Developing Action Plans Based on Strategy— Aspects to Consider

PETER H. CARSTENSEN AND OTTO VINTER

The ISO/IEC 33014 Guide for process improvement includes a step in its improvement process called "Develop action plan." But which actions should be included, and do these actions cover all aspects? The authors have performed a thorough study of the change strategy literature that is the foundation for the 10 overall change strategies defined in ISO/IEC 33014. They have extracted statements from this material that represent generic actions recommended by its authors for each strategy. Through analytic induction the authors have then identified and validated eight aspects that should be considered when developing the concrete actions for executing the strategy.

INTRODUCTION

Process improvement is a challenge irrespective of whether an organization seeks formal assessment of its general maturity through one of the prominent frameworks like CMMI (Chrissis, Conrad, and Shrum 2012) or ISO/IEC 15504 (SPICE) (ISO 2013a), or merely wants to improve those processes that are in most urgent need. Process improvement, however, is only one type of organizational change. Organizational change is all about changing people's way of working and, consequently, it is inherently complex, difficult, and often prone to failure.

Before developing a detailed action plan, an organization must therefore carefully select its change strategy. Change strategies can never be standardized, because they are heavily dependent on organizational context and the nature of the desired change.

However, once the change strategy has been selected in ISO/IEC 33014 clause 6, step 4 (see Figure 1 on the next page), little help has previously been available to assist management or process consultants in developing the detailed action plan as required in clause 5, step 4 of that standard.

To alleviate this, the authors have performed a thorough study of the change management strategy literature that is the foundation for the 10 overall change strategies defined in ISO/IEC 33014. They have extracted statements from this material that represent recommended actions by its authors for

FIGURE 1 Overview of the ISO/IEC 33014 model (Figure 1 in ISO 2013b). This paper focuses on clause 6, step 4 (Identify overall change strategy) and clause 5, step 4 (Develop action plan).
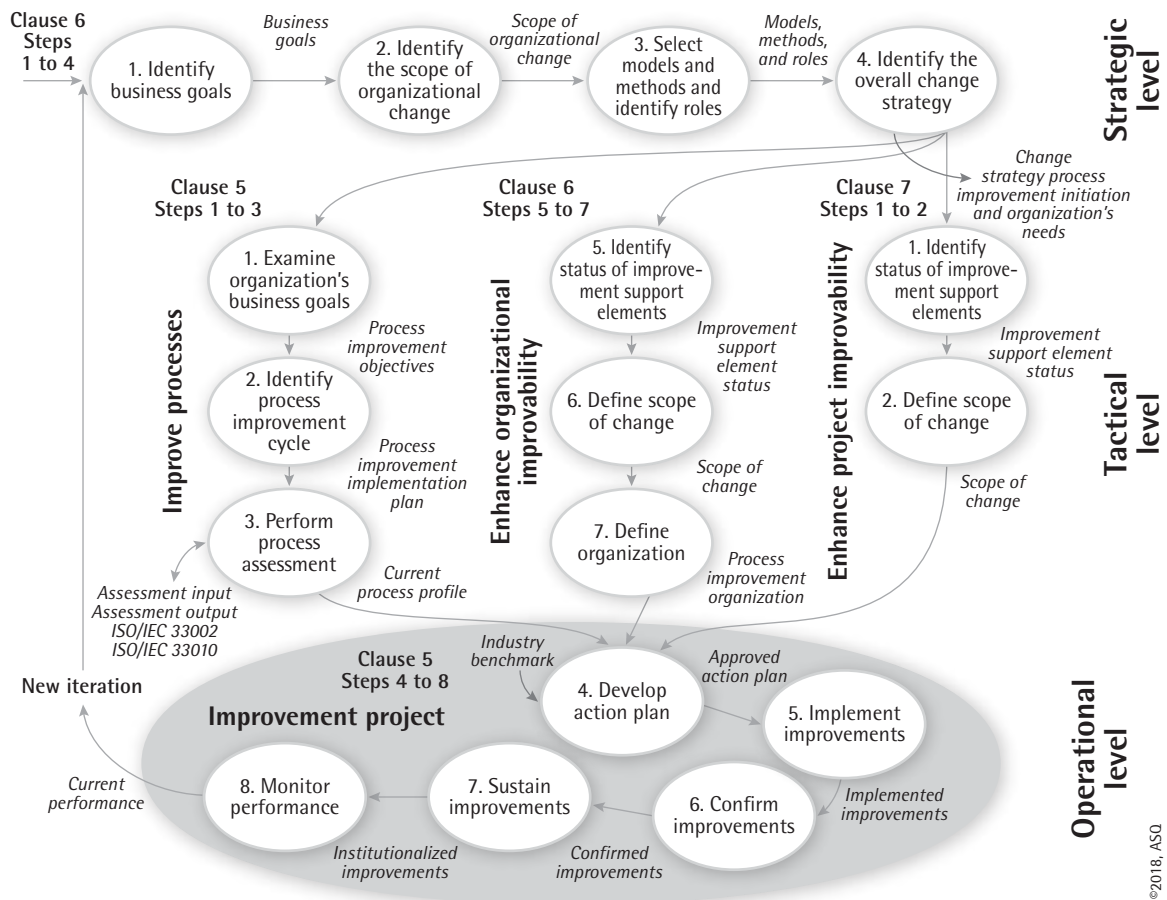
each strategy. The authors have primarily focused on the (top) management perspective.

