

Dynamic Innovation Portfolio Management

Idea in Brief		
THE PROBLEM	THE SOLUTION	THE STEPS
<p>Due to the exponential pace of technological change, organizations have difficulty keeping their innovation portfolio aligned with their overall business strategy. A leading cause is that leadership increasingly must react to dynamic events and conditions by making frequent tactical course corrections for the business that don't always tie back to the innovation intent of the organization.</p> <p>These tactics lead to an incongruity between business strategy and the innovation portfolio, resulting in wasted resources on innovation efforts that are no longer relevant or, worse, missing out on valuable opportunities.</p> <p>A mechanism is needed to ensure <i>continual</i> alignment between leadership's organizational strategy and priorities and the innovation portfolio's makeup.</p>	<p><i>ISO 56001</i> provides a best-practice framework for understanding the organization and its context. Its PDCA cycle provides an obvious integration point for innovation portfolio management based on updates to organizational strategy.</p> <p>Using an objective yet agile approach to scoring the entire innovation portfolio can ensure that the events and conditions that drive changes to business strategy also result in the <i>simultaneous</i> rebalancing of the portfolio to maintain alignment.</p> <p>The benefit is that innovation intent remains objectively aligned with the organization's strategic intent, which mitigates portfolio risk and increases the likelihood of consistently producing valuable innovation outcomes.</p>	<p>There are three essential factors for maintaining an innovation portfolio of <i>always-relevant</i> ideas and projects to explore:</p> <ol style="list-style-type: none"> 1) Leadership updates and weights their Strategic Objectives (SO) regularly to denote <i>priorities</i> based on the <i>current</i> context of the organization. 2) Innovation Portfolio Managers score each portfolio item for "Closeness of Fit" (CoF) to the intent of each SO. 3) Each portfolio item has its total score computed (CoF * SO weight), which provides a sortable list of ideas and projects that most closely match the organization's strategic intent. <p>This paper discusses the objective approach to dynamic innovation portfolio management.</p>

Overview

There are five key tracks to implement to have an effective innovation management system, resulting from the response to five key questions¹. **Why** you innovate is to help achieve organizational objectives aligned to the organization's strategic direction. **What** you innovate is the portfolio of ideas and projects aligned to your organization's strategic objectives that you pursue to realize value. **How** you innovate is the rigorous systems approach necessary to exploit insights, which should be agile and oriented around intelligent, fast failures to mitigate uncertainty inherent to innovating environments. Exactly **Who** is involved relates to future-focused leaders and the trained and certified innovation practitioners, innovation managers, and creative contributors in the organization and its interested parties that help transform ideas into value and support a culture of innovation. Finally, **Where** you innovate is the infrastructure – the spaces, tools, and methodologies that enable innovation efforts.

This chapter focuses on the intersection between the "**Why**" – the strategic intent, and the "**What**" – the Innovation Portfolio. The portfolio concept is most associated with the financial industry, where portfolios are used to manage various financial assets to counter the inherent uncertainty caused by ever-changing market forces. The goal, of course, is to ensure an optimized return on investment over various asset classes and timelines *according to an investor's desired level of risk*. The innovation portfolio functions in a comparable manner: it balances the organization's innovation intent with the various risks inherent to innovating environments.

The problem today is that the exponential pace of technological change is impacting the ability of organizations to take advantage of rapidly emerging opportunities and is moving so fast that organizations often don't realize that what they are working on – or planning to work on – may no longer be relevant. Imagine, for example, the historical timeline since the start of the Industrial Revolution in 1790 as an evolutionary line that begins linearly but takes on an exponential curve as industry introduces an increasing number of *innovation-enabling* technologies (e.g., open-source software, mobility, cloud, machine learning.) Each "doubling" on that exponential curve also *compresses the timeline* in which the world can take advantage of that change – and it is not slowing down. Markets appear and disappear in weeks as new technologies disrupt long-established businesses. How can any organization keep up?

At a minimum, an agile approach to mitigating those risks is essential for any innovation program that desires consistent and repeatable outcomes while adapting to the pace of change. Some of the primary kinds of risks to mitigate are:

- **Portfolio Concentration Risk** is having too much of one type of innovation effort. You manage this by assuring a sufficiently diverse portfolio aligned to the organizational strategic objectives and impact levels², typically using weightings based on current needs and priorities.
- **Technology Risk** represents the possibility that a given technology under evaluation may fail in the target operating environment. This risk is relevant to rigidly controlled environments where a heightened level of operational command and control of scalability, reliability, and security concerns apply.

