



# The Lippitt & Knoster model: *Managing Complex Change*

The applicability of the Lippitt-Knoster Model to the experiences of Nordic leaders in implementing health and welfare technology in sparsely populated areas.



Nordic Council  
of Ministers



region  
västerbotten



**This study and report were conducted in collaboration with the Centre for Rural Medicine, Region Västerbotten, the Nordic welfare Centre, the Nordic Research Network Health and Welfare Technology, and Sophiahemmet University. The author of the study and the report is Christine Gustafsson, Professor of Health Care Sciences at Sophiahemmet University in Stockholm, and affiliated researcher at Mälardalen University, Sweden.**

## **Acknowledgements**

A big and warm thank you to the participants who generously shared their experiences with the interviewer. Also, a big thank you to Bengt Andersson, senior consultant at the Nordic Welfare Centre, who promoted the research in the Health Care and Care Through Distance-Spanning Solutions project. Bengt also supported the research by collecting informed consent from the interviewees. Finally, thank you to the iHAC project, the Centre for Rural Medicine, Region Västerbotten, the Nordic Welfare Centre, the Nordic Research Network Health and Welfare Technology, and Sophiahemmet University, which made it possible to conduct the research.

*Stockholm 2024*

**Please feel free to refer to the report:**

Gustafsson, C. (2024). *The Lippitt & Knoster Model: Managing Complex Change - The Applicability of the Lippitt-Knoster Model to the Experiences of Nordic Leaders in Implementing Health and Welfare Technology in Sparsely Populated Areas*. The iHAC project, Centre for Rural Medicine, Region Västerbotten, the Nordic Welfare Centre. <https://integratedhealthandcare.com/wp-content/uploads/2024/11/The-Lippitt-Knoster-model-Managing-Complex-Change.pdf>

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# Introduction

In the contemporary era, Health and Welfare Technology (HWT) has emerged as a critical area of focus in the healthcare and social welfare sectors. This report aims to investigate this significant topic further, emphasizing the importance of understanding leaders' experiences in implementing HWT through a deductive qualitative study. The study adopts a deductive approach to examine the utility of the Lippitt & Knoster model: Managing Complex Change (Knoster, 1993; Knoster, Villa, & Thousand, 2000) when interpreting leaders' experiences in implementing HWT in sparsely populated Nordic areas. The study presented in this report aims to contribute to the growing body of knowledge on leadership in HWT implementation by exploring the applicability of the Lippitt-Knoster Model to the experiences of Nordic leaders in implementing HWT in sparsely populated areas.

The study in this report, is a continuation of a study by Gustafsson & Dannapfel (2024), which provides an insightful exploration of leaders' experiences in implementing HWT. The study delved into the implementation of HWT in Nordic regions with sparse populations. Through re-analysis of interviews, it identified five success factors: positive attitudes, consensus on care changes, leadership readiness, effective feedback, and trust in learning. The findings underscored the need for a learning culture, strong leadership, and collaboration for successful HWT adoption. They concluded that adapting to HWT requires comprehensive training, robust support systems, and strategic user engagement to reduce cognitive load and emotional responses. The study also connected the findings to Weiner's (2009) theory of Organisational Readiness for Change, arguing that successful HWT implementation hinges on organisational readiness, involving collective efforts, behaviour change, and contextual factors. Finally, they argued that applying Bronfenbrenner's Ecological Systems Theory (Bronfenbrenner, 1979) could help understand the complex interactions at different levels (micro, meso, exo, macro, chrono) during HWT implementation.

The implementation of HWT involves a complex interplay of technological, organisational, and human factors. Leaders play a pivotal role in this process, navigating challenges and making strategic decisions that can significantly impact the success of HWT initiatives. By delving deeper into their experiences, we can gain valuable insights into the realities of HWT implementation, which can guide future practice and policymaking in this field. The Lippitt & Knoster model: Managing Complex Change (Knoster, 1993; Knoster et al., 2000) is a comprehensive framework for managing change, which may offer a useful perspective for understanding the complexities involved in HWT implementation. Applying this model to the experiences of leaders in HWT implementation is not only an interesting academic exercise but also a potentially valuable contribution to the field. It could help identify patterns, inform strategies, and enhance our understanding of leadership in the context of HWT. In conclusion, this report aims to contribute to the growing body of knowledge on leadership in HWT implementation, offering fresh insights and potentially shaping future research and practice in this important area.

# Background

On behalf of the iHAC project (iHAC, 2024), two separate in-depth analyses of interview material from the VOPD project have been conducted. In qualitative interviews, leaders in healthcare and social care in the three regions of Sogn and Fjordane in Norway, North Jutland in Denmark, and South Karelia (Eksote) in Finland shared their experiences of digital transformation (the successful implementation of HWT) on their daily work and skills provision. In the first stage, analyses were carried out resulting in the article: *Leaders' experiences of successfully implementing health and welfare technology in sparsely populated Nordic areas* (Gustafsson & Dannapfel, 2024). In the second stage, a deductive approach was adopted to contribute to the growing body of knowledge on leadership in HWT implementation by exploring the applicability of the Lippitt-Knoster model to the experiences of Nordic leaders in implementing health and welfare technology in sparsely populated areas.

The study presented in this report has, similar to the earlier mentioned study by Gustafsson & Dannapfel (2024), re-used data (semi-structured interviews) collected by the *Health Care and Care Through Distance-Spanning Solutions* project in 2020 (VOPD, 2022b). Due to the Covid-19 pandemic, only online interviews were conducted, and these have been further analysed to better understand Nordic healthcare and social care managers' experiences of successful HWT implementation in sparsely populated areas.

