

# Chapter 1: Transforming individual learning into organisational change

IN THE rapidly changing knowledge economy, the only sustainable competitive advantage is an organisation's capacity to learn and adapt faster than its competition. Organisational learning is portrayed as a four-stage social process:

1. Individual learning (cognition);
2. Community validation (collaboration);
3. Organisational structuring (bureaucracy); and
4. Formal authorisation (decision-making).

Organisational learning is an investment that yields a return only when it results in changes to business processes or products (adaptation). Each stage represents a higher-order organisational process that does not scale directly from lower orders. This chapter uses an enterprise architecture approach to integrate unstructured social processes and structured technological applications related to organisational learning. It proposes a five-stage organisational learning/adaptation framework. Each stage incorporates a sequence of steps that describe a process or workflow, including the work being done, the person doing it, what is produced, and knowledge services that support the work. By understanding how individual learning is transformed into organisational change, organisations will be better able to compete and sustain themselves in the knowledge economy.

## Introduction

The long-term competitiveness and sustainability of businesses in the 21<sup>st</sup> century knowledge economy hinges on their capacity to adapt to an increasingly unpredictable and rapidly changing environment.<sup>1</sup> Organisational learning is an essential prerequisite to adapting to change. Learning must be embedded into every aspect of an organisation, ranging from the infrastructure, through the work environment, to strategic planning. The speed with which an organisation learns is critical to its competitiveness and sustainability. Many organisations use after-action reviews<sup>2</sup> and lessons learned<sup>3</sup> processes to transform learning into action. This chapter will demonstrate that, although these processes are both important and useful, the full range of organisational learning opportunities, and

the effort required to initiate organisation action, is both broader and deeper than such activities.

Organisational learning is primarily a social process involving individual and group interactions. In essence, individual learning must be encoded into organisational memory for an organisation to have learned.<sup>4</sup> In this chapter, it is proposed that the learning process can be structured as a four-quadrant framework (see Figure 1).<sup>5</sup>

1. The organisational learning framework begins with individual learning – a psychological/cognitive process in which individuals assimilate and accept new information or knowledge;
2. Individual learning is then captured and validated – a collaborative process – by communities of practice or other groups of experts to ensure its appropriateness and potential benefits to the organisation;
3. The learning is structured through bureaucratic processes by integrating it into the organisational infrastructure; and
4. The learning is approved for use in the organisation through a decision process.

Collectively, this framework represents ‘single-loop learning’ as described by Argyris and Schön in that it results in action within existing organisational processes and functions. Note that each quadrant includes an action that transfers the learning process to the next quadrant.

Argyris and Schön refer to organisational adaptation as ‘double-loop learning’.<sup>6</sup> Fundamentally, adaptation involves changes to organisational

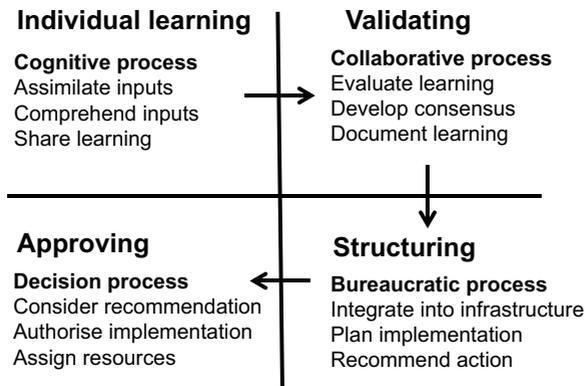


Figure 1: Organisational learning framework

outputs, strategies, or goals in response to organisational learning. Adaptation is often a response to a past occurrence, although it could also be in anticipation of a future condition. As the pace of global change continues to increase, anticipatory adaptation will become increasingly important:

1. The potential consequences of alternate strategies are analysed and compared;
2. A plan is developed to integrate validated learning into the organisational infrastructure by committees or task groups; and
3. The learning is implemented through an organisational change management process.

Adaptation includes monitoring trends to forecast changing environmental drivers or issues, evaluating their potential impact on the organisation and its programs, and implementing change.

