

# Change management for services redesign in healthcare: a conceptual framework

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## Keywords

Change management • Services redesign • Conceptual framework • Healthcare services

## Summary

**Introduction.** The introduction of process innovations in healthcare organizations faces challenges in knowledge sharing and incorporating best practices due to a strong professional autonomy, leading to resistance to change. The healthcare paradigm is shifting towards value-based organizations with a patient-centered approach, requiring multidisciplinary care. Change management is crucial, but current approaches are often limited. This study proposes a conceptual framework to support change management in healthcare services redesign.

**Methods.** The proposed conceptual framework was developed applying Jabareen's multidimensional and multi-method approach. The methodology involved 8 steps consisting in literature review, thematic and content analyses, concepts deconstruction and aggregation, graphical design of the framework, external validation and revision.

**Results.** The framework integrates 53 evidences from the literature,

3 macro areas of interest and 42 change management models applied to the healthcare context, through 244 implementation actions. Aggregation of concepts led to 15 macro topics applicable to all levels of change and composing the proposed framework. Interviews validated the framework, emphasizing the importance of people-focused approaches and addressing resistance to change. Moreover, steps most and less cited in the literature are highlighted and differences between developed countries and economies in transition or developing countries are explored.

**Conclusions.** The article proposes a 15-step framework for change in healthcare services redesign. It integrates evidence from literature and change management models, emphasizing stakeholder involvement. A case study in South Africa highlights the importance of awareness, planning, communication, training, and continuous review. Further validation and adaptation are recommended.

## Introduction

The introduction of process innovations has been more difficult for organizations operating in the healthcare sector compared with other sectors due to challenges in identifying effective ways to share their knowledge and incorporate best practices [1]. These organizations, defined as “professional bureaucracies”, are characterized by a strong professional autonomy for medical operators, therefore, resistance to change is frequently observed due to fragmentation and siloing [2]. Worldwide the healthcare paradigm is shifting toward value-based organizations, focused on a patient-centred approach [3]. Furthermore, disease management is becoming increasingly complex, and beyond the need of technological innovations for treatment and diagnosis, it requires multidisciplinary care involving teams of professionals that collaborate in integrated processes [4]. Moreover, healthcare processes are frequently designed within multiprofessional stakeholders' teams involving actors outside the actual clinical activity such as social workers, outpatients' facilities, drugs and devices manufacturers, insurance providers, policy makers and patient representatives [5].

In this complex environment, change is increasingly

rapid and continuous, and its management is progressively difficult [6]. Therefore, it is essential to understand how to manage change processes with a holistic approach [7, 8].

Change management can support these challenges being a structured approach to manage the transition from the current state to a desired one, considering human resources, materials, and processes [9].

A further issue is that relating to the success rate of the change initiatives which is estimated to be less than 30% and change management plays an important role for the success of change initiatives [10]. Moreover, scholars have often focused on tools that consider only parts of the change process or that focus on specific professionals [7].

Starting from these premises, the authors of this manuscript propose a conceptual framework that, by integrating methods already adopted in the healthcare context and considering its expanding and changing needs, will support change management in healthcare process innovations.

Specifically, this work seeks to address the following research question: how can change management support the implementation of services redesign in healthcare?

In detail, the objective of the analysis are:

Primary: to develop a conceptual framework for the application of change management in the field of healthcare services redesign.

Secondary: to detect differences in the application of change management in healthcare in developed countries and economies in transition or developing countries.

The purpose of the analysis is, therefore, to propose a conceptual framework of change management, and identify and describe the different drivers of change management in the contexts of process innovation in healthcare, evaluating the differences related to its implementation in developed countries (*e.g.*, Italy) and economies in transition or developing countries (*e.g.*, South Africa), as defined by United Nations [11].

## Methods

The development of the conceptual framework proposed is based on the multidimensional and multi-method eight-phase approach published by *Jabareen* (2009) [12].

The approach combines literature review with qualitative research, following eight phases.

Phase 1, “Mapping the selected data sources”, involves a review of literature. The literature review was performed on June 21<sup>st</sup>, 2022, using the biomedical literature database PubMed. As suggested by *Jabareen* (2009) to ensure literature saturation, the search was performed on all fields and no restrictions have been imposed on the type of document, period of publication, area of interest, language, or country. To ensure validity of the results, only systematic reviews were included in the first literature analysis, while an additional search included also qualitative, quantitative, or mixed/multi methods analyses and case studies or experiments. The search string adopted is “change management”. Two reviewers with economic/managerial and engineering/managerial backgrounds independently screened the titles, abstracts and full texts yielded by the search and any disagreement was solved through discussion. To obtain saturation of information, the reference lists of the articles included in the narrative synthesis was scanned to add any additional article of interest.

Phase 2, “Extensive reading and categorizing of the selected data”, was performed through a qualitative analysis of the documents selected in the previous phase. Two reviewers analysed the documents and carried out a thematic analysis by grouping the information by topic/concept and “representative power”, and any discrepancy was solved through discussion.

Phase 3, “Identifying and naming concepts”, the content of each document was analysed to identify the themes reported. The themes were clustered through the re-reading of the documents.

Phase 4, “Deconstructing and categorizing the concepts”, was performed by the researchers individually with a subsequent discussion performed in group to finalise the analysis of each concept to deconstruct it. The concepts, their characteristics, and their role were then assessed, along with their methodological assumptions and main references.

Phase 5, “Integrating concepts”, was carried out grouping similar concepts to systematize the analysis.

Phase 6, “Synthesis, resynthesis, and making it all make sense”, consists in a synthesis of the concepts through an iterative process performed in team. The results of the previous phases were analysed, and the researchers built a consumptive framework using a graphical format. Phase 7, “Validating the conceptual framework”, was performed through an external validation of the proposed framework. Data were retrieved through virtual audio-recorded semi-structured interviews (using MS Teams) and transcribed in a Microsoft Word document [13]. In detail, the guiding questions of the interview were related to the general perception of the interviewee towards the framework and its 15 steps in terms of completeness, deficiencies, and applicability of the framework, context peculiarities and more important steps in terms of change management application. The core concepts emerged through the interviews were synthesized using an extraction grid in Microsoft Excel. Moreover, a quantitative evaluation of completeness and applicability using a 7 levels Likert scale (*i.e.*, 1 = very uncomplete/very applicable, 2 = uncomplete/unapplicable, 3 = slightly uncomplete/slightly unapplicable, 4 = neutral, 5 = slightly complete/slightly applicable, 6 = complete/applicable, 7 = very complete/very applicable) was requested [14].