During this process, the authors have identified and validated eight aspects that can be seen as overall headings or categories for the actions. They believe these eight aspects can be supportive for management, process consultants, and change agents when developing and executing a specific action plan for a change in a particular context (see Figure 1).

In this article, the authors first present the 10 overall strategies in ISO/IEC 33014 and how to select the relevant combination for a particular organization's context. Next, the authors describe their process of extracting relevant recommended actions from the change management literature and how they identified the eight aspects. Then they discuss to what extent the aspects cover the 10 change strategies. Finally, the authors illustrate the process of developing action plans based on the strategies and the eight aspects.

IDENTIFYING THE OVERALL CHANGE STRATEGIES

There is much literature on change strategies and general recommendations on how to organize and conduct strategic changes. Among the widely known and broadly recognized can be mentioned: Kotter focusing on an eight-point plan for a change (Kotter 1996); Hammer and Champy (1993) arguing for reengineering the whole corporation; Mintzberg's overall conceptual framework for understanding and changing different organizational structures (Mintzberg 1983); Rogers' deep analyses of adoption and diffusion of changes (Rogers 2003); Senge's approach to change organizations through socializing and learning (Senge 1990); and Huy (2001) focusing on structuring and sequencing strategies over time. Most of these have been central in setting the scene for the research reported in this article. Finally, the ISO/IEC standards mentioned previously (ISO 2013a; ISO 2013b)

have also contributed to defining the steps in planning and executing a change.

So, where can an organization look for guidance when it needs to decide on a change strategy? ISO/IEC 33014 (ISO 2013b) defines 10 distinctly different overall change strategies to choose from. The 10 change strategies are listed in Table 1. Each strategy is based on a comprehensive survey of management literature, the most encompassing of these are by Mintzberg (1983), Mintzberg, Ahlstrand, and Lampel (2002), Senge (1990), and Huy (2001).

The 10 strategies were originally identified during the Danish research project Talent@IT (2003–2006) in which both authors of this article were involved. The results were presented in Pries-Heje and Vinter (2006), Pries-Heje and Johansen (2013), Pries-Heje and Johansen (2015), and Carstensen and Vinter (2017).

One of the project participants, Jørn Johansen, was later active in promoting the 10 strategies to the ISO/IEC 33014 standard.

However, the ISO/IEC 33014 standard does not prescribe a method for defining which strategy or combination of strategies would be optimum for a specific organization and concrete change. The authors, Jan Pries-Heje, and Jørn Johansen have therefore developed a questionnaire-based tool to identify which strategy (combination) would be most suitable in a specific context (Pries-Heje and Johansen 2013, 173). The questionnaire contains 32 assertions/statements addressing the following five themes: the organization today; the employees today; experiences with organizational change; the (current) organizational change; and the result of the organizational change (the future situation). Each of the assertions/statements is scored

TABLE 1 The 10 overall change strategies defined in ISO/IEC 33014 (i.e., Table 4 in ISO 2013b). The literature examples are those where the authors found most recommended actions related to the change strategy.

Change strategy	Definition and literature examples
Attitude–driven (Learning–driven)	Change is driven by a focus on organizational learning, individual learning, and what creates new attitudes and behavior. Lit.ex: Senge (1990), Huy (2001)
Commanding	Change is driven and dictated by (top) management. Management takes on the roles as owner, sponsor, and change agents. Lit.ex: Huy (2001), Mintzberg (1983), Mintzberg, Ahlstrand, and Lampel (2002)
Employee–driven	Change is driven from the bottom of the organizational hierarchy when needs for change arise among employees. Lit.ex: Kensing (2003), Kensing and Blomberg (1998), Andersen et al. (2001)
Exploration	Change is driven by the need for flexibility, agility, or a need to explore new markets, technology, or customer groups. Lit.ex: Benner and Tushman (2003), Senge (1990)
Measures–driven	Change is driven by measures and measurements. Lit.ex: Oakland (2003)
Optionality	Change is driven by the motivation and need of the individual or group. It is to a large degree optional whether the individual takes the innovation into use. Lit.ex: Rogers (2003)
Production– organized	Change is driven by the need for optimization and/or cost reduction. Lit.ex: Benner and Tushman (2003), Liker (2004), Huy (2001)
Reengineering	Change is driven by fundamentally rethinking and redesigning the organization to achieve dramatic improvements. Lit.ex: Bashein, Markus, and Riley (1994), Davenport (1993), Hammer and Champy (1993), Huy (2001)
Socializing	Change in organizational capabilities is driven by working through social relationships. Diffusion of innovations happens through personal contacts rather than through plans and dictates. Lit.ex: Huy (2001), Snowden and Boone (2007), Gittel, Seidner, and Wimbush (2007), Gittell (2011)
Specialist–driven	Change is driven by specialists, either with professional, technical, or domain knowledge. Lit.ex: Ciborra (2000), Simon (1973; 1983)

FIGURE 2 Part of the questionnaire to be used to identify the (combination of) overall change strategies.