This chapter uses an enterprise architecture approach to describe the transformation of individual learning into organisational action. Weill defined enterprise architecture as: 'The organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of a company's operating model... for delivering goods and services to customers.'<sup>7</sup> The underlying purpose of this work is to integrate inherently unstructured (social) and structured (technological) approaches to knowledge management in general, and organisational learning in particular. The architecture uses a core model involving: the work to be done; the person(s) doing the work; what is produced; and the services required to support the work.

This chapter describes a five-stage organisational learning / adaptation framework comprising:

1. Individual learning;
2. Validating learning;
3. Structuring learning;
4. Approving learning; and
5. Organisational change.

Each stage represents a higher-order process that does not necessarily scale directly from lower orders.

### **Individual learning**

Organisational learning begins with individual learning. This can be defined as acquiring new or modifying and reinforcing existing knowledge, behaviours, skills, values, or preferences.<sup>8</sup> Learning is not a one-time event, but occurs continuously over a lifetime of education, experience, and observation. It

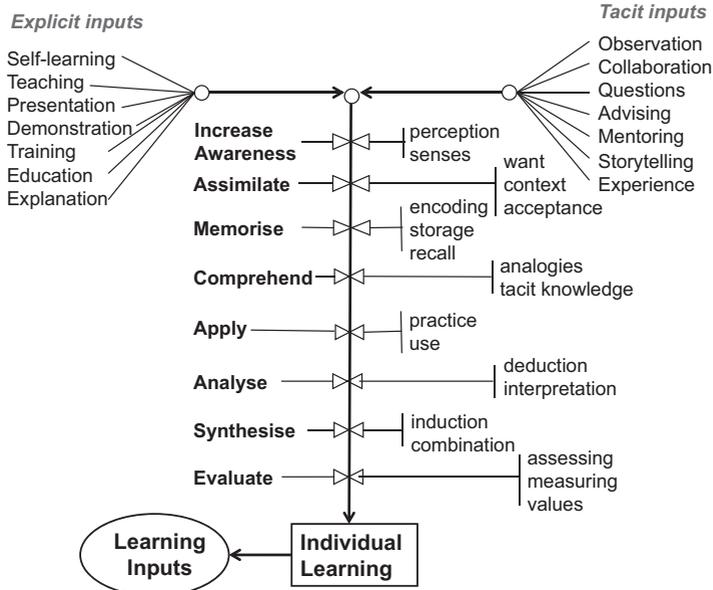


Figure 2: Individual learning (Adapted from Bloom, B. *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain*. New York: David McKay, 1956.)

typically follows a ‘learning curve’, comprising a steep initial rise, followed by an asymptotically decreasing rate of learning. Learning involves interpreting new information and knowledge in the context of what an individual already knows. Although many types of learning are recognised, this framework focuses on the cognitive domain.<sup>9</sup> Figure 2 shows Bloom’s six-step cognitive learning taxonomy of increasing depth of learning, expanded and adapted to the format and terminology of this chapter. Each of the (now eight) steps is briefly described below.

**1. Increase awareness** receives information about a fact, event, or process of interest to an individual. Individual learning begins by encouraging, facilitating, and supporting increased awareness of explicit and tacit knowledge from a variety of sources, with a variety of methods, supported by appropriate services. Inputs to the senses include being taught, storytelling, self-learning, observing, and experience. Awareness involves perception through one of the five senses: sight, hearing, touch, taste, and smell.

Table 1 lists several sources of knowledge and methods that can be used to increase individual awareness. The first column lists the source, the second column indicates the type of person(s) involved, the third column details methods of increasing awareness, and the last column lists technology services that could facilitate increasing awareness.

