

The Relationship Between Organizational Change and Performance: A Literature Review

By

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Introduction

Change practitioners are familiar with the presumption that organizational change can be associated with a temporary decrease in organizational performance. A model depicting this concept, commonly referred to as a *change curve*, is shown in Figure 1.

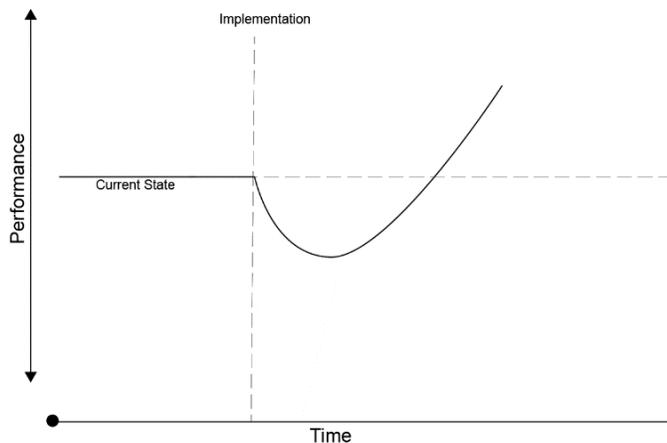


Figure 1 (Source: Author)

This paper outlines the origin of this change curve model and summarizes the relationship between organizational change and performance as described in 8 relevant sources. Recommendations are offered for how change practitioners can use these findings, as well as a change curve model, to elicit performance assumptions and to more effectively anticipate and manage performance risks and implications associated with an organizational change initiative.

Overview of Approach in Search for Sources Relating Organizational Change and Performance

A literature search seeking articles that examine the relationship between organizational change and organizational performance was completed. Emphasis was placed on sources containing financially appraisable definitions of performance, particularly productivity, with the intent of facilitating conversations with organizational leaders about the potential financial risks and

performance implications of change. Search activities included:

- Searching for published articles online and in subscription research databases, including with academic librarian assistance. Primary search keywords included organizational change, performance, productivity, and change curve. Additional sources were identified through the review of listed references and “cited by” function for relevant sources. As a result of this search approach, 47 sources were more closely reviewed and 8 were selected to summarize in this paper.
- An interview with a productivity researcher within the United States Bureau of Labor Statistics (BLS), who indicated that BLS data was at the aggregate level and would not be relevant for assessing the relationship between organizational change and productivity within an individual organization.

Literature Review Results: Origins of the Change Curve Model and Sources that Describe a Relationship Between Organizational Change and Performance

Among these 8 identified sources that examine the relationship between organizational change and performance, three particularly financially appraisable performance categories emerged: productivity, quality (measured by the occurrence of defects) and innovation/creativity.

Evolution of the Change Curve Model

In *The “Death Valley” of Change* (2002), Elrod and Tippett compare 15 different models related to change originating within different disciplines starting in 1952. As these different change models evolved over time, Elrod and Tippett assert one of the first models to depict a relationship between change and performance (i.e., to use performance as a y-axis) was

Schneider and Goldwasser (1998) shown in Figure 2.

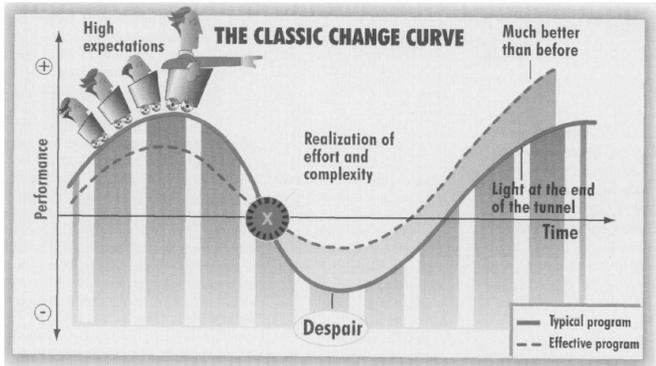


Figure 2 (Source: Schneider & Goldwasser (1998). Used with author permission)

A variation of this performance-based change curve model is included in many versions of change management training offered to change practitioners, however to what extent has this model been validated? Furthermore, the model depicts a decrease in performance correlated with organizational change, but the timing of the decrease is unclear in relation to specific change milestones, such as announcing the change and implementing the change. Observationally, performance is perceived to be affected at the time of implementation for some initiatives, and for others there are perceptions of performance disruption well before implementation, as shown in Figure 3.

