



Transformation process meets innovation leadership—an analysis of new challenges in change theory

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Abstract

The continuous changes in the business environment require transformation processes and innovation in organizational structures to maintain competitiveness. Innovation is required for future orientation and need an appropriate leadership style to be implemented in the company successfully. Various studies in the literature examine the topic of change models and the requirements for effective implementation of changes. Based on the constant change in the labor market, which is due to ongoing digitalization, the need for research of transformation, change-management and radical or disruptive innovation remains topical. A new challenge arises with a transformation in the entire company which affects all essential business processes. Because several levels are simultaneously affected by the transformation process, a more complex concept is required for the implementation than it could be found in the literature. There is a lack of empirical research in general for innovation-driven transformation processes and a missing connection to the implementation of radical or disruptive innovation in company. The aim of this paper is to investigate the need for new research in change theory. The focus is on the importance of innovation leadership for a radical or disruptive innovation change process, what is to be classified under a comprehensive transformation process in the company. In addition, the need for an innovation transformation model is established.

Keywords Change process · Change model · Transformation process · Innovation · Leadership

1 Introduction

Organizations need to prepare for an unpredictable and uncertain environment to adapt to the accelerating pace of the labor market due to globalization, digital transformation and increasing competition. The ongoing change brings ambiguity and complexity that should be solved by successful navigation through it (Jones et al. 2019). The digital world is growing and the challenges for companies are increasing. Volatile customer demands, rising market dynamics and the need for continuous advancements must be considered (Porter and Heppelmann 2014). Already 2010, in an IBM study, executives announced that the world would become more complex, dynamic, uncertain, and structurally changed (IBM 2010, p.15). The current

business environment is with other words: volatile, uncertain, complex, and ambiguous (Rodriguez and Rodriguez 2015). Change is constant, complex, ever-present and comes in many shapes, sizes, and forms (e.g., By 2005). It is an ongoing process in organizations on a strategic and operational level (Burnes 2004). Organizational change is complex and requires an integrated approach including all necessary phases and factors to understand and control the change process (Errida and Lotfi 2021). It is no longer usual that you have to think about a comprehensive transformation of the company situationally after several years due to competitive or market conditions, nowadays it is twice a year in any branch (Spiesshofer 2017).

Change in organization is sophisticated because several processes run simultaneously (Jones et al. 2019). All organizational aspects are affected such as objectives, strategy, internal structure, processes, employees, and corporate culture. Therefore, the change must be very well planned and more adaptable (Kanter et al. 1992). Organizational change and organizational strategy are related issues (Burnes 2004) which should be processed together.

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Different studies show a high failure rate of change initiatives: rates from 70% (e.g., Burnes 2011) to 75% (e.g., Smith 2002) are reported. Missing valid framework for the implementation and management of change could be the reason for this high failure rates. Best practices, theories and approaches are various and contradictory (Burnes 2004). Furthermore, there is a lack of empirical research on change-management (By 2005) and change models (Burnes and Jackson 2011). Therefore, Hughes (2011) doubts the validity of the failure rates. This leads to increased interest in research in this field in order to make the change successful by identifying positive factors (Rafferty et al. 2013).

Questions like how to conduct an organizational change successfully in the new VUCA¹ world, which one is the best leadership style for change and how empirical evidence about change models can be used are open. These factors should be investigated to close the existing research gap in change literature (Jones et al. 2019).

The aim of this investigation is to answer the following research question: Do the existing transformation processes meet the need for the implementation of innovation in current labor market? For this purpose, a literature review on the important topics was conducted to identify whether there is a need to add the topic of innovation into change literature. Then the results of the study are presented, and conclusions are drawn.

2 Theory

In this section, important terms will be introduced, and the definitional framework set up. Terms are often used differently in the literature depending on the context. Therefore, a clear conceptual separation of terminology is necessary.

2.1 Change-management

Change-management is essential when it comes to changes in the company. Because of this, change-management is one of the most investigated terms in the change literature. There are a variety of definitions and conceptual frameworks for this term.

Moran and Brightman (2001) define change-management as “[...] the process of continually renewing an organization’s direction, structure, and capabilities to serve the ever-changing needs of external and internal customers” (p. 111). The insights from empirical literature are considered for change-management principles. These include, for example, the importance of leadership and communication for the process. However, some principles are not

considered, such as improving readiness for change and pilot testing (Stouten et al. 2018) for example. The existing literature is described as: “[...] theories and approaches to change management currently available to academics and practitioners are often contradictory, mostly lacking empirical evidence and supported by unchallenged hypotheses concerning the nature of contemporary organisational change management.” (By 2005, p. 369).