Source	Person/Group	Methods	Services
explicit	individual	reading, visual aids, audio recording, self-learning	sharing, library, email, repository, web portal
formal	teacher to student	education, teaching, training,	web portal, online courses
informal	speaker to audience	lectures, presentations, speeches, explanation, demonstration	web portal, online conferences, workshops, webinars
practical	technician to user	demonstrating, explaining, describing	web portal, video,
tacit	individual	observing, experience, shadowing, practice	work, activity, event
community	colleagues, peers, groups, communities	conversations, discussions, dialogue	collaboration
expertise	expert to novice	questions and answers, being told, conversation	expertise directory, blog, email, collaboration
advice	subordinate to superior	advising, briefing, recommending	office applications
direction	superior to subordinate	mentoring, guiding, showing, direction	office applications
narrative	teller to listener	storytelling, narrating, anecdotes	blog, wiki, personal page
experience	facilitator, group	after-action-review, lessons learned	web portal, online workshop

Table 1: Increase individual awareness

**2. Assimilate** couples a need, want, or willingness to learn with interpreting new information in the context of truth-acceptance criteria of perception,

authoritativeness, consensus, and coherence with what an individual already knows.<sup>10</sup> It is not necessary that information be initially accepted as 'true' for learning to continue. Executing a business process or implementing policy requires knowing how to do it, but does not require that an individual believe in or agree with it.

- 3. Memorise** encodes and stores information in the mind for future use. Encoding is receiving, processing, and combining received information. Storage is creating a permanent mental record of the encoded information. Recall is calling back the stored information in response to a need for it. Memorisation is supported by a variety of mental techniques such as repetition, mnemonics, or association.
- 4. Comprehend** grasps the significance, nature, or meaning of received information. Comprehension does not imply understanding and, consequently, this step of learning is not yet knowledge. This is the 'know what' or subject-matter step of learning. Comprehension is supported by techniques such as self-learning, explanation, or demonstration.
- 5. Apply** puts information to practical use, bringing it into action or putting it into operational effect. An ability to use information correctly is an observable indicator that it has been learned well enough to be useful from a practical perspective. This is the 'know how' step of learning in that a learner does not need to understand information to apply it. Applying is supported by techniques such as exercises, practice, and testing.
- 6. Analyse** uses deductive reasoning to differentiate, study, and interpret information to yield deeper or more precise meaning and understanding. Individual knowledge, in the form of 'understanding' begins at this step. Analysis, in the context of learning, occurs primarily in the mind of an individual, and it is supported by deductive reasoning and interpretation.
- 7. Synthesise** uses inductive reasoning to integrate, study, and interpret the collective functioning of many parts of a system as a whole to yield broader or higher-level meaning and understanding. Knowledge is fully formed at this step. Synthesis, in the context of learning, occurs primarily in the mind of an individual, and it is supported by inductive reasoning and combination.
- 8. Evaluate** appraises, assesses, and judges what has been learned in the context of its viability, usefulness, and value. This is the step at which an individual's truth acceptance criteria are applied and factual knowledge becomes psychological knowledge. This is the 'know why' step of learning.

Table 2 provides a process framework for individual learning, including the type of learning, the type of person, inputs to and outputs from each step, and associated cognitive processes. Learning occurs in the mind of an individual rather than being provided by the organisation as a form of service.

Learning	Person	Input/Output	Cognitive process
increase awareness	individual, teacher, presenter, coach	information source / information input	perception, senses
memorise	Individual,	memorised information	encoding, storage, retrieval
comprehend	individual	information in context	tacit knowledge, analogies, examples
apply	individual, teacher, coach	practical information	practice, use, examples
analyse	individual	functional knowledge	deduction, interpretation
synthesise	individual	holistic knowledge	induction, combination
evaluate	individual	knowledge value	assessing, measuring, context

Table 2: Individual learning framework

## Validating learning

Just as individual learning involves inputs from many sources, organisational learning involves inputs from any business unit (such as marketing, product development, or production) from across the organisation. Potential sources of learning must be identified, the learning captured, validated, and stored for subsequent structuring in an organisational context.

Validation involves determining the extent to which learning inputs have been interpreted correctly, are relevant, can be adapted to the organisation, and are likely to provide benefits that exceed the cost of organisational change. This is equivalent to a scientific peer review, except that it is undertaken by a community of practice, structured committee, or assigned task group. The central idea is to review and evaluate learning from a variety of perspectives to ensure that the positive and negative implications have been fully considered in a broad organisational context. Validated learning is more robust than individual learning. Consequently, recommendations coming from a group of experts carry more weight than those coming from an individual and are more likely to result in action. Validation involves five steps: identify, capture, validate, document, and store (see Figure 3).