Phase 8, “Rethinking the conceptual framework”, the final phase of the approach, incorporates the revision of the framework following the feedback received as well as the continuous revision framework through iteration, due to the dynamic nature of healthcare context.

The analysis was approved by the Research Ethics Committee of *Università Carlo Cattaneo - LIUC, Castellanza-Italy* (P07.2-23) and by the Research Ethics Committee of *University of Pretoria - Faculty of Health Sciences-South Africa* (338/2023).

## Results

The results of the conceptualization process are reported in Table I, following the eight phases proposed by *Jabareen* (2009) and described in the previous section, along with the number of documents, topics/concepts, and experts included and involved in the analysis.

Fifty-three articles were selected through the literature review conducted. A full list of the articles is reported in the supplementary material (Supplement 1).

The thematic analysis of the literature led to the identification of three macro areas of interests, being local/individual change, organizational/institutional change, and systemic change.

The content analysis extrapolated forty-two models related to change management applied in the healthcare context. The list of the models presented in each article is reported in table II along with the authors of each model, the related themes, and the reference in which the model was cited.

Tab. I. Framework conceptualization process.

Phase	Results
1	Literature review (number of documents = 53)
2	Thematic analysis (number of topics/concepts = 3)
3	Content analysis (number of topics/concepts = 42)
4	Concepts deconstruction (number of topics/concepts = 244)
5	Concepts aggregation (number of topics/concepts = 15)
6	Graphical design of the conceptual framework
7	Framework external validation (number experts = 6)
8	Revision of the conceptual framework

In details, the majority of the models (34/42) are concerning organizational/institutional change, thirty models are applicable to local/individual change and twenty-five to systemic change.

The deconstruction of the concepts of each model led to the extrapolation of two-hundred and forty-four actions for change management implementation applied to the healthcare context.

The aggregation of the concepts led to the identification of fifteen macro topics. The list of the concepts, their description, the reference model, and each concept related macro topics are reported in the supplementary material (Supplement 2). As emerged from literature, each topic is applicable to the three levels of change, but the strength of evidence differs. In Table III the number of times each topic was cited in models applicable for each level of change is reported along with how many models cite each topic.

As emerged, more than half of the models include Awareness, Assessment, Vision, Need, Plan and Communication while less than a quarter of the models consider Resistance, Test and Iteration.

All the macro topics were adopted for the formalisation of an integrated and general change management framework to guide local/individual change, organizational/institutional change and systemic change process redesign in healthcare.

The framework was discussed during six semi-structured interviews to experts from different fields from South Africa and Italy and reviewed considering the feedbacks retrieved. The characteristics of the three experts from South Africa are: a nursing and managerial profile, with responsibilities in the coordination of a district clinical specialist team; a medical doctor with coordination responsibilities dealing with issues related to governance, management, and policies; a medical doctor and clinical manager dealing with policies and economic evaluations. The three experts involved from Italy are: a nurse who covered the role of nursing coordinator and who is involved in training by coordinating a university course in the same field; a medical doctor director of a department in a general public hospital; a full professor of organization and human resources management.

From the interviews carried out in the South African

context, it emerges that the framework is perceived as inclusive of all the steps useful for implementing a change management program, and also applicable at different levels and in various contexts and businesses in the healthcare sector. Interviewees agree that the focus of a change process should be people. The program should consider the implementation of a communication, information and training plan that makes people aware and able to understand the importance and benefits of change, as well as their role in the change related processes. The main critical aspect experienced by the experts in the field of change management is the resistance to change of the subjects involved, especially those with high seniority or high levels of responsibility. From the interviews carried out in the Italian context it emerged that the framework is perceived as complete and logical, but these aspects may have a negative impact in terms of complexity and applicability. The applicability is perceived as the most critical aspect since the services in the context considered have specificities as restrictive policies, urgency, high amount of work and professionals with deeply rooted culture and beliefs. Moreover, the issue of resistance to change emerged and this can have an impact in the involvement of professionals. It is recognized as necessary to implement an involvement strategy, a training and communication plan, to define the wins that change could bring to the subjects involved and to implement a strategy for prevention and management of resistance. Therefore, a bottom-up approach should be preferred over a top-down one. Furthermore, the opportunity of creating adapted and simplified frameworks that meet specific needs or are applicable to specific contexts where a framework with many steps could be difficult to apply was suggested.

Considering the synthetic numerical indicators, the average evaluations from South African experts concerning completeness and applicability are both equal to 6.33, while from Italian experts they are respectively equal to 7 and 3.33.

In both contexts the problem of resistance to change and the importance of the themes of involvement, information, communication, and training are highlighted. The South African context relates more to the problem of the will of individuals in terms of change actions, while the Italian context relates more to peculiar aspects of the healthcare sector (e.g., legal constraints, complexity of healthcare processes and population characteristics).

Accordingly, in the South African context interviewees are more positive about the possibility of implementing change actions thanks to the higher level of flexibility of the context, while in the Italian one the applicability is perceived as more difficult.

Based on the previous analysis, the proposed framework consists of 15 steps which are represented in figure 1 and described below.

#### STEP I: AWARENESS

At the beginning of any change process, it is necessary to be aware of what is happening in the organization through an analysis of the following elements:

Tab. II. Content analysis.

