ClinicoEconomics and Outcomes Research

Dovepress

open access to scientific and medical research

Open Access Full Text Article

REVIEW

Change and Innovation in Healthcare: Findings from Literature

Frida Milella[1]
Eliana Alessandra Minelli[2]
Fernanda Strozzi[2]
Davide Croce[3,4]

[1]IRCCS Istituto Ortopedico Galeazzi, Milan, Italy; [2]University Carlo Cattaneo - LIUC, Castellanza, Italy; [3]School of Public Health, Faculty of Health Science, Witwatersrand University, Johannesburg, South Africa; [4]Centre for Health Economics, Social and Health Care Management, University Carlo Cattaneo - LIUC, Castellanza, Italy

Background: Change is an ongoing process in any organizations. Over years, healthcare organizations have been exposed to multiple external stimuli to change (eg, ageing population, increasing incidence of chronic diseases, ongoing Sars-Cov-2 pandemic) that pointed out the need to convert the current healthcare organizational model. Nowadays, the topic is extremely relevant, rendering organizational change an urgency. The work is structured on a double level of analysis. In the beginning, the paper collects the overall literature on the topic of organisational change in order to identify, on the basis of the citation network, the main existing theoretical approaches. Secondly, the analysis attempts to isolate the scientific production related to the healthcare context, by analysing the body of literature outside the identified citation network, divided by clusters of related studies.

Methodology: This review adopted a quantitative-based method that employs jointly systematic literature review and bibliographic network analysis. Specifically, the study applied a citation network analysis (CNA) and a co-occurrence keywords analysis. The CNA allowed detecting the most relevant papers published over time, identifying the research streams in literature.

Results: The study showed four main findings. Firstly, consistent with past studies, works reviewed pointed out a convergence on the micro-level perspective for change's analysis. Secondly, an organic viewpoint whereby individual, organization and change's outcome contribute to any organizational change's action has been found in its early stage. Thirdly, works reported change combined with innovation's concept, although the structure of the relationship has not been outlined. Fourth, interestingly, contributions have been limited within the healthcare context.

Conclusion: Human dimension is the primary criticality to be managed to impede failure of the re-organizational path. Individuals are not passive recipients of change: individual change acceptance has been found a key input. Few papers discussed healthcare professionals' behaviour, and those available focused on technology-led changes perspective. In this view, individual acceptance of change within the healthcare context resulted being undeveloped and offers rooms for further analyses.

Keywords: change management, organizational change, literature review, Systematic Literature Network Analysis, healthcare

Introduction

Healthcare organizations are in an ongoing state of change forcing to convert themselves incrementally or in radical ways.[7,65] Organizational change is defined as the 'change that involves differences in how an organization functions, who its members and leaders are, what form it takes, and how it allocates resources'.[32]

Correspondence: Frida Milella
Tel +39 347 81 14 414
Email frida.milella@gmail.com

Organizational change constitutes a complex phenomenon that develops in any sector. Change in the specific field of healthcare "requires a vision and understanding of the core functions of the system and infrastructure supporting those core functions".[29]

Accordingly, the paper is built upon two sequentially levels of analysis. First, the paper collects the overall scientific production concerning organizational change topic basis on the citations network. This allows for outlining main ongoing theoretical developments and detecting emerging research strands. This preliminary step is critical to gaining an insight into the depth of scientific production in the healthcare context. Second, the work groups additional contributions extant in the literature but not included in the citation network. The analysis is accomplished by selecting papers based on the occurrence of author keywords within the original set of retrieved papers. Thereby, this stage of analysis draws further conclusions on the existing body of knowledge concerning to organizational change in the healthcare context.

Specifically, the paper addresses the following research questions:

RQ1: What are the current streams of research on change management?

RQ2: What is the state-of-the-art of change management in the healthcare field?

A quantitative-based method, called "Systematic Literature Network Analysis (SLNA)", introduced by Colicchia & Strozzi (2012), that employs jointly systematic literature review and bibliographic network analysis is adopted to carry out the two-stage of analysis. The dynamic perspective, which the method provides, eases the detection even of literature gaps not considered to date in the existing body of research production, due to the heterogeneous contributions.

State of Art in Healthcare

Healthcare organizations, described as "professional bureaucracy",[40] deserve a specific focus.

Consistent with Harney and Monks (2014),[28] hospitals' organization is characterized by a particular model: the whole arrangement draws upon the power of its high-skilled employees who are in charge to fulfil operational tasks in a professional and specific way.[4] Andreasson et al (2018)[2] observe that, in such a setting, the individuals and teams' autonomy[53] enables them to operate into an environment where their knowledge and professional skills guide decisions.

Thereby, medical professionals can manage their patients without considering their peers throughout their activities.[24,40] This control over their work is partly offset by the so-called collegial influence[13] – based on professional credibility[43] - further considering that physicians pursue professional norms, work standards and institutional scripts provided externally the organization's structure.[2] Concerning the autonomy of physicians, clinical judgment must be unrestricted due to the complexity of their job and the challenges of measuring outcomes.[33] As a result of this, managers could not handle the medical problem-solving process since they lack knowledge and skillset developed by long periods of training, apprenticeship, and socialization.[33] Such uneven allocation of power – managers – and knowledge – professionals – could determine tension between them.[49]

In such perspective, professional bureaucracy organizations fulfil the function of sustaining the necessities of the professionals, who lead "decision-making on a day-to-day basis",[12] rather than vice versa.[53] More specifically, in hospital environments, administrators are not involved in physicians' clinical decisions[33] that aim towards patients' needs.[1,36]

Enshrined within this approach, it is clear that managers have to negotiate, seeking to be consistent with the organization's culture, avoiding imposing working programs, procedures and rules.[27] Accordingly, Andreasson et al (2018)[2] observe that independent professionals and strategic leaders have to jointly approve proposed changes.

Hence, professional bureaucracy has developed drawing upon a bottom-up decision-making arrangement.[2] Striving to yield standardized outputs, the inverted power structure,[13] on the one hand, is conceived as rigid, on the other, is resistant towards the change.[40] Therefore, Andreasson et al (2018)[2] consider professional organizations based on professional workers' authority "rather than on top-down steering".

Consistent with Mintzberg (1983),[40] managing such an organizational configuration implies facing three distinct managerial issues. Firstly, as aforementioned, discretion might lead the focus away from the patient's and organizational needs.[33] Secondly, fitting stable environments, professional bureaucracies tend to render "processes as predictable and routine as possible":[33] thereby there are barriers to innovate in such a context.

Finally, the problem of coordination occurs due to a considerable autonomy that impedes managers to pursue

efficiency and effectiveness of care processes' coordination.[33]

To this respect, what should be considered is the role of the professional community in healthcare organizations. The healthcare organizations can be considered as change-resistant due to the greatly fragmented essence of these organizations (namely numerous professional tribes) and the professionals' power to block change in this sector in so far as not involved in the change process.[19,44] Thus, organizations with a high content of professional autonomy require a definition of the problems and actions to implement organizational changes that are not defined exclusively by the highest levels of management.

Health professionals cannot be equated with passive recipients of change because the lack of involvement would lead to considering the suggested solutions "as being poor fit with the local practice at hand".[18]

Materials and Methods

The data used in the paper were collected from Scopus database that provides coverage around 60% larger than the one of Web of Science.[56]

At the beginning, related to the topic, the set of chosen keywords does not include specific terms. The multifaceted nature of the investigated subject and the purpose to obtain a comprehensive state of the art suggests performing a search strategy based on two of the most comprehensive author's keywords, "change management" or "organizational change".