This is an indication for the research potential of this topic. Although there are numerous studies on why change could fail (e.g., Burnes 2011; Jones et al. 2019; Kotter 1995), little is known about success factors of change initiatives (Higgs and Rowland 2005), which could give clear answers and advice for successful change.

Hughes (2011) doubts the well-known change failure rate of 70% for change initiatives. Indeed, a recent meta-analysis by Jones et al. (2019) shows the opposite result reporting that more than 70% of the change initiatives are successful. Nevertheless, Hughes’ (2011) criticism can be taken up regarding the failure rate since neither failure nor success are defined in the context of change.

2.2 Transformation

In addition to general extensive transformation processes, digital transformation is also an issue. The latter is defined as the use of technology to enable improved business performance. Digitalization takes place when the increased usage of technologies lead to changes within business (Westerman et al. 2011). The digital transformation not only includes the use of technologies, but also leads to the transformation of essential business elements and influences processes, products, management concepts and organizational structures (Matt et al. 2015, p. 339). Especially the successful and efficient implementation of digital transformation is a current topic in research. For example, the investigation of its impact on labor is going on (Zaoui and Souissi 2020).

2.3 Innovation

The most famous definition for innovation is from Schumpeter (1947). He defines innovation as “[...] the doing of new things or the doing of things that are already done, in a new way.” (ibid., p. 151). Another definition is as follows: Innovation “[...] is the profitable implementation of strategic creativity” (Dundon 2002, p. 6). Thus, this definition involves four key elements, which are profitability, implementation, strategy, and creativity. The latter is to find new ideas. The strategy determines the usefulness of the new idea. Implementation means to put the useful idea into action for maximizing the added value, thereby to reach profitability (ibid., p. 5ff). Innovations emerge from the successful implementation of new

¹ VUCA: volatility, uncertainty, complexity, ambiguity.

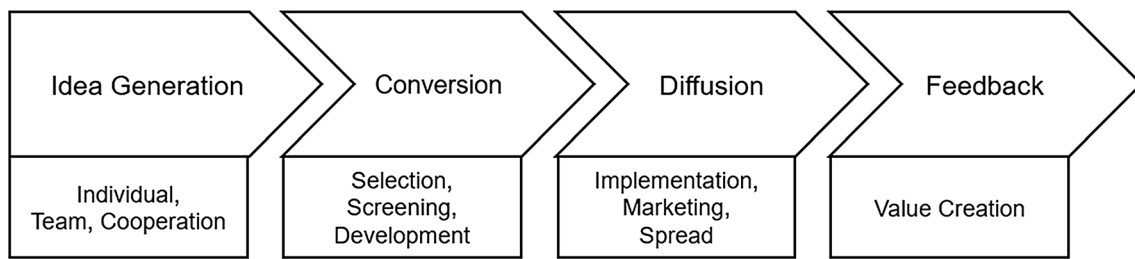


Fig. 1 Innovation value chain (see Faix et al. 2015; Hansen and Birkinshaw 2007)

ideas, which may have been arose by an individual or a team. The production of this new and useful ideas for the company is the result of creativity (Amabile et al. 1996).

Incremental innovations are changes to existing products, services or processes that strive for development or optimization. Radical or disruptive innovations have the aim to develop new products, systems, or technologies (Faix et al. 2015, p. 53f). Young companies strive for radical innovations more often than older companies and therefore can achieve large growth effects in case of successful innovation (Coad et al. 2016). Furthermore, the size of the company is no longer important, but speed (e.g. Carbon et al. 2021, Faix et al. 1994). Through their radical or disruptive ability to innovate, young companies can push older companies out of the market as they can hardly realize any innovations (Dachs et al. 2020). Radical innovations are of great importance for a flourishing economy (Faix et al. 2015). For countries, like Germany, which mainly implement incremental innovations there is a need for radical or disruptive innovations (Carbon et al. 2021).

Due to the depth of transformation processes and the trend towards digitalization, not only products and processes are affected by the need for innovation, but also business models (Becker et al. 2018, p. 20f). Figure 1 shows the innovation value chain, which consists of four different stages. Idea generation, conversion, diffusion, and feedback. It is presented as successive stages. But literature shows that changes in the current economic context does not happen to end. It is an ongoing process and innovation is a part of it. Innovations can be seen as triggers for the implementation of change measures.