¹ Langdon Morris. *The Agile Innovation Master Plan*. FutureLab Press, 2017. Pg. 12.

² Such as incremental, business model, disruptive, etc.

- **Financial Risk** is the possibility that a given technology may be too expensive or the switching costs too high to justify deployment. This risk is managed through a combination of technology road-mapping and rigorous assessment metrics as projects and technologies progress through a stage-gate process.
- **Disruption Risk** represents the possibility that entirely new technologies may displace and significantly outperform existing approaches to the degree that they establish a competitive advantage. We manage this risk through an aggressive program of over-the-horizon and weak-signal monitoring.
- **Creative Risk** represents a risk in the form of insufficient creativity, where the ideation pipeline lacks enough ideas *relevant to current strategic objectives*. Advanced innovation and creativity training and *regular* innovation workshops to cultivate and nurture the necessary creative mindset are essential to combating this risk category³.
- **Non-Intelligent Failure Risk** relates to *preventable* failures that fail to achieve the expected outcomes by specifically *not* accounting for existing knowledge that would have prevented the failure, resulting in a waste of resources. Ineffective knowledge management systems, insufficient market or technology research capabilities, or low innovation maturity for the innovation program are the primary contributors to this risk.⁴

While the above risks are only a sample of the risks involved in innovating environments, they are primarily the ones that we can mitigate through effective innovation portfolio management. While several practical approaches exist for managing innovation portfolios, this chapter focuses only on the intersection between organizational strategic objectives and innovation intent. At a minimum, organizations must be able to objectively pivot their innovation efforts as fast as leadership makes the tactical course corrections necessary to survive in such an environment.

First, however, we must have clarity about the innovation intent of the organization before we can work on the portfolio, which requires understanding the Context of the Organization (COTO).

From Vision to Strategic Intent

The Vision component at the top of the pyramid in Figure 1 below represents organizational aspiration: what the organization wants to become, a position it wishes to maintain, what it wants to achieve, or how it wishes to be perceived – and it is rarely (if ever) changed. The organization creates a strategy (a plan) to achieve the vision. Historically, changes to top-level strategy have come due to shifts or disruptions in the market, the economy, or geopolitical and technological landscapes.

In the past, one would often hear of organizations creating a "10-year strategic plan," but today – due to the ever-increasing pace of technological change – it is rare to see a "5-year strategic plan." Even governmental departments and agencies are now producing fixed 3-year plans hoping they can execute against their plan while it *is still relevant*. Unfortunately, even this approach misses the boat: reducing the

³ This risk correlates closely to the frequency of change to business strategy, objectives and priorities; portfolio pivoting resulting from these frequent changes may displace currently active projects (that are no longer relevant) and leave gaps in the portfolio where there are new, but unmet needs. An organization's ability to rapidly generate a vast inventory of ideas for exploration is crucial to maintaining pace with the speed of change.

⁴ Conversely, organizations should accept, expect, and require intelligent failures, as intelligent failures result in new knowledge that is used to inform future attempts.

duration of a "fixed" strategic plan to account for the increasing pace of change *still* results in partial or complete failure to achieve the desired objectives. Why? The ground continues to shift underneath those organizations as they execute a plan that grows more outdated with each passing month, widening the chasm between *innovation intent* and *innovation outcomes*.

Therefore, organizations must review strategy regularly as part of a continuous cycle of validating the organization's context. For business, this may involve identifying how it needs to:

- Respond to changes from *industry forces* (incumbents, insurgents, and alternative products and services)
- Identify and account for *critical trends* (technology, regulatory, societal, cultural)
- Account for changes in *market forces* (market issues, segments, needs, demands, switching costs, revenue attractiveness) and *macro-economic forces* (global market conditions, capital markets)

The list of strategic elements above is neither exhaustive nor meant to be. The ISO 56001 *Innovation Management Systems* standard can help organizations understand how to regularly determine external and internal issues that are "*relevant to its purpose, and that affect its ability to achieve intended outcomes of its innovation management system.*" As an ISO Management System Standard (MSS), it accounts for the Context of the Organization and is of great value in helping organizations align strategy to execution.

