COMPLEXITY AND CHANGE

BIRDS OF A FEATHER?

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Abstract

The broadening of Organizational Project Management (OPM)\(^1\) practice, paired with the added turbulence and complexity of the current business context, requires a better understanding and management of the complexity aspect of OPM. Whereas the recent PMI publication *Navigating Complexity: A Practice Guide* (PMI, 2014a) provides guidance on identifying sources of complexity and reflects the iterative nature of portfolios, programs and projects, the change management process developed in the *Managing Change in Organizations: A Practice Guide* (PMI, 2013b) can help practitioners effectively manage elements of this complexity.

This paper outlines the main elements that cause complexity from both a theoretical and practical perspective and explains how a good understanding of change management can help alleviate the negative effects of complexity and create opportunities. It discusses change management techniques and behavioral requirements for portfolio, program and project managers to deal with complex environments and to have successful outcomes.

\(^1\) "Organizational Project Management (OPM) is a strategy execution framework that utilizes project, program, and portfolio (PPP) management as well as organizational-enabling practices to consistently and predictably deliver organizational strategy" (PMI, 2013a, p.3).
The Context of Today’s Organizations

Today, PMI and the project community in general acknowledge that organizations evolve in a complex and turbulent environment. Siggelkow and Rivkin (2005) stated almost 10 years ago: “Rapid technological change, deregulation, and globalization have intensified competition and increased the turbulence that managers face” (p. 101). They further added “the degree of interdependence among the decisions that a firm faces is a key driver of complexity” (p. 103).

This situation is even truer today as things change more quickly—and more fundamentally. The companies keeping up with market pace and complexity are those that recognize “whatever they were doing today wasn’t going to drive their future growth”, according to Rita Gunther McGrath in an interview with Kinni (2014). McGrath further states that those companies are successful because they are exploiting temporary competitive advantages. This means to cope with increased complexity and turbulence, organizations need to continually change.
Complexity and Turbulence as Drivers of Change

In organizations, turbulence represents the pace and speed at which change occurs. Turbulence means that the context is changing fast and organizations need to keep the pace with controlled change. For example, technology companies change rapidly because hardware or software is constantly delivering new features or capabilities that can be exploited.

Complexity, on the other hand, represents the presence of multiple possible alternatives to a decision and the interdependence between them. For example, consider an organization that is adding more staff and needs space. The organization could reconfigure its current space; move everyone to a new location with more space; move some divisions to a new location; implement different shifts; etc. All of these represent possible alternatives to a decision. Each involves some level of disruption within the organization. So, change is required to keep up the pace and to deal with elements of complexity.

Organizations typically have to cope with four different types of environments:

- **Stable environments**, where both turbulence and complexity are low. Stable environments are typical of organizations that operate under “business-as-usual” conditions. In this case, the impact of change is generally incremental and requires little effort.

- **Turbulent environments**, in which turbulence is high but complexity is low. Many projects occur within turbulent environments where there are few, if any, complex elements, but where results need to be delivered rapidly within set parameters. In this situation, change generally deals with technical or structural issues in an operations context and, as such, can be scoped, estimated and planned.

- **Complex environments**, in which turbulence is low but complexity is high. In this environment, firms must analyze data and make rational decisions. Portfolio management is characteristic of complex environments, where a number of projects and programs are rationally analyzed on the basis of verifiable data (low turbulence), but subjected to the influence of multiple stakeholders (high complexity). These environments reflect what *Navigating Complexity* (PMI, 2014a) defines as “system complexity”; where the interdependent components of a system can produce results not obtainable by the simple sum of the components and often lead to unintended consequences.

- **Combined turbulent and complex environments**, where both turbulence and complexity are high. In this environment, organizations have to react quickly to emergent situations without all the required or desired data. In combined environments, change becomes more fluid and requires the application of deliberate change management activities. Within this environment, the level of change associated with complexity affects a larger part of the organization or is dependent on the wider organizational context. Examples of these types of situations are: mergers and acquisitions; a change of executive team; new product development; an enterprise-wide data management system; the opening of new markets, etc. The common characteristic of these changes is that they concern not only system changes, but also involve large numbers of stakeholders. Therefore, they have a behavioral effect with a strong cultural impact.
In summary, all organizational situations involve change, including:

- incremental change at operational levels;
- planned change at project levels;
- measured change at the portfolio level; and
- when both turbulence and complexity are high, radical change.