2.4 Leadership

As we have seen innovation is an important aspect for the future orientation of a company. The area of responsibility for innovation lies with leadership.

Leadership involves innovating new concepts and new ideas to reach certain outcomes. Furthermore, the

components creativity, innovation, and entrepreneurship are also included for managing change processes successfully (Soderholm 1989). The term innovation leadership appears frequently in leadership literature (e.g., Basadur 2004; Bel 2010; Kremer et al. 2019; Rahman 2016), but there is no distinct differentiation to other leadership definitions.

In the context of globalization, ongoing digitalization and constant change, a new understanding of leadership is necessary in the twenty-first century, which corresponds to the new requirements of a complex world (Faix et al. 2021). The following definition comprises the responsibility of leadership extensively: “Leadership means to lead oneself and communities through open, complex, and dynamic situations into an innovative and creative future, with personality and in ways that are reasonable, responsible, and ethical, while taking into account the framework conditions and collective rationality.” (Faix et al. 2019).

This definition is a “comprehensive and forward-looking” version of leadership (Faix et al. 2021, p. 13). Furthermore, this formulation includes different aspects, which will be explained subsequently. Leading means to be the reason for people to reach a common goal (Mergenthaler 2017). Having good reasons to achieve sustainable positive development for the community means to be reasonable, responsible, and ethical. Additionally, creating value while preserving nature is another related important aspect (Faix et al. 2021). The currently existing complex and dynamic world requires having an idea of future scenarios in order to derive goals from them. This ensures a creative formation of the future (e.g., Kisgen 2017). The goal of permanently promoting innovations enables a creative and innovative future, which should contain radical innovations as well as disruptive ones (e.g., Faix et al. 2015). To ensure collective rationality, as many stakeholders as possible must be involved in cooperation (Faix et al. 2021). Innovative leadership enables the emergence of an innovation friendly culture and builds trust in employees to innovate (Rahman 2016, p. 208). Furthermore, an innovation leader manages the innovation process by supporting a creative work environment to manifest new ideas

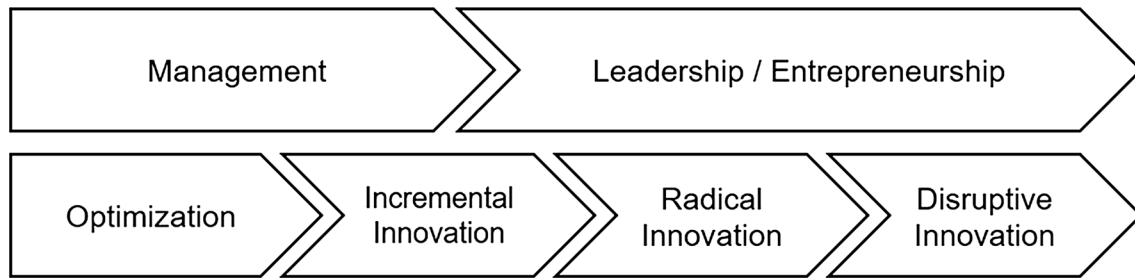


Fig. 2 Management versus leadership and its importance for different types of innovation (Carbon et al. 2021)

(Basadur 2004). They have a special ability to recognize and develop opportunities (Bel 2010). Classic management is no longer up-to-date due to monolithic structures, as there are new challenges on the labor market. For this reason, new methods are necessary. Leadership is required to lead companies into a sustainable future successfully with the help of radical or disruptive innovations (Carbon et al. 2021). Figure 2 shows the distinction between management and leadership. For radical or disruptive innovation leadership is required.

2.5 Conceptual framework

The different terms mentioned above and their interdependences are summed up in Fig. 3 to provide an understanding of the conceptual framework. All processes take place in the company and are managed by leadership. The innovation idea emanates from the leadership level, which initiates the transformation process. All change measures are carried out within a given transformation. The change processes are also triggered by the innovation, which should lead to profitable change in the company.

3 Current change models and requirements

A narrative literature analysis was conducted to gain insights about change models, transformation processes, leadership, change-management, and innovation.

Lewin (1947) and Kotter's (1995) change models are widely used in change-management and are one of the most respected models. Change models are mainly structured as steps that should be conducted during a change process to reach the objective. Table 1 shows and compares several change models, which are widely present in literature.