Based on PRISMA flow diagram,[41] the selection of papers concerned contributions in subject areas ranging from "Business, Management and Accounting" to "Engineering, Social Science and Health Professions" and the search performed in early January 2019, included only articles or conference proceedings published in the last 10 years (2009–2019), with an output of 1968 documents. The query was performed as displayed below in Figure 1.

SLNA method contains the analysis of bibliometric networks based on the paper retrieved, such as citations and keywords analysis, as one of its components (Strozzi et al, 2017). In the following, Citation Network Analysis (CNA) and co-occurrence keywords analysis have been detailed.

To build the network two software packages were used: Vos Viewer and Pajek.

Vos Viewer (http://www.vosviewer.com/) is a software tool for creating and displaying bibliometric networks. Vos Viewer was adopted for the preliminary analysis, in terms of network visualization, for creating the input file for Pajek, and for implementing the analysis of the keywords. Pajek (http://vlado.fmf.uni-lj.si/pub/networks/pajek/) is a software tool for network analyses and, in this work, is employed for displaying and discussing the results of a citation network.

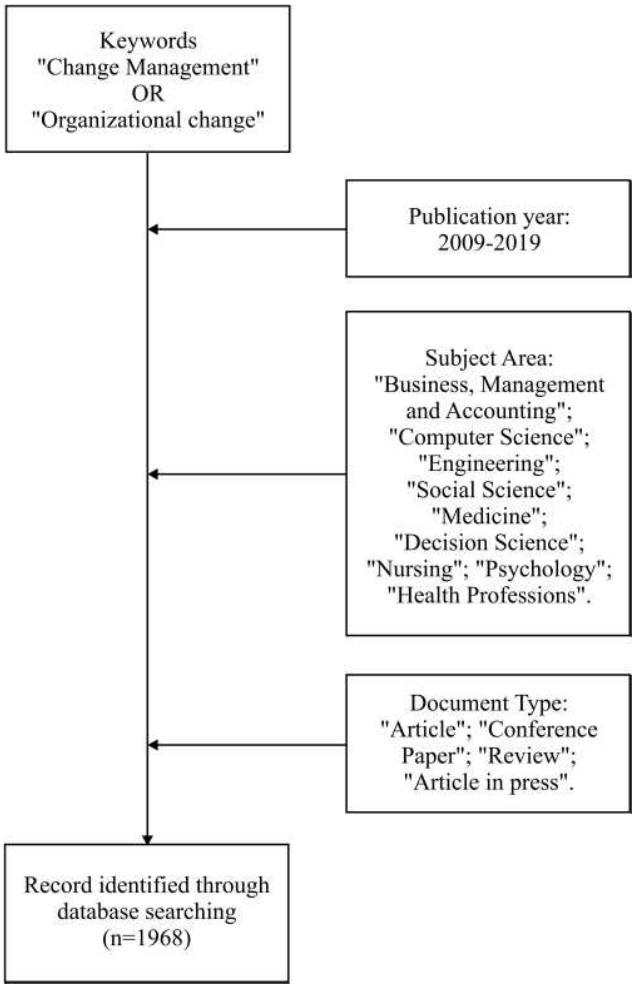

Figure 1 Flow chart of the search strategy.

Citation Network Analysis (CNA)

CNA is a method based on citations, which are the links between papers (nodes) in a citation network. The isolated nodes cannot be involved in the analysis, and the citation analysis can be performed only when components are connected.[51]

The first step in performing network analysis is extracting the isolated nodes, uploaded in VOS Viewer software. The bibliometric network showed only 1284 documents out of 1968 that received at least one citation, displayed in

the Pajek tool. Firstly, the bibliometric network was adjusted by changing the direction of knowledge flow (ie, inverting the direction of arrows from cited to citing papers, that is, from the oldest paper to the most recent one). Secondarily, the analysis revealed that only 840 out of 1284 documents were connected.

CNA connected components in this network were 4. The first component included 353 papers, whilst the remaining components were composed of 26, 10 and 4 papers, respectively. Given the small size of the last identified components (ie, 26, 10 and 4) compared with the first one (ie, 353 papers), only the component with 353 nodes was analysed.

Figure 2 shows the first biggest connected component. In order to gain the backbone of the research line related to a group of connected paper, by recognizing the most relevant ones published over time,[11,37,51] the so-called "main path component"[37] was extracted. The main path enables to detect the main trend in the development of the research line's contents, by calling attention to the papers based on prior articles which take on the role of hubs to the next ones.[51]

The quantification of the transversal weight of the citation was executed. The method "Search Path Count" allows considering all the paths deriving from each source (ie, a paper that does not cite any other) to each sink (ie, a paper not receiving citations by others).

A cut-off value of 0.5 was set (the default value) to eliminate all arcs having a lower value in the original citation network and to obtain the most relevant connected component. Figure 3 depicts the main path for the biggest connected component.

To outline a framework as comprehensive as possible on the subject, only the use of citations to trace the coordinates can be limiting. Some papers are not included in the analysis because other ones did not cite them, despite their contents were significant or they may not be selected since they were published recently, therefore they did not still receive a sufficient number of citations. This suggests that the CNA should be combined with other tools such as the Global Citation Score analysis and keyword analysis.[51]

In the following, the citation network analysis is designed to trace the active research streams on the topic of organizational change and to have a preliminary assessment of the extent to which these patterns are present even among the studies dealing with organizational change in the healthcare field. In this view, a first-order analysis based on the main

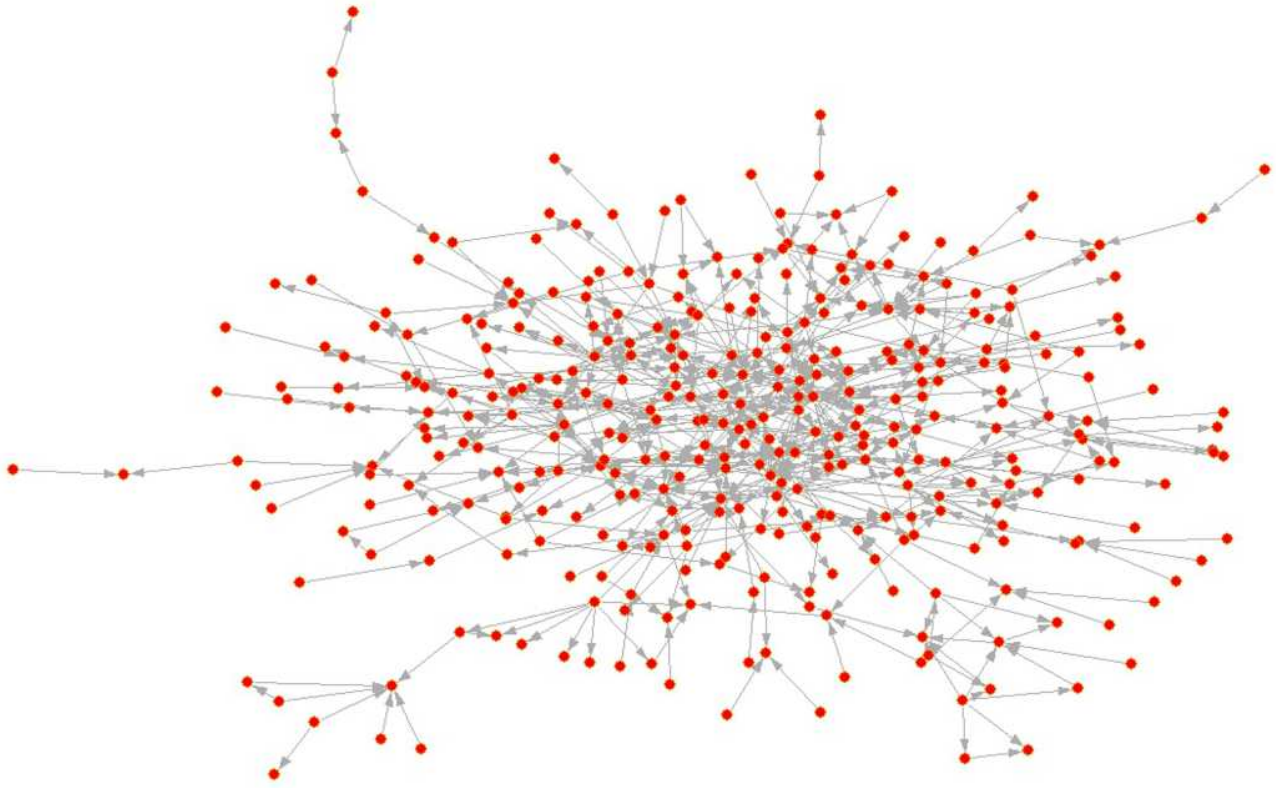

Figure 2 First biggest connected component.