- 1. Identify** finds or discloses potential organisational learning. Identification can be done in three ways:

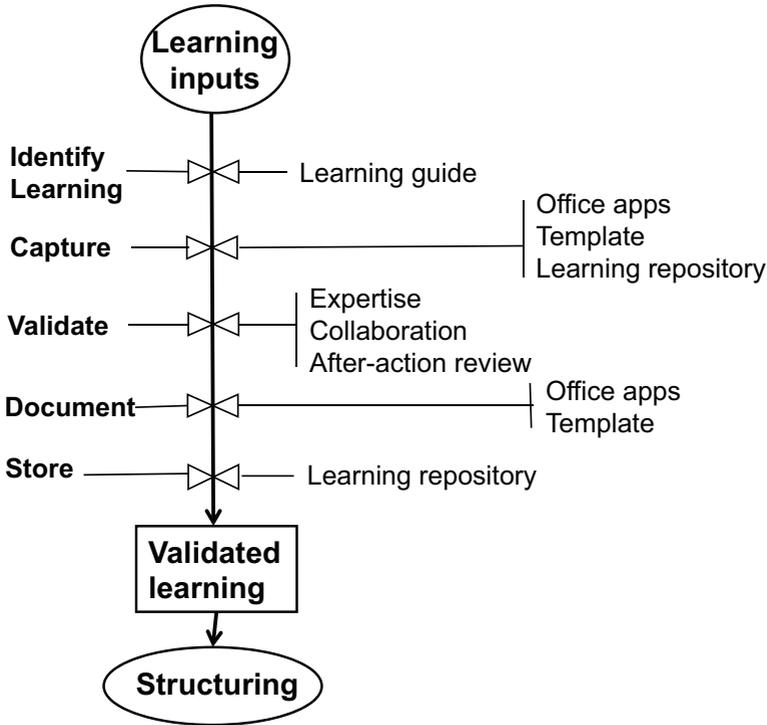


Figure 3: Validating learning

- i. An individual could submit something that they have learned as being of interest to the organisation;
- ii. The person responsible for organisational work, such as innovation, production, or corporate reporting could identify an output of their work as having broader organisational interest. In this case they would prepare a brief report that identifies and stores potential learning in a learning repository; and
- iii. A learning input process could scan various operational repositories to identify potential sources of organisational learning.

**2. Capture** elicits, acquires, or compiles content that describes potential organisational learning, transforming it into coded explicit form, such as a document, report, or learning template, and storing it in reproducible and

accessible media. Capturing could be supported by office applications, learning templates, lessons learned, and a learning repository.

- 3. Validate** determines the extent to which individual learning represents potential value to the organisation. It is typically based on characteristics, attributes, or standards that support evaluating, judging, and deciding that individual learning is appropriate for organisational purposes. A significant activity or event could be followed by a formal after-action review that captures and validates experiential learning. Validation could be supported by a directory of expertise, a collaboration site, and after-action review.
- 4. Document** prepares a report that describes what was learned, provides a context of the current situation, outlines the organisational costs and benefits of implementing the learning, and recommends that a plan be developed to embed the learning into the organisational infrastructure. Documentation could be supported by office applications and a learning template.
- 5. Store** organises and places the learning report into a learning repository to enable consideration by the structuring stage of the organisational learning process. Storing could be supported by a learning repository.

Table 3 provides a framework for validating organisational learning. It shows the work to be done, the person or group involved, inputs to and outputs from each step, and services that support the work.