During the Swedish presidency for the Nordic Council of Ministers in 2018, the program *Health Care and Care Through Distance-Spanning Solutions* project (*Vård och omsorg på distans-projektet*, hereafter the VOPD project) (VOPD, 2022a) was initiated. The project aimed to improve healthcare and social care accessibility across the Nordic region, with a special focus on sparsely populated areas. By leveraging digital solutions, the project addressed demographic challenges, regional imbalances, and the need for operational efficiency in healthcare service delivery. Successful implementation examples include telemedicine platforms allowing remote consultations, digital health records for efficient information sharing, and mobile health apps that encourage self-care. One standout example presented in the project is the use of virtual health rooms in Sweden and Denmark, which offer faster diagnoses and treatments without the need for patients to travel long distances, thereby enhancing the quality of life and reducing operational costs (VOPD, 2019).

As part of the VOPD project, leaders in healthcare and social care in the three regions of Sogn and Fjordane in Norway, North Jutland in Denmark, and South Karelia (Eksote) in Finland shared their experiences of digital transformation (the successful implementation of HWT) on their daily work and skills provision (VOPD, 2022b). These regions are defined as sparsely populated areas, with a low population density relative to their geographical size. Organisations in sparsely populated areas face distinctive challenges and must adapt to meet the rising demands for healthcare and social care

services. These challenges include a shortage of healthcare professionals and resources, the complexity of implementing innovative service models, difficulties in recruiting and retaining skilled workers, and the necessity for significant enhancements in skills provision and organisational restructuring. To navigate these obstacles, such organisations are increasingly focusing on digital transformation, leveraging technology to improve service delivery, access to care, and overall quality of healthcare services. This approach requires a radical rethinking of work processes, along with a commitment to digital solutions, to address the unique logistical and infrastructural challenges of operating in remote and rural settings.

The idea behind the VOPD project was to give a voice to healthcare and social care leaders to learn about the effect of digital transformation on their daily work. The results of the project provide a description of what it means to work with a service model that is partially supported by digital solutions. Healthcare and social care organisations that had started the process of transformation did not believe that their employees wished to return to the previous system. Furthermore, the leaders who had been interviewed were overall positive about digital transformation. From the interviews conducted for the project, it was understood that there was potential for more knowledge and understanding regarding the successful implementation of HWT.

## The Lippitt & Knoster Model for Managing Complex Change

The Lippitt-Knoster Model for Managing Complex Change is suggested to be a reasonable and practical framework for managing significant organisational changes. The model has six critical elements or components necessary for successful change:

- **Vision:** Clearly define the desired outcome of the change.
- **Consensus:** Ensure alignment and agreement among stakeholders.
- **Skills:** Equip individuals with the necessary abilities to implement the change.
- **Incentives:** Motivate and reward behaviour that supports the change.
- **Resources:** Allocate the necessary resources (financial, human, etc.).
- **Action Plan:** Create a detailed plan for executing the change.

By addressing these critical elements, organisations planning for, executing, and evaluating change can navigate complex changes effectively. The Lippitt-Knoster model aids in meticulous planning, effective problem-solving, and comprehensive post-project analysis, ensuring successful implementation and continuous improvement in HWT projects.

There are some statements about how the Lippitt-Knoster model can be helpful in managing change. For example, Romford (2024) suggests that the Lippitt-Knoster model offers valuable insights and tools for better understanding change and executing effective strategies for success, whether you are an experienced change management professional or just beginning to explore this topic. The model is proposed to provide a structured approach to change management, making it easier for organisations to manage change

effectively. It helps organisations understand the different stages of change and the activities that need to be carried out at each stage. Furthermore, the model promotes clear and effective communication throughout the change process. This ensures that employees and other stakeholders understand the change and their role in it. Further, the Lippitt-Knostrer model encourages employee engagement, which is essential for the successful implementation of change. By involving employees in the change process, organisations can improve employee morale and increase their commitment to the change. Additionally, the model is flexible, allowing organisations to adapt it to their specific needs and requirements. This makes it a useful tool for organisations of all sizes and types, regardless of their change management needs. Finally, the Lippitt-Knostrer model helps organisations ensure that changes are sustainable by embedding them into the organisation's operations and processes. This ensures that changes are not just temporary but become a permanent part of the organisation. When adapting the Lippitt-Knostrer model for complex change, it can be used in pre-project planning, during project execution, and in post-project review (Abbas, 2024).

## The History of the Lippitt-Knostrer Model: Managing Complex Change

It is problematic to find information on the origin, creation, and development of the Lippitt-Knostrer Model. There is no single publication or seminal event marking its introduction; it seems that the model has evolved over time through practical application and the synthesis of existing theories (Abbas, 2024). Many websites about change management present and suggest the Lippitt-Knostrer model (see, for example, Abbas, 2024; Huddles, 2023; Romford, 2024; Walkme, 2023). Some references suggest that the model was created by Mary Lippitt in 1987, though there is no concrete evidence of this. Another common reference to the model is Knostrer (1991), cited as a presentation at the TASH conference in Washington D.C., adapted by Knostrer from Enterprise Group Ltd. Searching for this conference and related publications led to a book written by Knostrer (1993) and a book chapter (Knostrer et al., 2000), both of which illustrate the model for managing complex change. However, there is no detailed presentation of how and by whom the model was created.

In recent years, several websites discussing and suggesting theories, models, and tools for change management have mentioned and presented the Lippitt-Knostrer model for managing complex change (see, for example, Abbas, 2024; Walkme, 2023; Huddles, 2023; Romford, 2024). These references indicate that the model is based on the work of social scientist Ronald Lippitt and has been adapted and applied by special education researcher Tim Knostrer (Abbas, 2024).