Model	Reference of the original publication	Theme	Reference in which the model was retrieved
The institutionalizing change model	[15]	Local/individual change, organizational/ institutional change and systemic change	[16]
Beckhard-Harris change map	[17]	Local/individual change and organizational/ institutional change	[7, 18]
Six Steps	[19]	Local/individual change, organizational/ institutional change and systemic change	[7, 10]
International Change Theory of Boyatzis	[20]	Organizational/institutional change	[8, 21]
Bullock and Batten's four-phase model	[22]	Local/individual change, organizational/ institutional change and systemic change	[1, 7, 10]
Evaluation, re-evaluation, and action (ERA) Method	[23]	Local/individual change, organizational/ institutional change and systemic change	[7, 10]
"What" and "How" method	[24]	Local/individual change, organizational/ institutional change and systemic change	[7, 10]
Process Reengineering	[25]	Local/individual change, organizational/ institutional change and systemic change	[7, 10]
Deming's System of Profound Knowledge PDSA cycles / Total Quality Management (TQM)	[26, 27]	Local/individual change	[7, 8, 10, 28]
CHSRF's Evidence-Informed Change Management Approach	[29]	Local/individual change, organizational/ institutional change and systemic change	[1, 7]
Wheel	[30]	Local/individual change, organizational/ institutional change and systemic change	[7, 10, 16]
General Electric's (GE's) Change Acceleration Process (CAP) model	[31]	Organizational/institutional change	[8, 32]
Influencer Change Model	[33]	Local/individual change	[8, 28]
Insurrection Method	[34]	Local/individual change, organizational/ institutional change and systemic change	[7, 10]
CLARC Change model	[35]	Systemic change	[8, 36]
Prosci ADKAR	[37]	Systemic change	[8, 36]
Hinings and Greenwood's Model of Change Dynamics	[38]	Local/individual change and organizational/ institutional change	[1, 7]
Concern-based adoption model (CBAM)	[39]	Organizational/institutional change	[8, 40]
Institute for Healthcare Improvement's Triple Aim Model	[41]	Systemic change	[1, 7]
Accelerated Implementation Methodology (AIM)	[42]	Systemic change	[8, 43, 44]
Canada Health Infoway's Change Management Framework	[45]	Local/individual change, organizational/ institutional change and systemic change	[1, 7]
Judson Method	[46]	Local/individual change, organizational/ institutional change and systemic change	[7, 10, 16]
Jick & Kanter Ten Commandments for Executing Change	[47]	Local/individual change, organizational/ institutional change and systemic change	[7, 10, 48, 49]
Kanter Big Three Model of Organizational Change	[50]	Local/individual change and organizational/ institutional change	[1, 7]
Participatory action research (PAR)	[51]	Local/individual change, organizational/ institutional change and systemic change	[10, 7]
Kotter's 8-Step Model	[52]	Local/individual change, organizational/ institutional change and systemic change	[1, 4-8, 10, 16, 21, 53-71]



Tab. II (follows). Content analysis.

Model	Reference of the original publication	Theme	Reference in which the model was retrieved
Advent Health Clinical Transformation (ACT) Model	[72]	Local/individual change	[8, 72]
Cake model	Landmark Worldwide reported by [40]	organizational/institutional change	[8, 40]
Lewin's 3-Stage Model of Change / Force-Field Model	[73]	Local/individual change, organizational/institutional change and systemic change	[5-8, 10, 74-84]
Lippitt's Phases of Change Theory	[85]	Local/individual change, organizational/institutional change and systemic change	[1, 7, 10, 80]
Luecke's Seven steps Method	[86]	Local/individual change, organizational/institutional change and systemic change	[7, 10, 49]
Lukas Organizational Model for Transformational Change in Healthcare Systems	[9]	Local/individual change and organizational/institutional change	[1, 7]
Pettigrew's Context/ Content/ Process Model	[87]	Local/individual change and organizational/institutional change	[1, 7, 88, 89]
National Health Service (NHS) Change Management Guidelines	[90]	Local/individual change, organizational/institutional change and systemic change	[1, 7]
Prochaska and DiClemente's Change Theory	[91]	Local/individual change, organizational/institutional change and systemic change	[7, 80]
Riches four-stage model	[92]	Organizational/institutional change	[8, 93]
Roger's Diffusion of Innovation (DOI) Theory	[94]	Organizational/institutional change	[84]
AMICUS - Silversin and Kornacki's model	[95]	Organizational/institutional change	[8, 21, 96]
Six Sigma DMAIC	Smith and Galvin 1986 (Motorola) reported by [97]	Local/individual change, organizational/institutional change and systemic change	[7, 10]
McKinsey 7S Model of Change	[98]	Organizational/institutional change	[8, 83]
Lean Thinking	[99]	Local/individual change, organizational/institutional change and systemic change	[7, 10]
Young's Nine Stage Framework	[100]	Local/individual change	[8, 101]

internal processes, organizational structure, history of change, culture, problems, enabling factors, context and dynamics, relationships among people, attitudes, orientations, motivations, skills and beliefs of people, agents of change. In addition, the external environment in socio-economic, political, and geographical terms should be investigated to understand the whole environment in qualitative terms.

#### STEP 2: ASSESSMENT

The second step requires the understanding of strengths and weaknesses in quantitative terms. This can be achieved through the assessment of processes, level of stress, available resources (technologies, people, and materials), skills, institutional mechanisms and regulations, current outputs and performance, constraints, and risks.

#### STEP 3: VISION

Once the current situation has been defined in terms of organization and processes, as well as resources and results, it is useful to define the vision in terms of goals

in the short, medium, and long term. It is important to define the target and what need is addressed, what change is expected to be achieved, and then the related strategy, outcomes, and value in qualitative terms.

#### STEP 4: NEED

Consequently, it is necessary to define in quantitative terms the objectives to be achieved. Problems and opportunities should be defined and then goals, and objectives should be settled.

#### STEP 5: WINS

To encourage change, short-term payoffs, wins and rewards should be defined for all stakeholders. This will help to demonstrate the value of change and to make it desirable and a priority.

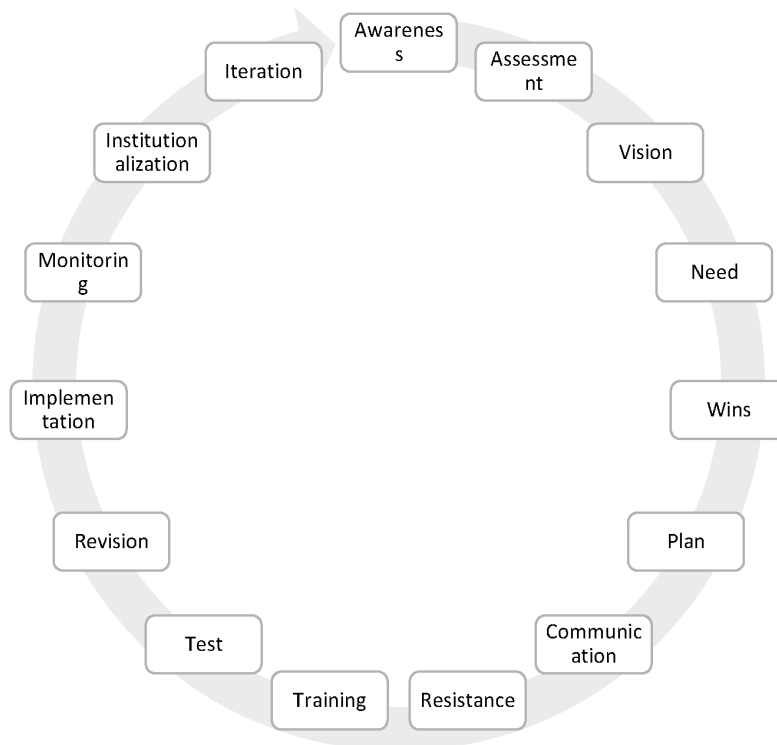
#### STEP 6: PLAN

A key step is the definition of the plan for change that should be integrated into the existing organizational

Tab. III. Topics and levels of change.