<b>Work</b>	<b>Person/Group</b>	<b>Input/Output</b>	<b>Services</b>
identify learning	work leader, manager, learning coordinator	work output / learning input	learning guide
capture	work leader, manager, learning coordinator	captured learning input	office applications, learning repository, learning template lessons learned
validate	community of practice	validated learning input	collaboration site, expertise directory after-action-review
document	learning coordinator, author	learning report	office applications learning report template
store	learning coordinator, content manager	stored learning report	learning repository

Table 3: Validating learning framework

## Structuring learning

The next stage of organisational learning is to integrate the learning into every aspect of the organisational infrastructure affected by the change. This may require adapting the infrastructure to accommodate the learning, adapting the learning to fit the infrastructure, or, more likely, a combination of the two. This would generally be done by a traditional committee, task group, or work group comprised of representatives from each unit of the infrastructure that would be affected by the proposed change. The organisational infrastructure comprises five major components: governance, people, processes, technology, and content (see Figure 4). Although each component has a distinct set of functions and tasks, they all interconnect, so that changing any one component will likely require some adjustment to the others.

Structuring determines what must be done to incorporate learning into each component of the infrastructure. The focus is on planning. Structuring begins by identifying what should change, developing a consensus on the appropriate level of effort, and negotiating balanced change among the five infrastructure components. It continues by planning, documenting, and recommending the proposed change.

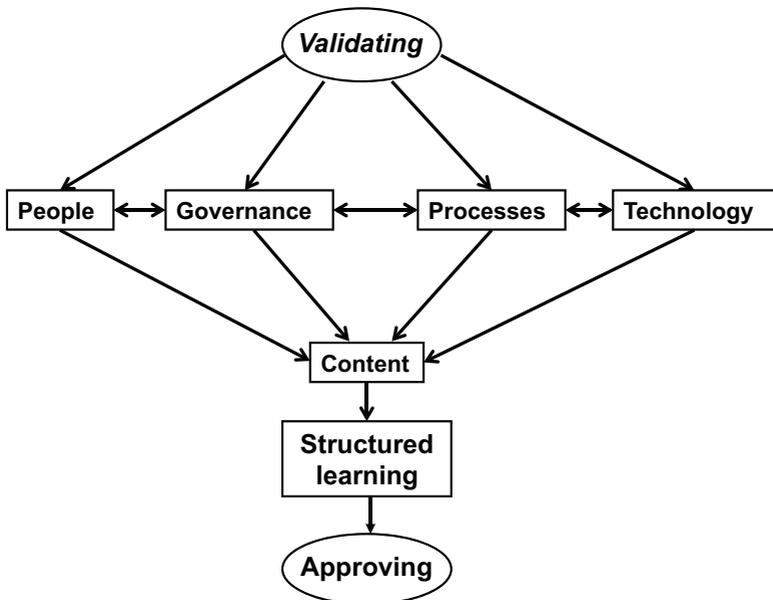


Figure 4: Structuring learning overview

- 1. Governance** is strategic, management, and operational authority, accountability, responsibility, and decision-making. Learning will have to fit within the context of existing governance and management processes. This may require negotiation between functional and business units. It will require producing authoritative documents such as policies, rules, directives, and guidelines as well as assigning responsibility and allocating resources for implementation and operation.
- 2. People** perform information and knowledge work. They use work process and technology within a governance structure to increase the value of content and produce knowledge-based products and services. Knowledge is a human construct, and knowledge work can only be done by people. Consequently, people are the core of any knowledge organisation. Integrating learning with people is supported by social structures (e.g. trust, relationships, and engagement) and human resource transactions, (e.g. job descriptions, performance evaluation, and supervision).
- 3. Processes** are sequential or continuous phenomena, activities, or flow that gradually lead to a particular result or end state. This framework includes process diagrams and associated tables that describe work related to organisational learning. Processes include what work is done, who does the work, what services support it, and what are the inputs and outputs of every step. Learning will either have to be adapted to existing work processes, the processes will have to be adapted to what was learned, or most likely both will change somewhat to meet somewhere in the middle.
- 4. Technology** is systems, tools, and techniques used to: manage content, run the organisation, support knowledge work, and enable collaboration in a digital environment. Information technology includes computers, applications, systems, communications, and networks. Technology provides an essential underpinning for all aspects of running an organisation and doing knowledge work. Learning will either have to be integrated with the technological infrastructure or the infrastructure will have to adapt to what was learned.
- 5. Content** is a pattern, message, or signal contained in data, information, or knowledge that can be used, transformed, or transferred. Content management is acquiring, organising, preserving, and providing access to content. The other four components of the infrastructure exist to embed, advance, or extract value from content. Just as learning will affect some components of the infrastructure, some adjustment will be needed to the content that is produced by those components and how it is managed.