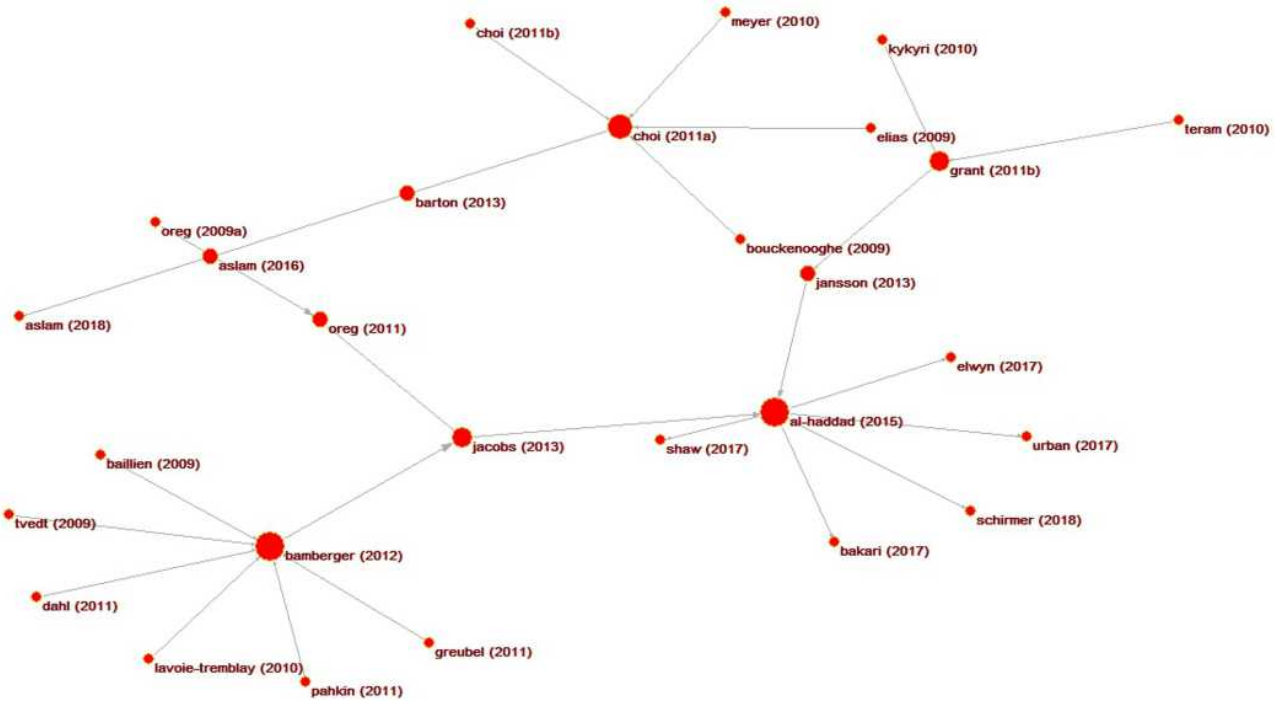

Figure 3 Main path of the first biggest connected component.

path associated with the biggest connected component may be useful to detect general streams and gain an overall picture. The main path sheds light on the articles that refer to prior papers, which act as hubs concerning later works.

Keywords Analysis

Global Citation Network Score Analysis is a tool to detect seminal or recent breakthrough studies[51] that were not selected in the citation network but received a significant amount of citations in the whole Scopus Database. In that sense, these works are however relevant in the field.

Co-occurrence analysis assumes that the authors' keywords of a paper may be considered a synthetic descriptor of the content but also a reference for detecting linkages among issues analysed.[51] Therefore, the co-occurrence around the same word or pair of words may point out a research subject or trend in a specific field.[14] The tool allows to also consider the papers not having received citations nor citing others, ie, the isolated nodes of connected components.[9] In this work only the author keywords networks[14] will be performed.

VOSviewer maps the position of items by applying a function to be minimized which depends on a similarity measure (*ASij*) between items defined as follows:

$$ASij = \frac{cij}{cicj}$$

The *cij* measures the co-occurrence of keywords *i* and *j* in the same document; *ci* and *cj* express the expected number of co-occurrences of *i* and *j*, on the hypothesis that the co-occurrences of *i* and *j* are statistically independent.[51]

Figure 4 shows the co-occurrence network of authors' keywords obtained from the original database (1968 papers). The network was built by accounting for a minimum threshold of keywords' occurrence equals 9 (ie, keywords that appear together at least 9 times).

Co-occurrence keywords analysis detects a cluster of contributions previously excluded as not having received citations nor having cited other authors' papers. Therefore, this stage contributes to a complete preliminary understanding of which literature strands are being developed on organizational change topic within the healthcare field.

Results

The Main Path of the First Biggest Connected Component

The core subject investigated refers to the role of individuals in implementing change, by focusing on the "individual change acceptance".[67] Several papers[3,23,25,26,34,35,45,52]