Please evaluate the assertions/statements below	Agree	Partly agree	Neither nor	Partly disagree	Disagree
The Organization Today					
q1 The organizational context is very dynamic and demands frequent change.					
q2 Too little is happening here—we are nearly grounded to a halt.					
q3 The organization is not doing well—it is in a crisis.					
q4 Today we have a specific (and separate) part of the organization that takes care of innovation and exploring new possibilities.					
q5 We have a metrics program today—and we use the results.					
q6 We can see that we need to do something very different than today.					
q7 Existing workflows have bottlenecks and need to be more effective.					
The Employees Today					
q8 Our employees are self-aware and always have an opinion.					
q9 We have very knowledgable employees that know their area well					

©2018, ASQ

on five levels ranging from disagree to agree. The first part of the questionnaire is shown in Figure 2.

The scoring is intended to be performed by the group of higher-level managers responsible for defining the change project. First the questionnaire is scored individually by each manager. Then a consensus agreement on the scores is reached through a facilitated process. During this process it is important to bring to the table all of the context-specific information for this organization and the concrete change for later use when developing useful recommendations for action specific to the situation at hand.

The results of the scoring might look like Figure 3. Strategies scoring +33 or higher are those that are candidates for use in this organization on this change project. In Figure 3, the two strategies—optionality and specialist-driven—are such candidates and should be combined in the change strategy. Strategies scoring below -33 should be avoided in the change strategy. In Figure 3, the two strategies attitude-driven and exploration belong to this category.
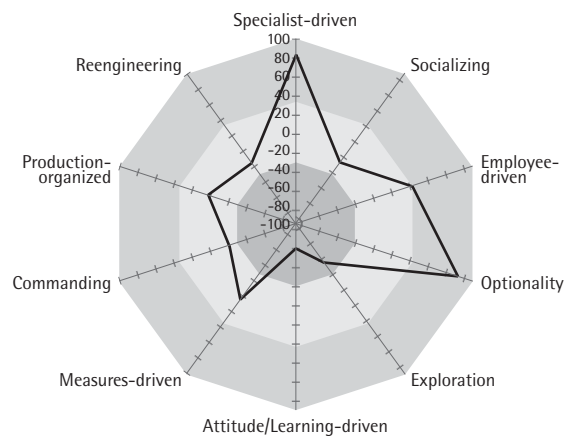
USING ASPECTS FOR DEVELOPING AN ACTION PLAN

The step from deciding on one or a combination of change strategies to establishing a useful action plan is not a simple process. Questions like who should be involved, how should the process be organized, which specific actions should be recommended, which means of communication are required, and so on need to be addressed and answered before the plan is complete.

When turning to the literature on change management, there are many strategies and recommendations on how to plan and perform a change. Most of them focus on the processes to be employed in the planning and execution of the change. A number of topics are

FIGURE 3 A sample scoring of the 10 overall strategies using the authors' change nexus questionnaire.

©2018, ASQ

mentioned, such as motivating people and sharing the vision. But the main focus in the literature remains on how to structure and plan the change and the processes to be followed. The topics mentioned are not turned into a framework of common aspects to be considered by managers, process consultants, and change agents in their planning and design of the actions to be performed.

The authors have conducted a literature-based research to find which common aspects and recommendations an organization should consider in an action plan. They extracted recommended actions from the literature behind the 10 ISO/IEC 33014 strategies (see Table 1). They went carefully through a series of central and influential books and papers aiming at identifying recommendations for (top) management, and process and change consultants on how to organize and carry out strategic changes.

The authors read the texts from end-to-end and extracted statements by their authors that seemed characteristic for the strategy. The authors kept the recommendations close to the original statements, but made the statements actionable, that is, they reformulated them in imperative form.

The authors found that several recommendations addressed the same aspect of a change (for example, culture). Through a process of analytic induction the authors identified eight such common aspects. They are: communication, culture, competences and training, decision making, knowledge acquisition, methods and techniques, organizing, processes and plans. The eight aspects are listed in Table 2.

The authors discussed each aspect and defined them properly. Rather than thinking of the eight aspects as orthogonal, they regard the aspects as a kind of high-level

TABLE 2   The eight aspects of recommended actions for executing a change, with examples.

