Technical Brief:
Change management to improve adoption, uptake, and scale of digital health interventions

A review of implementation approaches and frameworks

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Executive Summary

Gavi, the Vaccine Alliance (Gavi) is committed to, and investing in, digital health information (DHI) interventions to facilitate the achievement of immunisation goals with a focus on zero-dose and under-immunised children in alignment with the Gavi 5.0 Strategy. There is broad recognition that these investments alone, without support for guiding the adoption process, will not enable DHI interventions to reach sustained adoption, scale, or impact.

In parallel, Gavi is expanding its investments beyond digital immunisation information systems to broader digital health which requires even more support for effective adoption and use of digital health interventions. In support of this expansion, Gavi has identified change management as an important area for exploration and support as a critical digital health enabler.

Change management is defined as the application of strategies, processes, and initiatives to support individuals to manage outcome-oriented change in an organisation or system. It focuses on managing the people-side of change within an organisation, which includes addressing how the individual employees transition and adapt to new processes and systems alongside the broader organisational shifts that are implemented to sustain and scale the desired change. Change management has been used as an approach to manage change in health and digital health programming. Despite the value of change management to facilitate the change associated with digital health uptake and scale it is often not implemented systematically and can fail to address all the necessary elements needed for an impactful change approach.

This Gavi Digital Health Technical Brief provides an overview of how change management approaches are being used in digital health implementation as reported through key informant interviews with 11 digital health implementers, and a review of four commonly used change management frameworks in digital health: 1) Kotter's 8-Step Change Model, 2) Lewin's 3-Step Model, 3) the ADKAR Model for Change Management, and 4) the McKinsey 7Ss Framework. The goal of this technical brief is to understand:

- The current structure and use of change management frameworks and approaches in digital health implementation.
- The benefits of prioritising change management strategies.
- The factors that influence the implementation of successful change management strategies.
- Gaps in change management implementation.
- Priorities for future implementation of change management.

Four commonly used change management frameworks in digital health were reviewed to understand best practices in change management. They include: 1) Kotter's 8-Step Change Model, 2) Lewin's 3-Step Model, 3) the ADKAR Model for Change Management, and 4) the McKinsey 7Ss Framework. The frameworks have five foundational elements in common.

- Understanding the current organisational state through diagnosis.

- Creating a change vision, a change strategy and an action plan to achieve the desired organisational state and, building buy-in for the desired future state.

- Empowering and equipping employees with tools, training, and support to adopt and maintain the desired change.

- Building and embedding organisational supports (policies, incentives, communication structures, etc.) to support and maintain the desired change.

- Maintaining the change process via regular review, monitoring, and clear communication to keep people involved and informed.

The primary differences between the four frameworks are found in the scope of elements considered in the models, the focus areas in the models, and the level of depth of guidance provided to apply the models.

Eleven digital health implementers were interviewed to understand how they apply formal and non-formal change management frameworks and strategies in their work. All respondents stated that their organisations apply change management approaches in the implementation of digital health interventions and that they are informed by three of the four frameworks reviewed in this brief. The three frameworks cited were ADKAR, Kotter, and Lewin. Other learning from the key informants indicate that:

- Change management is considered critically important to successful adoption and scale of digital health interventions.

- Change management is recognized as the most impactful solution to improve adoption and scale of digital health implementations but only if it is prioritised, funded, and institutionalised within the organisation seeking to achieve change.

- The minority of implementers follow structured, formal change management frameworks.

- The majority apply change management processes that are purposeful and regular but not formal – meaning they didn't use structured tools or systematic implementation guidance.

- Most change management implementers rely on human centred design (HCD) as a change management tool.

- Factors that contribute to the insufficient implementation of change management strategies include:

  – Lack of sustained, strong local leadership driving the change process.

  – Low understanding of the value of change management and therefore under prioritisation of change management strategies in work plans.

  – Over-reliance on human centered design as a primary change management strategy.

  – Competing demands on timelines and resources that limit change management scopes.

  – Insufficient involvement of all the stakeholders needed for sustained, organisational change.

  – Insufficient systems/processes to support sustained change.

  – Insufficient monitoring and evaluation of change management processes and thus communication of successes and weaknesses.

Gavi recognizes the transformative potential of change management to ensure adoption, uptake, and scale of digital health interventions and thus improved immunisation systems and outcomes. The following are recommendations for investment in change management approaches to support digital health intervention implementation within Gavi-funded immunisation programs.

Key Recommendations

- **Apply a structured change management approach** in a Gavi-supported High Impact country scaling-up a digital health intervention. Assess the acceptability and feasibility of using the approach and apply a strong monitoring, evaluation and learning system to inform the development of Gavi change management implementation guidance.

- **Evaluate the effect of applying the change management implementation guidance alongside digital health interventions** in Gavi programming. Investigate the link between adoption of a Gavi change management approach on the desired change behaviours, programmatic outcomes, and scale of digital health interventions. Share learnings across Gavi initiatives. Consider the improved change management approach as a strategy to improve equity in digital health and readiness for the introduction and rapid scale-up of new digital and non-digital interventions in Gavi 6.0.

- **Promote the inclusion of change management as a funded workstream** in Gavi-supported digital health programming as a strategy to increase adoption, sustained use, and scale, and as a use-case for improving financial efficiency, value for money, and effectiveness of digital health interventions. In these cases require reporting on key indicators of change management strategies to understand barriers to implementation and drivers of success.

- **Collaborate with the Immunization Agenda 2030 team working on demand** to ensure that learnings about health care worker's motivation (and other elements of behaviour) that affect change management are shared.

- **Work with Gavi Alliance partners to align investment for change management** approaches in countries that are already investing in digital health interventions but have not reached adequate adoption or scale, and facilitate **institutionalisation guidance for change management** into government and donor policy for the implementation of digital health interventions to improve local ownership and leadership of change management approaches and immunisation program efficiency of investment.

Background

In today's interdependent and complex world, organisations must change to survive and thrive. Geopolitical shifts, local priority fluctuations, environmental and health events, and disruption of digital transformation permeate every organisation regardless of location, size, or focus. Organisational growth, contraction, and maintenance all require some type of change. Change management has long been used as a strategy to manage change and is an important tool for immunisation programmes as they increasingly adopt digital health interventions. Change management is defined as the application of strategies, processes, and initiatives to support individuals manage outcome-oriented change in an organisation or system (Prosci., n.d) (Whatfix, n.d.).