Agreeing on the assumptions that the Lippitt-Knostrer model probably originates from the work of Ronald Lippitt and is further highlighted by Timothy Knostrer and their contributions to the evolution of change management theories. The Lippitt-Knostrer Model for complex change is grounded in the broad field of change management theories and practices but its specific origins are somewhat nuanced. The development of the model appears to have occurred by blending insights from various models, theories, and leadership practices within change work and practical experiences in

organisational development. Lippitt's work (Lippitt, Watson, & Westley, 1958; Szabla, 2017) reveals that the Lippitt-Knoster Model for complex change is rooted in change management practices, but it is scarcely mentioned in scientific articles. This scarcity is likely due to its practical origins, focus on application, and lack of academic promotion.

The model is a practical tool designed for managing complex change in organisational settings, developed from practical experiences rather than formal research. As a synthesis of existing change management theories and practical insights, it does not introduce entirely new concepts, which may limit its academic appeal. The model is intended for immediate application by managers, consultants, and organisational leaders, prioritising practical implementation over academic discourse. While the model itself does not have a single publication or a seminal event marking its introduction, it is interpreted that it evolved over time through practical application and the synthesis of existing theories. Its utility in managing the complexities of change in organizations has led to its broad adoption across various sectors. The model's simplicity and focus on essential elements make it a valuable tool for leaders and change managers seeking to navigate the intricacies of organizational transformation

Attempting to grasp a brief understanding of the model's history, we need to look into the contributions from its foundational namesakes, Ronald Lippitt and Timothy Knoster, and how their work has been integrated into the development of the Lippitt-Knoster Model for complex change management.

## Ronald Lippitt's Contributions

Ronald Lippitt was a social scientist, professor, and a forerunner in the field of organizational change and group dynamics. In the mid-20th century, Lippitt, along with colleagues such as Kurt Lewin and Kenneth Benne, developed foundational theories on change processes and group dynamics (Szabla, 2017). With a social science psychology perspective, Lippitt's work focused on the human elements of change, accentuating the importance of leadership styles, group dynamics, and the stages of change in organizations. Although he contributed significantly to the field, the model that bears his name does not originate from his work alone but rather reflects the principles he supported, particularly the participative approach to change and the emphasis on understanding and managing the human factors in organizational change.

In "The Dynamics of Planned Change" (1958), Lippitt, in cooperation with Jeanne Watson and Bruce Westley, developed a seven-phase model of planned change, expanding on Lewin's three-phase model (unfreezing, moving, freezing). Their phases include: (1) developing a need for change, (2) establishing a change relationship, (3) diagnosing the problem, (4) setting goals and intentions, (5) initiating change efforts, (6) generalizing and stabilizing change, and (7) achieving a terminal relationship. This model influenced many consulting processes and highlighted critical practices such as the need for change, strong change-agent relationships, and transforming intentions into actions.



## Timothy Knoster and the integration of concepts

With a pedagogical and educational context perspective, Timothy Knoster, an expert in special education and behaviour analysis, contributed to the model's development by integrating various change management concepts into a cohesive framework. Knoster's work, particularly in the context of implementing complex changes in educational settings, highlighted the necessity of certain elements for successful change. Abbas (2024) refers to Knoster (not confirmed citation): "*If you've ever found yourself wondering how to steer your team or organization through significant changes without losing your way (or your mind), then perhaps you need a practical but strong framework to guide you through this situation.*"

## The Application of the Lippitt-Knoster Model in Pre-project Planning, During Project Execution, and Post-project Review

In the realm of digital transformation in healthcare and social services, the Lippitt-Knoster model serves as an essential *planning tool*. By mapping the current state with a system-oriented approach, project managers can use the model's components as foundational elements to ensure all necessary aspects are considered. Identifying missing components before project initiation allows for strategic planning around budget constraints or incorporating the required elements to prepare the team for a successful change implementation.

Complexity and uncertainty are inevitable *during project execution* in digital transformation projects. The Lippitt-Knoster model provides a framework to identify and address potential problems that may cause delays or unmet deadlines. By continuously referencing the model, project managers can diagnose and address the root causes of issues, ensuring that the project team feels involved and heard. This inclusive approach not only helps resolve issues but also fosters a sense of collective responsibility and improvement, enhancing overall project success.

The model serves as a review framework to *evaluate project* performance, identify challenges, and highlight successes. By analysing the project through the lens of the Lippitt-Knoster components, project managers can gain insights into both single-loop learning (tweaking processes for future projects) and double-loop learning (rethinking and altering fundamental ways of working). This reflective process ensures continuous improvement and adaptation, vital for future digital transformation initiatives in healthcare and social services.

## The Model's Framework

What has been found, a first (?) published reference regarding the Lippitt-Knoster model is found in the book *Reflections on Inclusion: School and Beyond* (Knoster, 1993). Knoster illustrates the model under the label "Managing Complex Change - The Enterprise Group." In the book's references, it is written, "Enterprise Group, Ltd." No further information is available. Below, in Figure 1, is a representation of the model:

Vision	+	Skills	+	Incentives	+	Resources	+	Action Plan	=	Change/Success
-----	+	Skills	+	Incentives	+	Resources	+	Action Plan	=	Confusion
Vision	+	-----	+	Incentives	+	Resources	+	Action Plan	=	Anxiety
Vision	+	Skills	+	-----	+	Resources	+	Action Plan	=	Gradual Change/ resistance
Vision	+	Skills	+	Incentives	+	-----	+	Action Plan	=	Frustration
Vision	+	Skills	+	Incentives	+	Resources	+	-----	=	False Start/Treadmill