**Readiness for change vs. urgency to change**

The previous section uncovered that, as complexity and turbulence increase, change becomes more intense. One of the main aspects discussed in *Managing Change in Organizations* (PMI, 2013b) is the capacity of people in organizations to deal with change. Figure 4-5 (p. 50) in that practice guide details change management capabilities related to portfolio management and compares readiness for change with urgency to change. It also outlines different types of actions required in each case. **Figure 1** is adapted from that graphic.

![Figure 1: Readiness for change vs. need/urgency to change](image-url)

In **Figure 1**, the assumption is that the need/urgency to change is *directly related* to the degree of turbulence experienced, i.e., the higher the turbulence within the environment, the greater the urgency to change. When urgency is low, change can be more deliberate and there is more time for the organization to prepare.

On the other hand, readiness for change is *inversely proportional* to the degree of complexity; a high degree of complexity reduces readiness for change because of the number of stakeholders and factors involved in the change. Therefore, a longer period of time is needed to make and regularly review decisions. When complexity is low, decisions are based on planned actions and actors can focus on execution. For example, in agile projects the pace is often very fast with frequent decision points based on emergent inputs. In more bounded projects, the pace is often fast, but the decision focus is on the execution of a well-formulated baseline plan.
When examining Figure 1 from the standpoint developed in the previous section, one could say that:

- In a business-as-usual context, change is a deliberate, continuous series of actions with little anticipated deviation.
- In a portfolio context with complex elements, change is a deliberate search for opportunities.
- In a project context where the environment is turbulent, change enables the controlled delivery of results.
- In a combined complex and turbulent environment, change is a decisive search for the best response.

**From continuous improvement to precarious transformation**

Quinn (1978) argued that organizational strategy emerged from sub-strategies incrementally blended into a cohesive pattern. Hambrick and Fredrickson (2006) stated “A strategy […] is an integrated, mutually reinforcing set of choices […] that form a coherent whole” (p. 57). They further add “A strategy […] can evolve and be adjusted on an ongoing basis” (p. 61). Today, many organizations still do not prepare for change until situations reach a crisis point. At that point, there is a sense of urgency to change, but the organization’s readiness to change is low. For example, a recent study by Dann, LeMerle and Percavel (2012) of major corporations that had lost 10% or more of shareholder value in a year showed that “strategic blunders” were the main reason (81%) for lost value. In many instances, those blunders may have been caused by managers needing to respond quickly and decisively to a change situation, but not being able to properly shift the organization. Nokia’s failure to move quickly into the smartphone business and the American automotive industry’s failure to see the Japanese auto industry threat fast enough are examples of failures to understand the need to change and innovate quickly. The examples also show that the organizations were not ready for change. On the other hand, the expansion of Google from search engine to robotics and car manufacturer and the development of Apple from a hardware company to a music provider are examples of organizations that could see change coming and evolved to navigate it.

Organizational leaders tend to look at change from a structural or systems point of view. While a structural or systemic change may be large in scale and contain many elements that need to connect and interface, generally, those elements connect in known ways. Therefore, the level of complexity is low. By breaking down an extensive structural change into manageable parts, good project management will decrease the scale of change from a financial, resource and physical point of view. Figure 2 displays this process.

On the other hand, behavioral change is always complex. Its scale may increase and decrease in unpredictable cycles. When change affects the human or social aspect of the organization, it needs to be evaluated and measured to understand how much effort needs to be invested in the human aspect of the change. Thus, project or program managers need to understand and use change management practices, along with sound project management, to successfully deliver results and achieve the desired change.