The discipline of change management has been influenced by developments in organisational theory, psychology, and business practices and has been applied in multiple disciplines. The focus of these approaches is on the individual and provide an enabling framework for managing the people-side of change. They support people through transitions from a current state to a future state and highlight what is needed to influence change adoption.

In addition to the objective of guiding the change process and supporting individuals to achieve and sustain the future state, change management frameworks have been cited to achieve broader change. Specifically, these benefits include increased organisational adaptability and resilience, improved organisational efficiency and productivity, improved employee morale and engagement, reduced organisational risk, improved employee problem solving and, improved organisational culture (High5., n.d.). See box A.

Change management models differ from project management change frameworks in that project managers define change within a narrower scope related to implementation of a specific project or activity. They focus less on the individual and more on technical processes and

> ## BOX A
> ## BENEFITS OF CHANGE MANAGEMENT
>
> - Improved organizational ability to adapt to change
> - Improved employee acceptance of change and adoption of change
> - Increased organizational efficiency
> - Improved communication
> - Enhanced employee engagement and satisfaction
> - Mitigated risks associated with change
> - Cost control - avoid costs from delays, errors, or failed implementation due to change
> - Higher success rates for projects and sustained success
> - Positive organizational culture

ensuring project goals remain on track. They are complementary disciplines that share a common objective, to deliver successful change.

Change management in health

Health systems are constantly evolving to keep pace with the changing health landscape. They are accustomed to adapting to meet changing population needs, new clinical advancements, epidemiological risks, social changes, updated health regulations, and new technologies that will improve efficiency and quality (Harrison et al., 2021) (Fiorio et al., 2018). Change management approaches based on Kurt Lewin's work from the 1940s have been applied to the healthcare context and have since evolved from basic organisational development principles to address the complex needs of modern healthcare systems and the related workforce. See box B. The health sector practices change management as a core strategy and has used it to improve provider performance and quality of care outcomes (often referred to as quality improvement) (Kampstra et al., 2018), and to improve operational efficiency (Kho et al., 2020).

Change management in digital health

A focus on change management for health programs resurfaced in the global dialogue as health systems began to digitalise. This peaked during the COVID-19 pandemic with the increased application of digital health interventions worldwide. Low- and middle-income countries saw a surge in the number and scope of digital health interventions. Despite this significant increase, only a limited number of digital health interventions achieved national or semi-national implementation, and even fewer maintained long-term use (Swartz et al., 2021). The transformation of health systems to complex systems with multiple variables and influencers that creates unpredictability, and uncertainty

is cited as one of the reasons for lacklustre outcomes of healthcare improvement efforts (Braithwaite et al., 2021). As health systems increasingly undergo digital transformation, driven by new technological trends, the complexity of managing these changes intensifies. Despite the value of change management to facilitate the change associated with digital health uptake and scale it is often not implemented systematically and can fail to address all the necessary elements needed for an impactful change approach (Hospodková et al., 2021). This calls for improved and expanded change management approaches to ensure the successful adoption, scale, and sustainability of digital health interventions. (Narine et al., 2003).

Supporting Gavi's priorities

Scaling up vaccine coverage and reaching under-immunised and zero-dose children are foundational priorities for the World Health Organization's Immunization Agenda 2030 and Gavi's 5.0 and 6.0 strategies. To accomplish these goals Gavi is committed to expanding program coverage, responding to outbreaks, and supporting countries to design vaccination services that respond to the specific needs of caregivers and underserved communities. The quality delivery of vaccination services by health care workers is at the centre of these commitments. Digital health interventions have been shown to facilitate these outcomes (Abernethy et al., 2022).

Gavi is already committed to and investing in the digital transformation of immunisation information systems, as outlined in the Digital Health Information Strategy 2022-2025. Through their new 6.0 strategy Gavi is exploring the adoption of an expanded range of digital health interventions that go beyond data and can accelerate the achievement of their goals. Critical to this commitment is ensuring that investments in digital health interventions are adopted, scaled, and sustained. Change management can support and facilitate this process. See Box C.

Immunisation programs provide the perfect context within which to strengthen change management for digital health interventions because of their experience during the COVID-19 pandemic. The pandemic disrupted the status quo and forced the program to innovate. It highlighted the potential value of digital health interventions to improve COVID-19 immunisation outcomes. Moreover, immunisation programs are ripe with successful pilot and demonstration digital health interventions that can be scaled with the support of improved change management approaches. Gavi holds a unique position to leverage its convening power to bring immunisation and digital health stakeholders together at global, regional, and country levels to strengthen digital health intervention implementation by applying strong change management approaches to ensure that digital investments are fully adopted and scaled.

BOX C
HOW CHANGE MANAGEMENT CAN IMPROVE DIGITAL INTERVENTIONS IN IMMUNIZATION PROGRAMS

Supplementary immunization activities (SIA) are an effective strategy for delivering vaccination to children who have been missed by routine services. Real-time monitoring (RTM) that employs digital technologies to accelerate the sharing, analysis and use of data to improve campaign quality and efficiency, can be deployed to help programs improve their SIAs. RTM assists to review progress against targets; identify issues and gaps; track supplies, human resources and vaccine sessions; and make prompt decisions about corrective actions. While often successful where they were deployed, they sometimes do not reach full adoption or scale because of the irregular and temporary nature of SIAs. Therefore, RTM is often not well integrated into regular workflows. Immunization programs struggle with how to manage the change environment in this context. Change management can help overcome these challenges by ensuring that:

- Local leaders explain the benefits of change, drive the change process and identify resources to implement and sustain it

- SIA program implementers understand how RTM will facilitate their job performance and improve client outcomes

- Facility/regional policies and other organisational support is established to integrate it into workflows, provide RTM training and refresher training, provide employee incentives for adopting RTM, provide guidance on troubleshooting RTM program sustainability challenges, and peer-to-peer support

- Facility/regional policies and other organisational support is established to provide RTM training and refresher training, employee incentives for adopting RTM, troubleshooting with RTM, and peer-to-peer support

- Peer to peer support is established to assist overcoming barriers that emerge as the digital intervention is implemented and scaled

- Regular/ongoing communication is established to share the impact of adopting RTM on client and program outcomes as well as employee engagement, satisfaction and digital literacy

Methodology

This technical brief is informed by two information gathering exercises. First, a rapid review of the literature was conducted to identify the change management frameworks that are most commonly used in health (Harrison et al., 2021) (Bąk & Bąk., 2024). Second, eleven key informant interviews with digital health implementers were undertaken to understand how change management is applied in current digital health implementation.