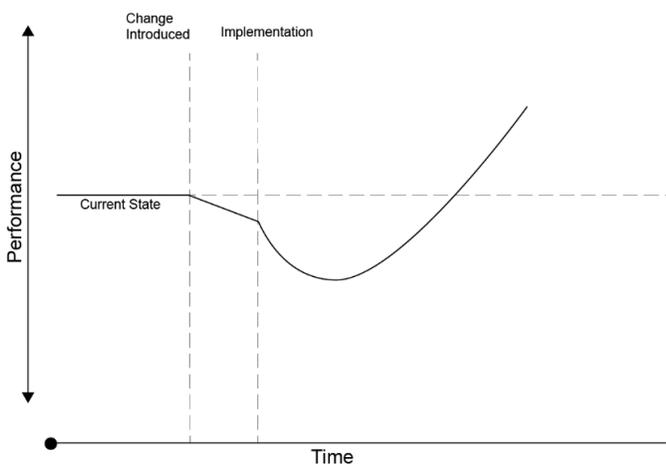


Figure 3 (Source: Author)

Similarly based on observation, some organizational change initiatives exhibit a rapid post-implementation performance rebound that equals or exceeds previous levels of performance while other initiatives result in a decline in performance for an extended period.

The ability to depict an accurate change curve model is further complicated in situations in which the timing of the change is ambiguous rather than a clearly defined implementation schedule, such as in a complex business process reengineering initiative.

Organizational Change and Productivity Performance

Organizational leaders generally hope to limit any negative effect on productivity as a result of organizational change. Additionally, leaders may pursue certain change initiatives with the express intent of improving productivity over current state.

The US Bureau of Labor Statistics defines labor productivity as comparing the “amount of goods and services produced (output) with the number of hours worked to produce those goods and services” (<https://www.bls.gov/lpc/>).

Theoretically, organizational change initiatives can have a negative effect on labor productivity since the time employees spend navigating a change cannot be used for producing something else. Examples include:

- Time spent by leaders planning, leading and sustaining a change initiative
- Employee time spent participating in the project team, performing project activities, serving as a subject matter expert, system testing, etc.
- Time spent in training

Many organizational change initiatives, such as implementing a new process or system, require employees to navigate a learning curve and gain proficiency with the new/changed method. This learning curve can result in a temporary reduction in labor productivity, as doing the work in the new way generally takes longer for

employees to complete initially. For example, in a project to implement a new call handling software system for a call center, it could take employees longer to complete each call as they work to gain mastery of the new system.

Some organizational changes can be expected to have a more permanent effect on labor productivity. An example would be an initiative to improve product quality by implementing additional production steps. In this case, an organization may accept a reduction in labor productivity in exchange for an intended increase in product quality.

Of the identified sources describing relationships between organizational change and productivity, these were the most relevant:

Elrod and Tippett (1999, 2002) studied 1,500 employees in an aerospace organization transitioning from a command and control structure to self-directed works teams. To validate whether, and to what extent, team performance and productivity would be affected by the transition, the authors developed a 10-question survey. They found that the teams' performance and productivity dropped during the transition, and then subsequently rebounded to a higher level than before the change occurred. The authors concluded these results verified the generalized change process depicted in the change curve model.

Bertschek and Kaiser (2004) analyzed the relationship between investment in information and communication technologies, labor productivity and workplace reorganization. They examined two kinds of organizational change: enhancement of group work and flattening of hierarchies in a sample of 411 German businesses. They concluded that organizations could gain more value from investments in information and communication technologies if they simultaneously changed (namely decentralized) their workplace organization. Reorganization, specifically through hierarchy flattening and group-work reinforcement, induced an increase in labor productivity that

may be attributable to complementarities between IT and workplace reorganization.