Aspect	Short explanation and examples
Communication	Types of information that should be communicated, to/by whom, when/through which channels "Communicate often and focus on the opportunities" (Bashein 1994, 6). "Develop and publish clear documented corporate beliefs and purpose—a mission statement" (Oakland 2003, 36).
Culture	The culture that should be established/changed/supported in the organization to secure the success "Encourage people to challenge and examine alternatives" (Huy 2001, 619). "Encourage individuals to establish improvement goals for themselves and their groups" (Oakland 2003, 19).
Competences and training	The competences that the management and change team should have before the work on the change is initiated, or which should be built up on the way "Ensure that the local adopters are sufficiently educated/trained to understand the big picture about the available innovation/change" (Rogers 2003, 399). "Develop leadership skills among middle managers to install new values in them" (Huy 2001, 620).
Decision-making	Decisions and commitments it is important to make and achieve before and during the work on the change, who should make them, when, and within what scope "Shift power to the experts (specialists) by virtue of their knowledge" (Mintzberg 1983, 106). "Base your management decisions on a long term philosophy, even at the expense of short term financial goals" (Liker 2004, 5).
Knowledge acquisition	The knowledge that should be obtained/gained/collected before and during the work on the change "Ensure that the impact of existing initiatives are evaluated and considered carefully before starting another series of improvement initiatives" (Oakland 2003, 159). "Analyze constraints and evaluate specifications" (Simon 1973, 189).
Methods and techniques	Concrete methods and techniques that should be used to execute the change "Co-ordinate, advise and manage instead of keeping control centrally" (Ciborra 2000, 39). "Forget the past, break rules and traditions in order to create variation" (Benner and Tushman 2003, 251).
Organizing	How the change team as well as all involved or affected by it should be organized/structured "Establish and cultivate communities of practice" (Ciborra 2000, 22). "Form quality improvement teams with representatives from each department" (Oakland 2003, 19).
Processes and plans	Concrete plans and processes that management and change team establish for the work "Overhaul processes which create a vicious cycle of overload, stress, burnout and low morale" (Huy 2001, 612). "Ensure control at all stages of planning and operationalization of the strategy" (Mintzberg, Ahlstrand, and Lampel 2002, 55).

checklist for management or process consultants who develop and execute a change. Their applicability in practice is more important than whether they are 100 percent precise.

The authors' first gross list of recommendations from the literature contained a total of 665 recommendations distributed over the 10 different change strategies, with 50 to 100 recommendations for each strategy (commanding and optionality were considerably lower with 33 and 28 recommendation each). The authors reviewed all 665 recommendations and selected those that were most clearly indicative of each the 10 strategies. This selection resulted in a total of 233 recommendations for the 10 strategies distributed, as listed in Table 3.

Most of the recommended actions could be allocated to one aspect only. However, in some cases a recommended action was allocated to two or at most three aspects. This was no surprise, as the authors had deliberately kept the original formulation of the statements in the texts, which therefore could include several aspects.

The authors believe the eight aspects and the 233 recommendations can support managers and consultants in establishing their actual action plan for a change. They form a frame of reference for issues that need to be considered. That is, have they ensured proper communication between the relevant actors in the change process, have they decided upon how the activities should be organized, the processes to be followed, and so on.

A good action plan for change, however, might not include recommendations for all of the eight aspects, although one would expect to find most of them in such a plan. There might be situations where a particular aspect needs not be present (for example, competences and training in situations where the necessary competences are already present). But it is important that this deselection is based upon explicit considerations rather than just an oversight.

To cover the relevant aspects, the recommendations from the literature can be used as inspiration for what to include in the action plan. It is important in this step to contextualize the recommendations from the literature using the information that was gathered in the facilitation process when the strategy combination was identified. This means that the organization should reformulate the generic recommendations using concepts and wording specific to the organization and concrete change, and naturally add any other context-specific recommendations deemed necessary.

TABLE 3 Overview of the number of selected recommendations per strategy, and whether they were allocated to one or more aspects.

Change strategy	Total	Single aspect allocation	Double aspect allocation	Triple aspect allocation
Attitude-driven	35	20	12	3
Commanding	19	13	6	0
Employee-driven	22	12	10	0
Exploration	25	11	14	0
Measures-driven	21	13	5	3
Optionality	16	8	8	0
Production-organized	27	18	8	1
Reengineering	21	9	11	1
Socializing	25	12	12	1
Specialist-driven	22	17	5	0

©2018, ASQ

Consider, for example, the suggestion to "engage in recurrent rituals to build shared meanings" (Huy 2001, 608). How should the organization ensure this in its setup? Or, is it not relevant? Or, could it inspire the organization to include issues in its specific plan? For example, for which recurrent specific central topics should the organization establish a shared meaning?

REFLECTIONS ON ASPECT COVERAGE OF STRATEGIES

As mentioned previously, the eight aspects the authors have identified are to some extent recognizable in many other authors' recommendations and reflections on general issues to consider when planning and executing change activities. This is no surprise since these aspects were derived from a study of that literature looking for recommended actions for an action plan.

Most influential authors argue for establishing a vision for the change, motivating the involved actors, determining how the change work should be organized, and which specific methods and techniques to apply. One could say that they indirectly address all of the authors' eight aspects in various levels of detail.

Mintzberg and his co-authors (Mintzberg, Ahlstrand, and Lampel 2002) suggest a set of 10 "strategy schools"

approaching the strategy formation process along different dimensions (schools). These strategy schools provide a framework for overall characterization of the change as a: conception, negotiation, transformation, and so on. It will, however, be difficult to identify specific recommendations by means of these schools.

Balogun and Hailey (2002) and Balogun, Hailey, and Gustafsson (2015), with their "change kaleidoscope," provide eight features of the change context, for example, capability, capacity, power, and readiness. Furthermore, they suggest a list of dimensions that the change agent can act on, that is, style, levers, and roles. Again, this framework is directed more toward characterizing a specific change or strategy; it is not suited for identifying specific recommendations.