The identification of the change management frameworks that are most commonly used in health (step one) was undertaken to understand best practices in change management in digital health implementation. Four frameworks were identified and reviewed. They include:

- Kotter's 8-Step Change Model

- Lewin's 3-Step Model

- the ADKAR Model for Change Management

- the McKinsey 7Ss Framework.[1]

The four frameworks were reviewed to understand foundational elements of change management so that the strengths, weaknesses, gaps, and opportunities of change management approaches in current digital health intervention implementation could be assessed via key informant interviews. The key informant interviews (step 2) were then conducted with digital health experts to explore current practices in digital health implementation. Digital health implementation experts were selected via convenience sampling. Learnings from the review of the frameworks were applied to the key informant interviews to understand the:

- Structure and use of change management frameworks and approaches in current digital health implementation.

- Benefits of prioritising change management strategies.

- Factors that influence the implementation of successful change management strategies

- Gaps in change management implementation.

- Priorities for future implementation of change management.

Findings from the two information gathering exercises (review of frameworks and key informant interviews) are presented in the following section. The detailed review of the four change management frameworks is presented in Appendix A.

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1 The 7S Framework has not been as commonly applied in healthcare as the other frameworks but is included in this paper due to its recent recognition as being effective in change management of innovation and in dynamic, regularly changing environments (like healthcare) in particular (Hospodková et al., 2021).

Findings

Change management is recognized as the most impactful solution to improve adoption and scale of digital health implementations

All respondents stressed the need to prioritise change management processes in digital health deployments. It was unanimously cited as the solution to improve adoption and scale of digital health interventions.

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We can deliver technology correctly 99% of the time. The struggle is with systems and processes to sustain user engagement and behaviour change.

"

The review of the frameworks highlighted that change management process acts as the "psychological prep" for the various stages of change by recognizing the many actors and their differing individual roles and motivators that are involved in achieving the future state. This defines a chain of 'people oriented' events that need to happen to build trust among all actors, build buy-in for, and sustain the change vision. Also, by defining the steps necessary for change it sets the expectation of learning along the way and continuous adaptation. It inhibits change done quickly vs. change done well.

> *Change management creates not just processes and communication about change but a new mindset for change. A systematic approach takes away the discomfort with change and the unknown. It gives you control and predictability.*

Respondents recognize that investment in digital health interventions will continue and is likely to increase as digital ecosystems mature, and as digital literacy and solutions improve. One respondent also noted how change management is critically important to facilitate adoption and uptake of digital health interventions in low and resource constrained settings because it ensures continuous learning and development of systems to sustain digital health adoption. It enables the identification of external enablers and barriers so that contextually relevant solutions can be developed and adapted overtime.

The benefit of change management cited by most respondents was that it highlights the complexity of change thus recognizing that many different people and processes need to come together to reinforce it. Respondents discussed how the healthcare worker, the healthcare organisation, and the health system are all involved in the implementation of a digital health intervention. The reviewed frameworks also underscore that the change process needs to consider all stakeholders affected by the change, not just those who may be the primary users of the new digital health intervention.

Specific benefits of change management reported by respondents and grouped by level of change include:

- **Health workforce** – increased understanding of how change can help the health worker do their job, increased buy-in for the desired change, reduced resistance to change, and improved skills and confidence in using digital technologies.

- **Healthcare organisation** – smooth transition from current state to future state, insight into how change happens and what can be leveraged for continued change, improved operational efficiency, and higher success rates of the new digital health intervention.

- **Health system** – improved program and patient outcomes, higher quality data, and better resource management.

All respondents noted that a structured change management process facilitates one of the most important elements of change – engaging leadership throughout the change process. One respondent recommended integrating change management guidance into government and donor policy for the implementation of digital health interventions. Including change management as a part of digital health implementation will normalise it as a required element of digital health. This will also facilitate leadership engagement, improved regular implementation of change management, and efficiency of investment.

Change management strategies are regularly applied in the implementation of digital health interventions

All respondents noted that change management needs to be a part of all technology deployments and funded as discrete activities. One respondent stated that it would be better to deliver less technical scope than reduce the change management work plan, but this is rarely possible.

> **"**
> *We can't think of change management as something we do in addition to tech. We need to define it as a change program that is implementing technology to help reach a future state. The engine is the technology, the car is the change.*
> **"**

All respondents reported using change management strategies in their work to institutionalise support to individuals to manage a change process, adopt new practices, and sustain those practices over time. All respondents also stated that they do not strictly follow any of the formal frameworks reviewed as part of this brief. Instead, they have adapted the formal guidance to fit their organisations and implementation contexts. The most referenced framework was the ADKAR model followed by Kotter, Prosci, and lastly Lewin. Of note is that while the McKinsey 7 was referenced in the literature as a valuable framework, none of the key informants named this framework as one that influenced their change management approaches.

All respondents adhere to foundational elements that are common to the four formal frameworks. See Box D. Also cited by all respondents as critical to the change process include:

- Strong and sustained local leadership of the change process.
- Clear and regular communication on expectations, successes, and progress in the change process.
- Training on skills needed in the future state.
- Use of internal change agents to model the desired change.

BOX D
FOUNDATIONAL STEPS COMMON TO ALL CHANGE MANAGEMENT FRAMEWORKS

- Understand the current state through diagnosis
- Create a vision, strategy, and action plan to build buy-in for the future state, understand the impact of the future state, and clearly implement steps to reach the future state
- Maintain and sustain the change process via regular review and monitoring
- Reinforce the change through organizational culture and policies

Additional elements cited by the majority of respondents as important to the change management process include:

- Creating awareness of the desired change.

- Understanding the impact of change on the individual.

- Ensuring organisational support systems and resources to support individual change.

- Providing skill building in the desired change practices.

- Creating incentives and accountability for individuals to change.

- Soliciting feedback from those involved in the change process.

- Managing resistance to change.