At an individual level, imagine the difference between an organization’s headquarters moving to a bigger, better site in the same city and the restructuring of a department to come under a new management unit. In one case, individuals may have to travel a bit further, but will have a modernized workplace and the same hierarchical reporting structure. In the other case, individuals become part of a new group, and have to adapt to a new manager, new team members and new reporting structure. Which change is most likely to cause resistance?
Referring to Figure 2, most people would agree that the move to a new headquarters, if planned and managed well, is a composed transformation, whereas the department’s restructuring is a delicate transition. The relocation may be a complicated project and the scale might be greater, but the restructuring has a much higher level of complexity because of the number of factors and actors involved, as well as the interdependencies between them.
Understanding Complexity in OPM

There is very little literature on complexity in OPM outside of the project community. In *Navigating Complexity* (PMI, 2014a), complexity is defined as three-dimensional:

1. **Human Behavior**: The interplay between diverse individuals and groups.
2. **System Behavior**: The interdependencies of components and systems.
3. **Ambiguity**: Emergence and lack of understanding or confusion.

The more human interplay and component interdependency in a change process, the higher the complexity and the more difficult it is to “consistently and predictably deliver organizational strategy” (PMI, 2013a, p. 3). In each of the above dimensions, the key driver of complexity is the evolving relationship between a number of elements—physical or human. The key characteristic of complexity can be summarized as the *lack of convergence of objectives*, which creates lack of understanding and confusion for the managers and recipients of the change. This lack of convergence also intensifies the emergence factor when conflicting ideas are discussed and new objectives are agreed.

**Ambiguity and uncertainty as key dimensions of OPM**

*Navigating Complexity* (PMI, 2013b) identifies a number of elements of human behavior that contribute to complexity, among which are disagreement, misinterpretation, diversity, misalignment and opacity. Most of those elements lead to ambiguity, which can be defined as the property of being open to more than one interpretation. Reducing ambiguity requires clarification and agreement on objectives.

Ambiguity is often confused with uncertainty and, although the two are linked, they are different. Uncertainty is characterized by a lack of information—the decision is clear, but the predictability of the outcome is uncertain. Risk management is a good example of the management of uncertainty. In risk management, the aim is to look for additional data to identify risks using documentation reviews, information gathering, checklist analysis, assumptions analysis and expert judgment, among others, to develop the best risk responses to reduce uncertainty (PMI, 2013d, p. 319). Planning is also an uncertainty-reduction method—by breaking down projects into manageable chunks and estimating the resources required using historical data, the project manager clarifies the process by which the project will deliver its results.

Whereas, in the case of uncertainty, more and better information is key, in the case of ambiguity, information is not the key element and more information can even be detrimental as it may add confusion to the issue at hand. The other main difference between the two is that uncertainty diminishes as the program or project progresses and more information is gained; whereas ambiguity is cyclic: once an issue is resolved and agreement gained, ambiguity diminishes, but as results are delivered, a new issue may arise and once more increase ambiguity until it is resolved.
Figure 3 shows how ambiguity and uncertainty can be combined to map out OPM in organizations.

- **Operations** typically display **low ambiguity** because organizational management systems are usually not open to interpretation, and **low uncertainty** because of the repetitiveness of the process and results.
- **Projects** typically display a high degree of uncertainty at the beginning and should have a low degree of ambiguity since the charter clarifies the goals and outputs.
- **Portfolios** should have a **low degree of uncertainty** as the information and data necessary to select the best initiatives is readily available through a business case. However, portfolios have a high degree of ambiguity, as many possible alternatives to meet the strategic intent are open to interpretation and usually subjected to at least some of the human factors listed in the beginning of this section.
- On the other hand, **organizational strategies**, and the programs that deliver them, are typically subjected to **high ambiguity, high uncertainty and turbulence**. High ambiguity is triggered by the need to make choices from many possible alternatives. High uncertainty results from the lack of sound data to support decisions. And turbulence produces a program environment that is constantly changing.

For example, there may be many ways to open up to a new market: the company could develop new tailored products; it could build new manufacturing facilities; or, it could modify existing products and ship them from their existing facilities. These multiple options, and the choices that need to be made, trigger ambiguity. At the same time, the company may not have a lot of information concerning this new market. Because the company’s leaders know their competitors are also planning a move, they need to make their decision without all the data they would hope for. This triggers uncertainty.
Programs also expand into other areas of the diagram since they have to incorporate both project and operational components to ensure the program’s benefits are delivered. The program management domain that is most subjected to high uncertainty and high ambiguity is the definition phase, because at that point there is little information available and many possible avenues for the program to develop. Because ambiguity is cyclic, it will also affect the benefits delivery phase of the program as issues arise that require resolution during transition and integration.

