDS3 standard</td>
<td>Offer carriers a leasing model</td>
<td>Acquire microcell startup</td>
</tr>
<tr>
<td></td>
<td>Reduce tower repair times by 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>LTE</strong></td>
<td>Maintain top product in both product lines</td>
<td>Partner with 2 5G technology firms</td>
<td>No activities planned</td>
</tr>
<tr>
<td></td>
<td>Receive reg approval in LA</td>
<td>Acquire Synothus</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Core</th>
<th>Extending</th>
<th>Disruptive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Photronics</strong></td>
<td>20%</td>
<td>13%</td>
</tr>
<tr>
<td><strong>LMDS</strong></td>
<td>15%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>LTE</strong></td>
<td>10%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Apportioning funding and listing activities leads to a plan for each targeted arena.

Shifting R&D toward extending and disruptive work is an incremental process. The activities defined in Step 3 may not be sufficient to meet the goals outlined in Step 1; they may merely lay the groundwork for future products—before Apple could build the iPhone, the company had to develop the right capabilities through its iPod projects. Developing truly new products may require pursuing multiple experimental technologies, some of which will ultimately fail. A robust, actionable strategy needs to allow for foundation building, leaving space for risky projects in pursuit of longer-term goals. But traditional portfolio management methods too often penalize such projects in favor of shorter-term, safer initiatives.
Don’t Buy In to Bubble Plots

EFFECTIVE PORTFOLIO MANAGEMENT employs the concepts of risk, balance, and value to align goals and plans with strategy. Bubble plots have been used to visualize R&D portfolios along these three axes since the 1970s. Bubble plots have their uses—they do provide a quick look at the distribution of projects across the three dimensions—but they fail completely as strategic tools. They don’t provide any insight into the alignment of the portfolio with strategy, the affordability of the portfolio, or the acceptability of the level of risk implied by the portfolio and illustrated by the bubble chart.

Leave the bubble plots behind. Focus instead on charts that measure overall portfolio alignment with strategic goals, not the attributes of individual projects. For instance, a graph can show the range of plausible revenue outcomes for a division with the revenue target denoted by a line. This can show you where goals may be too ambitious or where adjustments might be needed. In our table, the target falls squarely within the plausible range, indicating a 50/50 chance of meeting the revenue target for most of the period. At the very end of the time horizon, however, the target lies at the upper end of the forecast range. This should be a warning: meeting the target toward the end of the horizon will require that everything goes right, or the company must be prepared to make additional investments in products that can contribute long-term revenue.

Of course, revenue is just one of many strategically relevant metrics. Assessing portfolio alignment with strategy may require comparisons of spending proportions, product launches, satisfied customers, and profit margins, to name just a few possibilities. The key is to identify the visualizations that convey your portfolio story most effectively, and pare away the rest.
In many firms, project funding decisions are driven by prioritization processes that rank projects based on a simple measure of project value (for instance, net present value), a cost-benefit ratio (NPV/cost), or even an objective function combining several factors. The top-ranked project is funded, then the second, and so on, until funds are exhausted.

Prioritization would appear to ensure the “best” projects are funded. And they are, in terms of that single, project-focused metric. Ranking seems useful because in an operational context it is useful: deciding which project or task should be addressed next is a simple matter of assessing priority and beginning with the project at the top of the list.

From a strategic perspective, however, rankings can’t capture the nuance of multiple objectives. Ranking processes will always favor the low-risk and nearly launched projects to the detriment of the up-and-coming platform or nascent product line—which may bring huge rewards but also comes with enormous risk. Thus, the metrics used to judge each individual project should be different from the metrics used to judge the portfolio as a whole.

**What’s Wrong With Prioritization?**

If patrons of a steakhouse were asked to rank-order menu items based on what they liked the most, they might produce a list like this:

1. Steak
2. Shrimp
3. Prime rib
4. Cake
5. Pie
6. Macaroni and cheese
7. Ice cream
8. Mashed potatoes
9. Creamed spinach
10. Broccoli

The rankings are clear, but no one is going to order the top three items on the list in one meal. The metrics for prioritizing the menu items are different from the metrics used to assemble a complete, satisfying meal. The same dilemma affects R&D prioritization.
PORTFOLIO MANAGEMENT is about picking the set of projects that best meets the organization's strategic objectives. But how should those projects be selected? Prioritization is simple and commonly used, but—as we discussed in the last section—it has significant shortcomings. Fortunately, there are a variety of other selection methods. They tend to fall into three categories:

- **Prioritization.** While prioritization has its problems, it can be a valid entry in the menu of approaches, especially if the organization has an established prioritization process. Exploring why some projects that fare well in prioritization do not do as well in an optimized or hand-picked portfolio can lead to important insights.