Even if the shown change models cover important aspects there is a need for a new model. On the one hand existing models do not contain all necessary factors that lead to success of organizational change (Jones et al. 2019). On the other hand a new model should serve as a tool that can be used in a more flexible way (Burnes 2011) as. It is not

sufficient to have several change models to cover the needs of different situations (Burnes 2011) because these depend on the context and may vary between organizations (e.g., Al-Haddad and Kotnour 2015). It could be a constructive solution to combine effective change models (By 2005) to achieve the best mix in the context of organization and change for the implementation (Appelbaum et al. 2012). Furthermore, environmental factors must be considered, and the change methods need to be evolved continuously (Al-Haddad and Kotnour 2015). “Advocates of particular change ideologies mostly claim that their model is universally applicable. However, turbulent times demand different responses in varied circumstances. So managers and consultants need a model of change that is essentially a “situational” or “contingency model,” that is, one that indicates how to vary change strategies to achieve “optimum fit” with the changing environment.” (Dunphy and Stace 1993, p. 905).

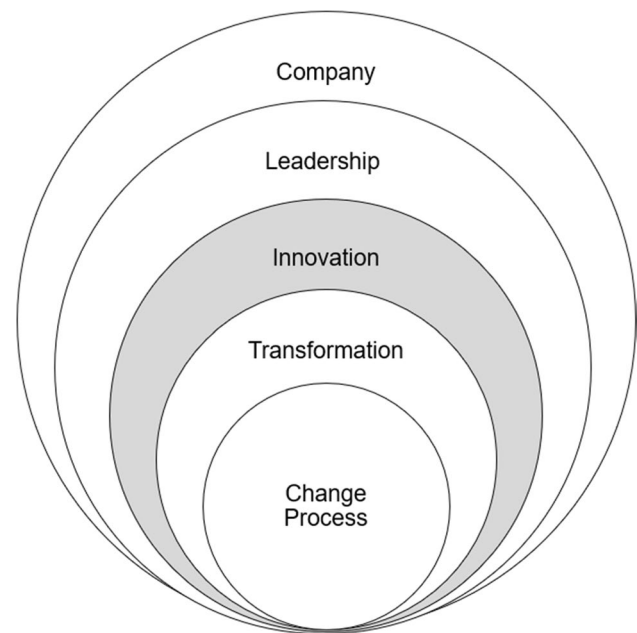


Fig. 3 Change process in company (own illustration)

Table 1 Overview change-models in literature

Lewin (1947)	Kotter (1995)	Garvin (2000)	Hiatt (2006)	Stouten et al. (2018)
Unfreeze	Establish a sense of urgency	Leader behavior	Awareness	Assess to opportunity or problem motivating the change
Move	Form a powerful guiding coalition	Creating a shared need	Desire	Select and support a guiding change coalition
Refreeze	Create a vision Communicate the vision Empower to act on the vision Create short-term wins Consolidate Improvements and produce more change Take new approaches in the corporate culture	Shaping a vision Mobilizing commitment Making change last Monitoring progress Changing systems and structures	Knowledge Ability Reinforcement	Formulate a clear compelling vision Communicate the vision Mobilize energy for change Empower other to act Develop and promote change-related knowledge and ability Identify short-term wins and use as reinforcement of change progress Monitor and strengthen the change process Institutionalize change in company culture, practices, and management succession

Table 2 Innovation approaches

Portnova and Peiseniece (2017)	Kremer et al. (2019)
Invention	Develop the right group norms
Implementation	Design teams strategically
Innovation	Manage interaction with those outside the team Show support as a leader Display organizational support Use performance management effectively

Furthermore, there is no innovation transformation model in literature. Although innovation is mentioned as important for the current labor market and to maintain competitiveness a detailed description and investigation is missing. Table 2 shows two approaches by Portnova and Peiseniece (2017) and Kremer et al. (2019). Their elements can be used for an innovation-based model.