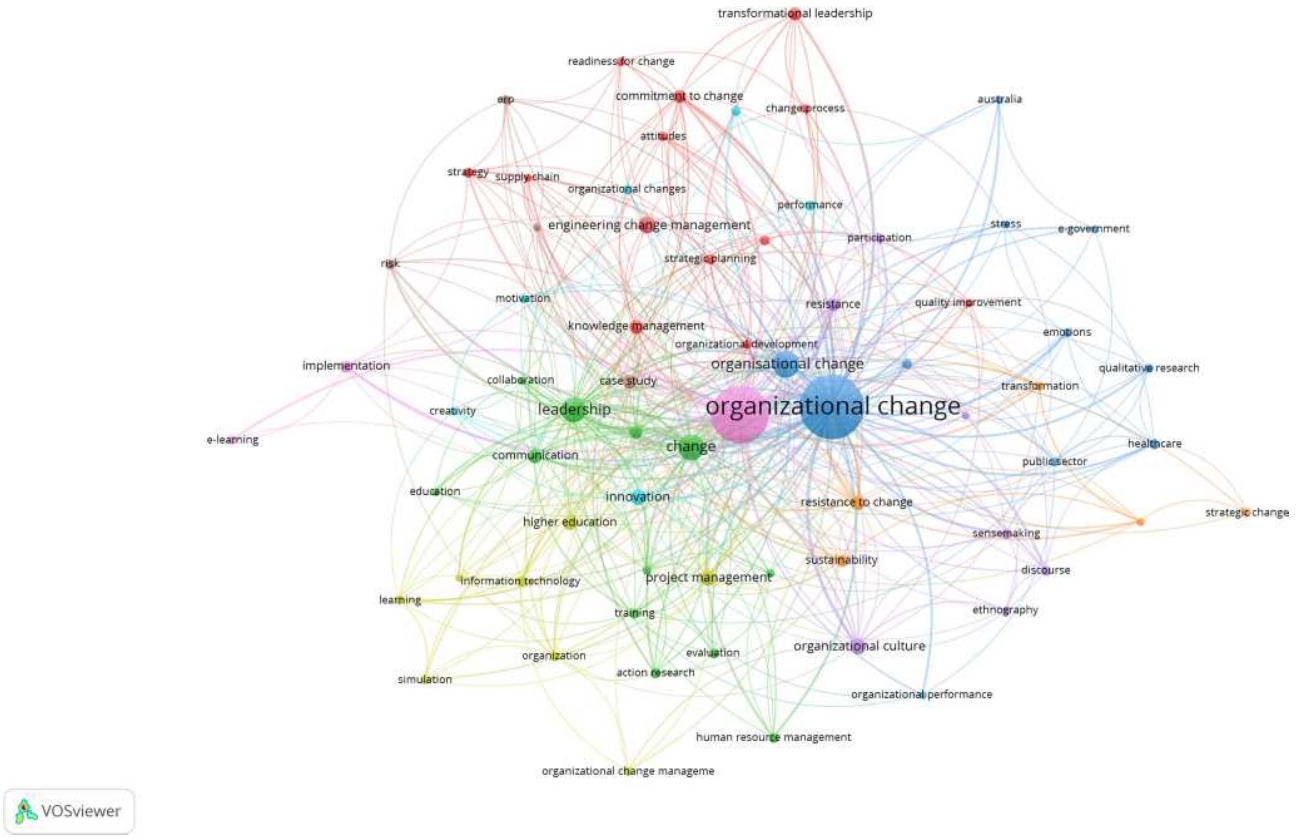

Figure 4 Co-occurrence network of authors' keywords.

previously published already started adopting "micro-level perspective on change".[65]

A first research stream dwells on the factors enabling individuals to be prepared for specific change initiatives. Normative-reeducative change strategies and work environment steering towards learning culture demonstrate to be facilitators.[65] Readiness for organizational change is accomplished when individual attitude perceives change action as a necessary step and likely to be successful.[65] Therefore, readiness for organizational change is viewed conceptually similar to Lewin's notion of the unfreezing step.[3,16] The group is limited to 5 papers (Table 1).

A second literature flow deepens personal beliefs that individuals develop about change initiatives. Personal appraisals about individual ability to face change actions, ie, "change self-efficacy",[30] is referred to being factors making individuals more likely willing to accommodate and accept the change.[65] Individual's pessimistic viewpoint about management ability to be effective in change implementation, ie "cynicism about organizational change",[55] may jeopardise organizational change accomplishment,[47] as well

Table 1 Summary of Results Obtained by Citation Network Analysis

Research Trajectory	Keywords	Articles	Future Development
Micro level perspective on change	Readiness for organizational change	Group 1: [64–67,69]	The effect of "individual change acceptance" (Jacobs et al, 2013) on successful change implementation
	Cynicism about organizational change	Group 2: [59,60,63,70]	The individuals' reactions to organizational change
Moving to integrated perspective on change	Change outcomes	Group 3: [58,61,68,71]	Flanking the individual level perspective with the macro-focused one

as the middle managers' strategy commitment.[63] The group contains 4 papers (Table 1).

The third flow of literature proposes the adoption of a multi-level approach to organizational change and places emphasis on the change outcomes. Merging the individual-focused micro perspective and the organizational-oriented macro perspective, with inflows from meso-level theory[68] may contribute to obtaining a comprehensive vision on organizational change. Change type and change method should be converging to attain the intended change outcome.[58] The group contains 4 papers (Table 1 .

Consistent with past studies, this step of literature review through CNA shows that works emphasized the need to give emphasis on individual perceptions towards change. The research trajectory appeared to be unexplored in healthcare. Interestingly, a comprehensive framework involving micro-meso and macro perspective to evaluate change actions and the importance of change outcome was found to be emerging trends only in the general literature on organisational change.

The use of keyword analysis is intended to confirm or to extend this initial finding on existing research streams related to the topic of organisational change in healthcare.

Clusters from Keywords Analysis

The first cluster includes approaches to manage change organization within the production context,[91] by illustrating applications in terms of product development[85] and impact on supply chain management.[83] The cluster is composed of 26 papers.

The second cluster reports supportive tools for change management, by emphasizing the importance of formal and informal communication to promote employees' commitment to change.[75] The cluster is mainly composed of 7 papers.

The third cluster enlarges supportive and boosting tools of organizational change, containing IT applications such as a monitoring system for organizational development activities,[96] team-based simulations improving readiness for change in university setting,[73] and as a means for gaining business-IT alignment.[77] The cluster is mainly composed of 6 papers.

The fourth cluster encompasses the key role of participation for learning within change,[107] even debating a mix of learning styles to sustain successfully organizational change initiative in the healthcare context.[92] The cluster is mainly composed of 5 papers.

The fifth cluster copes with the performance management issue, by soliciting a change in organizational values to enhance a successful performance management reform.[82] Performance issue in the healthcare context is viewed as an outcome after the organizational change process.[76] Change management's research address the related performance management issue, but the papers reviewed do not offer structured models or approaches. This is consistent with the result debated in the citation network analysis. The cluster is mainly composed of 6 papers.

The sixth cluster focuses on sustainability change initiatives in Higher Education Institutions.[80] Corporate sustainability issue is even addressed to pinpoint the effects of applying sustainability change efforts.[74] The cluster is mainly composed of 8 papers.

The core of the seventh cluster appears to emphasize the dual nature of change, including organizational and technological aspects (eg, [81,84]), and suggests the need for an in-depth analysis on who has the "role of enabler" in change initiatives. This step was already addressed in the citation network analysis, where Choi and Ruona (2011b)[66] quote Rogers (1983)[48] and Rogers (2003)[49] for "the importance of readiness for change through the innovation-decision process model". The cluster is mainly composed of 9 papers.

Within the eighth cluster, a first subject investigates the factors affecting physicians' behaviour in technology-driven changes, assuming that clinicians' beliefs on technology-induced improvements of patients' care play a critical role.[93] Scholars address the issue in light of the theory of planned behaviour,[93] or by proposing an ad hoc framework where an impact assessment of individual acceptance should be a step before introducing new IoT technology in workflow. Debate on the individual behaviours involved in healthcare organizational changes points out individuals factors such as "personality, social identity and emotional intelligence"[105] influence coping strategies' choice to tackle change-related stress, as complementary perspective.

A second related subject focuses on the managerial approach to change, revealing that, on one hand, unclear supporting methods by seniors managers may weak middle managers' change activities,[88] on the other hand, for hospital managers, fully physicians' involvement in technology-driven changes should impact positively on physicians' attitude.[93]

The relationship between innovation and change in the healthcare context should be explored. Both external and

internal factors trigger the need for change in healthcare organizations. For instance, the current epidemiological and demographic transition is provoking a shifting of care's need towards users affected by chronic diseases. This is leading to a compulsory changing in the healthcare organizational framework. Likewise, the need to make health processes more efficient, for instance, forms another triggering factor, the inside one, for organizational change. Therefore, the organizational change issue should be investigated by bearing in mind these multiple boosts to changing. This supports the need to investigate deeply the concept of change and innovation in a healthcare setting, by seeking to outline the boundaries of organizational change and innovation. In particular, the analysis should start investigating the issue by emphasizing on the fact that micro-context should not be assumed simply as a backcloth to action.[15]

The resistance to organizational change initiative arises when professional logic comes into contrast with the management one.[18] In this regard, the future research should investigate the effect of a "local ownership"[18] of the problems behind the change in order to be recognized as relevant critical issues in the organizations by the professionals. Thus, it becomes a priority to seek a new concept of leadership where the recipients of the change can themselves be those who manage the leaders with the possibility to hinder or sustain proactively their leadership.[18] Healthcare organizations are moving towards multifaceted systems. As the work by Augl (2012)[76] pointed out in cluster number 5 of keyword analysis, the health system might be regarded as a set of social systems where organizations may be considered as communication systems. In this regard, the author suggested a new approach to change management by modifying the current communication paths to contextual collaboration.[76] Integrated systems need three pillars as institutional integration (ie, laws), management integration (ie, operational tools) and professional integration (ie, team), which are not mutually exclusive.[6] The cluster includes 31 documents.