Topics	Number of citations				Models
	Local/individual change	Organizational/institutional change	Systemic change	Total	
Awareness	26	31	20	77	30
Assessment	22	25	16	63	26
Vision	28	29	27	84	25
Need	22	26	17	65	26
Wins	8	9	9	26	11
Plan	28	29	24	81	31
Communication	36	42	38	116	30
Resistance	7	8	5	20	10
Training	6	7	7	20	11
Test	3	4	2	9	5
Revision	10	10	9	29	11
Implementation	16	17	14	47	20
Monitoring	17	14	14	45	19
Institutionalization	16	14	15	45	16
Iteration	5	3	4	12	6

Fig. 1. 15-Steps conceptual framework.



structure. The pathway should be defined along with the steps to be taken, the actions and the flow. All the subjects who will be affected by change should be involved during the whole process to ensure their understanding and support. In addition, the interactions and influences as well as the time and resources needed in human and material terms should be defined.

#### STEP 7: COMMUNICATION

To better manage the change process, communication should be addressed. Commitment and collaboration should be promoted by determining how to communicate the change to each professional by detailing the message, the way, and how to explain the implications of each action. Communication should not be unidirectional, but

it is important to receive feedbacks and to interact with all the stakeholders, as well as to generate empowerment. In these terms, the communication and change leaders who can guide, support, engage, and gain approval should also be defined.

#### **STEP 8: RESISTANCE**

To avoid problems in implementing change, it is useful to identify possible sources of resistance, to define how to prevent them and how to approach them if any problem arises. Response and intervention plans should be established in the event of adverse attitudes or change rejection.

#### **STEP 9: TRAINING**

In the establishment of an environment suitable for change a key role is played by training. A training plan should be defined for instruction, education, skills and capacity development, and a plan to help or support people should be detailed.

#### **STEP 10: TEST**

Once the path to be taken and the management of detours have been defined, change should be experimented through a test.

#### **STEP 11: REVISION**

After the test, it should be understood what worked well, what could be improved, and what was wrong and should be revised. During this step the plan is revised and adjusted involving all stakeholders, based on the test outputs.

#### **STEP 12: IMPLEMENTATION**

Once the path has been defined and revised as described in the previous step, change can be implemented. All the actions defined by the plan should be introduced and the new processes should be implemented.

#### **STEP 13: MONITORING**

When the change has been implemented, it should be checked by periodic and continuous monitoring. Outputs and progress should be measured and reviewed, and feedbacks on results should be collected.

#### **STEP 14: INSTITUTIONALIZATION**

Change should be institutionalized through mechanisms of reinforcement and integration in the organizational culture. Change should be propagated and made a habit.

#### **STEP 15: ITERATION**

Change cannot be a stable process but should be constantly revised and adapted, and therefore the actions should be periodically readapted through the iteration of the previous steps.

### **Discussion and conclusions**

The article describes the stages of development and

proposes a 15-step conceptual framework for supporting change in healthcare process innovations. The structuring of the framework integrates 53 evidences from the literature and 42 change management models applied to the healthcare context, through 244 implementation actions.

The focus in the structuring of the framework is not only placed on the steps to follow but also on their implementation. The importance of involving the stakeholders affected by the change is highlighted in each step, as strongly suggested in the literature and by the experts interviewed.

The methodology for the framework conceptualization follows eight development steps proposed by *Jabareen* (2009) and it integrates literature analysis, qualitative methods, and interactive processes of co-creation with international experts [12].

Thanks to the use of an integrated multi-method process, the proposed framework intends to be a generalized tool applicable to different healthcare contexts and it is proposed as a step-by-step guide to support change in healthcare processes.

The validation of the framework is further supported by a real-world analysis. The case study investigated refers to the work of *Basu* (2021) [102]. The analysis investigated the implementation of a District Clinical Specialist Team (DCST) in the Ekurhuleni Health District and its three sub-districts, one of five districts of Gauteng province (South Africa) in the context of maternal health.

The work suggests the importance of awareness and initial assessment to fully understand the organizational structure of the service provider and to define a vision and the needs to be addressed and then to establish an action plan. Therefore, to support change initiatives a specific focus should be given to the role of each actor. This aspect should be achieved establishing wins, implementing a communication, and training plan, and, above all, being prepared to manage resistance and to support the institutionalization of actions. Furthermore, to test and monitor the implementation of actions is necessary in order to understand the results of the changes adopted, and a continuous review is essential in order to follow the changing needs of the context. Finally, the work highlighted that the results of the process re-engineering, in terms of improvement of maternal health indicators, can be related to the management of change, specifically concerning communication and empowerment of the subjects involved who have held the role of change agents [102].

Pilot tests will help to further validate the method and to highlight its outputs in terms of success of change processes.

The analysis is supported by the use of a structured multi-method design for the development of generalizable grounded theory that includes desk research and experts' opinion. The limitations of the analysis are the use of a non-systematic literature review, the inclusion of models applied to heterogeneous healthcare contexts, the lack of an experimental validation and the involvement of experts from only two national contexts.

Future studies should analyse other geographical contexts in order to enlarge the evidence, experimental studies aimed at defining the needs and peculiarities of specific services and test the applicability of the method should be implemented and the framework could be revised based on future changes in the context or specific needs.

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## Ethics approval

The analysis was approved by the Research Ethics Committee of Università Carlo Cattaneo – LIUC, Castellanza-Italy (P07.2-23) and by the Research Ethics Committee of University of Pretoria – Faculty of Health Sciences-South Africa (338/2023).

## Conflicts of interest statement

The authors report no conflicts of interest in this work.

## Authors' contributions

DB, DC and SS conceptualized the work and designed the study. SS collected and analysed the data. SS and UR interpreted the data. SS and UR drafted the article with critical revision from DB and DC. All authors read and approved the final version of the manuscript.