Considering the different change models as well as the innovation approaches which are seen as common (e.g. Garvin 2000; Hiatt 2006; Kanter et al. 1992; Kotter 1995), Fig. 4 links the relevant factors as a cycle because they are connected with each other. Leadership is on the top as most important factor with direct impact on the change capabilities of an organization (e.g., Gilley et al. 2009; Jones et al. 2019). All processes are managed by the management level, which means that leadership plays a crucial role. A clear vision during the actions is very important and well-planned communication is also necessary to reduce resistance to change (Lewis 2006). In addition, a suitable communication style of the vision is important to generate awareness of



Fig. 4 Important change factors (own illustration)

the change process (Hiatt 2006). The need for change must be openly communicated to avoid uncertainty and achieve success (Bateh et al. 2013). Change needs a clear vision regardless of the change coalition to be successful. Since employees need to understand the reasons for the change initiative to support the actions (Galli 2018). One of the first steps should be to create a guiding coalition for a successful management of change. A change team should be set up and take responsibility for the ongoing processes and therefore needs powerful individuals with enough expertise and leadership skills (Kotter 1995). Progress in the form of short-term wins serves to keep employees motivated.

Finally, the changes must be institutionalized and anchored in the corporate culture (Kotter 1995).

4 Concept for change leadership

The investigation of the literature on change processes and change models shows that there are numerous approaches for the implementation of change initiatives in companies. But there is no clear definition of the terms such as transformation, change, leadership, and innovation although the content goes back decades. Therefore, it is important to set a definition framework.

Radical or disruptive innovations are seen as a trigger for a transformation process, in contrast incremental ones represent optimizations and thus it causes only small changes. Change management was considered in connection with changes in the company and placed in the context of leadership. It seems that the term and the meaning of change management is outdated because leadership is in the process to replace management with new requirements and areas of responsibility that are added in contrast to the traditional understanding of the manager. Management and leadership can be distinguished conceptually. While the areas of responsibility of managers are understood in the traditional way, leadership includes a greater future orientation through responsibility for the new VUCA-world. The challenge for leaders is to learn how to lead in the today's VUCA world (Bawany 2016, p. 31) because managing and leading change is an upcoming required leadership skill (Jones et al. 2019). For successful long-term changes powerful leaders are needed (Harrison 2011). In addition, the implementation of innovation requires leadership and not management. Moreover, leadership of the future is referred to as innovation leadership (Carbon et al. 2021).

This paper focuses on transformation process and innovation leadership because both are top themes for the recent and future economy. Due to external factors, companies are initiated to go along with changes and initiate transformation processes to be successful. This can be successfully managed through a proper leadership style, such as innovation leadership in this case. Innovations are also one of the current topics and should be given more attention in change theory to be able to create suitable models. It has already been established that change is an ongoing condition in today's economy and cannot be viewed as a line. This should also apply to innovations. Therefore, the innovation value chain is represented as follows in Fig. 5. It shows the innovation value cycle, which consists of the four different stages: idea generation, conversion, diffusion, and feedback. These are not only consecutive steps, but elements of a cycle.

Therefore, the term change leadership instead of change management is suggested.

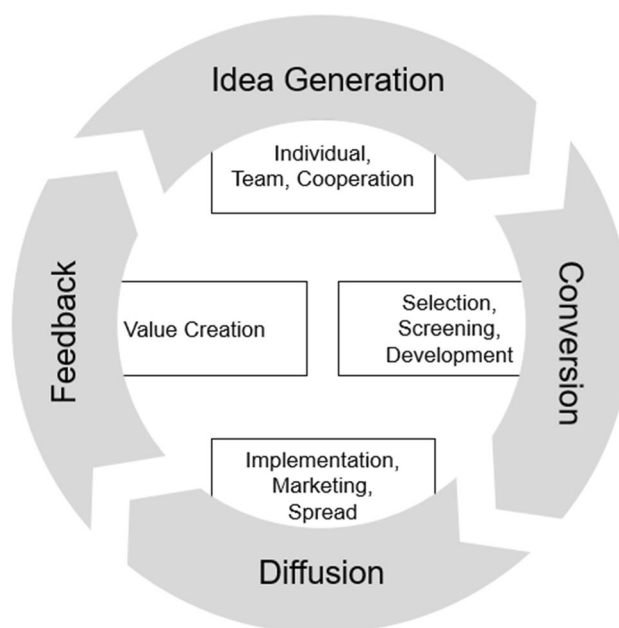


Fig. 5 Innovation value cycle (based on Faix et al. 2015; Hansen and Birkinshaw 2007)

5 Conclusion

The aim of this paper was to analyze existing literature with regard to their fit with current topics on the labor market and its transformation processes. Changes are now part of the day-to-day business of companies and must be well planned for successful implementation. This requires effective leadership. In addition, innovations in the company are necessary to maintain competitiveness. Although the importance of innovation for the survival of the company is often mentioned in the literature, innovation is given little attention in change theory. There are change models and innovation approaches in literature, but an innovation transformation model does not exist. This represents a research gap that should be explored about change processes and the need for radical or disruptive innovations in the labor market. Companies have to go through holistic transformation processes in order to be able to achieve defined goals successfully regarding change initiatives.