Tables 2 and 3 display the 8 clusters obtained by VOS (Visualization of Similarities) clustering technique.

Two contexts emerge clearly from the analysis.

The manufacturing context and the healthcare context. The former analyses the issue of organisational change also concerning supply chain management; the latter pays attention to the attitude of the clinician towards change initiatives linked to the introduction of new technology. Of the remaining clusters, some of them relate the topic of change to the adoption of support systems (IT applications – cluster 3) or support strategies (formal and informal communication – cluster 2; participation – cluster 4) for the implementation of change; further clusters tackle the topic of change as a tool to improve performance management (cluster 5) or

Table 2 Clusters (1-4) Obtained by VOS (Visualization of Similarities) Clustering Technique

Cluster 1	Cluster 2	Cluster 3	Cluster 4
Engineering Change Management	Change	Change Management	Organizational Culture
Knowledge Management	Leadership	Project Management	Resistance
Transformational Leadership	Communication	Higher Education	Discourse
Commitment To Change	Management	Implementation	Sensemaking
Organizational Learning	Action Research	Information Technology	Participation
Strategic Planning	Evaluation	Organization	Ethnography
Strategy	Human Resource Management	E-Learning	Health Care
Organizational Development	Training	Simulation	
Attitudes	Organization Development	Learning	
Change Process	Organization Change	Organizational Change Management	
Readiness For Change	Collaboration	Culture	
Quality Improvement	Education		
Supply Chain			

Table 3 Clusters (5-8) Obtained by VOS (Visualization of Similarities) Clustering Technique

Cluster 5	Cluster 6	Cluster 7	Cluster 8
Innovation	Resistance to Change	Case Study	Organizational Change
Job Satisfaction	Sustainability	Risk	Organizational Change
Organizational Changes	Transformation	ERP	Institutional Theory
Performance	Strategic Change	Integration	Healthcare
Motivation	Corporate Social Responsibility		Emotions
Creativity			Public Sector
			Quantitative Research
			Australia
			e-Government
			Organizational Performance
			Stress

combine it with sustainable change initiatives and the concept of innovation.

The keyword analysis shows that the general literature streams obtained in the previous CNA analysis are not yet developed in the healthcare context, although interest in the individual's attitude to change seems to be an emerging approach.

The Importance of Individuals in Organizational Change

With the analysis carried out so far, a growing interest in the most recent literature on the individual-change relationship emerges (ie, [66]). The subject is developed by scholars from different perspectives. Some authors focus on the psychological mechanisms that induce the individual to change, deepening the individual perception of change both as a skill that the individual recognizes inadequately pursuing a specific change initiative (ie, [30]), and as the personal belief on the management's ability to properly implement a change initiative (ie, [66]). Furthermore, the literature analysed warns that the individual-organizational change relationship is a broad and articulated subject, which cannot be confined to "change recipients" only, but which deserves adequate study also concerning to the "change agents" themselves (ie, [63]).

The contributions discussed in this paper clearly define the need to deal with acceptance of change from the perspective of the individual. What the general literature on the subject seems to offer, however, is a reading that does not allow linking the individual's attitude towards change to the specific organizational context in which the change itself will be implemented, especially in the case of complex organizations. Martínez-García and Hernández-Lemus (2013)[38] recognize for example that

> health systems are paradigmatic examples of human organizations that merge a multitude of different professional and disciplinary characteristics in a critical performance environment.

The extensive analysis reported on the topic allows contextualizing the organizational change initiatives in the healthcare world, where the individual-change relationship is central and can offer additional ideas on the profile of change recipients.

Discussion

The research line takes a position on change recipients, by paying attention to the effects that organizational change causes on persons or, in other words, on the psychological aspects of the organizational change.[68] A unified framework of organizational change perspectives (ie, micro, meso and macro), to connect jointly the individual change acceptance to economic and sociological perspectives,[68] is missing, except one work.[68]

Change outcome and organizational performance in change initiative appear to be not adequately explored.

Table 4 Summary of Results Obtained by Co-Occurrence Keywords Analysis

Clusters	Research Trajectory	Articles
1	Organizational Change in the manufacturing context	[83,85,90,91,101,103,109]
2	Communication and training's effect on organizational change and impact on leaders and employees	[75,79,99,102,106]
3	Information Technology and simulation as supportive tool to implement change initiatives	[73,77,96,104]
4	Participation and learning to facilitate the organizational changes	[89,92,107]
5	Performance management issue in organizational change context and bottom-up change initiatives	[76,82,97]
6	Human dimension involved in the sustainability change initiatives	[74,80]
7	Understanding the role of enabler in change initiatives	[72,81,84,86,87,94,98,108]
8	The need of specific change's models for healthcare organizations	[78,88,93,95,100,105]

The work (see[58]) illustrates only conceptual models. Studies aimed at identifying and testing empirically specific performance measures in the organizational change context appear to be missing.

Moving to the "second-order analysis", based on co-occurrence keywords analysis, the results confirm and extend the preliminary understanding provided by the citation network analysis. A summary of the results is provided in the table number 4 (Table 4). Cluster 8 provides some insights on the state of art in the healthcare research field. Beyond case studies, the topic becomes relevant only relative to the spreading of digital services in the care system. Other studies (eg, [62]), retrieved in the previous step, describe a potential stream of organizational change issues in the healthcare context. Notably, these works address change management only concerning the negative health impact for the individual, without paying attention to the individual behaviour change. Moreover, the papers available do not point out change management in the specific context of professionalized organizations. Therefore, studies aimed at investigating the nature of change that characterizes the healthcare professionalized organizations are needed.

In summary, the literature reviewed informed us that three potential streams were not yet fully explored. Change management in the context of healthcare organizations, performance evaluations and innovation-organizational change relationship was the most evident gaps found out.

Nevertheless, the present work debates individual-level perspective on the change as a prominent dimension to tackle in designing change initiatives, albeit individual and organizational issues related to change should not be viewed as detached. This stimulates to set aside a polarized perspective on organizational change.

Conclusion

The performed review traces a clear step in the production research on the subject. The findings suggest that literature is seeking to overcome a traditional duality approach between "managerial change agent (the good) and resisters to change (the bad)",[5,22,56] by paying attention to the critical role of attitude towards organizational change. Especially in the healthcare context, the literature reviewed highlighted an evident imbalance of scientific production in favour of individual effects of changing. This would be consistent with the literature stream identified, which has been moved to an integrated perspective in the organization's vision during a change management initiative.

Technology and organization appear to be a double face of the change, being strictly related, but there is not a common perspective in defining the role of enabler for those variables. In this respect, further research should address the above-mentioned issue in the organizational change context.

Likewise, a specific investigation on organizational change and the healthcare field is encouraged. Healthcare organizations ought to adopt change models fitting their specific needs of change. Overall literature stream traces a systemic perspective, whereby an individual, organizational and expected outcome of change should be milestones of any organizational change action.

Healthcare organizations receive multiple external and internal stimuli of change.