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## Supplementary material

### Supplement 1. Documents included in the analysis

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**Supplement 2** Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Recognize when a significant shift impacts key success factors	Control the processes	"What" and "How" method	Awareness, Assessment
Identify which factors are in need of adjustment	Identify criticalities	"What" and "How" method	Need
Determine what changes are necessary in each factor	Define the objective	"What" and "How" method	Vision
Formalize decision to proceed with changes	Identify the actions	"What" and "How" method	Plan
Execute changes to achieve full intent	Implement the change	"What" and "How" method	Implementation
Define the change	State a definition of change and outcomes	Accelerated Implementation Methodology (AIM)	Need, Vision
Build agent capacity	Identify Change Agents and sustain competency development	Accelerated Implementation Methodology (AIM)	Awareness
Assess the climate	Check for implementation history and current level of stress	Accelerated Implementation Methodology (AIM)	Assessment
Generate Sponsorship	Create commitment	Accelerated Implementation Methodology (AIM)	Communication
Determine change approach	Define if change is compliance-driven or commitment-driven	Accelerated Implementation Methodology (AIM)	Vision
Develop target readiness	Identify sources of resistance and how to manage them	Accelerated Implementation Methodology (AIM)	Resistance
Build communication plan	Define messages, audience and implement a feedback loop	Accelerated Implementation Methodology (AIM)	Communication, Monitoring, Iteration
Develop reinforcement strategy	Create reinforcement mechanisms to reinforce performance expectations	Accelerated Implementation Methodology (AIM)	Institutionalization
Create cultural fit	Create consistency of the change with the corporate culture	Accelerated Implementation Methodology (AIM)	Vision
Prioritize action	Develop an Implementation Plan that is integrated with the technical project plan	Accelerated Implementation Methodology (AIM)	Plan
Design	Define change needed, assemble team, develop vision, communicate, and mitigate barriers	Advent Health Clinical Transformation (ACT) Model	Plan, Vision, Communication
Pilot	Define short run wins	Advent Health Clinical Transformation (ACT) Model	Wins
Implement	Maintain focus and educate	Advent Health Clinical Transformation (ACT) Model	Training, Implementation
Sustain	Institutionalize into culture and measure	Advent Health Clinical Transformation (ACT) Model	Monitoring, Institutionalization
Performance	Continual feedback	Advent Health Clinical Transformation (ACT) Model	Monitoring, Iteration
Leadership	Define a guide that can understand, support, explain, and implement	AMICUS Silversin and Kornacki's model	Communication
Shared vision	Establish a vision statement	AMICUS Silversin and Kornacki's model	Vision
Culture and compact	Information and awareness	AMICUS Silversin and Kornacki's model	Awareness
Aligning the team	Create a coalition	AMICUS Silversin and Kornacki's model	Communication
Involving physicians early	Engage physicians	AMICUS Silversin and Kornacki's model	Communication
Developing tension	Create urgency	AMICUS Silversin and Kornacki's model	Communication

**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Addressing resistance	Identify and define how to approach resistances	AMICUS Silversin and Kornacki's model	Resistance
Building consistency	Define durable actions	AMICUS Silversin and Kornacki's model	Plan
Why change	Define the need	Beckhard-Harris change map	Need
Define the desired future state	Define the objective	Beckhard-Harris change map	Need
Describing the present state	Describe problems	Beckhard-Harris change map	Awareness, Assessment
Getting from here to there	Define the route	Beckhard-Harris change map	Plan
Managing during the transition stage	Measure the progress	Beckhard-Harris change map	Monitoring
Exploration	Define the need for change	Bullock and Batten's four-phase model	Need
Planning	Understand the problem	Bullock and Batten's four-phase model	Plan
Action	Identify, agree, and implement change	Bullock and Batten's four-phase model	Assessment, Implementation
Integration	Stabilize and embed change	Bullock and Batten's four-phase model	Institutionalization
Conversation of acknowledgment	Understand the goals	Cake model	Need
Conversation of action	Define what to do	Cake model	Plan
Conversation of possibilities and opportunities	Scan the variety of possibilities of how to achieve that goal	Cake model	Awareness
Conversation of relatedness and purpose	Explore staff's capabilities	Cake model	Assessment
Governance and leadership	Define mechanisms that guide and regulate the course of an organization	Canada Health Infoway's Change Management Framework	Assessment
Stakeholder engagement	Informing / involving / consulting / collaborating / empowering people who can affect or who are affected by the achievement of an organization's objective	Canada Health Infoway's Change Management Framework	Awareness, Communication
Communications	Deliver the right message, to the right person, through the right channel, at the right time	Canada Health Infoway's Change Management Framework	Communication
Workflow analysis and integration	Workflow analysis and integration	Canada Health Infoway's Change Management Framework	Plan
Training and education	Provide instruction for knowledge and skill development	Canada Health Infoway's Change Management Framework	Training
Monitoring and evaluation	Oversee and assess impacts	Canada Health Infoway's Change Management Framework	Monitoring
Planning	Understand context and dynamics and determine the readiness and capacity	CHSRF's Evidence-Informed Change Management Approach	Awareness, Plan
Implementing	Take actions improving effectiveness and efficiency	CHSRF's Evidence-Informed Change Management Approach	Implementation
Spreading	Propagate change	CHSRF's Evidence-Informed Change Management Approach	Institutionalization