Halkos and Bousinakis (2012) conducted interviews with 355 employees in both private and public sectors in Greece and found that "change leads to increased stress but when the necessity and utility of the change is understood it then leads to increased productivity" (p. 90). Regarding productivity, they reported that 77 percent of the respondents believed that productivity would increase much or very much as a result of successfully navigating organizational change, implying broad recognition of the necessity and interdependence of change and productivity. The authors used logistic regression to analyze the effects of education levels, salary, and job satisfaction on the perception of change and productivity. They found:

- Employees with higher levels of education had a decreased perception of productivity benefits from organizational change.
- Employees who are more satisfied with work had a decreased perception of productivity benefits from organizational change.
- Employees with heightened concerns about salary had an increased perception of productivity benefits from organizational change.

The authors conclude that "once the change is announced, there is a negative effect on productivity and job satisfaction declines. When the change begins to work, we have increased productivity and reduced stress" (Halkos & Bousinakis, 2012, p. 90).

Ozcelik (2010) examined whether the implementation of Business Process Reengineering (BPR) projects conducted in large US organizations between 1985 and 2000 improved performance as defined by publicly reported measures of labor productivity, return on assets and return on equity. Using press announcements, Ozcelik identified 93 organizations that underwent BPR projects, then used COMPUSTAT to extract performance

data for these organizations. Results of regression analysis showed successful implementation of BPR projects was associated with significantly improved performance in all three measures. Ozcelik did not find evidence to support the hypothesis that organizations experience a drop in performance during BPR implementation, although the author noted this may imply that potential negative performance impacts of BPR during the implementation period are completely offset by their positive effects in the same period. In summary, this author found a statistical association between improved organizational performance and BPR projects during the post-implementation period without a significant drop in performance during the implementation period.

Organizational Change and Quality Performance

Organizational change can also potentially impact performance in terms of quality. Among reasons why change can affect quality:

- If employees must gain proficiency with a new system/process, etc., they may be more prone to defects at first.
- Navigating organizational change can be disruptive and distracting for employees, and these distractions can lead to an increase in defects or a decrease in quality.
- The potential impacts of organizational change on productivity, as discussed above, can create an environment of production pressure for employees. This explicit or implicit expectation to increase pace can potentially increase the number of defects.

Mockus (2009, 2010) examined the impacts of organizational change on both productivity (2009) and defects (2010) in more than 2000 software developers between 2004-2008. Mockus compared productivity for the same individual developers under conditions of high and low organizational volatility over time and found that productivity was negatively affected by a developer's proximity to organizational change. Similarly, Mockus found an increase in developer coding defects correlated with their

proximity to organizational change. Results indicated that a shorter time period until the next or since the last organizational change was associated with higher fault proneness and lower software quality for developers.

Organizational Change and Innovation/Creativity Performance

Another category of organizational performance that can be affected during change is innovation and creativity.

Amabile and Conti (1999) documented a reduction in both creativity and productivity in an organizational restructure/downsizing initiative in a technology company with 30,000 employees. A total of 754 employees participated in the study, involving surveys and 20-minute individual interviews collected at a baseline, and then in three successive waves corresponding to waves of downsizing activities over the following two years, ultimately decreasing the number of employees in the organization by 15 percent. The authors found that creativity levels were significantly below baseline levels at all three later points in time, concluding that creativity did decline during the downsizing initiative and that this decline persisted even several months after the downsizing initiative ended. Similarly, the number of invention disclosure submissions (an indicator of the technological innovation rate) declined by 24 percent over the same period. They concurrently found a decline in productivity compared to baseline at waves 1 and 2, but not at wave 3. The authors noted that it was particularly interesting that actual downsizing in a workgroup was a much weaker predictor of perceived work environment than anticipated downsizing, consistent with the theory that the anticipation of a negative event may be less tolerable than the experience of the event.

Summary of Performance Findings in These Sources

Source performance findings and their relative validation of the change curve model are summarized in Table 1.