**Figure 1.** The Lippitt-Knoster Model with five critical elements.

In later versions of the Lippitt-Knoster Model, a sixth critical component has been added; Consensus. This is illustrated below in figure 2 in a processing of the model:

Vision	+	Consensus	+	Skills	+	Incentives	+	Resources		Action Plan	=	Change/Success
-----	+	Consensus	+	Skills	+	Incentives	+	Resources		Action Plan	=	Confusion
Vision	+	-----	+	Skills	+	Incentives	+	Resources		Action Plan	=	Sabotage
Vision	+	Consensus	+	-----	+	Incentives	+	Resources		Action Plan	=	Anxiety
Vision	+	Consensus	+	Skills	+	-----	+	Resources		Action Plan	=	Gradual Change/ Resistance
Vision	+	Consensus	+	Skills	+	Incentives		-----		Action Plan	=	Frustration
Vision	+	Consensus	+	Skills	+	Incentives	+	Resources		-----	=	False Start/ Treadmill

**Figure 2.** The Lippitt-Knoster Model six critical elements.

The later version of the model with six critical elements will hereafter be referred to as the Lippitt-Knoster Model for Complex Change. The Lippitt-Knoster Model is often explained through a simple framework that identifies six critical components necessary for successful change: Vision, Consensus, Skills, Incentives, Resources, and an Action Plan. The absence of any one of these elements can significantly hinder the change process, leading to common organizational ailments such as confusion, anxiety, gradual change/resistance, frustration, and false starts/treadmill.

## Application of the Lippitt-Knoster Model for Complex Change

As presented above the Lippitt-Knoster Model for complex change identifies the six critical components: Vision, Consensus, Skills, Incentives, Resources, and an Action Plan as components necessary for successful change, serving as a practical checklist for organizations to assess their readiness and address potential gaps.

A **vision** is a clear and compelling picture of the future after the change is implemented. It provides a purpose and direction, motivating and aligning stakeholders with a shared goal. A well-defined vision clarifies the reasons for the change and its benefits, reducing resistance and fostering ownership. It is essential to recognize the challenges or opportunities driving the change and develop a clear vision. The vision needs to be articulated in a compelling way to guide decision-making and communicated to stakeholders in an understandable and motivating manner using various channels.

**Consensus** means agreement among key stakeholders on the necessity and approach to the change. It involves building shared understanding and commitment, minimizing conflicts and resistance. Engaging stakeholders early, facilitating discussions, and achieving agreement ensures broad support, pooling collective energies toward change objectives. When working towards consensus, it is recommended to involve key stakeholders early, including employees and management, facilitate discussions, address concerns, and gather feedback. Strive to achieve a common understanding and agreement on the necessity and approach to the change.

**Skills** refer to the abilities and competencies needed to implement the change effectively, including both technical and soft skills like communication and leadership. Ensuring individuals have the right skills minimizes anxiety and resistance, empowering employees and enhancing the overall effectiveness of the change process. Mapping required skills and providing necessary training is crucial: evaluate current skills against those needed for the change, identify gaps, design training programs to address these gaps, including technical and leadership skills, and implement the training plan to ensure all involved are equipped with the necessary skills.

**Incentives** are rewards or motivations encouraging support and participation in the change effort. These can be financial, like bonuses, or non-financial, such as recognition and career advancement. Incentives align individual and organizational goals, maintaining enthusiasm and commitment throughout the change process. Both tangible and intangible incentives should be considered to prevent resistance. Identify appropriate incentives by determining motivating factors for stakeholders, design meaningful and achievable incentive programs aligned with change goals, and clearly explain how incentives work and implement them to maintain motivation.

**Resources** encompass time, money, materials, and other assets needed for successful change implementation, including access to information and technology. Adequate resources ensure the change initiative proceeds as planned, signalling organizational commitment and supporting involved teams. Assessing whether internal and external resources are sufficient is crucial to prevent frustration. Determine resource needs by listing required resources, including time, finances, materials, and technology. Allocate resources by adjusting budgets and personnel as needed, and continuously monitor and adjust resource utilization to address shortages or inefficiencies.

An **action plan** is a detailed roadmap outlining the steps necessary to achieve the change, including timelines, responsibilities, and milestones. It translates the vision into actionable tasks, ensuring coordinated efforts and monitored progress. A clear action plan keeps the change initiative on track and allows for necessary adjustments in response to unforeseen challenges. Create a

detailed action plan outlining specific steps, timelines, and responsibilities for the change, including milestones. Execute the action plan with open communication, ensuring everyone knows their roles. Regularly review progress and adjust as needed to address challenges or changes.

## Rationale for the Study

Health and Welfare Technology (HWT) is transforming the healthcare and social welfare sectors, offering innovative solutions to longstanding challenges. As Nordic regions implement HWT, understanding the role of leadership becomes crucial. This study aims to apply the Lippitt-Knoster Model: Managing Complex Change to the experiences of Nordic leaders in healthcare and social care, providing fresh insights into their navigation of digital transformation. Effective leadership is vital in the successful adoption of HWT. Leaders must address a complex interplay of technological, organizational, and human factors. Previous research by Gustafsson & Dannapfel (2024) identified key success factors in HWT implementation, such as positive attitudes, consensus on care changes, leadership readiness, effective feedback, and trust in learning. The study emphasized the necessity for strong leadership, collaborative efforts, and a supportive learning culture to facilitate HWT adoption. However, it also highlighted gaps in understanding the nuanced experiences of leaders navigating these changes.

The Lippitt-Knoster Model provides a structured framework for managing complex change, consisting of six critical components: Vision, Consensus, Skills, Incentives, Resources, and an Action Plan. This model's comprehensive approach can be instrumental in interpreting the experiences of leaders in HWT implementation.