Current change management strategies are often not adequately funded and implemented

Most respondents noted that governments, donors and other clients often assume that the digital health intervention will lead to the intended future state without a specific focus on the human side of change. Thus, they are resistant to fund additional activities related to change management. When the need for change management is understood, often resources are limited and change management scopes are the first to be reduced. Considering this, the role leadership plays in advocating and securing buy-in and resources for the change management process was noted as the most critical element of change management.

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It costs money now but saves money in the long run because it will help support sustained and scaled interventions.

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When defining change management strategies, approximately half of respondents created a change management approach around the outcome that the digital intervention was designed to achieve. The focus of most change strategies was on ensuring quality design and implementation of the digital intervention. While this is a key element of the change management strategy it lacks a long term perspective. One respondent suggested that change is more likely when the change management messaging and activities are rooted in the longer-term outcomes that the digital intervention will facilitate such as increased demand, improved provider efficiency, improved health outcomes, etc.

> **"**
>
> *The problem is that we often start with the tech and not the change the tech will facilitate. We need to start with the problem and then ask – does technology overcome this? We need to lead with the change being about seeing more clients [for example] and not about using a new technology.*
>
> **"**

The majority of respondents stated that their change management processes are purposeful and regular but not formal – meaning they do not use structured tools or follow systematic guidance. Instead, they follow set principles and best practices that are adapted depending on the situation. About half of the respondents rely on the human centred design (HCD) process used in software development to address many of the elements of the change management process. Two respondents cited formal & structured organisational change management approaches that include specific steps, tools, and work plans.

Most respondents noted that lack of demand for and investment in change management leads to suboptimal change management implementation. It was also noted that change management approaches that are not formal, often have stronger implementation of the front-end activities in their change management strategies and see weaker implementation of activities that occur later in the process (i.e., continued training efforts, celebrating successes, ongoing fora for feedback on the change process, incentives for successful change, robust monitoring and evaluation, etc.).

Digital health implementers face barriers implementing robust change management approaches

The four frameworks reviewed for this technical brief reiterate the importance of implementing processes and structures needed to sustain change over time (i.e., regular training needed to achieve the desired change, institutionalised peer-to peer support, regular communication and feedback sessions, development of incentives and rewards for modelling change behaviour, communication on the achievement of the change process, etc.). Lack of financial and human resources to adequately stand up and maintain the needed processes was cited as the primary barrier to their implementation. In addition, when the necessary structures are implemented, they are often considered as extra work or temporary and are unfunded or underfunded over time thus making them unsustainable and ineffective. A few respondents identified supportive supervision as an existing, established mechanism that can be leveraged to regularly follow-up on individuals undergoing change and identify ways to support them.

Some respondents called for more focus on an assessment/diagnosis/scoping stage of change management to fully understand how individuals will be affected by the change (both positive and negative). This best practice also allows for investigation into the organisational level systems and processes that will be needed (or strengthened) to support the change and allow for the change intervention to be tailored to different populations.

> ❝
> *The most helpful digital health solution can fail if we don't understand the organisational support that individuals need to facilitate change.*
> ❞

One respondent suggested that greater investment in the assessment/diagnosis/scoping phase can also assist designers of digital health interventions to understand the most anticipated element of the change process and then to double down on that element to ensure that early success is achieved. This can be used to drive additional buy-in and adoption.

The lack of focus on and guidance for how to improve agility in the formal change management frameworks was highlighted as a barrier to successful implementation by most respondents. The four change management frameworks reviewed for this brief are stepwise and linear (except for the 7Ss) and don't align well with the agility focused approach of technology development. Borrowing the concept of agility from technology development and integrating it into the change process was suggested. Creating opportunities for listening, learning and adapting change work plans as the change process is underway was suggested as a way to ensure adaptation of the change process to focus on what is working.

Local and organisational leadership of the change process is a driver of successful change management approaches

All respondents unanimously stressed the role of sustained, visible, local leadership as a key driver in successful change management. Local leaders know their organisational cultures and politics and how those will influence change. They are best suited to set a vision, define a future state, and make the case for and drive change. Donors and stakeholders involved in the digital intervention deployment aren't best placed to push change. Local leaders are the responsible parties to set accountability frameworks for change adoption.

"

Ownership and leadership of the change process from Ministries of Health is the key to successful digital health interventions. A vision for the future state – not just the use of the digital tool but what that tool enables – is the key.

"

The importance of embedding the organisational change into organisational culture was stressed by respondents and frameworks alike. A key strategy cited by respondents to achieve this was the use of internal, organisational change champions. Change champions are valued for being the embodiment of the future state and valuable in peer-to-peer support. They are the drivers of day-to-day change interventions.

Key Considerations and Recommendations

This review of frameworks and analysis of implementation experiences for change management to support the uptake and scale of digital health interventions reveals that change management is considered critically important to the successful adoption and scale of digital health interventions. Respondents recognized it as the most impactful solution to improve adoption and scale of digital health implementations but only if it is prioritised, funded, and institutionalised within the organisation seeking to achieve change.

Implementers also unanimously stressed that strong local leadership driving the change management process is among the most important elements of change management. Local leaders are best placed to define and champion the future state vision. Leaders need to be supported to articulate a future state that goes beyond implementing digital health technology and articulate what the technology enables. Strong local leaders are also best placed to advocate for funding and other resources, navigate political and cultural issues, convene stakeholders, and institutionalise the change process. Strong leadership is also key to shaping organisational culture and establishing regular communication, both key to the change process.

From a macro perspective, all implementers follow best practice outlined in the four reviewed change management frameworks (see Appendix A) and have built their change management approaches on the foundational elements of change management as summarised in Box D on page 13. However, actual implementation of change management (as reported by key informants) diverges from the reviewed frameworks depending on many factors including:

- Scope of the digital intervention

- Available budget

- Demand for and sustained commitment to change management

- Existing governance structures for digital health, and

- Ability to convene key stakeholders

While commitment to change management may be present, implementation is affected by the bullets listed above.The implementation of change management strategies is often influenced by phased approaches of digital health intervention implementation. For example, the intervention to introduce an electronic immunization registry in a

country is often implemented in phases over many years. Time lags between phases, varied/differning requirements from different funders and donors, shifting governance structures, and changes in leadership lead to breaks in and inconsistent implementation of change management strategies.