Before continuing, it is necessary to clearly establish that programs and projects are meant to deliver change and renew the organization, whereas portfolios are meant to ensure the continuity of organizational performance.
Understanding Change in OPM

Burke (2011), in his book *Organization Change: Theory and Practice*, identifies four schools of thought for organizational change, two of which are relevant for this paper:

1. **Lifecycle change**: A linear sequence of prescribed stages.
2. **Teleological change**: A sequence of goal formulation, implementation, evaluation and adaptations to achieve a desired end state.

Burke (2011) further argues that most real-life change processes imply more than one of these concepts and managers should allow for dynamism of the system. This is especially true in complex situations. For example, if a company decides to restructure some departments to improve its overall performance (teleological change), the company will likely follow a known change method that prescribes a number of specific steps to complete the process (lifecycle change). Most change concepts currently used in organizational change—such as Lewin’s “Unfreezing-Moving-Freezing” model, Kotter’s “8-step” model or Prosci’s “ADKAR” model—are based on a lifecycle approach. The belief is that the steps of a linear process, if applied correctly, will lead to the expected result.

Both *The Standard for Program Management* (PMI, 2013c) and *Managing Change in Organizations* (PMI, 2013b) favor a teleological, or goal-based, approach, which is embodied by the focus on business benefits. In complex situations, the teleological approach is probably the most fitting because it capitalizes on the capability of programs and projects to deliver results and benefits while allowing for a cyclic adaptive realignment process. In both publications, the program and change process allows for adaptive change between major stages and for continual realignment within those stages. Many of the processes are run in parallel, thus allowing progressive development through continuous interfacing between activities.

For example, an organization wants to improve its project performance and launches a program to do so. The program comprises training, standardization of methodologies and the creation of a project management office (PMO). The PMO is created first and tasked with the training and standardization, but existing managers see the PMO as a threat to their own authority. Under the circumstances, the CEO decides to disband the PMO and revert to building a common practice based on existing organizational project practices, then train personnel before finally re-launching the PMO when project management becomes part of the culture.

Innovation and change are fundamental capabilities in organizations that aim to consistently build transient competitive advantages (McGrath, 2013). The concept of “transient competitive advantage” means that organizations remain ready to change so they can adapt to new, emergent situations faster than their competitors. But, for this to happen, change management has to be embedded in the organization’s culture as an ongoing competence (Combe, 2014a). A well-integrated OPM system is the best way to achieve this.
Broadening of PM practice into OPM

As stated above, a number of factors have contributed to the increasing complexity of today’s organizational context. The same factors have influenced the evolution of the project management community’s practice from a process-based, results delivery approach to a broader OPM approach, which relies on the combined capability of portfolio, program and project management to execute strategies from investment/selection to operations. Some of them are identified in *Navigating Complexity* (PMI, 2014a), for example:

- A **constantly evolving scope** that requires a prospective (goals/benefits/deliverables) as well as the more traditional retrospective (baseline) view.
- The **multiplication of stakeholders**, which has created a need for increased engagement and representation of stakeholders during the whole project process; not just initiation, planning and reporting.
- The **effect of globalization on communications** that has allowed for larger, more dispersed, culturally diverse, and more competent project and programs teams.
- All of the above have also created **increased levels of risk** and propelled risk management to the forefront of practice.

To be able to master change in complex situations, managers need a thorough integration of all of these elements into a dynamic and consistent organizational system where strategy, portfolio, program, project and operations management are well assimilated and synergetic. The change management approach described in *Managing Change in Organizations* (PMI, 2013b) supports this approach.
How Good Change Management Can Help

A number of the integrative elements mentioned above are covered in the *Managing Change in Organizations* (PMI, 2013b), and directly address issues raised in *Navigating Complexity* (PMI, 2014a). Change management can help practitioners deal with elements of complexity in projects, programs and portfolios and, consequently, in OPM.