The increasing dominancy of chronic diseases is forcing to shift the care gravity's centre on the patient, by modulating the processes of providing the services according to the user and his changing needs.[21,31] The availability of new health technologies is changing the way through which health organizations offer services and deliver values (eg, e-health). New technologies are speeding up the demographic changeover and are increasing the economic burden for the NHS.[10] Health organizations are

transforming their organizational models, eg, collaborative networks;[8] integrated hospital-local care;[39,42] sharing services[17] for reducing administrative costs.[51]

The converging outcome lies on strengthen the equity, the value and the sustainability of healthcare.

In this regard, starting from the micro-level analysis, professionals needs' integration with the organizational design and the individual technology acceptance should be pursued. Exploratory studies may be useful.

Research on change management is gaining momentum and offering many stimuli. Therefore, the development of research lines to deepen the topic is important, especially in the healthcare field.

Disclosure

The authors report no conflicts of interest in this work.

References

1. American Medical Association. AMA principles for physician employment. 2012; Available from: http://www.ama-assn.org/resources/doc/hod/ama-principles-for-physician-employment.pdf. Accessed May 7, 2021.
2. Andreasson J, Ljungar E, Ahlstrom L, Hermansson J, Dellve L. Professional bureaucracy and health care managers' planned change strategies: Governance in Swedish Health Care. *Nord J Work Life Stud*. 2018;8(1):23–41. doi:10.18291/njwls.v8i1.104849
3. Armenakis AA, Harris SG, Mossholder KW. Creating readiness for organizational change. *Hum Relat*. 1993;46:681–703. doi:10.1177/001872679304600601
4. Berlin J, Kastberg G. Styrning av hälso-och sjukvård [Governance of healthcare]. Stockholm: Liber; 2011.
5. Boje DM, Burnes B, Hassard J. Introduction. The emergence of organizational change. In: Boje DM, Burnes B, Hassard J, editors. *The Routledge Companion to Organizational Change*. Routledge; 2012:1–10.
6. Brizzi L, Cava F. L'integrazione sociosanitaria. Il ruolo dell'assistente sociale. Roma: Carocci; 2004.
7. Burnes B. Kurt Lewin and the planned approach to change: a re-appraisal. *J Manag Stud*. 2004b;41:977–1002. doi:10.1111/j.1467-6486.2004.00463.x
8. Camarinha-Matos LM, Afsarmanesh H, Galeano N, et al. Collaborative networked organizations – concepts and practice in manufacturing enterprises. *Comput Ind Eng*. 2009;57(1):46–60. doi:10.1016/j.cie.2008.11.024
9. Comerio N, Strozzi F. Tourism and its economic impact: a literature review using bibliometric tools. *Tour Econ*. 2018;1–23.
10. Croce D, Mazzone A. I modelli organizzativi per l'assistenza territoriale primaria nel Servizio Sanitario Nazionale: evidenze ed intervento specialistico. *Ital J Med*. 2014;2(1):60–67.
11. De Nooy W, Mrvar A, Batagelj V. *Exploratory Social Network Analysis with Pajek*. Cambridge: Cambridge University Press; 2011:27.
12. Dickinson H, Bismark MM, Phelps G, et al. Future of medical engagement. *Aust Health Rev*. 2016;40:443–446. doi:10.1071/AH14204
13. Dickinson H, Snelling I, Ham C, Spurgeon P. Are we nearly there yet? A study of the English National Health Service as professional bureaucracies. *J Health Organ Manag*. 2017;31(4):430–444. doi:10.1108/JHOM-01-2017-0023
14. Ding Y, Chowdhury GG, Foo S. Bibliometric cartography of information retrieval research by using co-word analysis. *Inf Process Manag*. 2001;37(6):817–842. doi:10.1016/S0306-4573(00)00051-0
15. Dopson S, Fitzgerald L, Ferlie E. Understanding change and innovation in healthcare settings: reconceptualizing the active role of context. *J Chang Manag*. 2008;8(3–4):213–231. doi:10.1080/14697010802133577
16. Eby LT, Adams DM, Russell JEA, Gaby SH. Perceptions of organizational readiness for change: factors related to employees' reactions to the implementation of team-based selling. *Hum Relat*. 2000;53:419–442. doi:10.1177/0018726700533006
17. Elston T, MacCarthaigh M. Sharing services, saving money? Five risks to cost-saving when organizations share services. *Public Money Manag*. 2016;36(5):349–356. doi:10.1080/09540962.2016.1194081
18. Erlingsdottir G, Ersson A, Borell J, Rydenfält C. Driving for successful change processes in healthcare by putting staff at the wheel. *J Health Organ Manag*. 2018;32(1):69–84. doi:10.1108/JHOM-02-2017-0027
19. Ferlie E, Fitzgerald L, Wood M, Hawkins C. The nonspread of innovations: the mediating role of professionals. *Acad Manag J*. 2005;48(1):117–134. doi:10.5465/amj.2005.15993150
20. Fitzgerald L, Dopson S, Ferlie E, Locock L. Knowledge to action? The implications for policy and practice of research on innovation processes. In: McKee L, Ferlie E, Hyde P, editors. *Organizing and Reorganizing. Organizational Behaviour in Health Care*. London: Palgrave Macmillan; 2008. doi:10.1057/9780230583207_14.
21. Fix GM, VanDeusen Lukas C, Bolton RE, et al. Patient-centred care is a way of doing things: how healthcare employees conceptualize patient-centred care. *Health Expectations*. 2018;21:300–307. doi:10.1111/hex.12615
22. Ford JD, Ford LW, D'Amelio A. Resistance to change: the rest of the story. *Acad Manag Rev*. 2008;33(2):362–377. doi:10.5465/amr.2008.31193235
23. George JM, Jones GR. Towards a process model of individual change in organizations. *Hum Relat*. 2001;54:419–444. doi:10.1177/0018726701544002
24. Glouberman S, Mintzberg H. Managing the care of health and the cure of disease - Part I: differentiation. *Health Care Manage Rev*. 2001;26(1):56–69. doi:10.1097/00004010-200101000-00006
25. Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: systematic review and recommendations. *Milbank Q*. 2004;82:581–629. doi:10.1111/j.0887-378X.2004.00325.x
26. Hall GE, Hord SM. *Change in Schools: Facilitating the Process*. New York: State University of New York Press; 1987.
27. Ham C. Doctors in leadership: learning from international experience. *Int J Clin Leadership*. 2008;16:11–16.
28. Harney B, Monks K. *Strategic HRM: Research and Practice in Ireland*. Orpen Press; 2014.
29. Heward S, Hutchins C, Keleher H. Organizational change – key to capacity building and effective health promotion. *Health Promot Int*. 2007;22(2):170–178. doi:10.1093/heapro/dam011
30. Holt DT, Armenakis AA, Feild HS, Harris SG. Readiness for organizational change: the systematic development of a scale. *J Appl Behav Sci*. 2007;43:232–255. doi:10.1177/0021886306295295
31. Hower KI, Vennedey V, Hillen HA, et al. Implementation of patient-centred care: which organisational determinants matter from decision maker's perspective? Results from a qualitative interview study across various health and social care organisations. *BMJ Open*. 2019;9:e027591. doi:10.1136/bmjopen-2018-027591