**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Sustaining	Monitor and adjust processes	CHSRF's Evidence-Informed Change Management Approach	Monitoring, Revision
Communicator	Explain changes and their impact	CLARC Change model	Communication
Liaison	Report to leaders the impact of change and to staff the feedbacks	CLARC Change model	Communication
Advocate	Promote positive attitude	CLARC Change model	Communication
Resistance Manager	Understand and address resistance	CLARC Change model	Resistance
Coach	Help to build knowledge	CLARC Change model	Training
Innovation Configurations	Define a goal	Concern-based adoption model (CBAM)	Need
Stage of Concerns	Identify staff members' attitudes and beliefs	Concern-based adoption model (CBAM)	Awareness
Levels of Use	Understand how staff are using a program	Concern-based adoption model (CBAM)	Assessment
Plan	Plan the change	Deming's System of Profound Knowledge PDSA cycles / Total Quality Management (TQM)	Plan
Do	Carry out or test the change	Deming's System of Profound Knowledge PDSA cycles / Total Quality Management (TQM)	Implementation, Test
Study/Check	Examine the results	Deming's System of Profound Knowledge PDSA cycles / Total Quality Management (TQM)	Monitoring
Act	Adopt the change or run again the cycle	Deming's System of Profound Knowledge PDSA cycles / Total Quality Management (TQM)	Revision, Iteration
Evaluate total performance	Measure the as-is performance	Evaluation, re-evaluation, and action (ERA) Method	Assessment
Re-evaluate system design management and culture	Measure the as-is organization	Evaluation, re-evaluation, and action (ERA) Method	Awareness
Act: Develop a change strategy, an action plan and conduct training	Plan the change and train	Evaluation, re-evaluation, and action (ERA) Method	Plan, Training
Leading Change	Develop leadership commitment	General Electric's (GE's) Change Acceleration Process (CAP) model	Communication
Creating A Shared Need	Define a need for all the stakeholders	General Electric's (GE's) Change Acceleration Process (CAP) model	Need
Shaping a Vision	Articulate a clear and legitimate vision	General Electric's (GE's) Change Acceleration Process (CAP) model	Vision
Mobilizing Commitment	Execute an influence strategy	General Electric's (GE's) Change Acceleration Process (CAP) model	Implementation
Making change last	Assess helping and hindering factors	General Electric's (GE's) Change Acceleration Process (CAP) model	Awareness
Monitoring process	Measure progresses	General Electric's (GE's) Change Acceleration Process (CAP) model	Monitoring



**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Changing Systems and Structures	Identify what influence the change and adapt it	General Electric's (GE's) Change Acceleration Process (CAP) model	Revision
Power dependencies	Define relations within the organization	Hinings and Greenwood's Model of Change Dynamics	Awareness
Interest dissatisfaction	Define orientation and motivation of members	Hinings and Greenwood's Model of Change Dynamics	Awareness
Value commitments	Determine the skill of leadership in generating commitment	Hinings and Greenwood's Model of Change Dynamics	Communication
Market context	Understand needs of market and constraints	Hinings and Greenwood's Model of Change Dynamics	Need
Institutional context	Understand institutional needs and constraints	Hinings and Greenwood's Model of Change Dynamics	Assessment
Capacity for action	Understand environmental, technological, and size-related constraints	Hinings and Greenwood's Model of Change Dynamics	Assessment
Organizational change	Determine implementation actions	Hinings and Greenwood's Model of Change Dynamics	Plan
Clarify measurable results	Specify goals/outcomes	Influencer Change Model	Assessment
Find vital behaviours	Determine needs	Influencer Change Model	Need
Use six sources of influence	Personal/Social/Structural Motivation/Ability	Influencer Change Model	Awareness
Individuals and Families	Develop relationships, involve, and empower	Institute for Healthcare Improvement's Triple Aim Model	Communication
Redesign of "Primary Care" Services and Structures	Develop health promotion	Institute for Healthcare Improvement's Triple Aim Model	Communication
Prevention and Health Promotion	Reduce the need of healthcare	Institute for Healthcare Improvement's Triple Aim Model	Plan
Cost Control	Make economic evaluations	Institute for Healthcare Improvement's Triple Aim Model	Wins, Monitoring
System Integration	Match services and demand	Institute for Healthcare Improvement's Triple Aim Model	Vision
Build a point of View	Identify opportunities and a business concept	Insurrection Method	Need
Write a manifesto	Draw implications and explain inevitability	Insurrection Method	Vision
Create a coalition	Identify voluntary recruits	Insurrection Method	Communication
Pick your targets and your moments	Involve someone with power and use the right moment	Insurrection Method	Communication
Co-opt and neutralize	Create a win-win situation	Insurrection Method	Wins
Find a translator	Identify forward thinking	Insurrection Method	Communication
Win small, win early, win often	Demonstrate the success	Insurrection Method	Wins, Monitoring
Isolate, infiltrate, integrate	Spread the idea	Insurrection Method	Communication
The ideal self	Define the objective	International Change Theory of Boyatzis	Need



**Supplement 2** (*follows*). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
The real self	Analyse strengths and gaps	International Change Theory of Boyatzis	Awareness, Assessment
A learning agenda	Reinforce strengths and reduce gaps	International Change Theory of Boyatzis	Plan
Practice	Experiment with and practice new habits	International Change Theory of Boyatzis	Test
Get support	Create supportive helps	International Change Theory of Boyatzis	Communication, Training
Analyze the organization and its need for change	Analyse the status of the organization, strengths, weaknesses and needs	Jick & Kanter Ten Commandments for Executing Change	Awareness, Assessment, Need
Create a vision and a common direction	Create a central vision	Jick & Kanter Ten Commandments for Executing Change	Vision
Separate from the past	Disengaging from the past	Jick & Kanter Ten Commandments for Executing Change	Vision
Create a sense of urgency	Convince that change is necessary	Jick & Kanter Ten Commandments for Executing Change	Communication
Support a strong leader role	Choose a leader to guide, drive, and inspire the team	Jick & Kanter Ten Commandments for Executing Change	Communication, Plan
Line up political sponsorship	Create a supportive environment with managers, change implementors and recipients of change	Jick & Kanter Ten Commandments for Executing Change	Communication
Craft an implementation plan	Develop a change plan	Jick & Kanter Ten Commandments for Executing Change	Plan
Develop enabling structures	Create new mechanisms for implementing change	Jick & Kanter Ten Commandments for Executing Change	Implementation
Communicate, involve people and be honest	Create empowered and aware environment using full involvement, communication, and disclosure	Jick & Kanter Ten Commandments for Executing Change	Communication
Reinforce and institutionalize change	Make the change the new normal and top priority to prove the commitment	Jick & Kanter Ten Commandments for Executing Change	Implementation, Wins, Institutionalization
Analyze and plan change	Analyse the organization and make a plan	Judson Method	Assessment, Plan
Communicate the change	Communicate to people	Judson Method	Communication
Gain acceptance of new behaviours	Eliminate resistances	Judson Method	Resistance
Change from status quo to a desired state	Implement and empower others to act on the change	Judson Method	Implementation
Consolidate and institutionalize the new state	Reinforce and institutionalize change	Judson Method	Institutionalization
Motions	Define motion (Organization – Environmental / Intraorganizational Components / Intraorganizational Individuals)	Kanter et al. “Big Three” Model of Organizational Change	Assessment
Changes	Define change (Identity / Coordination / Control)	Kanter et al. “Big Three” Model of Organizational Change	Need