From Strategic Intent to Strategic Objectives

As depicted in Figure 1 below, we decompose the strategy (the plan to achieve the vision) into its *measurable* and *executable* components. In this example, we refer to these components as the *Strategic Objectives*. Still, as there are no vocabulary standards for management consulting, the vernacular may differ depending on the organization's leadership approach or size. The critical point is that they are strategy's measurable and executable components. The strategic objectives may change at a higher frequency in response to dynamic events and conditions (creating new objectives while eliminating others that are no longer



Figure 1: From Vision, to Strategy, to Execution, to Management

relevant.) However, additions and subtractions of *strategic objectives* typically occur less frequently than changes to their *weightings*. These are the tactical tweaks leadership can make to fine-tune priorities of existing objectives to drive business execution in a manner that accounts for the impact of those events

and conditions⁵. However, it would be rare if leadership set all strategic objectives equally. To expound on this, consider the use case below.

Example Use-Case #1: Consider this (semi-fictional) example for a government defense organization:

Vision: Be the beacon of peace and freedom at home and around the world

Strategy: Preserve peace through strength

- **Strategic Objective 1:** Strengthen alliances and partnerships
- **Strategic Objective 2:** Build a more prepared and lethal force
- **Strategic Objective 3:** Bring efficiency to how we operate

Looking at the above list of objectives, it should be clear that it is possible to align innovation ideas around each of them and score the ideas for their "closeness of fit" to each objective. It should also be clear that the 3rd objective is not necessarily *directly* aligned to the strategy; instead, it focuses on optimizing resources to achieve *the other objectives more efficiently*. Should it always have the same weight (priority) as the others? Perhaps during peacetime. What happens when an adversary takes actions that increase the national security threat level? Should leadership still have the same priority on cost optimization when under a war footing as they do during a time of peace? *Obviously not*.

At such a time, the focus would be on defending the nation, not exploring ways to squeeze out every drop of efficiency in operations. So, in that circumstance (when the *priority* for cost optimization decreases), what happens to the portfolio of active innovation efforts aligned with the 3rd objective? If the portfolio is not directly linked with the current context of the organization, the answer is *nothing*; the organization continues expending resources on efforts unaligned to current organizational priorities.

Imagine instead that leadership changes the weightings of strategic objectives, and the innovation portfolio *automatically* and *objectively* pivots in response. Ideas in the backlog tied to the first two objectives (that now have increased importance) may be promoted to active projects to fill gaps left by deferred⁶ projects oriented toward the 3rd objective.

This direct linkage eliminates *undesired influences* in the portfolio's makeup. We used leadership's change to strategic objectives and priorities to realign innovation efforts with the organization's strategic intent objectively.

Thought to Ponder: If people can put automated stop-loss orders on their portfolio of stocks to automatically sell shares when reaching a pre-set price to avoid deeper losses, why don't organizations do the equivalent for their innovation portfolios when organizational strategy, goals, or objectives change?

⁵ "Companies must outmaneuver uncertainty by course correcting, again and again, as circumstances change. This requires them to reassess assumptions, re-evaluate scenarios and strengthen their ability to sense and respond." Accenture: *3 Course Correction Steps for Enterprise Recovery*.

⁶ Pivoting merely changes the current innovation focus of an organization's strategic intent; if prior conditions return, deferred projects more in alignment with those conditions may be rapidly reactivated via later pivots.

Other Examples: The following are several examples of companies or industries that have successfully pivoted⁷ during the Covid-19 pandemic, where the priorities for short-term survival and business resilience increased (and other traditional priorities decreased) in importance:

- **Unilever:** Covid provided an impetus to pivot their business model; demand for skincare products fell, and demand for essential products – such as hygiene, cleaners, and packaged food – soared
- **Spotify:** advertisers cut their budgets, which Spotify had relied upon due to their large free user base; pivoting to original content such as podcasts with exclusive content deals for celebrities cemented a more passionate consumer base for revenue, with less reliance on free user adverts
- **Restaurants:** as anxiety increased about indoor dining, restaurant operators pivoted to add curbside pickups and contactless delivery and re-engineered their menus and prices accordingly

USING THIS UNDERSTANDING OF THE NEED FOR ALIGNING STRATEGIC OBJECTIVES, THEIR WEIGHTINGS (PRIORITIES), AND INNOVATION RESOURCES IS CRITICAL TO IMPLEMENTING AN OBJECTIVE APPROACH TO INNOVATION PORTFOLIO MANAGEMENT THAT ENSURES INNOVATION INTENT AND INNOVATION OUTCOMES REMAIN IN CONTINUAL ALIGNMENT WITH THE ORGANIZATION'S STRATEGIC INTENT.