**Change readiness and organization preparation**

*Navigating Complexity* (PMI, 2014a) states that “before embarking on a program or project with high levels of complexity, organizations should conduct a resource gap analysis comparing available resources with those needed […] many high-performing organizations also conduct a skills assessment to aid in assignment of program or project managers” (p.7). *Navigating Complexity* (PMI, 2014a) focuses on assessing the competence, experience and expertise of resources before they are assigned to the project or program, which is essential. In a change context though, managers should also assess the readiness of the organization’s structures and people to receive and integrate the change on an ongoing basis as the change is implemented and assimilated.

*Managing Change in Organizations* (PMI, 2013b) outlines three key elements to address these issues:

1. The first is **ongoing communication, consultation, and representation of stakeholders** and the handling of these tasks through the **conducting of sensemaking activities** from the very start of any program or project up to transition and integration to measure benefits realization. The purpose of sensemaking in particular is to identify and agree on stakeholders’ needs and expectations. It consists of all the activities that ensure a good understanding of the benefits and impact of the change on individuals and groups during the change and after its realization. Successful stakeholder engagement and active commitment is key to successful change.

2. The second is **change formulation** and planning that is comprised of an assessment of the readiness of the organization for change. (The concept of assessing readiness is further developed in the paper *Change Readiness: Focusing Change Management Where it Counts* (Combe, 2014b).) The process includes consultation with the sponsor and the managers of the entities that will be affected by the change so that they can identify the best ways to integrate the change in the business. The process also maintains acceptable performance levels within the organization during the change process and until the end of the transition period, after which performance is expected to rise.

3. Finally, the **change implementation** includes preparation of the organization (i.e. the people who will be affected by the change) and **mobilization of the stakeholders**. This means that on an ongoing basis, the organization’s people and systems are prepared for the new reality using data collected from the change readiness assessment. This process increases the readiness of the organization and its people and enables the program or project manager to address any emergent issues as they arise. Successful change does not just consist of assigning the right people to the project and program teams, but also of identifying the right change agents—those who will support the change in their different roles during implementation and transition.
Change readiness and organization preparation also include making the right choice of change integrators whose skills can have a significant impact on an organization’s ability to successfully deliver the change benefits. The integrators are expected to be competent in the three areas of capability identified in *Navigating Complexity* (PMI, 2014a):

1. **Leadership skills**: The skills required to lead teams of diverse and often powerful stakeholders into an uncertain future.
2. **Strategic and business management skills**: The basic skills required to understand business issues and how to generate value.
3. **Technical project management skills**: The basic skills required to understand project, program and portfolio management and lead project and program teams.

As leadership skills have been moving steadily from explicit structures and systems knowledge to implicit people and culture knowledge, typical skills required to lead change in complex environments now include: adaptability, collaboration, a resilient mindset and reflective thinking. To these one could add networking skills, political acumen and influencing skills as well as recently acknowledged leadership skills like improvisation, trust, creativity, intuition and charisma. All these skills foster a learning behavior essential for successful change.

As part of the preparation for change, it is particularly important to engage the sponsors. PMI’s *Pulse of the Profession®* (PMI, 2014b, p. 13) report noted that change management practices and active sponsors are key elements of success. One of the roles of the sponsor in the management of change in a complex context is to set up a constructive and dynamic governance system. Contrary to general practice, governance is not just about controls and reporting processes; governance is a leadership issue. The Organization for Economic Co-operation and Development in *Principles of Corporate Governance* (OECD, 2004) states “Corporate governance […] provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined” (p. 11). In OPM, this could be translated as leadership, commitment and monitoring.

- **Leadership** to define, clarify and hold the vision and mission of the change, especially the purpose and objectives of the future state.
- **Commitment** to provide the means to achieve the vision through sufficient support, resources, structures and especially time, as well as the flexibility to adapt to changing circumstances.
- **Monitoring** of results on an ongoing basis, but also openness to realign the vision and mission with regard to results obtained and their effect on the organization and its people.