**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Roles	Define role (Strategist / Implementer / Recipient)	Kanter et al. "Big Three" Model of Organizational Change	Awareness, Communication
Increase Urgency	Create a sense of urgency	Kotter's 8-Step Model	Communication
Build the Guiding Team	Pull together a guiding team	Kotter's 8-Step Model	Communication
Get the Vision Right	Create clear, simple, uplifting visions	Kotter's 8-Step Model	Vision
Communicate for Buy-In	Communicate the vision through simple, heartfelt messages	Kotter's 8-Step Model	Communication
Empower Action	Empower people to act on the vision	Kotter's 8-Step Model	Communication, Vision
Create short-term wins	Create short-term wins to make results tangible	Kotter's 8-Step Model	Wins
Don't Let Up	Maintain momentum and state of emergency	Kotter's 8-Step Model	Communication
Make change stick	Anchor changes in corporate culture	Kotter's 8-Step Model	Institutionalization
Specify the value desired by the customer	Define the objective	Lean Thinking	Need
Identify the value stream for each product that adds value	Identify the value	Lean Thinking	Vision
Make the product flow continuously	Create a continuous flow	Lean Thinking	Plan
Introduce pull between all steps from the next upstream activity	Eliminate push actions	Lean Thinking	Plan
Begin the process again until reaching perfection	Iterate the process	Lean Thinking	Revision, Iteration
Unfreeze	Information and awareness for those who will be affected by the change	Lewin's 3-Stage Model of Change	Awareness, Communication
Change	Introduction of change and transition	Lewin's 3-Stage Model of Change	Implementation
Freeze	Refreezing and stabilization of change	Lewin's 3-Stage Model of Change	Institutionalization
Scout	Diagnose the problem	Lippitt's Phases of Change Theory	Need
Enter	Make an assessment of capacity and motivation	Lippitt's Phases of Change Theory	Awareness, Assessment
Diagnose	Diagnosing the system's client problem and identify agent's commitment to change, power, and stamina	Lippitt's Phases of Change Theory	Vision
Plan	Establishing alternative routes defining strategies and action plan	Lippitt's Phases of Change Theory	Plan
Act	Transforming intentions into actual efforts and select and understand the role of change agents	Lippitt's Phases of Change Theory	Awareness
Stabilize and evaluate	Stabilise change with communication, coordination, and feedbacks	Lippitt's Phases of Change Theory	Communication, Monitoring
Terminate	Withdraw from helping relationships	Lippitt's Phases of Change Theory	Implementation
Mobilize energy and commitment by jointly identifying problems and solutions	Accept the need and the urgency and identify problems	Luecke's Seven steps Method	Awareness, Assessment, Need
Develop a shared vision of how to organize and manage for competitiveness	Develop a vision and motivate employees to accept change	Luecke's Seven steps Method	Vision, Resistance, Wins





**Supplement 2** (*follows*). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Identify the leadership	Use a strong leadership in supporting change	Luecke's Seven steps Method	Communication
Focus on results, not on activities	Measure the results	Luecke's Seven steps Method	Monitoring
Start change at peripheries and let it spread without pushing from top	Implement the natural change	Luecke's Seven steps Method	Implementation
Instil success through policies, procedures and systems	Guide the transition	Luecke's Seven steps Method	Plan
Review and adjust strategies in response to arising problems	Monitor and adjust strategies for any problem	Luecke's Seven steps Method	Monitoring, Revision
Impetus to transform	Manage external pressures	Lukas Organizational Model for Transformational Change in Healthcare Systems	Awareness
Leadership commitment and support	Acknowledgement of senior management of the necessity of change	Lukas Organizational Model for Transformational Change in Healthcare Systems	Communication
Improvement initiatives	Engage staff in meaningful problem solving and initiatives to better operations	Lukas Organizational Model for Transformational Change in Healthcare Systems	Communication, Plan
Alignment from top to bottom	Alignment to achieve consistency of organization	Lukas Organizational Model for Transformational Change in Healthcare Systems	Vision
High quality patient care	Integration to bridge traditional intra-organizational boundaries between individual components	Lukas Organizational Model for Transformational Change in Healthcare Systems	Resistance, Implementation
Strategy	Define a plan of action	McKinsey 7S Model of Change	Vision, Need
Systems	Schedule daily activities and procedures	McKinsey 7S Model of Change	Plan
Structure	Organizational structure	McKinsey 7S Model of Change	Awareness
Staff	Map people and capabilities	McKinsey 7S Model of Change	Assessment
Skills	Define skills and competencies needed	McKinsey 7S Model of Change	Training
Shared Values	Understand goal and core values	McKinsey 7S Model of Change	Need
Style	Strategical leadership	McKinsey 7S Model of Change	Communication
Know where you're going and why	Define outcome, develop business case, and select the team	National Health Service (NHS) Change Management Guidelines	Need, Plan
Analyse and design	Design the process and the strategy	National Health Service (NHS) Change Management Guidelines	Plan, Vision
Gain commitment	Develop commitment	National Health Service (NHS) Change Management Guidelines	Communication
Deliver it	Implement and execute the actions	National Health Service (NHS) Change Management Guidelines	Implementation
Reinforce it	Revise the actions	National Health Service (NHS) Change Management Guidelines	Revision



**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Sustain it	Make it sustainable and create continuous improvement	National Health Service (NHS) Change Management Guidelines	Institutionalization, Iteration
Identify problems	Define the need	Participatory action research (PAR)	Need
Consult an external expert	Involve external experts	Participatory action research (PAR)	Communication
Gather data and perform initial diagnosis	Measure and evaluate	Participatory action research (PAR)	Assessment
Give feedback to management	Return to management	Participatory action research (PAR)	Communication
Jointly diagnose problems	Determine the problems in group	Participatory action research (PAR)	Need
Perform a joint action planning	Plan the steps in group	Participatory action research (PAR)	Plan
Act	Implement the change	Participatory action research (PAR)	Implementation
Gather data after action	Measure and revise	Participatory action research (PAR)	Monitoring, Revision
Content	Define area, target, and assumptions	Pettigrew's Context/ Content/ Process Model	Need, Vision
Context	Define internal context (strategy, structure, culture, management, and political processes) and external context (national, economic, political, and social)	Pettigrew's Context/ Content/ Process Model	Awareness, Assessment
Process	Define actions, reactions, interactions, models of change, implementation approach and patterns	Pettigrew's Context/ Content/ Process Model	Plan, Resistance, Implementation
Identify and select processes for redesign	Identify processes and prioritize in terms of urgency (most important or higher conflict)	Process Reengineering	Need
Identify enablers for new process design	Map capabilities	Process Reengineering	Awareness, Assessment
Define the business strategy and process vision	Specify business objectives	Process Reengineering	Need, Vision
Understand the current process's flow and structure	Analyse processes and systems	Process Reengineering	Awareness, Assessment
Design the new process	Design involving users	Process Reengineering	Plan
Prototype the new process	Prototype and refine with successive iterations	Process Reengineering	Test, Revision, Iteration
Implement the process and associated systems	Implement the new processes to support change	Process Reengineering	Implementation
Communicate ongoing results of the effort	Use communication strategies	Process Reengineering	Communication
Build commitment toward change at each step	Create cohesion	Process Reengineering	Institutionalization
Pre-contemplation	Acknowledge the problems	Prochaska and DiClemente's Change Theory	Awareness, Assessment, Need
Contemplation	Raise consciousness of the issue	Prochaska and DiClemente's Change Theory	Awareness, Communication
Preparation	Plan the change	Prochaska and DiClemente's Change Theory	Plan
Action	Engage in change activities	Prochaska and DiClemente's Change Theory	Implementation