The Lippitt-Knoster Model provide a comprehensive framework for managing change. By applying this model to the experiences of Nordic leaders, the study can offer valuable insights into the practical application of change management theories in real-world settings. The model promotes clear communication, employee engagement, and a structured approach to planning, executing, and reviewing change initiatives. This structured approach is particularly relevant in the context of digital transformation, where the complexity and scale of change can be overwhelming. This study aims to contribute to the growing body of knowledge on leadership in HWT implementation by the applicability of the Lippitt-Knoster Model to the experiences of Nordic leaders in implementing HWT in sparsely populated areas. By examining how this model can interpret leaders' experiences of digital transformation, the study seeks to provide fresh insights and inform future research and practice in this critical area. The findings could help shape effective strategies for HWT adoption, ultimately improving healthcare and social care services in sparsely populated regions. Applying the model could help uncover patterns, develop effective strategies, and enhance our understanding of leadership dynamics in digital transformation contexts. This research is essential for advancing our understanding of leadership in the context of digital transformation and for developing practical tools and frameworks to support leaders in managing complex changes.

# Method

## Material and Methods

The VOPD project, initiated under Sweden's Presidency Programme for the Nordic Council of Ministers in 2018, aimed to enhance healthcare and social care accessibility in the Nordic region, focusing on sparsely populated areas. The project utilized digital solutions to address demographic challenges, regional imbalances, and operational inefficiencies in healthcare service delivery. Key implementations included telemedicine platforms for remote consultations, digital health records for efficient information sharing, and mobile health apps for self-care. Notably, virtual health rooms in Sweden and Denmark facilitated faster diagnoses and treatments, reducing the need for patients to travel long distances and improving quality of life while cutting operational costs.

Healthcare and social care leaders from Sogn and Fjordane in Norway, North Jutland in Denmark, and South Karelia (Eksote) in Finland shared their experiences of digital transformation through semi-structured interviews conducted online due to the COVID-19 pandemic. These regions are sparsely populated, presenting unique challenges such as a shortage of healthcare professionals and resources, complexities in implementing innovative service models, and difficulties in recruiting and retaining skilled workers. Digital transformation, involving a significant rethinking of work processes and a commitment to digital solutions, emerged as a crucial strategy to improve service delivery and access to care in these remote settings. The findings from these interviews were presented in the report *"It's all about people"* (VOPD, 2022b).

The present study aimed to re-use data (the interviews) from 2020, including 15 interviews initially conducted for the VOPD project. Out of these, 12 interviewees provided informed consent for the re-use of their interviews in May 2022. The interviews covered a broad spectrum of experiences from HR directors, operations managers, unit managers, project managers, nurses, and physicians at both municipal and regional levels. These interviews varied in length and detail, ranging from 1489 to 3890 words, and were conducted in the respective national languages before being translated into English. The semi-structured interview guide included questions about demographic data, organizational aspects of care services, recruitment and skills supply, and staff experiences, concluding with a question on successful practices and recommendations.

The present secondary data analysis focused on applying Lippitt & Knoster's Model for Managing Complex Change to gain a deeper understanding of the successful implementation of HWT from the perspective of healthcare

and social care managers in sparsely populated Nordic areas. The deductive qualitative analysis followed a rigorous methodological process, including inductive coding and theme identification, ensuring alignment with the interviewees' experiences and insights. This approach provided a comprehensive understanding of the multifaceted nature of digital transformation in healthcare and social care services.

Ethical considerations were adhered to in line with the Declaration of Helsinki and the ethical principles of the Swedish Research Council. Participants were informed about their right to withdraw at any time, and all interviewees provided written informed consent with guaranteed confidentiality.

## Data Analysis

A deductive qualitative analysis approach (Barrett & Younas, 2023; Kennedy, 2018) was applied, taking a point of departure in the Lippitt-Knoster model's six critical elements: vision, consensus, skills, incentives, resources, and action plan. Each critical element was searched for in the interviews.

In analysing the interviews, meaning units representing each critical element were guided by the following questions:

### 1. Vision:

Is it expressed or declared why the planned change is needed?

- Is a vision shared? Are there measurable, achievable goals?

Guiding questions/descriptions of the critical elements:

- Identified need for change?
- Developed a clear vision?
- Communicated vision?

### 2. Consensus:

Is it expressed or declared a consensus, in different groups and at different levels?

Guiding questions/descriptions of the critical elements:

- Engaged stakeholders?
- Facilitated discussions?
- Achieved agreement?

### 3. Skills:

Is it expressed or declared what skills are needed? Do staff members have expertise or training in what they are being asked to do? If not, will it be provided by someone they trust?

Guiding questions/descriptions of the critical elements:

- Assessed skill gaps?
- Planned skill development?
- Implemented training?

#### **4. Incentives:**

Is it expressed or declared what incentives exist to make the change? How will it benefit them or other groups?

Guiding questions/descriptions of the critical elements:

- Identified appropriate incentives?
- Designed incentive programs?
- Communicated and implemented incentives?

#### **5. Resources:**

Is it expressed or declared if there are enough resources (time, money, personnel) to implement the change?

Guiding questions/descriptions of the critical elements:

- Determined resource needs?
- Allocated resources?
- Monitored and adjusted resources?

#### **6. Action Plan:**

Is it expressed or declared a detailed plan of how the change will be implemented?

Guiding questions/descriptions of the critical elements:

- Created a detailed action plan?
- Descriptions of the execution of the plan?
- Monitored progress and adjustments?