- **Optimization.** An optimized portfolio is the one that results when the analysis is focused on maximizing—or minimizing—a particular metric. Optimized portfolios can focus on maximizing revenue within tight staffing constraints, for instance, or minimizing risk while meeting targets.

- **Hand Selection.** The hand-picked portfolio is exactly what it sounds like—a set of projects suggested by an executive, a portfolio analyst, or someone else. Some larger organizations have each division propose its own set of projects and then aggregates those portfolios. Furthermore, the “final” portfolio is almost always hand picked, derived from one of the other methods and tweaked based on discussions during the portfolio review.

Every portfolio is different, so it is difficult to say one method is better than the others. Furthermore, portfolios can change significantly year to year, so the method that worked well last year might not work this year. Our recommendation is to employ a variety of methods before each review and see which works best.

How the projects are selected is irrelevant as long as the portfolio achieves the strategic objectives—hence, our recommendation that portfolio analysts not concern themselves with identifying the “best” method and instead employ a variety of methods in each portfolio cycle. Going one step further, best practice is to present executives not with a single portfolio, but with multiple portfolio options. In that vein, these methods can each be used to generate one or more portfolio scenarios for presentation in the review.
Present a Range of Options

THE OUTPUT OF PORTFOLIO ANALYSIS is not one set of projects, but many. This is because it’s unlikely that any one portfolio will fully satisfy all of the strategic goals, and the purpose of the portfolio analysis is to generate discussion around the trade-offs that need to be considered, and the many paths that may develop from each choice.

To understand those paths and how they diverge, managers need to see several portfolios, perhaps as many as a half dozen. Rather than presenting detailed information about each and every initiative and expecting managers to sort through it—the typical approach of prioritization reviews—prepare analyses of several different portfolios, selected for their particular strengths. Each portfolio you generate will satisfy some goals better than others. Highlighting the differences among the portfolios, and their various strengths and weaknesses, will generate discussion about which goals are most important and highlight the trade-offs associated with various decisions. Then, you can look at where specific projects fall.

Be careful, though, of how scenario names may drive thinking. Don’t make the mistake of naming your portfolios “optimized portfolio” and “prioritized portfolio”—when it comes to selection methods, portfolio analysis is a bit like sausage making: we want the consumer to focus on the end result, not the manufacturing process. The methodology employed to build the portfolio isn’t as important as the strengths and weaknesses of the final result. Optimized or prioritized or otherwise constructed, the real question is, does the portfolio offer more value or deeper product development capability? Useful portfolio scenario names don’t reveal how each portfolio was crafted, but rather focus on the portfolio’s strategic posture. For instance:

- Status Quo Portfolio—Feed the core and starve early research.
- Growth Portfolio—Establish a venture to develop early research capability.
- Aggressive Portfolio—Fund all initiatives in Area A and only the top 10% of core activities in other areas.

Inexperienced portfolio analysts tend to believe that the purpose of the portfolio review meeting is to bless the portfolio presented by the analyst. Working from this belief, they focus on creating the “perfect” portfolio before the meeting. But this approach is actually counterproductive, as it focuses the discussion on the relative merits of individual projects rather than on the strategic value of the portfolio. Further, given the number of projects in a typical portfolio, trying to trade them all off against each other is an endless process that can end only in frustration.

But there’s a better way—offering multiple portfolios designed around particular strategic objectives, and focusing on how each portfolio achieves or falls short of each objective, focuses the conversation not on individual projects but on the organization’s strategic posture. The outcome is a consensus on which objectives are most important—and a portfolio that best meets those objectives. Once that starting point is established, projects can be moved in or out to finetune the portfolio’s match to the objectives. This is a far simpler project selection exercise than the endless trade-offs that characterize the typical approach.
We find that many clients begin with too narrow a focus, usually one that does not take a broad set of strategic options into consideration. For example, one client had an ambitious ten-year revenue target. We were retained to help the team pick the winners against that target. Our analysis showed that even if the company blew the budget and undertook every possible project, the revenue target couldn’t be achieved. We couldn’t pick the winners because they weren’t in the set of projects under consideration.

Using this data, the team refocused the discussion on the question of whether licensing and acquisition deals should be pursued or the target should be revised. Eventually, the forecasting tools in the Enrich Analytics Platform allowed the portfolio team to layer in enough product line extensions and new business to meet the target.

But it wasn’t enough to simply build this scenario. Management needed to absorb the fact that the base case didn’t have the elements needed to meet strategic goals, even when line extensions were factored in. The key was to craft a compelling story that upset the apple cart, extrapolating from business-as-usual funding to cash flow forecasts five years out, adjusted for project attrition and failure. When the story revealed that revenue would likely fall far short of strategic goals, it created a sense of urgency, and management was finally motivated to abandon a decade’s practice of capped R&D funding. Based on the insights gained through the portfolio review process, the management team tripled R&D budgets. Executives entered the process believing the question facing them was, Which of our projects should we pursue? The portfolio process unearthed the real question: What additional internal and external projects are needed to achieve our strategic goals, and how much more will we need to invest in R&D to fund them?