**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Maintenance	Reinforce the change	Prochaska and DiClemente's Change Theory	Institutionalization
Relapse	Revisit the actions	Prochaska and DiClemente's Change Theory	Revision
Awareness	Define nature of change, needs and risks and draft communication program	Prosci ADKAR	Awareness, Communication
Desire	Define goals and demonstrate commitment	Prosci ADKAR	Need
Knowledge	Define steps for change and training strategy	Prosci ADKAR	Plan, Training
Ability	Facilitate capability building	Prosci ADKAR	Training
Reinforcement	Define rewards and give feedbacks	Prosci ADKAR	Wins, Monitoring
Denial	Management of shock, disbelief or rejection using communication	Riches four-stage model	Resistance, Communication
Resistance	Management of adverse attitude and resistance using acknowledgement	Riches four-stage model	Resistance
Exploration	Exploration and testing of change using support, training, and short-term goals	Riches four-stage model	Training, Wins, Test
Commitment	Managing the acceptance of change as a new routine using recognition	Riches four-stage model	Implementation
Awareness	Define categories for adopter of innovation (Innovators, Early Adopters, Early Majority, Late Majority and Laggards)	Roger's Diffusion of Innovation (DOI) Theory	Awareness
Persuasion	Definition of the attitude (favourable or unfavourable)	Roger's Diffusion of Innovation (DOI) Theory	Awareness
Decision	Understand pros and cons	Roger's Diffusion of Innovation (DOI) Theory	Assessment, Wins
Implementation	Puts the innovation to use	Roger's Diffusion of Innovation (DOI) Theory	Implementation
Continuation	Checks the results	Roger's Diffusion of Innovation (DOI) Theory	Monitoring
Define	Build Awareness	Six Sigma DMAIC	Awareness
Measure	Define the need	Six Sigma DMAIC	Need, Assessment
Analyze	Create desire to change	Six Sigma DMAIC	Communication, Monitoring, Wins
Improve	Define abilities and train knowledge	Six Sigma DMAIC	Training
Control	Reinforce the change	Six Sigma DMAIC	Institutionalization
Jointly diagnosis change	Mobilise commitment	Six Steps	Awareness, Communication
Develop a shared vision	Define how to organize and manage	Six Steps	Vision, Plan
Foster consensus for change	Create cohesion and competence	Six Steps	Training
Spread revitalization to all department	Revitalise from bottom to top	Six Steps	Revision
Institutionalize revitalization through policies	Define policies, structures, and systems	Six Steps	Institutionalization
Monitor and adjust strategies	Respond to problems	Six Steps	Monitoring, Resistance
The change message	Identification of five key change beliefs: discrepancy, appropriateness, self-efficacy, principal support, personal valence	The institutionalizing change model	Assessment



**Supplement 2** (follows). Concepts deconstruction and aggregation

Concept	Description	Reference	Topics
Commitment	Make emphasis on change recipient involvement and participation: compliance, identification, and internalization	The institutionalizing change model	Awareness
Readiness	Use effective Organizational Diagnosis	The institutionalizing change model	Awareness
Adoption	Create readiness for change	The institutionalizing change model	Communication
Strategies	Define the strategy: active participation, management of internal / external information, formalization activities, diffusion practices, rites and ceremonies, human resource management practices, persuasive communication	The institutionalizing change model	Plan, Vision, Communication
Institutionalize revitalization through policies	Understand managerial influence strategies and institutionalize into culture	The institutionalizing change model	Institutionalization
Assessment	Assess the change measuring	The institutionalizing change model	Monitoring
Reinforcement	Reinforce using change agents and targets attributes	The institutionalizing change model	Wins, Institutionalization
Establish the need to change	Create urgency	Wheel	Need, Communication
Develop and spread a vision of a planned change	Communicate and disseminate	Wheel	Vision, Communication
Diagnose and analyze the current situation	Focus on the current state	Wheel	Awareness
Generate recommendations	Identify potential paths	Wheel	Assessment, Plan
Detail the recommendations	Lists the options	Wheel	Plan
Pilot test the recommendations	Test the change	Wheel	Test
Prepare the recommendations for rollout	Refine recommendations and prepare a plan	Wheel	Revision
Roll out the recommendations	Implement the change	Wheel	Implementation
Measure, reinforce, and refine the change	Monitors, adapts, and reinforces the changes	Wheel	Monitoring, Institutionalization
Pre-change	Definition of potential changes, risks, and problems	Young's Nine Stage Framework	Awareness, Assessment, Resistance
Stimulus	Awareness to the signs of a potential need for change	Young's Nine Stage Framework	Need
Consideration	Identify the reasons for change	Young's Nine Stage Framework	Vision
Validate need	Define who, what, when and why change	Young's Nine Stage Framework	Plan
Preparation	Define progress criteria and monitoring	Young's Nine Stage Framework	Monitoring
Commit	Identify the commitment necessary to overcome resistance	Young's Nine Stage Framework	Resistance
Do-check-act	Activate a guided process of change to keep the transition phase aligned	Young's Nine Stage Framework	Communication, Monitoring
Results	Build a continuous learning process	Young's Nine Stage Framework	Training
New normal	Establish an embedded new behavioural norm to deliver unconscious results	Young's Nine Stage Framework	Institutionalization