Based on the questions above, a categorizing process was conducted, resulting in over 200 meaning units corresponding to the phases (pre-project planning, project execution, and post-project review) in which the meaning unit could be "located" and later categorized based on the six critical elements from the Lippitt-Knoster model. The categorization process was straightforward since the data could be easily referred to the different project phases and the six critical elements in the Lippitt-Knoster model.

# Result

The result will be presented in three sections; first the result will present if and how the critical elements were expressed explicit in the pre-project planning, during project execution and post project phases. Secondly it will be presented if and how the Lippitt-Knoster models' critical elements were found in the data, and finally, a comprehensive understanding of the applicability of the Lippitt-Knoster Model when implementing HWT in sparsely populated Nordic areas will be presented.

## Pre-Project Planning

In pre-project planning, it was found that most interviewees articulated a clear vision for digital transformation. For instance, in interviews Fi1, Fi2, and No5, there is an emphasis on integrating telemedicine and telecare to improve patient care and operational efficiency. Stakeholder engagement (consensus) appears to be a focus in the pre-project phase. In some interviews (Dk5 and No2), the importance of early involvement of staff and stakeholders in planning digital transformation initiatives was highlighted. Identifying skill gaps and planning for skill development is a recurrent theme. Mapping competencies and providing necessary training were given as examples of pre-project skill assessment (No1). The need to align staff incentives with project goals is acknowledged. While specific incentive programmes are not always detailed, the overall benefits of digital transformation are communicated to motivate staff. Determining resource needs and allocating them effectively is a common focus. The interviews mention assessing and securing technology and training resources pre-project. Several interviews discuss creating detailed action plans, outlining steps, timelines, and responsibilities (Dk1, No4, and Fi2). The pre-project phase includes strategic planning to ensure all necessary elements are incorporated. In conclusion, the pre-project phase in these interviews aligns well with the Lippitt-Knoster Model, focusing on setting a clear vision, engaging stakeholders, assessing skills, aligning incentives, determining resources, and planning actions.

## During project execution

During project execution, it was explicit and implicit how the critical elements appeared. Vision communication continues throughout the project. Interviews indicate ongoing updates and consistent messaging about the goals and benefits of digital transformation. Facilitating discussions and maintaining stakeholder involvement (consensus) is emphasised. The interviews highlight regular meetings, feedback sessions, and collaborative problem-solving during project execution. Training implementation (skills) is a continuous effort. In some interviews (Fi1, Fi2, and No3), ongoing education programmes and workshops to ensure staff are competent in using new digital tools are



specifically described. Maintaining motivation (incentives) through clear communication of benefits and success stories is highlighted. The practical advantages of digital solutions are frequently communicated to sustain engagement. Resource monitoring and adjustments are actively managed. All interviews indicate continuous assessment and reallocation of resources to address challenges and ensure project progress. Executing the action plan involves coordinated efforts and regular evaluations. Interviews highlight the importance of feedback loops and making necessary adjustments to stay on track. In conclusion, the interviews reflect the use of the Lippitt-Knoster Model during project execution, focusing on maintaining vision, engaging stakeholders, continuous training, incentivising staff, managing resources, and executing and adjusting the action plan.

## Post-project review

In the post-project review phase, reflection on whether the vision was achieved is less explicitly mentioned. However, continuous communication about the benefits and outcomes indicates a review of vision realisation. Evaluating stakeholder engagement and consensus post-project is implied through feedback mechanisms and regular discussions about project outcomes. Post-project skill assessments and planning for future training are inferred. Continuous education programmes suggest a review of skill development effectiveness. Reviewing incentive effectiveness is not explicitly mentioned but can be inferred from the ongoing communication of benefits and success stories. Post-project resource utilisation reviews are implied through continuous monitoring and adjustments during the project. Finally, post-project evaluations and adjustments to action plans are suggested through feedback loops and regular evaluations mentioned in the interviews. In conclusion, the post-project phase is not as explicitly detailed in the interviews, but continuous improvement and reflection are implied. The Lippitt-Knoster Model's components appear to be reviewed through feedback mechanisms and ongoing assessments.

## Overall Conclusion, The Lippitt-Knoster Model in different project phases

The interviews collectively reflect the use of the Lippitt-Knoster Model in managing digital transformation projects in healthcare and social services. The pre-project planning phase is well-aligned with the model, with clear vision setting, stakeholder engagement, skill assessment, resource planning, and action planning. During project execution, the model's components are actively managed, with continuous communication, training, resource management, and plan execution. The post-project review phase is less explicitly detailed but is implied through ongoing assessments and feedback mechanisms.

### The critical elements: Vision, Consensus, Skills, Incentives, Resources and Action Plan in the interviews

Looking deeper into the interviews, searching for each critical element in the Lippitt-Knoster Model, the six critical elements were found, explicit or implicit, in all interviews. The use of the Lippitt-Knoster Model is evident

across the interviews, even if not explicitly mentioned by name. The principles and components of the model are reflected in the strategic approaches and management practices described in the interviews

## Vision

In each of the 12 interviews, the critical element **Vision** is explicitly articulated. The common themes include improving patient care, enhancing operational efficiency, and integrating digital solutions to meet these goals. Each interview outlines a clear vision for digital transformation, emphasizing the benefits of technology in healthcare and social services.

The need for digital transformation to improve patient care and efficiency is a recurring theme across various healthcare initiatives. The overarching vision includes creating digital units with virtual treatment options for patients. Initiatives like "office in the pocket" and virtual consultations aim to make 30% of consultations virtual, extending telemedicine solutions to conditions like heart failure to provide flexible, efficient, and patient-centred care (Dk1, Dk2).