Some of the collaborative factors defined for the sponsor in *Navigating Complexity* (PMI, 2014a) are the “utilization of change management practices to better adapt to new emerging situations and conditions” and the “investment and support of interdepartmental, cross-professional collaboration and multidisciplinary project team integration” (p. 5), which are totally aligned with the above definition. Another aspect mentioned is the “ongoing communication between the program or project sponsor and the program or project manager” (p. 5), which leads into the next topic.
Ongoing stakeholder representation and sensemaking

Navigating Complexity (PMI, 2014a) establishes that “collaboration between senior management and the program or project manager is an important enabler for the successful outcome of programs or projects with a high degree of complexity” (p. 5). As indicated in the previous paragraph, one of the key aspects for the success of any project, program and portfolio management initiative is the ongoing collaboration, not only with the sponsor, but also with all the involved stakeholders.

The “complexification” of project, program and portfolio management endeavors and the increase in the number and impact of stakeholders in the management of projects, programs and portfolios has led PMI to identify and develop stakeholder management as a distinct knowledge area in the PMBOK® Guide (PMI, 2013d) and to identify stakeholder engagement as one of program management’s five performance domains, along with lifecycle management, governance, strategic alignment and benefits management in The Standard for Program Management (PMI, 2013c). Managing Change in Organizations (PMI, 2013b) identifies the process of stakeholder representation as a more complete form of stakeholder management, participation or engagement. Through this concept, it conveys that stakeholders need to be communicated “with” instead of communicated “to”. The concept of representation means that stakeholders not only participate, but are an active part of the ongoing decision management process where decision management includes both the making and successful implementation of the decision. In fact, a large proportion of the processes described in Managing Change in Organizations (PMI, 2013b) involves stakeholder representation as depicted in Figure 4.

1. **Formulate change** consists of aligning the objectives with stakeholders’ needs and expectations. This involves actively identifying and mapping the stakeholders and eliciting their needs and expectations by:
   - Assessing the need for change, which involves assessing the readiness of the people that are impacted by or needed for the change.
   - Delineating the scope of change, which means clarifying the expected outcomes of the change, based upon agreed objectives and defining the extent and activities needed to transition and sustain the change that are often outside the project’s scope.

2. The **plan change** phase includes the following three steps necessary to integrate people and cultural issues into the overall plan.
   - Defining the change approach, which means aligning the change approach with the culture of the organization.
   - Plan stakeholder engagement, which consists of identifying and engaging all stakeholders, internal and external, affected by or interested in the outcomes, and plan for their ongoing involvement.
   - Plan transition and integration, which requires the design of a plan that includes all the activities necessary to achieve objectives and integrate with business operations. This requires good communication with the change recipients in order to clarify their needs in terms of transitions and integration.

3. The guide also clarifies the fact that **implement change** is an iterative process. In particular it points to:
   - Preparing the organization for change, which includes identifying areas where specific support is required and implementing the needed support activities. This aspect mostly concerns the change recipients’ preparation for the delivery and transition of project outputs.
Organizational Business Strategy

Current State

Business objectives

Formulate Change

Identify/clarify need for change

Assess readiness for change

Delineate scope of change

Plan Change

Define the change approach

Plan stakeholder engagement

Plan transition and integration

Implement Change

Prepare Organization for change

Mobilize stakeholders

Deliver project outputs

Manage Transition

Transition outputs into business

Measure adoption rate and outcomes/benefits

Adjust plan to address discrepancies

Sustain Change

Ongoing communication, consultation, and representation of stakeholders

Conduct sensemaking activities

Measure benefits realization

Future State

Adaptive Change

Realized Value

Need for Time

Figure 4: Change Life Cycle Framework
- Mobilizing stakeholders, which is a key aspect of the success of change in a complex environment. It consists of keeping them continually informed and encouraging them to actively participate in decisions impacting the change.

4. The **manage transition** phase consists of linking the project results with the operations and making sure they are integrated. More specifically, it consists of:

- Measuring the adoption rate of the change into the business, which means consulting with the change recipients and measuring performance results.
- Adjusting the plan to address discrepancies, which requires a constant communication with stakeholders so that evolving circumstances can be identified early and that any change addresses real issues corresponding to the current needs of the organization, but also is in line with stakeholders’ expectations.