The Intersection Between Strategic Objectives and Portfolio Types

Before discussing strategic objectives for innovation portfolio management, it is essential to understand the different innovation portfolio *types*, why they exist, and how each can be affected by changes to strategic objectives and their weightings.

Portfolio of Ideas

The *portfolio of ideas* contains all submitted ideas and opportunities that remain unexplored. This portfolio should be continuously updated and groomed to ensure sufficient ideation⁸ for the organization's strategic objectives. When leadership adds strategic objectives, the portfolio of ideas may contain few (if any) ideas directly relevant to those new objectives. For this reason, idea generation is an essential element for rapidly filling the portfolio of ideas. Idea generation activities may include obtaining input from expert networks, idea challenges, hackathons, internal pitch events⁹, and open innovation efforts from all interested parties.

Portfolio of Projects

When promoting an idea to a project, it becomes a member of the *portfolio of projects*. This portfolio contains all projects that are not yet complete (and have not been killed.) Many innovation programs have project-holding states, such as "deferred" (or similar) for projects temporarily sidelined due to a change

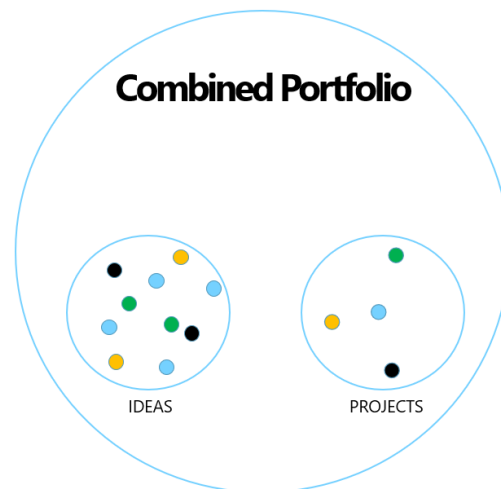


Figure 2: Three Portfolio Types for Scoring

⁷ Harvard Business Review, July 2020.

⁸ See Creative Risk on the 2nd page of this paper.

⁹ This has the beneficial side effect of amplifying employee knowledge of the strategic intent of the organization and ensures that submitted ideas are in alignment with that intent.

in organizational strategic priorities or other internal reasons. However, even those projects remain part of the Portfolio of Projects regarding the rebalancing effort as they may be impacted by changes to the organization's strategic intent.

Combined Portfolio

As shown in Figure 2, the combined portfolio represents the set of all ideas and projects in the innovation program.

When *minor* course corrections occur – resulting in merely a change in the weightings of *existing* strategic objectives – the impact on portfolio management is minimal since all elements in the combined portfolio have been previously evaluated for the "closeness of fit" to each strategic objective. Only the weighting(s) changed, which allows for an automated and objective pivoting with instant realignment.

However, when *significant* changes to the strategic intent occur that result in the addition of *new* strategic objectives or the elimination of existing strategic objectives, the *combined portfolio* must be re-scored for the closeness of fit to *each* of the current strategic objectives. The rationale becomes apparent when considering the following scenarios:

- 1) There may be active projects associated with one or more strategic objectives eliminated by leadership, which means resources remain allocated toward efforts that may¹⁰ no longer be *as relevant* to the strategic intent of the organization.
- 2) With the change in strategic intent, previously unexplored ideas may now be more suitable for investment.

The point is that when the evaluation criteria (the strategic objectives) change, *everything* in the combined portfolio must undergo re-scoring for the closeness of fit to the current strategic objectives, which usually results in changes such as:

- Changing priorities of existing projects (which may impact budgetary allotments)
- Suspension of active projects whose now-lower priorities
- The killing of projects that are no longer in alignment with the strategic intent of the organization
- The promotion of ideas into active projects for exploration as they are now more relevant than they were in the past

Unfortunately, when adding new strategic objectives, there is also a potential for *creative* risk – when there are insufficient ideas to explore relevant to the new strategic objectives. This risk is becoming more common due to the ever-increasing pace of change, so organizations must have the means to rapidly fill the ideation pipeline with fresh ideas relevant to the organization's strategic intent.