## Approving learning

Approval is a formal expression, endorsement, or mandate from a higher authority to undertake a task, activity, project, or program. Although approval is often portrayed as just another step in a workflow, it is the most important stage of the organisational learning process. It is not uncommon for approval to take weeks or months after recommendations are submitted. It may involve many discussions, presentations, and much negotiation. If the learning is approved for use, then the time, effort, and funds expended from the very beginning to this point will yield organisational value in proportion to the benefits of implementation. If the learning is not approved, then the time, effort, and funds become a cost with no return to the organisation.

The boundary between structuring and approving is not well defined. When change involves multiple groups or functions, change is more complicated and preliminary planning may be needed to provide executives with sufficient information to approve full-scale planning and assign others to participate in the planning process. In such cases, preliminary approval (in principle) is followed by a second approval (or not) to implement the completed plan. Conversely, when a proposed change falls within the responsibility of a particular function or group, the group manager may simply authorise the change and the remaining steps are skipped. Structuring and approving are combined in Figure 5. Each step is briefly described below:

- **Identifying changes** involves examining each component of the infrastructure by those responsible for the component. Examination results in a list of the implications of the proposed changes and the effort required to implement them. Identification is supported by a directory of expertise, policies, standards, manuals, and operating guides.
- **Developing a consensus** balances the cost and effort required to make the changes with their benefits. It also ensures coordination of the effort required for any component with that of other components. Developing a consensus is supported by collaboration and negotiation.
- **Planning** develops a document that describes how the agreed changes will be implemented. It specifies responsibilities, resources, methods, and procedures to be followed as well as milestones and deliverables. Planning is supported by planning applications.
- **Documentation** involves preparing written or multimedia documents that describe how the learning will be incorporated into the organisational infrastructure. Documentation is supported by office applications and document templates.
- **Recommendation** proposes a management decision that authorises implementing the proposed learning. Recommendations are supported by office applications and a submission template.

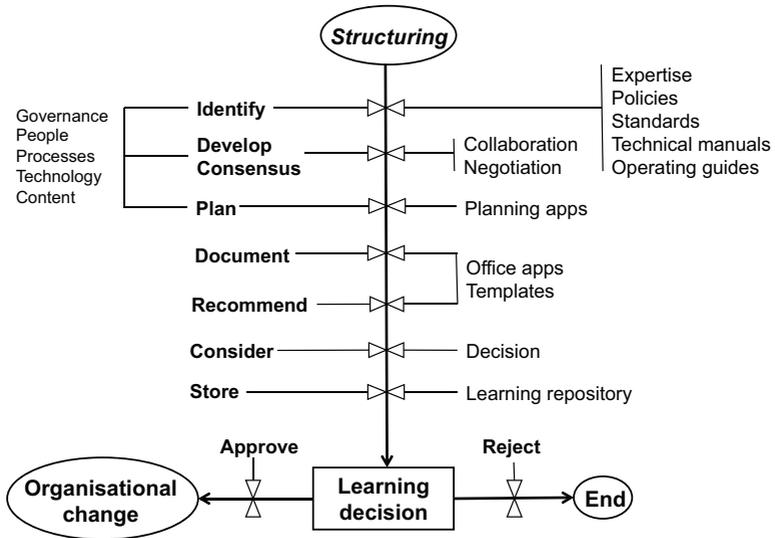


Figure 5: Structuring and approving learning

- **Consideration** decides whether or not learning will be embedded into the organisational infrastructure or its knowledge products and services. While individual learning stems from a desire to learn, organisational learning requires approval to be transformed into action. If the recommendation is approved, learning advances to organisational change. If it is not approved, organisational learning ends.
- **Storing** in a learning repository makes the implementation decision and plan available for subsequent application. Storing is supported by a learning repository.

Table 4 provides a service framework for structuring and approving organisational learning. It identifies the work being done, the person doing it, inputs to and outputs from each step, and services that support the work.