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References

- Al-Haddad S, Kotnour T (2015) Integrating the organizational change literature: a model for successful change. *J Organ Chang Manage* 28(2):234–262
- Amabile TM, Conti R, Coon H, Lazenby J, Herron M (1996) Assessing the work environment for creativity. *Acad Manage J* 39(5):1154–1184
- Appelbaum SH, Habashy S, Malo J-L, Shafiq H (2012) Back to the future: revisiting Kotter's 1996 change model. *J Manage Dev* 31(8):764–782
- Basadur M (2004) Leading others to think innovatively together: creative leadership. *Leadersh Q* 15(1):103–121
- Bateh J, Castaneda ME, Farah JE (2013) Employee resistance to organizational change. *Int J Manage Inf Syst (IJMIS)* 17(2):113–116
- Bawany S (2016) Leading change in today's VUCA world. *Leadersh Excell Essent* 33(2):31–32
- Becker W, Ulrich P, Stradtman M (2018) Geschäftsmodellinnovationen als Wettbewerbsvorteil mittelständischer Unternehmen. Springer Gabler, Wiesbaden
- Bel R (2010) Leadership and innovation: Learning from the best. *Glob Bus Organ Excell* 29(2):47–60
- Burnes B (2004) Managing change: a strategic approach to organisational dynamics. Prentice Hall, Pearson Education
- Burnes B (2011) Introduction: why does change fail, and what can we do about it? *J Chang Manage* 11(4):445–450
- Burnes B, Jackson P (2011) Success and failure in organizational change: an exploration of the role of values. *J Chang Manage* 11(2):133–162
- By RT (2005) Organisational change management: a critical review. *J Chang Manage* 5(4):369–380
- Carbon C-C, Faix WG, Kisgen S, Mergenthaler J, Muralter F, Schwinn A, Windisch L (2021) Steinbeis-Innovationsstudie: Eine Metastudie über die Innovationsfähigkeit und -tätigkeit der Volkswirtschaften Brasiliens, China, Deutschland, Schweiz und USA (2. vollständig überarbeitete, aktualisierte und erweiterte. Steinbeis-Edition, Stuttgart
- Coad A, Segarra A, Teruel M (2016) Innovation and firm growth: does firm age play a role? *Res Policy* 45(2):387–400
- Dachs B, Hawlik R, Wasserbacher D (2020) Radikale Innovation und Firmenalter. Austrian Institute of Technology, Wien. https://www.ait.ac.at/fileadmin/mc/innovation_systems/images/Research_Fields/Innovation_Systems_and_Digitalisation/Bericht_radikale_Innovation_und_Firmenalter_bf.pdf. Accessed 17 July 2023
- Dundon E (2002) The seeds of innovation: cultivating the synergy that fosters new ideas. AMCOM, New York
- Dunphy D, Stace D (1993) The strategic management of corporate change. *Hum Relat* 46(8):905–920
- Errida A, Lotfi B (2021) The determinants of organizational change management success: Literature review and case study. *Int J Eng Bus Manage* 13:1–15
- Faix WG, Buchwald C, Wetzler R (1994) Der Weg zum schlanken Unternehmen. Verlag Moderne Industrie, Landsberg
- Faix WG, Mergenthaler J, Ahlers R-J, Auer M (2015) Innovation-quality. The value of the new. Steinbeis-Edition, Stuttgart
- Faix WG, Kisgen S, Mergenthaler J (2019) Leadership, personality, innovation: education and research at SIBE. Steinbeis Edition, Stuttgart
- Faix WG, Kisgen S, Schwinn A, Windisch L (2021) Führung, Persönlichkeit und Bildung: Mit Führungskraft die Zukunft erfolgreich und nachhaltig gestalten (1. Aufl. 2021). SIBE-Edition. Springer Berlin Heidelberg, Berlin, Heidelberg [Leadership, Personality and Education]
- Galli BJ (2018) Change management models: a comparative analysis and concerns. *IEEE Eng Manage Rev* 46(3):124–132
- Garvin D (2000) Learning in action: a guide to putting the learning organization to work/D.A. Garvin
- Gilley A, Gilley JW, McMillan HS (2009) Organizational change: motivation, communication, and leadership effectiveness. *Perform Improv Q* 21(4):75–94
- Hansen M, Birkinshaw J (2007) The innovation value chain. *Harv Business Rev* 85:121–130, 142