Leadership's Role in Weighting Strategic Objectives

When the organization's context changes – whether from tactical course correction or through the modification of strategic objectives – Leadership must assign an associated *weighting* to each objective to balance innovation efforts across the portfolio. Figure 1 graphically represents this value by the *size* of the numbered objectives. The weightings are expressed as a percentage, and when summed, the

¹⁰ As each idea is scored for closeness of fit to *each* strategic objective to get a total score for relevance to the strategic intent of the organization, the idea may still be relevant, although it will likely have a lower relevance.

weightings for all objectives should equal 100%, as shown in the example below using example objectives we previously discussed:

Strategic Objectives:

- Strengthen alliances and partnerships → 30%
 - Build a more prepared and lethal force → 50%
 - Bring efficiency to how we operate → 20%
- = 100%

The Innovation Manager's Role: Scoring Ideas for Closeness of Fit

After leadership sets the weightings for each objective, the **Innovation Managers** (those that manage the innovation portfolio) must score each portfolio element according to their "Closeness of Fit"¹¹ to the *intent* of each Strategic Objective.

Scoring the "closeness of fit" is an exercise that considers two inputs:

- 1) The intent behind the idea or concept
- 2) The intent behind each of the strategic objectives

It does not consider (nor *should* it consider) the weighting or priorities of any strategic objectives provided by leadership. It is preferable to keep the weightings from being known by anyone outside leadership, to include the innovation managers (in fact, in some organizations, such as the Department of Defense (DoD), such priorities are not publicized.) To increase velocity, you must eliminate subjectivity from managing the makeup of the innovation portfolio.

A good practice for scoring is to use a Fibonacci scale. Fibonacci scales allow for greater separation of values and eliminate issues associated with scoring when using a linear series. For example, consider scoring using a scale of 1 through 10. How do you define the difference between a score of 3 and 4? Between 6 and 7? With a Fibonacci scale (i.e., 1, 2, 3, 5, and 8), the values become more meaningful *as their relevance to a strategic objective increases*. For example:

- 1 = Very Minor Relevance
- 2 = Minor Relevance
- 3 = Average Relevance
- 5 = Very Relevant
- 8 = Extremely Relevant

Using the above example, consider an idea that has extreme relevance (8) for its primary objective, minor relevance (2) for a second objective, and very minor relevance (1) for a third objective. The total score for that idea (11) would be greater than if you only scored it for its relevance to the primary objective alone (8). This approach indicates its *overall* potential value to the organization's strategic intent, not just one

¹¹ Tom Brazil. *Implementing an Agile Innovation Management System*. Amazon, 2020. Pg 17. *Aligning ideas for innovation to at least one (or more) of your strategic objectives is a risk and opportunity mitigation strategy: if you focus only on ideas aligned with your strategic intent, it prevents expenditure of time and resources on wasteful efforts.*

objective.

To see the impact of the weightings of the strategic objectives *with* the scoring of ideas for the closeness of fit, let's consider a simple example of a fictional element of the DoD.

Scoring Example: DoD Organization During Peacetime

There are four strategic objectives for a fictional DoD agency in the following table, shown with their corresponding weightings for each objective. *Objective 1* is to achieve warfighter superiority by implementing Autonomy, AI, and Machine Learning. During peacetime, 40% of the strategic focus is on this objective. *Objective 2* is to streamline the acquisition process to increase velocity in acquiring the tools and weapons warfighters need to succeed in their mission. 30% of the strategic focus

Objective 1 (SO1)	Objective 2 (SO2)	Objective 3 (SO3)	Objective 4 (SO4)
Achieve Warfighter Superiority through Autonomy, AI & ML	Streamline Acquisition Process for Speed to Capability	Transform to Agile Capability Development Approach	Optimize and Reduce Costs
40%	30%	20%	10%

Table 1: Example Strategic Objectives and Weightings (Simplified)

is placed on this objective in peacetime. *Objective 3* requires transitioning all capability development efforts to an agile approach, allowing incremental development and deployment of always-relevant capabilities. 20% of the strategic focus is on this objective in peacetime. Finally, the 4th objective is to find innovative ways to optimize and reduce costs, which has 10% of the strategic focus in peacetime. To ensure leadership maintains a proper¹² role in the makeup of the innovation portfolio, the weightings – expressed as a percentage - must be provided by leadership (and, when added together, should sum to a value of 100%.)