### Organisational change

During the industrial era, change tended to be slow, gradual, and linear; it could be readily absorbed by organisations and individuals. This is no longer the case. Today, change comes quickly, a new wave crashing before the previous one has abated.<sup>11</sup> We now understand that the key obstacles to change are social rather than technical. The technical aspects of change

<b>Work</b>	<b>Person/Group</b>	<b>Input/Output</b>	<b>Services</b>
identify changes	work leader, technical specialists	potential learning / necessary changes	expertise directory, policies, standards, technical manuals, operational guides
develop consensus	work leader, technical specialist	agreed changes	collaboration, negotiation
plan	work leader, technical specialists	implementation plan	planning applications
document	author, work leader, technical specialist	planning report	office applications planning template
recommend	manager, champion	change recommendation	office applications recommendation template
consider	decision makers	approved changes	decision making
store	author, content manager, learning coordinator	stored planning report	learning repository

Table 4: Structure and approve learning framework

have been addressed in the validating and structuring stages of organisational learning. This section focuses on the social aspects.

There is a substantial body of literature on organisational change and adaptation. The key point is that change must be actively planned and orchestrated; simply letting it happen is unlikely to succeed. Morgan argues that following best practices is not enough; it is also necessary to anticipate change and position an organisation to meet new challenges.<sup>12</sup> Kanter et. al describe a 'big three' framework for change: forces that drive change, types of change corresponding to the driving force, and tasks involved in managing the change process.<sup>13</sup> Smye and McKague indicate that change must take place at three levels: the organisation, groups, and individuals.<sup>14</sup> Hamel describes the need for nonlinear thinking, sources of radical innovation, starting the change process, and sustaining the change.<sup>15</sup> Finally, Kotter presents an eight-step framework for implementing change.<sup>16</sup> Although there is general similarity in the various change frameworks, Kotter's eight steps seemed most appropriate to this framework and it forms the basis of this section.

Once a lesson has been learned, validated, structured, and approved, the change process begins by creating a sense of urgency, establishing a coalition

of supporters, and developing a change strategy (see Figure 6). This is followed by engaging people and empowering them to act. The changes are then implemented and integrated into the organisational infrastructure. Finally, the changes are institutionalised through policies, practices, and cultural norms.

**1. Creating urgency** is generally seen as a necessary prerequisite to implementing change. A need for change may actually be urgent or a sense of urgency may have to be created. Change is generally difficult, often messy, and sometimes painful, even when it promises a better end state. Most people will not be inclined to change unless the pain of



Figure 6: Organisational change<sup>17</sup>

changing (whether real or perceived) is less than the pain of not changing. This step is supported by leadership and change management.

- 2. Establishing a coalition** involves selecting a guiding team with credibility, skills, connections, reputations, and authority necessary for leading the change effort. The team must be collectively strong; team members must trust each other and be fully engaged. This is also supported by leadership and change management.
- 3. Developing a strategy** begins with a clear, realistic, and uplifting vision and goals. It also includes plans and resource requirements needed to accomplish the goals within a (sometimes short) time frame appropriate to the rate of change that is needed to keep pace with its drivers. This is supported by collaboration and decision-making.
- 4. Engaging people** goes beyond simply disseminating the change message to raise awareness. It also includes inducing an understanding of the change, developing a consensus that change is necessary, soliciting commitment from a critical mass of employees, and creating a sense of excitement and energy. It is important that the message is repeated frequently and that management's actions match their words. Engagement is supported by communications and social structures.
- 5. Empowering action** is more about removing obstacles to change than relinquishing power. Obstacles include managers who disempower their subordinates, infrastructure and systems that require inordinate effort, and inadequate individual self-confidence. Removing obstacles to change enables action, reduces frustration, and promotes rather than undermines change. Empowerment is supported by governance and change management.
- 6. Early success** provides credibility, attracts additional resources, and builds momentum, which leads to subsequent success. Slower, less visible or more ambiguous results provide an opportunity for cynics and sceptics to derail the change effort. It is necessary to carefully select initial projects to result in some 'quick wins'. Early successes are supported by change management and information technology.
- 7. Maintaining momentum** means that good change managers do not let up. They consolidate and build on early success, creating wave after wave of change until the vision is realised. Change managers do not try to do too much at once or unknowingly quit too soon and let momentum slip to the point of becoming bogged down in organisational processes. Maintaining momentum is supported by change management and information technology.
- 8. Institutionalising change** focuses on embedding the change into the organisational culture. Norms of behaviour and shared values