- Harrison LM (2011) Transformational leadership, integrity, and power. *New Dir Stud Serv* 135:45–52
- Hiatt J (2006) ADKAR: a model for change in business, government, and our community. Prosci., Loveland
- Higgs M, Rowland D (2005) All changes great and small: exploring approaches to change and its leadership. *J Chang Manage* 5(2):121–151
- Hughes M (2011) Do 70 per cent of all organizational change initiatives really fail? *J Chang Manage* 11(4):451–464
- IBM (2010) Unternehmensführung in einer komplexen Welt. Gesamtausgabe. <https://www.ibm.com/downloads/cas/WLNKZQW1>. Accessed 17 July 2023
- Jones J, Firth J, Hannibal C, Ogunseyin M (2019) Factors contributing to organizational change success or failure. In: Ordóñez de Pablos P, Hamlin RG, Ellinger AD, Jones J (eds) Advances in business strategy and competitive advantage. Evidence-based initiatives for organizational change and development. IGI Global, Hershey, pp 155–178
- Kanter RM, Jick TD, Stein BA (1992) The challenge of organization change: how companies experience it and leaders guide it. Maxwell Macmillan International, New York
- Kisgen S (2017) The future of business leadership education in tertiary education for graduates. Steinbeis-Edition, Stuttgart
- Kotter JP (1995) Leading change: why transformation efforts fail. *Harv Bus Rev* 28(3):59–67
- Kremer H, Villamor I, Aguinis H (2019) Innovation leadership: best-practice recommendations for promoting employee creativity, voice, and knowledge sharing. *Bus Horiz* 62(1):65–74
- Lewin K (1947) Frontiers in group dynamics: concept, method and reality in social science; social equilibria and social change. *Hum Relat* 1:5–41
- Lewis LK (2006) Employee perspectives on implementation communication as predictors of perceptions of success and resistance. *West J Commun* 70(1):23–46
- Matt C, Hess T, Benlian A (2015) Digital transformation strategies. *Bus Inf Syst Eng* 57(5):339–343
- Mergenthaler J (2017) Leadership education—ein abduktiver Entwurf (Doctoral dissertation, Dissertation (1. Auflage)[XVII, 535 Seiten]. Steinbeis Edition, Stuttgart)
- Moran JW, Brightman BK (2001) Leading organizational change. *Career Dev Int* 6(2):111–119
- Porter ME, Heppelmann JE (2014) How smart, connected products are transforming competition. *Harv Bus Rev* 92(11):64–88
- Portnova I, Peiseniece L (2017) Leaders' Competences for successful leadership of invention and implementation of innovation: a conceptual model. *J Bus Manage* 13:40–55
- Rafferty AE, Jimmieson NL, Armenakis AA (2013) Change readiness: a multilevel review. *J Manage* 39(1):110–135
- Rahman MA (2016) Organization strategies & innovative leadership management. *Int J Bus Manage* 11(10):206–223

- Rodriguez A, Rodriguez Y (2015) Metaphors for today's leadership: VUCA world, millennial and "Cloud Leaders." *J Manage Dev* 34(7):854–866
- Schumpeter JA (1947) The creative response in economic history. *J Econ Hist* 7(2):149–159
- Smith ME (2002) Implementing organizational change: correlates of success and failure. *Perform Improv Q* 15(1):67–83
- Soderholm LG (1989) Needed: engineering leadership. *Design News* 45(13):13–13
- Spiesshofer U (2017) Was den Vorstand um den Schlaf bringt. *Frankfurter Allgemeine Zeitung* vom 01.04.2017
- Stouten J, Rousseau DM, de Cremer D (2018) Successful organizational change: integrating the management practice and scholarly literatures. *Acad Manage Ann* 12(2):752–788
- Westerman G, Calm ejane C, Bonnet D, Ferraris P, McAfee A (2011) Digital transformation: a roadmap for billion-dollar organizations. MIT Center for Digit Bus Capgemini Consult 1:1–68
- Zaoui F, Souissi N (2020) Roadmap for digital transformation: a literature review. *Proc Comput Sci* 175:621–628