Finally, the ISO/IEC standards (ISO 2013a; ISO 2013b) issue guidelines on how to plan and manage process improvements in organizations (see Figure 1). They mention all of the authors' eight aspects, but they keep the guidelines at an overall level with very few detailed recommendations for action.

Therefore, even though all eight aspects can be found in various wrappings and detail, very few of the classic publications on change and change strategies aim at providing a comprehensive set of aspects that could be relevant to consider when developing recommendations for concrete context-specific actions.

The aspects of organizing, communication, methods and techniques, and processes and plans are addressed by almost all authors writing about change and change strategies. The aspects of decision making, culture, and competences and training are also reflected upon by many authors. However, this article's authors found fewer authors explicitly recommending actions related to the knowledge acquisition aspect, both with respect to information collection before the change process is initiated and during the execution of the change (that is, feedback).

The authors do not claim that the individual aspects they have identified constitute something new. The interesting result of their work is that these eight aspects together seem to constitute a complete framework of relevant aspects to consider when developing change action plans. And they have found only a few attempts at providing a framework for supporting change strategies with specific recommendations.

To evaluate the distribution of the authors' 233 recommendations in relation to the eight aspects and the 10 strategies, they mapped each recommendation in a strategy-aspect matrix (see Figure 4 on the next page).

It should be noted that the total number of Xs in the cells is greater than 233. The reason is that some recommendations could be allocated to more than one aspect. For example, the recommendation for the specialist-driven strategy: "Design organizational units where, to the greatest degree possible, local decision makers confront the full range of issues and dilemmas" (Senge 1990, 287) can be allocated to both the organizing and decision-making aspect. In total, the authors had 133 recommendations with a singular-aspect categorization, 91 with double, and only nine with a triple categorization distributed on the strategies, as shown in Table 3. The main explanation for the double and triple categorizations is that many authors, quite naturally, provide recommendations that cover both a general statement of what is important (for example, concerning communication, culture, or decision making) and indicate how it should be planned, organized, or conducted.

When looking at Figure 4, the first observation is the fairly uneven distribution of the number of recommended actions for a strategy related to each aspect (Xs in Figure 4). The aspect of methods and techniques is by far the most common across all 10 strategies, with 93 recommendations and only 18 for knowledge acquisition. This could be explained by the fact that when authors provide recommendations on how to execute changes, it is quite natural that they suggest specific methods and techniques. Another explanation could be that the authors' definition of the methods and techniques aspect is too broad. They have, however, found it hard to split it without creating a rather artificial distinction for this aspect.

If one looks into the specific distribution of aspects for each strategy, there are significant differences. For example, the authors found no recommendations for three aspects in the case of the commanding strategy. And in the case of the employee-driven strategy, another set of three aspects are covered with only zero to one recommendations.

In a number of Danish organizations, Pries-Heje and Johansen (2015) found that optionality, specialist-driven, and socializing strategies come out as the best strategy fit. Due to external requirements dictating the change, a commanding strategy was also often a good fit. To further the authors' reflections on the distribution, they will reflect over these four in a little more detail.

For the optionality strategy, the most frequent recommendations belong to the aspects methods and techniques (6) and organizing (5), whereas knowledge

FIGURE 4 A mapping of the selected recommendations onto aspects and strategies. Strategies are listed by rows, aspects by columns, and number of recommendation as cell contents (Xs).

	Communi-cation	Culture	Compe-tences and training	Decision-making	Knowledge acquisi-tion	Methods and tech-niques	Organizing	Processes and plans
Attitude-driven	XXX	XXXXX XXXXX XXX	XXXXX XXXXX XXXXX	XX	XX	XXXXX XXXXX XXX	XX	X
Commanding	XXXXX XX			XXX		XXXXX XX	XXX	XXXX
Employee-driven	X	XXXXX XX	XXXXX	XXXXX X	X	XXXXX XX	XXXX	
Exploration	X	XXXX	XXX	XXXX	X	XXXXX XXXXX XX	XXXXX XXXXX X	XXX
Measures-driven	XX	XXXX	XXX	XX	XXX	XXXXX XX	XXXXX	XXXXX X
Optionality	XXX	XXXX	XX	XXX		XXXXX X	XXXXX	X
Production-organized	X	XXX	XXX	XXXXX X	XX	XXXXX XXXXX	XXXXX	XXXXX XX
Reengineering	XXXXX XX		XX	XXXXX X	XX	XXXXX XX	XXX	XXXXX XX
Socializing	XX	XXXXX XX	XXX	XXX	XX	XXXXX XXXXX XXXX	XXXXX X	X
Specialist-driven	XXX	XX		XX	XXXXX	XXXXX XXXX	XXXX	XX

©2018, ASQ

acquisition are not mentioned at all in any of the 16 recommendations selected for this strategy. An example of a recommendation in methods and techniques for the optionality strategy is: "Allow locally perceived needs and problems to decide which innovations/changes they should adopt" (Rogers 2003, 396).

In the specialist-driven strategy the most frequent recommendations again belong to the aspect methods and techniques (9), whereas culture (2), processes and plans (2), and competences and training (0) are the least common aspects allocated to the 22 recommendations. An example of a recommendation in methods and techniques for the specialist-driven strategy is: "Co-ordinate, advise and manage instead of keeping control centrally" (Ciborra 2000, 39).