32. Huber GP, Sutcliffe KM, Miller CC, Glick WH. Understanding and predicting organizational change. In: Huber GP, Glick WH, editors. *Organizational Change and Redesign*. New York: Oxford University Press; 1993:215–265.
33. Huppertz JW, Strosberg M, Burns S, Chaudhri I. The uniqueness of U.S. healthcare management: a linguistic analysis of competency models and application to health administration education. *J Health Adm Educ*. 2014;31(3):197–214.
34. Isabella LA. Evolving interpretations as a change unfolds: how managers construe key organizational events. *Acad Manag J*. 1990;33(1):7–41.
35. Lau CM, Woodman RW. Understanding organizational change: a schematic perspective. *Acad Manag J*. 1995;38:537–554. doi:10.5465/256692
36. Liebler JG, McConnell CR. *Management Principles for Health Professionals*. Sudbury, MA: Jones & Bartlett Learning; 2011.
37. Lucio-Arias D, Leydesdorff L. Main-path analysis and path-dependent transitions in HistCite™-based historiograms. *J Am Soc Inform Sci Tech*. 2008;59(12):1948–1962. doi:10.1002/asi.20903
38. Martínez-García M, Hernández-Lemus H. Health systems as complex systems. *Am J Oper Res*. 2013;3:113–126. doi:10.4236/ajor.2013.31A011
39. Ministero della Salute. Piano Nazionale della Cronicità; 2016. http://www.salute.gov.it/imgs/C_17_pubblicazioni_2584_allegato.pdf. Accessed May 7, 2021.
40. Mintzberg H. *Structure in Fives: Designing Effective Organizations*. Englewood Cliffs, NJ: Prentice-Hall; 1983.
41. Moher D, Liberati A, Tetzlaff J, et al. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Open Med*. 2009;3(2):1 23–1 30.
42. Noto G, Raschetti R, Maggini M. *Gestione integrata e progetti assistenziali*. Progetto Igea, Il Pensiero Scientifico Editore; 2011:1–79.
43. Phelps G, Loh E, Dickinson H, et al. Leadership in our health systems. *Intern Med J*. 2016;46:638–639. doi:10.1111/imj.12990
44. Pettigrew A, Ferlie E, McKee L. Shaping strategic change - The case of the NHS in the 1980s. *Public Money Manag*. 1992;12(3):27–31. doi:10.1080/09540969209387719
45. Porras JI, Robertson PJ. Organizational development: theory, practice, and research. In: Dunnette MD, Hough LM, editors. *Handbook of Industrial & Organizational Psychology*. Vol. 3. Palo Alto, CA: Consulting Psychologists Press; 1992:719–822.
46. Resti Kasih Kristina M, Mangundjaya WL. Organizational justice as a predictor of employee cynicism about organizational change. *UI Proc Social Sci Humanit*. 2016.
47. Rogers EM. *Diffusion of Innovations*. New York: Free Press; 1983.
48. Rogers EM. *Diffusion of Innovations*. New York: Free press; 2003.
49. Schultz FC, Pal S. Who should lead a healthcare organization: MDs or MBAs? *J Healthc Manag*. 2004;49:103–116. doi:10.1097/00115514-200403000-00007
50. Stroetmann B, Aisenbrey A. Medical knowledge management in healthcare industry. *World Acad Sci Eng Tech*. 2012;64:557–562.
51. Strozzi F, Colicchia C, Creazza A, Noè C. Literature review on the 'Smart Factory' concept using bibliometric tools. *Int J Prod Res*. 2017;55(22):6572–6591. doi:10.1080/00207543.2017.1326643
52. Tetenbaum TJ. Shifting paradigms: from newton to chaos. *Organ Dyn*. 1998;26(4):21–32. doi:10.1016/S0090-2616(98)90003-1
53. Walshe K, Chambers N. Healthcare Reform and Leadership. In: Brookes S, Grint K, editors. *The New Public Leadership Challenge*. Palgrave Macmillan UK; 2010.
54. Wanous JP, Reichers AE, Austin JT. Cynicism about organizational change: measurements, antecedents and correlates. *Group Oragn Manag*. 2000;25:132–153. doi:10.1177/1059601100252003
55. Will MG. Successful organizational change through win-win. How change managers can create mutual benefits. *J Acc Organ Chang*. 2015;11(2):193–214. doi:10.1108/JAOC-06-2013-0056
56. Zhao D, Strotmann A. Analysis and visualization of citation networks. synthesis lectures on information concepts. *Retriev Serv*. 2015;7(1):1–207.
57. Al Haddad S, Kotnour T. Integrating the organizational change literature: a model for successful change. *J Organ Chang Manag*. 2015;28(2):234–262. doi:10.1108/JOCM-11-2013-0215
58. Aslam U, Ilyas M, Kashif M, Rahman IU. Detrimental effects of cynicism on organizational change: an interactive model of organizational cynicism (a study of employees in public sector organizations). *J Organ Chang Manag*. 2016;29(4):580–598. doi:10.1108/JOCM-12-2014-0231
59. Aslam U, Muqadas F, Imran M, Rahman U, Ilyas M. Exploring the sources and role of knowledge sharing to overcome the challenges of organizational change implementation. *Int J Organ Anal*. 2018;26(3):567–581. doi:10.1108/IJOA-07-2017-1189
60. Bakari H, Hunjra AI, Niazi GSK. How does authentic leadership influence planned organizational change? The role of employees' perceptions: integration of theory of planned behavior and Lewin's three step model. *J Chang Manag*. 2017;17(2):155–187. doi:10.1080/14697017.2017.1299370
61. Bamberger SG, Vinding AL, Larsen A, et al. Impact of organisational change on mental health: a systematic review. *Occup Environ Med*. 2012;69:592–598. doi:10.1136/oemed-2011-100381
62. Barton LC, Ambrosini V. The moderating effect of organizational change cynicism on middle manager strategy commitment. *Int J Hum Resour Manag*. 2013;24(4):721–746. doi:10.1080/09585192.2012.697481
63. Bouckenooghe D, Devos G, Van den Broeck H. Organizational change questionnaire–climate of change, processes, and readiness: development of a new instrument. *J Psychol*. 2009;143(6):559–599. doi:10.1080/00223980903218216
64. Choi M. Employees' attitudes toward organizational change: a literature review. *Hum Resour Manage*. 2011a;50(4):479–500. doi:10.1002/hrm.20434
65. Choi M, Ruona WEA. Individual readiness for organizational change and its implications for human resource and organization development. *J Manag Hum Res Dev Rev*. 2011b;1–28.
66. Elias SM. Employee commitment in times of change: assessing the importance of attitudes toward organizational change. *J Manage*. 2009;35(1):37–55. doi:10.1177/0149206307308910
67. Jacobs G, van Witteloostuijn A, Christe-Zeyse J. A theoretical framework of organizational change. *J Organ Chang Manag*. 2013;26(5):772–792. doi:10.1108/JOCM-09-2012-0137
68. Meyer JP, Hecht TD, Gill H, Toplonytsky L. Person-organization (culture) and employee commitment under conditions of organizational change: a longitudinal study. *J Vocat Behav*. 2010;76:458–473. doi:10.1016/j.jvb.2010.01.001
69. Oreg S, van Dam K. Organisational justice in the context of organisational change. *Neth J Psychol*. 2009;65(4):127–135. doi:10.1007/BF03080135
70. Shaw D. Managing people and learning in organisational change projects. *J Organ Chang Manag*. 2017;30(6):923–935. doi:10.1108/JOCM-11-2016-0253
71. Ahmad RMTRL, Othman Z, Mukhtar M. Integrating CSF and change management for implementing campus ERP system. *Int J Inf Syst Change Manag*. 2013;6(3):189–204. doi:10.1504/IJISCM.2013.058323