Even though implementers do not strictly follow guidance found in the formal frameworks, key change management principles were noted across implementers (see Box E). Only a few implementers reported having defined organisational change management methodologies that are standardised and complemented by supporting tools to facilitate regular and quality implementation. In the less formal implementations, the change management process seemed to wane over time. As time passed, the structures needed to sustain change were not sufficiently sustained. Also, the monitoring of change management programs was rarely mentioned by key informants. Because of this, it may be helpful to put more structure around change management approaches and apply standard tools and guidance to ensure that robust change management programs are implemented.

In the less formal change management approaches, HCD was commonly cited as the approach to achieve change management. HCD is an excellent methodology to inform the creation of products and services with the user's needs, preferences, and expectations in mind; however change management focuses on enabling the larger context needed to support sustained change. It focuses on the broader processes, systems and services needed to create a future state and support individuals within that state. An over reliance on HCD to support the change process falls short of fully considering

BOX E
KEY CHANGE MANAGEMENT PRINCIPLES COMMON TO IMPLEMENTATION

- Ensure strong and sustained local leadership of the change process

- Engage all stakeholders affected by the change

- Articulate a future state beyond technology implementation that defines what the technology enables

- Build awareness of the benefits of the desired change

- Establish understanding of the impact of the desired change

- Build and sustain organizational supports for the desired change

- Build skills in the desired change practices

- Ensure measurement of and accountability for change

- Create incentives for change

- Use change champions

- Communicate regularly on the need for change and change successes

- Solicit feedback on progress of change process

- Manage resistance to change

- Embed the change process in existing health system structures such as supportive supervision

sustainable ways to engage the broader health organisation and health system in change management.

Implementing organisational structures to continuously support individuals involved in the change process post technology deployment was reported as a significant challenge. Locally led change management can also bridge to programs that are not directly implicated in the change process but can are needed to support it. Locally led change management can also bridge to programs that are not directly implicated in the change process but can still support it. For example, existing supportive supervision programs can be leveraged to regularly follow-up on individuals undergoing change by providing formal processes through which to escalate issues, provide training, and receive feedback. By integrating change management into supportive supervision processes the change process can be sustained and normalised.

Lastly, change management provides an opportunity to address equity issues within digital health implementation. Explicitly embedding equity in the change vision will ensure that the intervention is aligned with Gavi's commitment to reducing health disparities across regions. Equity will be specifically addressed in the design, development, and deployment of the change management process thus stating a change vision for the digital health intervention that includes equity to reduce health disparities and promote health equity for socially disadvantaged patient populations.

Gavi, the Vaccine Alliance, recognizes the transformative potential that digital health interventions can have on immunisation programs as evidenced by their current programming. To ensure the full impact of their current and future digital health interventions it is recommended that they invest in a strengthened change management approach for digital health interventions that is institutionalised in all their digital health programming. The recommendation to define a strengthened change management approach does not suggest that the development of a new framework is warranted. Instead, it is recommended that Gavi develop specific guidance that:

- Builds off of existing frameworks (summarised in Appendix A).
- Uses lessons learned about successful implementation from key informants (outlined in Box E).
- Addresses specific barriers encountered by current implementation (outlined in Box F).
- Specifically addresses how Gavi can successfully maintain change management strategies in a phased implementation of digital health interventions.

Development and application of the suggested change management guidance will ensure robust change management implementation that addresses all stages of change management needed to ensure successful digital adoption, scale, and sustainability. See the Executive Summary for a full list of recommendations.

STRATEGIES TO OVERCOME CURRENT CHANGE MANAGEMENT STRATEGY IMPLEMENTATION BARRIERS

- Ensure the change strategy is oriented to the long term outcome the technology is seeking to achieve

- Engage all stakeholders affected by the change (not just those who may be the primary users of the new digital health intervention) to ensure the identification of organizational level systems and processes that will be needed (or strengthened) to tailor the change management strategy to different populations

- Utilize learning from monitoring and evaluation processes to 1) ensure continuous learning and adaptation, thus strengthening agility in the change process and 2) to strengthen/develop systems and processes to sustain digital health adoption

- Develop structured change management work plans that articulate activities, parties responsible, milestones, outcomes, and indicators of success to ensure robust implementation, fidelity to best practices, and accountability

- Develop/build off existing implementation guidance for digital health implementers to support robust change management implementation

Conclusion

This technical brief describes the potential for change management approaches to address long standing challenges with uptake and scale of digital health interventions for immunisation programs. It highlights the human element of change required for individuals to successfully implement digital health interventions and the expanded set of actors needed to support the change process at the organisation and health systems levels. It points to the need for commitment to and investment in developing a structured change model as well as systematic evaluations to prove the effectiveness of the change approach and build the case for increased focus and investment. Promising and robust change management approaches exist. These approaches should be strengthened, expanded, and adopted as a strategy for Gavi to enhance current efficiency and effectiveness of digital health interventions and as a strategy to reach immunisation goals.
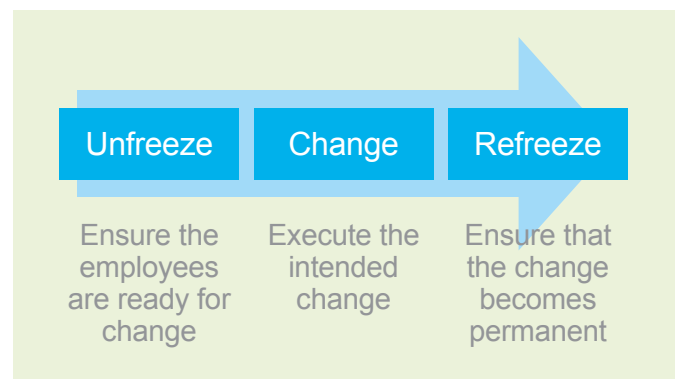
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Review of Change Management Frameworks

Lewin's 3-step Model

One of the earliest and most influential theories for understanding organisational change is Kurt Lewin's 3-step model. The model recognizes the driving and restraining forces that affect change and outlines three core stages of change needed to move from a current state to a desired future state – unfreeze, change, and refreeze. (https://whatfix.com/blog/lewins-change-model/).