<b>Work</b>	<b>Person/Group</b>	<b>Input/Output</b>	<b>Services</b>
create urgency	change manager, leader, change agent, manager	approved learning/ sense of urgency	change management, leadership
establish coalition	change manager, leader, change agent, manager	guiding team	change management, leadership
develop strategy	change manager, leader, change agent, manager	change strategy	change management, collaboration, decision
engage people	communicator, leader, change manager	engaged employees	communication, social structure*
empower action	leader, manager	empowered employees	governance, management
early success	change manager, manager, specialists, knowledge workers	initial change	change management, information technology
maintain momentum	change manager, manager, specialists, knowledge workers	sustained change	change management, information technology
institutionalise	leader, manager, change manager	organisational change	social structure, <sup>18</sup> governance

Table 5: Organisational change framework

are developed through consistent successful action over a sufficient period of time. Appropriate rewards, new employee orientation, and continuing engagement gradually overcome the initial fragility of change. Institutionalisation is supported by social structures and governance.

Table 5 provides a process framework for organisational change. It identifies the work being done, the person doing it, inputs to and outputs from each step, and services that support the work.

## Conclusions

Many organisations emphasise ‘after-action reviews’ and ‘lessons learned’ to transform learning into action. As has been shown in this chapter, the full range of organisational learning opportunities and the effort required to initiate organisational action is notably broader and deeper. A four-quadrant framework is used to describe single-loop organisational learning: learn, validate, structure, and approve. A fifth stage – organisational change – transforms what was learned into action (double-loop learning). This chapter uses an enterprise architecture approach to describe organisational learning and adaptation. Each stage lists sequences of steps that describe the learning process, including the work being done, the person doing it, what is produced, and services that support the work.

Any individual or business function can learn something of value to the organisation at any time. Learning does not take place only during specific high-profile events or projects. Consequently, facilitating organisational learning begins by understanding how individuals learn so that this process can be enhanced to benefit the organisation. Secondly, individual learning must be captured so that it can be validated by a community of practice to determine its relevance, appropriateness, and potential benefit to the organisation. Thirdly, a plan is developed to integrate validated learning into those aspects of the organisational infrastructure that it must interact with. Fourthly, the plan is approved for implementation. Finally, a change management process is established to implement the plan. By understanding how individual learning is transformed into organisational change, organisations in the knowledge economy will be better able to learn and adapt faster than their competition, leading to increased competitiveness and sustainability.

## About the author

Dr Albert J. Simard has coordinated development of two award-winning, automated National Forest Fire Information Systems. He has also developed knowledge management projects, programmes, and strategies for the Canadian Forest Service and Natural Resources Canada, including an access to knowledge policy and a knowledge services framework for government S&T organizations. Internationally, he has developed strategic plans and frameworks for two global information networks related to disaster management and forestry. He recently led development of a modelling framework for the Canadian Food Inspection Agency. As knowledge manager for Defense R&D Canada, Dr Simard developed a knowledge services agenda and architecture that adapts knowledge management to support business strategies for science-based agencies. He has published more than 200 scientific and management articles and given 300 presentations on forest fires and knowledge management (top 5 per cent of all views on SlideShare).

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6. See n4, above.
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8. See Wikipedia 'Learning', accessed June 11, 2013. In this framework, learning begins as information and progresses through a capacity for practical application. With analysis and synthesis it becomes understood and can be considered knowledge. At the evaluation step, it satisfies the psychological definition of knowledge (see n. 10 , below), in that it is accepted as true by the learner.
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16. See n.11, above.
17. Adapted from Kotter, J. P. *The Heart of Change*, Boston: Harvard Business School Press, 2002)
18. Social structure includes context (level, attributes, and manageability) and interaction (sharing, collaboration, negotiation, and competition).