5. **Sustain change** requires ongoing stakeholder representation and sensemaking. It is important to note that these activities are not limited to this phase, especially in a complex environment where multiple stakeholders, often with differing views, require constant attention.

As seen above, representation involves the full, active participation of at least the key stakeholders; these are typically the governance board, the sponsors, the program or project team, the change lead, the change integrator (often a representative of change recipients), the change agents and the change recipients. *Navigating Complexity* (PMI, 2014a) maintains “it is important that practitioners [of program and projects in complex environments] be experienced in leading change and that change be managed using appropriate, organizationally approved processes” (p. 28). Whereas in traditional program and project situations, instability triggers a natural tendency to exert a greater degree of control over the team and the processes, in complex environments, practitioners should be able to allow for divergent thinking and empower team members. This requires strong and active sponsorship where goals and objectives are shared and senior managers do not fear to review and make decisions regularly. It also requires flexible leadership where managers can adapt their leadership style to changing situations and stakeholders. Sensemaking can help achieve this.

In *Managing Change in Organizations* (PMI, 2013b), sensemaking is defined as: “The conversational and social practices that enable individuals and groups to make sense of what is happening around them” (p. 121). The concept of sensemaking in organizations was initially defined by Weick (1988) who identified it as the need for people to individually and collectively make sense of the consequences and impact of a change before they can embrace it. Based on this concept, he also distinguished between sensemaking in uncertain and in ambiguous situations, warning against the tendency to want to collect more data in an ambiguous situation, where too much information could increase ambiguity instead of helping to reduce it.

In organizational change, sensemaking activities are all the activities that take place to enable change recipients and change agents to understand the issues at hand, voice their concerns, identify possible solutions and, finally, collectively agree to the change purpose, objectives and process. In a complex project or program situation, the objective of these sensemaking activities is first and foremost to **reduce ambiguity** by engaging stakeholders to disclose and discuss their expectations in order to clarify and agree goals and objectives; and only then, to **reduce uncertainty** by encouraging them to share and consolidate data to help plan and refine the implementation process—an undertaking where the application of value management is useful.
Value management (VM) is: "A structured, multidisciplinary team decision-making process developed to increase the satisfaction of the needs of diverse stakeholders while optimizing the resources used to meet those needs" (PMI, 2013b, p. 71). When sensemaking is combined with VM methods, the controlled interactions of the VM process help deal with sources of complexity that may arise from changing power relationships, political influence, and different individuals' experiences and perspectives in a time-effective and focused way (Thiry, 2013). These human behavior factors, if not well managed, can hinder the disclosure of expectations and the consolidation of goals and objectives. When sensemaking is embedded in a VM process, it gives the manager of the program or project a powerful creative method to influence these attitudes and control interplays to find creative solutions that are both aligned with the goals and achievable in the context of what Navigating Complexity (PMI, 2014a) has defined as human behavior complexity.

Sensemaking, especially when applied within a VM framework, also fosters a critical thinking process, which Navigating Complexity (PMI, 2014a, Section 7.1) considers an important aspect of dealing with complex situations. Traditional learning, as promoted in project management practice consists of preparing lessons learned at the end of a project or program; this is what Navigating Complexity (PMI, 2014a) defines as "learning from the experience" (p. 29). On the other hand, it also defines "learning in the experience" (p. 29) as the ability to reflect on recent events and actions during the project or program management process. This process requires an ongoing and cyclic reflection process, which is encouraged in Managing Change in Organizations (PMI, 2013b).

**Change as a cyclic process**

One of the important aspects of complexity is that “the causes and effects of complexity change throughout the life cycles of programs and projects. Therefore, actions and approaches will need to change accordingly” (PMI, 2014a, p. 62). Navigating Complexity (PMI, 2014a) recommends using ongoing brainstorming sessions to identify areas of complexity and find potential solutions to any issue uncovered. Sensemaking activities will help accomplish this by getting the key stakeholders together to reflect on the evolving circumstances of the situation and how to best deal with the change. Managing Change in Organizations (PMI, 2013b) recommends a number of methods, including VM, to reach agreement on what the critical success factors of the change will be and how achievement will be measured (Table 5-2, p. 71). The use of value management's sensemaking, ideation and elaboration process (Thiry, 2013) is a good example of how sensemaking and brainstorming can be combined to resolve complexity in a change situation.