Of course, funding more projects doesn’t guarantee that the goals will be met—R&D investments are inherently risky, and even the best portfolio analysis can’t change that. To account for that reality, you should build risk into the forecast.
Build Risk into Your Forecast

A REALISTIC ASSESSMENT of each initiative’s risk and opportunity is the foundation of a credible portfolio process. Yet, uncertainty about technical feasibility, competitive landscape, customer response, and regulatory hurdles makes the assessment of value devilishly difficult. Some organizations throw up their hands and claim “NPV is useless,” while others build monster spreadsheets to consider every contingency of the business case. Neither of these responses helps sift through projects to find the most compelling opportunities.

The actual goal should be a “good enough” model, one that provides enough confidence for management to fund the product and enough detail for the project team to develop the product to the next milestone. You have to determine which elements of the forecast drive uncertainty, and then configure the portfolio evaluation process to both capture and simulate that uncertainty across the portfolio. Uncertainty means that each input is not known precisely, and so instead of single values, critical inputs should be characterized as a range of values.

This might create, for instance, a revenue forecast graph in which the forecast is represented as a wedge, defined by the plausible upper and lower bounds for revenue based on the simulation results. Each contingency that the team faces is evaluated in the context of the wedge. For each contingency, ask, does it significantly move the boundaries of the wedge? If not, then remove it from the model. Because the model is a wedge and not a line, relatively small movements of the base value within the larger forecast wedge are not a distraction. Only factors that appreciably affect the wedge become visible and are retained.

There is another advantage in this explicit approach to assessing uncertainty: The project team derives insight into the risks that must be mitigated to strengthen the business case. Those mitigation activities result in a stronger, less risky project.
Power Your Portfolio Review: The Enrich Analytics Platform

**THESER STRATEGIES WORK.** One client came to us for help after two successive prioritization exercises failed to yield a strong portfolio. That team found clarity when it abandoned prioritization in favor of a set of portfolios maximized around key themes. Those themes emerged only after the team found the right question: What would it take for each of the company’s four divisions (A, B, C, D) to establish a position of market leadership? The result of that thinking was three scenarios:

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Establish Leadership</th>
<th>Maintain Position</th>
<th>Spin Off Division</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>A</td>
<td>B, C</td>
<td>D</td>
</tr>
<tr>
<td>2</td>
<td>A, B</td>
<td>—</td>
<td>C, D</td>
</tr>
<tr>
<td>3</td>
<td>B</td>
<td>A</td>
<td>B, C</td>
</tr>
</tbody>
</table>

With this framework, the team assembled bundles of projects that fit the plan for each portfolio, each named strategically to focus management attention on outcomes, not process. Those scenarios helped the management team see the trade-offs and fine-tune the final portfolio based on business realities. Ultimately, the team chose scenario 2, although the company retained one technology platform from division C.

Clearly, this kind of approach is more complex than simple prioritization. Doing it effectively requires careful thought—and powerful analytics capabilities that can provide a full range of portfolio views.

For more than a decade, Enrich has been the leading provider of strategic R&D portfolio management solutions. Each year, tens of billions of dollars in R&D investments are shaped, allocated, and refined with the help of the Enrich Analytic Platform (EAP).

EAP is an enterprise-level, web-based analytics platform that works as stand-alone portfolio management software or in conjunction with an existing solution to unchain you from your spreadsheets and help you move your strategy forward. Our portfolio management solutions go beyond bubble charts, giving you the advanced analytic tools you need to identify key challenges, develop strategies, and clarify trade-offs. EAP’s visualizations and models can be customized to fit your unique development and market environments, and the system’s what-if analyses can map how different portfolios play out over time—powering decisions that lead to action.

Dashboards in the Enrich Portfolio System allow managers to trade off the strengths and weaknesses of multiple portfolios.
Putting It All Together: The Enrich Difference

WHAT IS THE ENRICH DIFFERENCE?
It’s our unique combination of hands-on consulting and tools for portfolio analysis that gives our clients the right combination of guidance and autonomy to plot a course for success. Through our deep domain expertise in project valuation and portfolio management, we help clients cultivate a better understanding of their current portfolios, beginning with a realistic assessment of their strategic goals and continuing with a thorough accounting of the options available to bridge the gap between reality and those goals.

As new information arises, R&D teams using EAP can update their projects and portfolios and reassess each possible course of action—and move forward with the confidence that they have a realistic sense of both the opportunities and the risks, and a map for the best path forward.

Founded in 1999 as a management consulting firm, Enrich now specializes in enterprise portfolio management software that enables distributed teams of project leaders, portfolio analysts, and executives to set strategy, evaluate opportunities, and make confident, effective investment decisions.

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