Table 1

Source	Conclusions About the Relationship Between Organizational Change and Performance	Validation for Change Curve Model
Elrod and Tippett (1999, 2002)	Decrease in team performance and productivity	Supports decline in performance during change depicted in change curve model
Bertschek and Kaiser (2004)	Improved productivity after decentralizing organizational structure	Supports ultimately improved performance after change over baseline
Halkos and Bousinakis (2012)	Decreased productivity after announcement of change and during change, improved productivity once the change “begins to work”	Supports: <ul style="list-style-type: none"> • Decline in performance at announcement of change (prior to implementation) • Decline in performance during change • Ultimately improved performance after change over baseline
Ozcelik (2010)	Association between improved firm performance as measured by publicly reported labor productivity, return on assets and return on equity during the post-implementation period without significant drop in performance during the implementation period	Supports: <ul style="list-style-type: none"> • Decline in performance during change not observed, author theorized that potential negative performance impacts during implementation could be offset by their positive effects in the same period • Performance is ultimately improved over baseline following change
Mockus (2009)	Decrease in productivity	Supports decline in performance during change depicted in change curve model
Mockus (2010)	Decrease in quality/ Increase in defects	Supports decline in performance during change depicted in change curve model
Amabile and Conti (1999)	Decrease in both creativity and in productivity	Supports prolonged decline in performance over the life of a change initiative as depicted in change curve model

In summary, these sources generally support the presumption of a temporary decline in performance as measured by productivity, quality and innovation/creativity during organizational change, as well as provide support for the presumption that this performance decline can begin when a change is announced (i.e., earlier than when it is implemented). There is also support for the presumption of an improvement in performance over baseline after an organizational change is successfully completed. These findings provide validation for the use of the change curve model shown in Figure 2 in planning a change management strategy to better address and mitigate the performance risks and implications associated with an organizational change initiative.

Recommendations for Change Practitioners

Elicit Performance Assumptions Associated with Organizational Change Initiatives

Using a change curve model to elicit and identify specific assumptions about a change initiative's effect on performance with leaders and subject matter experts is a valuable activity for assessing the change magnitude and risk and for developing a mitigation and change management strategy. One approach to explore these assumptions is to ask leaders to draw their own simple change curve that represents their predictions for a specific change initiative. This quick exercise can reveal the individual's estimate of the magnitude of performance impact (the relative depth of the curve), the time duration of the performance impact (the length of the curve on the x-axis) and the timing of the impact (is timing related to announcement of the change, implementation, or some other factor). Some leaders may initially assume that there will be no performance effects associated with a change initiative but through discussing potential risks and implications they may revise their assumptions.

Use Performance-Focused Interview Questions

Interview questions to explore these performance assumptions can include:

- How might this change potentially affect productivity?
 - How many hours will employees need to invest in this change, and how likely will that time investment affect organizational productivity?
 - Are there periods during the initiative that will involve greater and/or more universal demands on employee time, such as participating in training sessions? What other change initiatives are occurring concurrently that will create demands on time and attention for these employees?
 - If a decline in productivity is expected, when would that decline likely begin? How long would the decline be expected to last?
 - How long will it take for employees to gain proficiency with the new work after the change is implemented?
 - Could this change affect productivity permanently? For example, will the amount of time it takes to do this process be permanently increased or decreased?
 - How is productivity currently measured and reported? Are there recommendations for measuring potential productivity impacts associated with this initiative?
- How might this change potentially affect quality?
 - How are quality and defects currently measured and reported? Are there recommendations for measuring the potential impact on quality associated with this initiative?

- How might this change potentially affect creativity and innovation?
- Are there other aspects of organizational performance that may be affected by this change initiative? If so, how could they be measured?

Change Management Planning Considerations

Once the potential performance risks and implications of a change initiative are identified and estimated, the project team, including the change practitioner, can develop an effective project and change management plan to measure and manage performance implications over the life of the initiative. Examples may include:

- Anticipating the financial implications of decreased productivity (accounting for losses in the organization’s budget)
- Altering employee schedules during the initiative (for example, limiting employee vacations during implementation, staffing up, using temporary labor, etc.)
- Temporarily limiting customer demand (for example, decreasing the number of customer appointments available)
- Offering multiple training sessions to allow staggered employee attendance
- Managing customer expectations (for example, informing customers there may be issues or delays)
- Establishing mechanisms to identify and address quality concerns and defects

Call for Action

There is a paucity of sources, especially sources in peer-reviewed publications, examining the relationship between organizational change and performance. These data limitations make it harder to quantify and demonstrate the benefit of change management in terms of performance, and to identify and evolve best practices. Change practitioners have a significant opportunity and responsibility to measure and publish

observations that not only contribute to our collective understanding of the factors involved in the relationships between change and performance but also that help us enhance our ability to anticipate, quantify and manage performance risks and implications effectively.

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