Unfreeze	Change	Refreeze
Ensure the employees are ready for change	Execute the intended change	Ensure that the change becomes permanent

Stage 1 Unfreeze

The objective of stage one is to prepare the affected stakeholders for the upcoming organisational change. Change leaders are identified and they formulate strategies to improve the organisation's preparedness for change and create a sense of urgency around the need for change. During this stage, effective change communication is prioritised as a strategy to influence individual buy-in and support for the change process. Often a change vision and strategy are communicated during this time along with an analysis of the processes needed to facilitate the change. Employee concerns are also sought out and addressed with honesty and transparency.

Stage 2 Change

Once the current state is disrupted and the future state identified, focus shifts to the implementation of change. In this stage, an iterative approach is used that incorporates employee feedback to create ownership of and buy-in for the transition. The following priorities are addressed in Stage 2:

- Ensuring a continuous flow of information.
- Capacity building and training that includes sessions specific to change management.
- Highlighting early successes, and empowering individuals to participate in and own the change process.

Stage 3 Refreeze

As change happens, individuals are encouraged to transition from a state of change to a state of change stabilisation and adopt or refreeze the desired change. During this phase, it is critical that change leaders reinforce the change in organisational culture. Priorities during this stage include:

- Identifying and rewarding early adopters and change champions.
- Continuing to regularly collect employee feedback.
- Offering on-demand employee training and support.

Lewin's model also includes field theory, group dynamics, and action research. These concepts highlight the need to understand group behaviour and hence the behaviour of individual group members during the change process as well as the context within which the desired change is to take place. The key idea behind Lewin's change management model is that change is not sustainable in the long term and returns to the previous state, unless the goal is clearly defined including the sustainability and consolidation of the new state.

This framework is still used in healthcare today but has been criticised for assuming that organisations operate in a stable state and for not considering large scale change projects, organisational power, and politics, and environments where management is not top down[2]. Critics have also noted that there is little guidance on sustaining change once it is frozen.

Kotter's 8 Step Model

Kotter's original eight step change methodology was developed by interviewing, observing, and researching countless leaders and organisations as they were implementing organisational change. Over the years the model has evolved from the original eight steps to consider accelerators. The model empowers organisations to accelerate organisational change through proper planning, mobilising employees,

removing friction, and instating change into the company's culture. (https://www.kotterinc.com/methodology/8-steps/). The 8 steps include:

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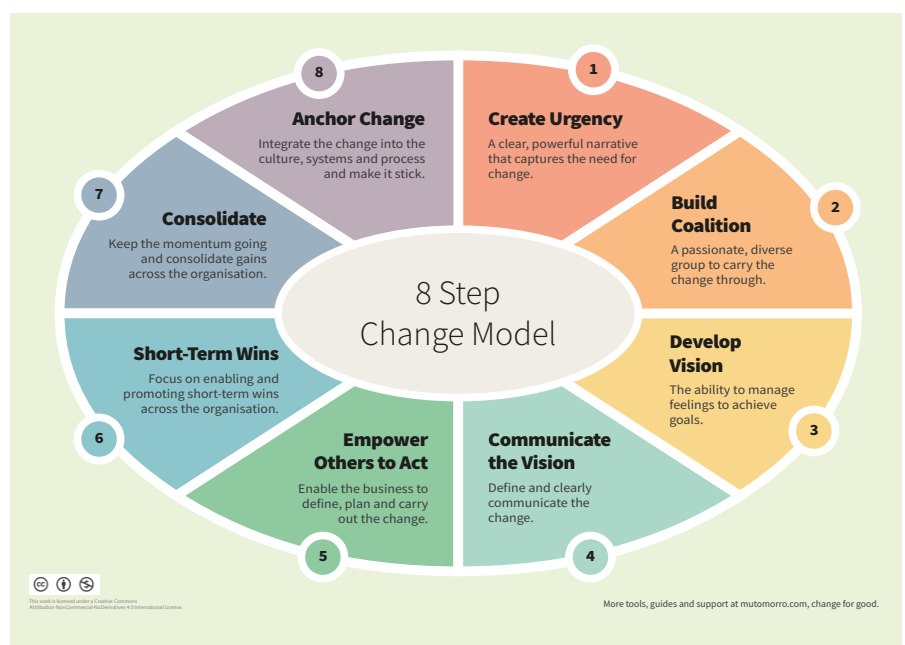
2 Burnes, B. (2004), Kurt Lewin and the Planned Approach to Change: A Re-appraisal. Journal of Management Studies, 41: 977-1002. https://doi.org/10.1111/j.1467-6486.2004.00463.x

Step 1 Create a sense of urgency

It is human nature to maintain the status quo. Initiating change requires a spark that will motivate the process. Step one focuses on creating and communicating a bold and aspirational vision of the desired future state. Activities in this step include:

- Showcasing other organisations that have been through similar change.
- Identifying individual benefits of the change.
- Identifying opportunities that can be leveraged to facilitate change.
- Initiating dialogue with different levels of the organisation to include multiple voices in the change vision.

Step 2 Build a guiding coalition

Driving change is not a one-person job. Multiple leaders with different ideas, opinions, and constituencies are needed. A network of committed people is needed to shepherd the change process. Activities in this step include:

- Building a change advisory board.
- Forming cross-functional teams that include team members that will be most affected by the change.
- Identifying change agents.

Step 3 Form a strategic vision

A change initiative is often challenging to understand at lower levels of the organisation. A change management strategy is needed that clearly outlines the future state and the project, deliverables, outcomes, and impact. Activities in this step include:

- Creating a roadmap with result areas that map back to outcomes at all levels of the organisation.
- Tying organisational change to individual responsibilities and result areas.

Step 4 Communicate the vision

Change can only happen when the majority supports a common goal. Individuals need to understand the change and its value to unify in the pursuit of the goal. Communication is the key to this. Activities in this step include:

- Communicating the change vision oftenly and convincingly.
- Handling concerns honestly and transparently.
- Discussing the direct impacts and required tasks to each cadre of employees.
- Putting a human face to change.

Step 5 Empower others to act

To drive change, potential roadblocks need to be identified and dismantled or circumnavigated. Working across departments and functions will be necessary and will require new ways of working. Activities in this step include:

- Creating organisational processes and structures that are aligned, functioning, and support the overall change vision.
- Regularly scanning for barriers and obstacles.