In the socializing strategy, the most frequent recommendations again belong to the aspect methods and techniques (15), culture (7), and organizing (6), whereas processes and plans (1) is the least common aspect allocated to the 25 recommendations. An example of a recommendation in methods and techniques for the

socializing strategy is: "Allow people to network and experiment with new social-work relations and power rearrangements" (Huy 2001, 615).

For the commanding strategy, the most frequent recommendations are allocated to the aspects communication (7) and methods and techniques (7), whereas knowledge acquisition, culture, and competences and training are not covered at all in the 21 recommendations. An example of a recommendation on communication for the commanding strategy is: "Meet employees face to face and communicate your vision" (Huy 2001, 612).

When looking at the eight aspects one by one, the following are observed (see Figure 4):

- The communication aspect is strongly represented in the commanding and reengineering strategies. This appears quite natural due to the strong top management influence on the change process. The communication aspect is almost absent in the employee-driven, exploration, and production-organized strategies. The first two can be

explained because of the direct involvement of the actors in the target group.

- The culture aspect is very frequent in attitude-driven and well represented in employee-driven and socializing strategies. Again, this seems natural when having the nature of these strategies in mind. The culture aspect is absent in the commanding and reengineering strategies. Considering the nature of these forceful types of changes, it appears natural that the culture of the organization is considered to be of less importance.

- The aspect of competences and training is by far the most prominent aspect in recommendations for the attitude-driven strategy. This again seems natural, as teaching and learning is the focus for this strategy. The authors' original name for this strategy was learning-driven, which also indicates this. The competences and training aspect is absent in the commanding and specialist-driven strategies. Again, it seems intuitively explainable. In the commanding strategy, the changes are dictated and must take place, and in the specialist-driven strategy, the relevant competences are already in place (experts).

- Decision making is present in recommendations for all 10 strategies with some variation, but there is no clear absence or strong representation for any of the 10 strategies.

- Knowledge acquisition is weakly represented in all strategies, except the measures-driven and specialist-driven strategies. It seems quite natural that for these two strategies the acquisition and use of information is essential. For the other strategies, the authors can only observe that the authors in the change strategy literature evidently have not addressed this aspect often in their recommendations.

- The methods and techniques aspect is very frequent in recommendations for all 10 strategies. It is clearly an area that the authors of the change strategy literature find highly relevant and natural for which to provide recommendations.

- The organizing aspect is present in recommendations for all 10 strategies.

It is interesting that the number of recommendations for organizing is very high for the exploration strategy. The reason for this could be that very often separate organizational units for experimentation and exploration are established.

- The aspect of processes and plans is most common in recommendations for the production-organized and reengineering strategies. This seems to be quite natural, having the nature of the strategies in mind. On the other hand, processes and plans are absent or very weakly represented in recommendations for the optionality, socializing, employee-driven, and attitude-driven strategies. This could indicate that for strategies having a very active involvement and participation of the actors working in the setting being changed, it is not considered important to give specific recommendations on how to plan, structure, and execute the change activities.

In the literature, the authors have found many indications that the eight aspects cover relevant facets and ingredients in change management. Careful consideration of the eight aspects when designing a specific action plan will therefore constitute a good platform for ensuring that all relevant facets have been addressed.

In a research context, the authors expect the eight aspects to provide a conceptual framework for identifying and characterizing strategies, approaches, and recommendations for change and change activities. The aspects might potentially be used as a set of dimensions for comparing different strategies and different approaches or descriptions of a specific strategy, for example, to compare the approaches to the attitude-driven strategy of Senge (1990) and Huy (2001).

HOW THE RESULTS CAN BE USED IN PRACTICE

In this section, the authors will illustrate how the eight aspects and recommendations for action found in the literature can support the establishment of a useful and relevant action plan based on the 10 overall strategies defined in ISO/IEC 33014.

First, the overall change strategy combination must be decided upon (see Table 1). This could either be done

by means of the change nexus questionnaire described earlier (see Figure 2) or by any other assessment method. Then one can develop a context-specific action plan for the change that matches the strategies selected. That is, design or select a list of recommendations for action applicable to the particular change and the organizational context.

The list of recommendations can be derived from the literature on change management as the authors have done or by any other means. The generic recommendations from the literature must be reformulated to the particular context and amended by other context-specific recommendations for action.