There are various ways to manage innovation efforts according to those weightings. A *simple* approach is to consider the maximum number of active projects that can be resourced simultaneously and allocate those efforts according to the weighting percentage of the strategic objective, as shown in Figure 3.

However, this would imply that a given idea could be associated with *only one* of the strategic objectives. Scoring each idea for the closeness of fit to *each* strategic objective

Strategic Objectives	Weighting	Allowed Projects
SO1	40%	4
SO2	30%	3
SO3	20%	2
SO4	10%	1
	100.0%	
MaxActiveProjects		10

Figure 3: Simple Allocation of Efforts by # Projects

¹² Historical issues with leaders getting too involved in the makeup of the innovation portfolio, having pet projects, or having an inability to kill projects that are no longer relevant due (sunk cost fallacy), are eliminated when using an objective approach that ties their priorities to the makeup of the portfolio.

and then multiplying each score by the weighting of the corresponding objective – and then summing the results – produces a total score *representing an idea's value to the overall strategic intent of the organization*.

Using the weightings in Figure 3, consider the following example where simple sorting helps determine which outstanding ideas are eligible for promotion to an active project.

Idea	SO1 Rating	SO1 Score	SO2 Rating	SO2 Score	SO3 Rating	SO3 Score	SO4 Rating	SO4 Score	Total Score
#11	8	3.2	0	0	0	0	0	0	3.2
#23	0	0	8	2.4	3	.6	0	0	3.0
#87	0	0	5	1.5	0	0	1	.1	1.6
...									

Table 2: Scoring Ideas for Closeness of Fit

With such a scoring mechanism, you can allocate weighted points to determine the mix of innovation efforts needed to achieve the strategic intent of leadership. Considering we still have a resource allocation limit we can determine which ideas to promote into projects by sorting the resulting list by descending Total Score. The top 10 projects would be those most closely aligned to the overall strategic intent as determined by leadership. The benefit of such an approach is that it allows for proper dynamic innovation portfolio management; anytime leadership makes tactical course corrections by changing the weightings, the calculations can automatically determine the corresponding makeup of the active portfolio of projects. Consider the following scenario.

Scoring Example: DoD Organization in a War Footing

Using the same strategic objectives, we provide an example of a change in the objectives' priorities (or weightings). In this scenario, a national security incident causes a change in the defense preparedness condition.

Strategic Objectives	Weighting
SO1	30%
SO2	40%
SO3	30%
SO4	0%
	100.0%

Figure 4: Objective Weightings Change

In this scenario, strategic objective 4 (SO4) – *Optimize and Reduce Costs* – is no longer relevant since the military mission in peacetime is quite different than in a time of hostilities. Squeezing every bit of efficiency out of your operational processes is not a focus in such a situation. It is essential to ensure the warfighter has all the tools and capabilities required to achieve their mission now, increasing the weightings of SO2 and SO3 and decreasing the future-focused research efforts of SO1. Table 3 shows the effects of these changes on the weightings; #23 is now the idea most relevant to the overall strategic intent of the organization. Sometimes existing projects may drop so far in Total Score that they move to a deferred state and are

no longer eligible for the active portfolio. Contrarily, some unexplored ideas may gain importance and achieve promotion to active projects. Furthermore, budgetary allocations may change depending on the

ranking of the projects when scored against the overall strategic intent of the organization.

Idea	SO1 Rating	SO1 Score	SO2 Rating	SO2 Score	SO3 Rating	SO3 Score	SO4 Rating	SO4 Score	Total Score
#23	0	0	8	3.2	3	.9	0	0	4.1
#11	8	2.4	0	0	0	0	0	0	2.4
#87	0	0	5	2.0	0	0	1	0	2.0
...									

Table 3: Change in Strategic Objective Weightings and their Impact:

Summary

This approach focuses on *complete objectivity* in the makeup of the active innovation project portfolio. As long as leadership updates strategic objective weightings when making course corrections and the innovation portfolio elements get scored for the closeness of fit to each strategic objective, the innovation *intent* of the organization should stay directly in alignment with the current strategic intent of leadership.

An innovation portfolio out of alignment with the organization's current strategic intent won't produce the expected value required to move the organization forward in pursuit of its goals.

Keeping up with the exponential pace of change is impossible without this objectivity.

Thomas Brazil, CMI, CMI-CIO
 Chief Digital & Innovation Officer
 Integrated Computer Solutions, Inc. ([ICS](#))
[LinkedIn](#)