Step 6 Generate short-term wins

Change can be a long and challenging process. Keeping individuals motivated is critical to maintaining momentum. Activities in this step include:

- Rewarding people for endorsing change early in the process.
- Setting achievable short-term milestones along with long-term goals and providing incentives for achieving them.
- Highlighting exemplars at organisational events.

Step 7 Sustain Acceleration

There is often a gap between implementation of the change process and achievement of it. Individuals can get complacent and go back to their old ways or fear failure. Activities in this step include:

- Analysing individual success stories and identifying facilitators of change.
- Encouraging a fail fast and fail continuously culture so that individuals don't fear failure.
- Bringing in new people to the change coalition to add fresh ideas and enthusiasm to the process.

Step 8 Institute Change

For change to be sustained it must be rooted in the organisation's culture and processes. During the final stage, connections between organisational success and new behaviours are articulated. Systems and processes are evaluated to ensure that the new practices are reinforced and solidified in behaviours. Activities in this step include:

- Providing continuous upskill training.
- Ensuring that all levels of management are continuously embodying the desired change.
- Highlighting adaptability, willingness to change, and new organisational values.

Kotter's framework can be generalised across healthcare settings and has been shown to facilitate change specifically in environments that experience rapid change.[3] Step 8, anchoring new approaches in and organisations' culture has been identified as an area needing improvement. (https://www.cdc.gov/pcd/issues/2019/18_0589.htm) This step has proven challenging for most organisations when implementing and sustaining new initiatives.[4]

3 Ravi S., Patel S., Laurence S., Sebok-Syer S., Gharahbaghian L. (2022) Change Management in Health Care BMJ Leader):1-4. doi:10.1136/leader-2020-000379
4 Small A, Gist D, Souza D, Dalton J, Magny-Normilus C, David D. Using Kotter's change model for implementing bedside handoff: a quality improvement project. J Nurs Care Qual 2016;31(4):304–9

ADKAR Model

Awareness	Desire	Knowledge	Ability	Reinforcement
Ensure awareness of the issues	Incentivise with benefits and consequences	Know how to create and how to sustain change	Closing the skills gap that limits change	Measuring and rewarding wins

The ADKAR model, developed by Jeffrey Hiatt, is based on the principle that organisational change can only happen when individuals change. ADKAR is an acronym for the five outcomes an individual needs to achieve for change to be successful, namely: awareness, desire, knowledge, ability, and reinforcement. It is an outcome-oriented approach that aims to limit resistance to organisational change by focusing on the organisation's goals, structure, climate, and culture of the organisation. It also considers the context of change and the global landscape in which the company operates. The ADKAR model is a component of the Prosci 3-phase process that addresses broader organisational change. Its position in the centre of Prosci Framework emphasises that organisational change requires individual change. The 5 ADKAR elements are cumulative and must be performed in order. (https://www.prosci.com/methodology/adkar)

Awareness

Providing a clear explanation of the nature of change and why change is needed is critical. The benefits of change for the people affected by it and the risks of not changing must be explained. By understanding the reasoning behind change and how it will benefit them, individuals are more likely to accept and implement the change. Activities in this step include:

- Implementing a communication strategy that has tailored messages for different audiences.
- Providing opportunities for two-way communication with discussion groups.
- Staff coaching by line managers.

Desire

Building desire for change begins with translating the "why" of change into individual motivating factors. Individuals need to see themselves in the new future state and understand how it will create a better work environment for them. Activities in this step include:

- Identifying key change sponsors to engage interactively with staff.
- Equipping people managers to be change leaders.
- Aligning incentive programs with the change process.

Knowledge

Individuals need to be equipped to operate during the transition phase and in the future state. This step represents the information, training, and education necessary for both phases. The knowledge needed for both phases includes behaviours and skills; processes, tools, and systems; and roles and responsibilities. It is important that this step be implemented only after awareness and desire are in place. Activities in this step include implementing:

- Implementing formal training and education programs.
- Providing job aids to individuals affected by the change.
- Providing one-on-one coaching to employees critical to achieving the change state.
- Ensuring peer-to-peer learning via change agents/early adopters.

Ability

Having the knowledge of how to change is not enough, employees need to have the ability to implement the required skills and behaviours. To bridge the gap between knowledge and ability, leaders work with employees to test the change before fully rolling it out so that confidence is built. Activities in this step include:

- Conducting ongoing coaching.
- Collecting feedback on potential issues and obstacles.
- Implementing performance reviews and recognition programs.

Reinforcement

This step addresses the internal and external factors that serve to sustain a change. It includes intentional actions such as: recognition, rewards, and celebrations tied to realising change as well as a person's internal satisfaction with their achievement. Activities in this step include:

- Implementing mechanisms to solicit feedback from employees on their perceived progress towards changing.
- Strengthening employee and company performance assessment systems to include metrics for personal and organisational change.
- Conducting audits of new systems and processes required for change.
- Hosting events to celebrate change.

The ADKAR framework is widely used in healthcare and has proven effective in settings where participation of doctors, nurses, and administrative staff in the change process is necessary.[5] The model has been criticised for its limited flexibility and requirement to follow a linear progression[6] because healthcare often requires continued change to address the evolving circumstances in the health landscape. As with the other previous models discussed, ADKAR has also been noted for not providing significant guidance on how to maintain momentum and ensure long-term reinforcement of the change in rapidly evolving environments.

5 Devi R., Thekkekara J.(2023) Change Management: A Survey of Literature in View of Analysing the Advantages of ADKAR Model. RGUHS Journal of Allied Health Sciences. 3(3):1-7. DOI:10.26463/rjahs.3_2_2
6 Hiatt, J. (2006) ADKAR: A Model for Change in Business, Government and Our Community. Prosci Research.

McKinsey 7s framework

The McKinsey model emphasises the interconnectedness of organisational elements in the change process, while other models focus primarily on specific steps or aspects of change. The model identifies the 7 interconnected organisational elements of: strategy, structure, system, skills, style, staff and, shared values.