As seen earlier, OPM favors a teleological approach to change. This approach is ideal for dealing with complex situations, especially those involving human factors. It is worth spending some time understanding how goal-setting motivation theories support this approach and have been applied to the change process described in Managing Change in Organizations (PMI, 2013b). Goal-setting motivation theories are based on three principles:

1. Goals must be meaningful.
2. Goals must be achievable.
3. Progress toward the goal can be measured.

Navigating Complexity (PMI, 2014a) recommends that, in complex situations, “the iterative assessment of ongoing programs and projects coupled with the application of critical thinking skills […] should improve the likelihood of success in navigating complexity” (p. 64). Goal-setting theories of motivation support the critical thinking aspect of this statement by making sure goals are continuously meaningful, achievable and that
progress is regularly measured. Their application in support of the process described in *Managing Change in Organizations* (PMI, 2013b) enables the iterative assessment of the change. More specifically:

- The initial identification and clarification of the need for change, delineation of the scope of the change and planning of stakeholder engagement, as well as ongoing communication, consultation and representation of stakeholders, are all meant to make sure that goals are meaningful to all the stakeholders, particularly those who are most influential.
- The assessment of readiness, defining of the change approach and planning of the transition and integration are meant to assess the achievability of the change.
- Finally, the sensemaking activities, measurement of adoption rate and outcomes/benefits and measuring of benefits realization will provide the necessary data to measure and share progress toward the goal and objectives of the change or to realign if necessary.

But the main point for complex situations is that this whole process be cyclic and supported by adaptive change and critical thinking, which will include constant realignment of objectives and adjustment to the plan.

*Navigating Complexity* (PMI, 2014a) views the role of the program or project manager as an integrator—more significantly so in a complex environment. *Managing Change in Organizations* (PMI, 2013b) emphasizes the importance of integrating not only the elements of the project or program, but the change within the business. It defines the function of integrator as that of the person “responsible for the preparation and integration of the change into the business” (p. 11). It also adds that “integrators may break down wide-ranging or complex change initiatives into groups of activities by business area” and that they need “to ensure that diverse work processes remain aligned to the overall objectives” (p. 11).

The integrator’s role is an essential element in mastering the increased probability of success of change among interconnected components found in complex situations. The cyclic and iterative nature of the change process requires that the integrator be involved from the beginning of the process and constantly feed the project/program management team with relevant data to help it review and update the change requirements as the situation evolves, and to adjust the implementation and transition process accordingly. The project or program manager cannot undertake the integrator’s role in complex change, as it requires authority beyond that which he or she usually exercises. Integrators are typically functional managers, executives or other senior managers who have authority over the resources necessary to implement and sustain the change and have enough insider knowledge of the business to provide the project or program management team with the necessary data to continually adjust the process to changing circumstances.
Conclusion

As complexity and turbulence increase in the business environment, change management has become an essential competency for project, program and portfolio managers. This paper has aimed to show how good change management practice, as outlined in Managing Change in Organizations: A Practice Guide (PMI, 2013b), can help better manage change resulting from complex environments.

The most important points to remember are the following:

- Project management methods traditionally have focused on uncertainty reduction. Change management as a component of project, program and portfolio management, through its stakeholder-based approach, is an appropriate way to manage ambiguity.

- When managers are faced with both complexity and turbulence, they must balance the speed of decision with a search for alternate solutions. Sensemaking activities and a strong focus on stakeholder engagement help create a strong framework for managing change.

- Complex situations require not only a focus on results, but also on the means to achieve them. Change management helps balance alignment with objectives and the organization’s capability to achieve them.

- Many change models exist and can be divided into four schools of thought. The goal-based or teleological approach is the most appropriate for project, program and portfolio management.

- Finally, to be able to master complex situations, managers need a thorough integration of all the OPM elements into a dynamic and consistent organizational system, which the change management process described in Managing Change in Organizations: A Practice Guide (PMI, 2013b) offers.
References