The importance of digital solutions in enhancing access to healthcare through virtual meetings is also emphasized. This vision is grounded in using digital tools to respect patients' time and improve care delivery (Dk3). A political decision to implement telemedicine for COPD and heart failure patients further supports this vision, focusing on integrating telemedicine into the healthcare system for more efficient and patient-centred care (Dk4). The aim is to achieve seamless integration of telemedicine into healthcare services, thereby improving citizen involvement and using technology to enhance care quality and efficiency (Dk5).

Moreover, the comprehensive use of digital tools for both administrative and clinical tasks is highlighted. Examples include electronic appointment scheduling and remote consultations, which aim to create a more efficient and transparent healthcare system (Fi1). Digital solutions also focus on enabling clients to live independently at home. Tools such as remote call teams, smart medication dosages, and safety devices streamline homecare services (Fi2).

The integration of digital solutions in healthcare and care services is envisioned to improve efficiency, service delivery, and recruitment possibilities. This vision includes telecare and other digital solutions to enhance care delivery (No1). Digital tools are leveraged to streamline HR processes and enhance service delivery, with digital patient journals and sick leave notes improving service quality and administrative efficiency (No2).

Furthermore, implementing video consultations and video conferences is seen as a means to enhance patient care and streamline operations. The goal is to facilitate better communication and reduce travel times for both patients and staff (No3). This approach also extends to mental health services, where digital tools are expected to support healthcare practices effectively (No4). Finally, the integration of digital tools like telecare, remote monitoring alarms, GPS tracking, and digital medication dispensers aims to enhance patient care and operational efficiency, allowing people to live at home longer and improving care quality (No5).

## Consensus

In all interviews, the critical element **Consensus** is explicitly articulated. Common themes include early stakeholder engagement, regular discussions and feedback sessions, and collaborative problem-solving. These efforts help achieve a shared understanding and broad support for digital transformation initiatives. The interviews highlight the importance of inclusive decision-making and continuous stakeholder involvement to maintain alignment and address any resistance.

Active involvement of stakeholders, including healthcare professionals and IT staff, is crucial for the successful implementation of new digital solutions. Managers undergo digital transformation management education to align their mindset with organizational goals, while the IT department's early involvement ensures that digital tools are practical and meet user needs (Dk1). This collaborative approach extends to key stakeholders such as municipal and regional directors, nursing staff, and IT personnel, who are engaged early in the process. Workshops and meetings are held to discuss telemedicine solutions, gather feedback, and address concerns. A joint secretariat is established to ensure agreement and commitment across municipalities (Dk2).

Regional and hospital directors participate in weekly board meetings, where regular discussions and evaluations help ensure alignment and address any barriers. The involvement of municipal nurses and trust-building activities further aids in achieving consensus among stakeholders (Dk3). Early engagement of stakeholders, including regional authorities, healthcare professionals, and patients, is essential. The joint secretariat coordinates and facilitates engagement, ensuring all voices are heard. Regular evaluations and the involvement of Aalborg University help maintain consensus (Dk4).

Continuous discussions and strategic planning involve regional and hospital leadership, with workshops and feedback sessions ensuring broad support and addressing any resistance. The joint secretariat plays a crucial role in achieving consensus (Dk5). Healthcare professionals, administrative staff, and patients are actively engaged in the digital transformation process. Regular meetings and feedback sessions help build a shared understanding and commitment, while continuous improvement and learning from successful implementations ensure stakeholder alignment (Fi1).

Homecare staff, patients, and technical support teams are engaged through regular workshops and feedback sessions. Pilot testing and early involvement help achieve broad agreement (Fi2). Municipal managers, healthcare professionals, and patients are engaged early in the process, with the joint secretariat coordinating efforts to ensure that all voices are considered. Regular discussions and feedback mechanisms help build consensus (No1).

Healthcare professionals, administrative staff, and patients participate in regular meetings and discussions that address challenges and gather feedback. The HR unit emphasizes inclusive decision-making to achieve consensus (No2). Staff and patients are engaged in the digital transformation process through regular meetings and feedback sessions that address concerns and gather input. Early involvement of staff in project stages helps build a shared understanding and commitment (No3).

Healthcare staff and patients are further engaged through the implementation of video consultations and meetings. Continuous feedback and regular discussions help maintain alignment and address any resistance.

Early involvement and training ensure broad support (No4). Overall, stakeholders, including healthcare professionals, administrative staff, and patients, are deeply involved in the digital transformation process through regular workshops and feedback sessions. This engagement helps build a shared understanding and address concerns, while staff involvement in training and system adaptation is essential for ensuring consensus (No5).

## Skills

The critical element **Skills** is explicitly articulated all of the 12 interviews. Common themes include continuous training, mapping competencies, and addressing skill gaps. The interviews highlight the importance of providing ongoing education and practical training to ensure staff are well-equipped to use new digital tools and technologies effectively.

The widespread need for digital competencies in healthcare is well-recognized, and continuous assessment and development of digital skills among staff are deemed essential. The IT department's involvement is crucial in supporting staff as they develop these necessary skills (Dk1). Special emphasis is placed on training nursing staff to handle telemedicine solutions effectively, with educational activities designed to equip them with both professional skills and the ability to use digital tools. Continuous skill development remains a priority (Dk2).

Healthcare professionals are continuously provided with training programs to ensure they possess the necessary digital competencies. Recognizing the cultural shift required for doctors to adapt to virtual consultations, these training programs are specifically designed to address these needs (Dk3). Training programs for nurses and other healthcare staff ensure competence in using telemedicine solutions, focusing on both technical skills and effective patient interaction. Continuous training is emphasized to keep skills current (Dk4).