Previously, the authors discussed the challenges of filling the gap between deciding on the overall strategy combination for the change and deriving a specific action plan for the change. They found that eight aspects constitute a high-level checklist and inspiration for issues they need to consider in their plan. Therefore, the list of recommendations developed should be inspected to see whether the recommendations cover all eight aspects (except when considered irrelevant in the particular case), and the list of recommendations should be modified and/or amended to include the missing aspects. The entire process is shown in Figure 5.
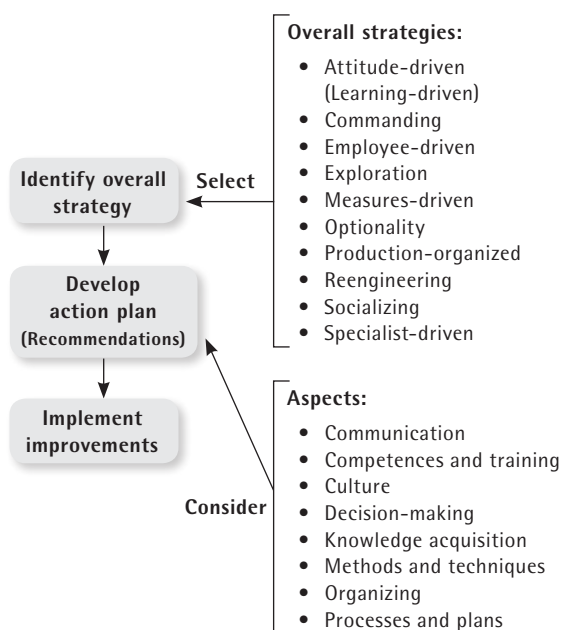
For the purpose of illustration, consider a situation where the scoring of the change nexus questionnaire

identifies optionality and specialist-driven as the most appropriate strategies for the actual context (see Figure 3). This combination is actually quite common in many Danish organizations. Having established a good understanding of the nature of the change and the context, one then develops a draft list of important recommendations for the action plan. This should then be inspected by asking whether each of the eight aspects is important in this situation, and how one could cover it properly in the plan.

From this draft, one would then go through all the recommendations for actions from the literature for each of the eight aspects for the optionality and specialist-driven strategies. For these two strategies, the authors found 38 generic recommendations covering all eight aspects (typically four to six each). For each of the 38, one should ask whether the recommendation is relevant in this particular case, and, if so, can it be contextualized in one's action plan.

For the purpose of illustration, the authors have listed a set of recommendations taken from specialist-driven and optionality that covers all of the eight aspects (see Table 4 on the next page). The generic recommendations should of course be reformulated to fit the specific case and then reflected upon whether the recommendation gives rise to consider other issues to include in the plan.

CONCLUSION

Based on the literature behind the 10 strategies defined in ISO/IEC 33014 (ISO 2013b) (see Table 1), the authors have extracted statements representing the authors' recommended actions for change for each strategy to develop a catalog of these to assist the (top) management or process consultant in developing their own context-specific action plan.

Through a process of analytic induction, the authors discovered that the recommended actions could be grouped according to eight aspects of the change to be undertaken (see Table 2). The authors verified this hypothesis across all the recommendations they extracted, and validated the applicability of the actions and aspects by exhibiting a number of process improvement master students to them with a confirmative result.

They also verified that the distribution of the selected actions across strategies and aspects (see Figure 4) correspond to what one would expect given the nature of the literature examined.

FIGURE 5 An illustration of the process from overall strategies to action plan.

Overall strategies:
- Attitude-driven (Learning-driven)
- Commanding
- Employee-driven
- Exploration
- Measures-driven
- Optionality
- Production-organized
- Reengineering
- Socializing
- Specialist-driven

Aspects:
- Communication
- Competences and training
- Culture
- Decision-making
- Knowledge acquisition
- Methods and techniques
- Organizing
- Processes and plans

©2018, ASQ

TABLE 4   Sample recommended actions from literature on the optionality and specialist-driven strategies covering all eight aspects.

Aspect	Short explanation and examples	
Aspect	**Recommendation for action**	**Overall strategy**
Communication	"Promote communication between communities of practice" (Ciborra 2000, 69).	Specialist-driven
Culture	"Create a local pride of ownership of the selected/reinvented/reinterpreted innovation/change" (Rogers 2003, 186).	Optionality
Competences and training	"Ensure that sufficient technical assistance is available to support the different types/groups of adopters" (Rogers 2003, 398).	Optionality
Decision-making	"Shift power to the experts (specialists) by virtue of their knowledge" (Mintzberg 1983, 106).	Specialist-driven
Knowledge acquisition	"Make sure that it is a well-structured problem that needs to be solved" (Simon 1973, 182).	Specialist-driven
Methods and techniques	"Allow locally perceived needs and problems decide which innovations/changes they should adopt" (Rogers 2003, 396).	Optionality
Organizing	"Hold roundtable conferences where relevant specialists are consulted" (Simon 1973, 194).	Specialist-driven
Processes and plans	"For each type/group of adopters, establish a process with a series of actions that lead to a decision of the adoption of the innovation/change" (Rogers 2003, 168).	Optionality

©2018, ASQ

The authors realize that they have not included all relevant literature on change management and that the real validation of the usefulness of the aspects can only take place on real-life cases. However, they see this as an opportunity for further testing the validity of the aspects.

Given these reservations, the authors are confident of the usefulness of the aspects they have found. They firmly believe that when planning and executing changes in a specific context/case, one should carefully consider these eight aspects (see Table 2) when developing an action plan and accompanying list of recommended actions.

REFERENCES

Andersen, C. V., F. Krath, L. Krukow, L. Mathiasssen, and J. Pries-Heje. 2001. The grass root effort. In *Improving Software Organizations—From Principles to Practice*, eds. Mathiassen et al. Boston, MA: Addison-Wesley.