72. Angehrn A, Maxwell K. Increasing change readiness in higher educational institutions through a simulation-based change management experience. *Int J Knowl Learn*. 2010;6(2–3):162–174. doi:10.1504/IJKL.2010.034751
73. Appelbaum SH, Calcagno R, Magarelli SM, Saliba M. A relationship between corporate sustainability and organizational change (Part one). *Ind Commer Train*. 2016;48(1):16–23. doi:10.1108/ICT-07-2014-0045
74. Appelbaum SH, Cameron A, Ensink F, et al. Factors that impact the success of an organizational change: a case study analysis. *Ind Commer Train*. 2017;49(5):213–230. doi:10.1108/ICT-02-2017-0006
75. Augl M. Building a conceptual roadmap for systemic change – a novel approach to change management in expert organizations in health care. In:International Conference on Subject-Oriented Business Process Management; 2012; Berlin, Heidelberg: Springer; 43–61. doi:10.1007/978-3-642-29133-3_4.
76. Avila O, Garcés K. Change management support to preserve business–information technology alignment. *J Comput Inf Syst*. 2017;57(3):218–228. doi:10.1080/08874417.2016.1184006
77. Awad R, Sherratt S, Jefferies M. Applying a new model of organizational change management in health. *Chang Manag*. 2015;14(1):1–13. doi:10.18848/2327-798X/CGP/v14i01/50766
78. Bellou V, Chatzinikou I. Preventing employee burnout during episodic organizational changes. *J Organ Chang Manag*. 2015;28(5):673–688. doi:10.1108/JOCM-11-2014-0197
79. Blanco-Portela N, Benayas J, Pertierra LR, Lozano R. Towards the integration of sustainability in Higher Education Institutions: a review of drivers of and barriers to organisational change and comparison against those found of companies. *J Clean Prod*. 2017;166:563–578. doi:10.1016/j.jclepro.2017.07.252
80. Cohen JF. Cognitive, affective and behavioural responses to an ERP implementation: a dual perspective of technology acceptance and organizational change. In: ACIS 2010 Proceedings – 21st Australasian Conference on Information Systems; 2010.
81. Destler KN. Creating a performance culture: incentives, climate, and organizational change. *Am Rev Public Adm*. 2016;46(2):201–225. doi:10.1177/0275074014545381
82. Errida A, Lotfi B, Semma E. Supply chain management and organizational change: integrating an activity after its subcontracting in a Moroccan construction company. In: International Colloquium on Logistics and Supply Chain Management (LOGISTIQUA); 2017; Rabat; 112–117. doi: 10.1109/LOGISTIQUA.2017.7962883
83. Fearon C, Manship S, McLaughlin H, Jackson S. Making the case for techno-change alignment. *Eur Bus Rev*. 2013;25(2):147–162. doi:10.1108/09555341311302648
84. Fei G, Gao J, Owodunni D, Tang X. A model-driven and knowledge-based methodology for engineering design change management. *Comput Aided Des Appl*. 2011;8(3):373–382. doi:10.3722/cadaps.2011.373-382
85. Filho SA, Dantas ET, Duarte J. The requirement & tools to treat process safety risk as result of organizational change. In: 30th Center for Chemical Process Safety International Conference 2015 – Tropical Conference at the 2015 AIChE Spring Meeting and 11th Global Congress on Process Safety; 2015; 280–291.
86. Gerbec M. Safety change management – a new method for integrated management of organizational and technical changes. *Saf Sci*. 2017;100:225–234. doi:10.1016/j.ssci.2016.07.006
87. Hansell V. Identifying the prevalence of influential factors on middle managers' abilities to lead organizational change within the context of community nursing and therapy services. *Int J Healthc Manag*. 2018;11(3):225–232. doi:10.1080/20479700.2017.1315037
88. Kazmi SAZ, Naaranoja M. Healthcare transformation through change management process for innovation. In: International Conference on Applied Human Factors and Ergonomics; 2018; Springer; 783. doi:10.1007/978-3-319-94709-9_36
89. Koch J, Gritsch A, Reinhart G. Process design for the management of changes in manufacturing: toward a manufacturing change management process. *CIRP J Manuf Sci Technol*. 2016a;14:10–19. doi:10.1016/j.cirpj.2016.04.010
90. Koch J, Michels N, Reinhart G. Context model design for a process-oriented manufacturing change management. *Procedia CIRP*. 2016b;41:33–38. doi:10.1016/j.procir.2015.12.111
91. Lee V, Ridzi F, Lo AW, Coskun E. A healthcare case study of team learner style and change management. *J Organ Chang Manag*. 2011;24(6):830–852. doi:10.1108/09534811111175788
92. Lettieri E, Radaelli G, Masella C. Information systems and change management in healthcare: the (un)solved quest for changing physicians' behaviour. *Int J Inf Syst Change Manag*. 2010;4(3):226–245. doi:10.1504/IJISCM.2010.033077
93. Leyland M, Hunter D, Dietrich J. Integrating change management into clinical health information technology project practice. In: 2009 World Congress on Privacy, Security, Trust and Management of e-Business; August 25–27, 2009; Saint John, NB, Canada: IEEE.
94. Li L, Dai H. Building a change management model for E-government services evolution. In: 2011 International Conference on Management of e-Commerce and e-Government; November 5–6, 2011; Hubei, China: IEEE.
95. Lyons JB, Jordan J, Faas P, Swindler S. Organizational development goes digital: applying simulation to organizational change. *J Chang Manag*. 2011;11(2):207–221. doi:10.1080/14697017.2010.501022
96. Maimone F, Sinclair M. Dancing in the dark: creativity, knowledge creation and (emergent) organizational change. *J Organ Chang Manag*. 2014;27(2):344–361. doi:10.1108/JOCM-12-2012-0197
97. Napier GS, Amborski DJ, Pesek V. Preparing for transformational change: a framework for assessing organizational change readiness. *Int J Hum Resour Dev Manag*. 2017;17(1–2):129–142. doi:10.1504/IJHRDM.2017.085265
98. Nielsen K, Daniels K. Enhancing team leaders' well-being states and challenge experiences during organizational change: a randomized, controlled study. *Hum Relat*. 2012;65(9):1207–1231. doi:10.1177/0018726711433312
99. Ong CS, Wang SW. E-service and organizational change: a process model. *J Electron Commer Organ*. 2011;9(3):39–51. doi:10.4018/jeco.2011070103
100. Reddi KR, Moon YB. A framework for engineering change management in enterprise resource planning using service-oriented architecture. *Int J Bus Inf Syst*. 2011;8(1):46–65. doi:10.1504/IJBIS.2011.041086
101. Salem P. The complexity of organizational change: describing communication during organizational turbulence. *Nonlinear Dynamics Psychol Life Sci*. 2013;17(1):49–65.
102. Schuh G, Gartzen T, Soucy-Bouchard S, Basse F. Enabling agility in product development through an adaptive engineering change management. *Procedia CIRP*. 2017;63:342–347. doi:10.1016/j.procir.2017.03.106
103. Smith AD. Change management and outsourcing in information technology-intensive organizations. *Int J Bus Innov Res*. 2009;3(2):126–150. doi:10.1504/IJBIR.2009.022751
104. Smollan RK. Learning to cope with stressful organisational change. *Int J Work Organ Emot*. 2017;8(2):148–167. doi:10.1504/IJWOE.2017.086461
105. Tanner G, Otto K. Superior–subordinate communication during organizational change: under which conditions does high-quality communication become important? *Int J Hum Resour Manag*. 2015. doi:10.1080/09585192.2015.1090470

106. Valleala U, Herranen S, Collin K, Paloniemi S. Fostering learning opportunities through employee participation amid organizational change. *Vocat Learn*. 2014;8(1):1–34. doi:10.1007/s12186-014-9121-0
107. Van Hau TT, Kuzic J. Change Management strategies for successful implementation of enterprise resource planning systems. In: 2nd International Conference on Knowledge and Systems Engineering; October 7–9, 2010; Hanoi, Vietnam: IEEE.
108. Wilberg J, Elezi F, Tommelein ID, Lindemann U. Using a systemic perspective to support engineering change management. *Procedia Comput Sci*. 2015;61:287–292. doi:10.1016/j.procs.2015.09.217
109. Yeole A, Kalbande DR. Change management approach for integrating IoT technology in healthcare system. In: 2018 International Conference on Smart City and Emerging Technology, (ICSCET); January 5, 2018; IEEE.