The lack of hierarchy suggests that change in one area requires changes in the other 6 areas for effective functioning and results. Of note is that the element of shared values resides at the centre of the model. This emphasises that successful change hinges on shared values and that change in the other Ss will always affect the organisation's shared values. The Ss are also grouped into "soft Ss" and "hard Ss". Hard Ss (strategy, structure, and systems) are easily identifiable and influenced by leadership and management. Soft Ss (shared values, style, staff and skills) are intangible, and culture driven.
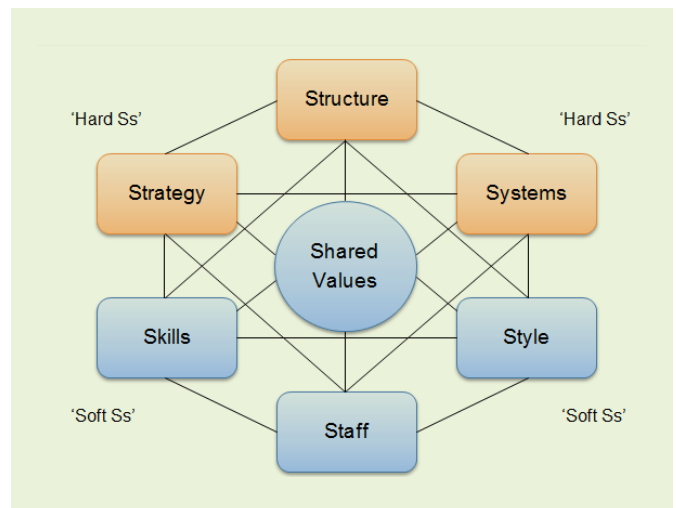
Strategy - is a detailed plan that organisations create for successful change implementation. A well-crafted strategy is aligned with the other six elements of the 7S model and is reinforced by a strong vision, mission, and values.

Structure - is the way in which a company is organised. It encompasses the chain of command and accountability relationships that form its organisational chart.

Systems - refer to the business processes and operational procedures employed that establish workflows and the chain of decision making.

Skills - form the capabilities and competencies of a company that enables its employees to achieve its objectives.

Style - represents the management style of the company's leaders. Specifically, it's the way top-level managers interact, the actions they take, and their symbolic value within companynculture.

Staff - represents talent management and all human resources, the size of the existing workforce, and their motivations. It also considers how they are trained and rewarded within the organisation.

Shared Values - are the norms and standards that guide employee behaviour and company actions and thus, are the foundation of every organisation.

Five steps govern the implementation of the model. They include:

1. Identify the areas that are not effectively aligned with the future state by identifying the gaps, inconsistencies, and weaknesses between the relationships of elements.

2. Determine the optimal organisational design (related to the 7Ss) that will allow you to achieve your future state.

3. Decide where and what changes should be made by developing an action plan.

4. Make the necessary changes by assembling a strong team to lead the process.

5. Continually review the 7Ss. Because of their interrelated nature, a change in one element will always affect the other elements, thus encouraging organisational adaptation to change.

The 7S framework has been praised for linking the softer elements or organisational change that address the "social" elements of shared values and desire for change.[7] It has also been criticised for lack of clarity and actionability. Limited implementation tools are provided as the framework focuses more on diagnosis than action and some elements like shared values and style can be subjective and difficult to define clearly. The static nature of the model is often noted as a weakness because it does not adequately account for the dynamic nature of organisations and rapidly changing external environments. (https://confidentchangemanagement.com/change-models/mckinsey-7s-framework/)

Framework Commonalities & Differences

The reviewed frameworks have five foundational steps in common related to understanding the current state, planning for the future state, equipping employees with the tools and structures to support their change, maintaining change, and reinforcing change. See box G.

All frameworks also underscore the critical importance of strong and sustained local leadership of the change process; clear and regular communication on expectations, successes and progress in the change process; training on skills needed in the future state; and the use of internal change agents to model the desired change.

The primary differences between the frameworks are found in the scope of elements considered in the models, the focus areas in the models, and the level of depth of guidance provided to stages of change progression compared to the 7Ss framework that considers seven broad and interrelated elements. The Kotter, ADKAR and Lewin models highlight the importance of reinforcing behaviours and actions required for the change process. The 7Ss recognizes staff motivation as a key element in the change process but does not highlight rewards for change as a priority element of the frameworks. Lastly, the 7Ss is the only model that highlights shared values as the central driver of sustained organisational change. Kotter and Lewin highlight the importance of ensuring that the desired change is rooted in the organisational culture,

7 Chmielewska, M., Stokwiszewski, J., Markowska, J., & Hermanowski, T. (2022). Evaluating Organizational Performance of Public Hospitals using the McKinsey 7-S Framework. BMC health services research, 22(1), 7. https://doi.org/10.1186/s12913-021-07402-3

but doesn't place it at the centre of their frameworks.

The differences in focus areas within the models is seen most prominently in which stage of the change process is highlighted by the models. Lewin and Kotter lean into the initial phase of the change process and focus on the need to generate initial urgency around change. The other models treat this as an element equal to all the others. The 7Ss highlights the initial diagnostic phase of the change process as well as the monitoring phase, with a lesser focus on the actual implementation process. Specific to the monitoring phase, the 7Ss highlights that change in one element of the model will affect all other elements of the model thus the need to continuously refine and adapt the change plan. The other models also mention the need to monitor and adapt but the 7Ss encourages regular adaptability so that the concept of change can become part of the organisational culture. Lastly, all models address the need to sustain the desired change with Lewin's guidance as the weakest. Both Kotter and ADKAR have updated their frameworks to consider environments that experience non-linear, constant change. Kotter has defined an "Accelerate" model and ADKAR pairs with the Prosci 3-Phase Process to enable constant evolution of practices, technologies, and regulations – as experienced in healthcare.

The frameworks also differ in the depth of guidance and tools provided for users when implementing and managing the change process. The ADKAR and Kotter models offer standardised professional certification courses that provide toolkits, guidance and applied learning experience whereas Lewin and the 7Ss can be explored via self-learning or via non-standardized certification courses. The availability and comprehensiveness of the toolkits, guidance and applied learning opportunities vary by course offeror.

BOX G
FOUNDATIONAL STEPS COMMON TO THE FOUR FRAMEWORKS

- Understanding the current organisational state through diagnosis.

- Creating a change vision, a change strategy and an action plan to achieve the desired organisational state and, building buy-in for the desired future state

- Empowering and equipping employees with tools, training, and support to adopt and maintain the desired change

- Building and embedding organisational supports (policies, incentives, communication structures, etc.) to support and maintain the desired change

- Maintaining the change process via regular review, monitoring, and clear communication to keep people involved and informed