Balogun J., and V. H. Hailey. 2002. Devising context sensitive approaches to change: The example of Glaxo Wellcome. *Long Range Planning Journal* 35:153-178.

Balogun J., V. H. Hailey, and S. Gustafsson. 2015. *Exploring strategic change.* London, England: Pearson.

Bashein, B. J., M. L. Markus, and P. Riley. 1994. Preconditions for BPR success: And how to prevent failures. *Information Systems Management* 11, no. 2:7-13.

Benner, M., and M. Tushman. 2003. Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review* 28, no. 2:238-256.

Carstensen, P. H., and O. Vinter. 2017. Aspects you should consider in your action plan when implementing an improvement strategy. In *SPICE 2017 Conference Proceedings*, 467-480. Berlin, Germany, Heidelberg: Springer-Verlag.

Chrissis M. B., M. Conrad, and S. Shrum. 2012. *CMMI for Development: Guidelines for Process Integration and Product Improvement*, third edition. Westford, MA: CMU/Software Engineering Institute.

Ciborra C. U., and Associates from Control to Drift. 2000. *The dynamics of corporate information infrastructures.* Oxford, England: Oxford University Press.

Davenport, T. H. 1993. *Process innovation: Re-engineering work through information technology.* Cambridge, MA: Harvard Business School Press.

Gittell, J. H., R. Seidner, and J. Wimbush. 2007. A social capital model of high performance work systems. Industry Studies Association, Working Papers Series.

Gittel, J. H. 2011. New directions for relational coordination theory. In *The Oxford Handbook of Positive Organizational Scholarship*, chapter 30, eds. G. M. Spreitzer and K. S. Cameron.

Hammer M., and J. Champy. 1993. *Reengineering the corporation; A manifesto for business revolution.* New York, NY: Harper Business.

Huy, Q. N. 2001. Time, temporal capability, and planned change. *Academy of Management Review* 26, no. 4:601-623.

ISO. 2013a. ISO/IEC/TR 15504-4. Information technology—Process assessment—Guidance on use for process improvement and process capability determination, Geneva, Switzerland: International Organization for Standardization.

ISO. 2013b. ISO/IEC/TR 33014. Information technology—Process assessment—Guide for process improvement, Geneva, Switzerland: International Organization for Standardization.

Kensing, F., and J. Blomberg. 1998. Participatory design: Issues and concerns. *Computer Supported Cooperative Work* 7(3-4):167-185.

Kensing, F. 2003. *Methods and practices in participatory design.* Copenhagen, Denmark: ITU Press.

Kotter, J. P. 1996. *Leading change.* Cambridge, MA: Harvard Business Review Press.

Liker, J. K. 2004. *The Toyota way.* New York, NY: Tata McGraw-Hill.

Mintzberg, H. 1983. *Structure in fives—Designing effective organizations.* Englewood Cliffs, NJ: Prentice-Hall.

Mintzberg H., B. Ahlstrand, and J. Lampel. 2002. Strategy safari: A guided tour through the wilds of strategic management. *Financial Times.* London, England: Prentice Hall.

Oakland, J. S. 2003. *TQM—Text with cases,* third edition. Waltham, MA: Butterworth-Heinemann.

Pries-Heje J., and J. Johansen, eds. 2013. *ImprovAbility: Success with process improvement.* Hørsholm, Denmark: Delta.

Pries-Heje J., and J. Johansen. 2015. Choosing change strategy for ISO/IEC 33014. *Journal of Software: Evolution and Process.*

Pries-Heje J., and O. Vinter. 2006. A framework for selecting change strategies in IT organizations. In *Proceedings of the Product-Focused Software Process Improvement: 7th International Conference, PROFES 2006,* Amsterdam, Netherlands, 408-414. Berlin and Heidelberg, Germany: Springer-Verlag.

Rogers, E. M. 2003. *Diffusion of innovations,* fifth edition. New York, NY: Free Press.

Senge, P. M. 1990. *The fifth discipline: The art and practice of the learning organization.* New York, NY: Doubleday.

Simon, H. A. 1973. The structure of ill structured problems. *Artificial Intelligence* 4:181-201.

Simon, H. A. 1983. Search and reasoning in problem solving. *Artificial Intelligence* 21:7-29.

Snowden, D. J., and M. E. Boone. 2007. A leader's framework for decision making. *Harvard Business Review* 85:68-76.

BIOGRAPHIES

Peter H. Carstensen is associate professor at University of Copenhagen. He holds a doctorate in computer science. For the last 30 years he has been involved in and headed a long series of applied research projects involving both research institutions and private and public companies. His main areas of interest are human-computer interaction and UX, systems development methodologies, computer-supported cooperative work, and approaches for conducting field studies. Besides the specific topics listed, Carstensen has spent much time on organizing and managing settings in which research and practice could meet and collaborate on innovating the next generation of technologies.

Otto Vinter holds a master's degree in computer science. He is an associate professor at Roskilde University and an independent mentor/consultant advising clients based on his 50-year comprehensive experience in the software engineering field. His main areas of interest encompass all aspects of project management, process improvement, and change management. He has led complex development projects, process improvement projects, and performed university teaching and research. His expertise lies in the span between what works in practice and research. Vinter can be reached at vinter@ottovinter.dk.