Mapping competencies and identifying skill gaps are critical steps in the digital transformation process. Training and education programs, such as "Velferdsteknologiens ABC," are provided to ensure staff are well-prepared to use new digital tools (Dk5). Continuous training and adaptation are necessary to ensure staff are competent in using digital tools, with training programs and orientation sessions planned to develop required skills, focusing on both technical proficiency and remote care capabilities (Fi1).

The recognition of the need for continuous training leads to the provision of training programs and job guidance, equipping staff with the necessary skills to handle digital solutions effectively (Fi2). Mapping competencies and providing necessary training are essential components of this process. Continuous education programs and workshops are implemented to ensure staff are competent in using telecare and digital solutions (No1).

Training programs and workshops are planned to develop the required skills, with a strong emphasis on continuous education to ensure staff are well-equipped to handle new digital tools and processes effectively (No2). Continuous training is provided to ensure staff are competent in using video consultations and digital tools, focusing on both technical skills and effective remote care (No3). Recognizing the need for new skills in using digital tools, continuous training is provided to ensure staff are competent and confident in using digital solutions for patient care (No4).

Finally, continuous training and education are emphasized to ensure staff are equipped with the necessary skills to use digital tools like telecare and remote monitoring, with programs such as "Velferdsteknologiens ABC" being provided (No5).

## Incentives

In all interviews, the critical element **Incentives** is explicitly articulated. Common themes include the intrinsic motivators of improved patient care, operational efficiency, and professional development opportunities. While specific incentive programs are not always detailed, the overall benefits of digital transformation are clearly communicated to staff, serving as strong motivators to adopt and support the changes.

The primary incentives for adopting digital solutions in healthcare consistently focus on improved patient care and more efficient workflows, which serve as strong motivational factors. Although specific incentive programs for staff are not detailed, the benefits for patients and the overall healthcare system are emphasized, highlighting improved patient outcomes, reduced hospitalizations, and better working conditions for staff (Dk1, Dk2). The societal benefits of telemedicine solutions further act as intrinsic motivators for both patients and healthcare professionals (Dk2).

The emphasis on improving patient care and achieving efficiency gains is reinforced by the societal benefits and positive reception from both patients and staff, serving as intrinsic motivators even without detailed incentive programs (Dk3). Key incentives communicated to staff include enhancing patient care, increasing patient empowerment, and improving efficiency in managing chronic conditions (Dk3). Additionally, better patient care and more efficient operations are primary incentives, with clear communication of the benefits of digital solutions and professional growth opportunities for staff being emphasized (Dk4).

Central incentives such as improved efficiency, better patient outcomes, and enhanced job satisfaction are communicated to motivate staff to adopt digital solutions, even in the absence of specific incentive programs (Fi1). Similarly, improved patient care, increased operational efficiency, and enhanced job satisfaction are highlighted to encourage the adoption of digital solutions (Fi2).

Operational efficiency, improved patient care, and recruitment possibilities are primary incentives communicated to both staff and patients to motivate the adoption of digital solutions (No1). The focus on improved patient care, operational efficiency, and professional development opportunities for staff is clearly communicated to motivate staff to embrace digital solutions (No2). The benefits of video consultations and digital tools, such as improved patient care and reduced travel times for both staff and patients, are emphasized to maintain motivation and support (No3).

Furthermore, the intrinsic motivators of improved patient care and operational efficiency are consistently communicated to staff (No4). Additionally, the incentives of better patient care, operational efficiency, and enabling patients to live at home longer are highlighted, with economic incentives such as competitive salaries also mentioned to attract and retain staff (No5).

## Resources

In every of the 12 interviews, the critical element **Resources** is explicitly articulated. Common themes include the effective allocation of resources for training, technology, and support. Continuous assessment and adjustments ensure that necessary tools and resources are available and effectively used to support digital transformation initiatives.

Adequate resource allocation is critical for the success of initiatives like “office in the pocket” and virtual consultations. The IT department plays a key role in ensuring that the necessary technological resources and support are available (Dk1). The project requires significant resources, such as iPads for patients and IT support, and the establishment of a joint secretariat ensures coordinated resource allocation, continuous monitoring, and necessary adjustments (Dk2).

Effective management of resources in the digital transformation process is supported by regional and municipal leadership, guaranteeing that essential tools and resources are continuously provided and monitored. The joint secretariat is instrumental in allocating resources across municipalities, ensuring that required technology and support are in place, with a strong emphasis on continuous monitoring and adjustments to address any challenges (Dk3, Dk4). Collaboration with the regional health authority and municipalities further facilitates adequate resource allocation, with continuous assessment and reallocation ensuring the availability of necessary tools and support (Dk5).

Resource allocation also extends to training, technology, and support. Continuous assessment and effective allocation by the management team ensure that all necessary tools and resources are available to support these needs (Fi1). Resources are allocated effectively to support training and technology, with continuous assessment and adjustments ensuring the availability of required tools and support for digital solutions (Fi2).

The joint secretariat coordinates and allocates resources across municipalities to support digital transformation, ensuring that all necessary resources are available through continuous monitoring and adjustments (No1). Resources are allocated through the regional health authority, providing departmental support for implementing digital solutions, with continuous monitoring and adjustments to address challenges (No2). Budget allocation for video solutions and staff training is prioritized, ensuring that all necessary resources are available and effectively utilized through continuous monitoring and adjustments (No3).

Adequate resources for training, technology, and support are allocated, with continuous monitoring of resource utilization to ensure efficiency and necessary adjustments to address challenges (No4). The project demands substantial resources for training, technology, and support, with continuous assessment and allocation by the regional health authority ensuring that all necessary tools and resources are available (No5).

## Action Plan

Also, the critical element **Action Plan** element is explicitly articulated in each of the 12 interviews. Common themes include detailed steps for implementation, clear timelines and responsibilities, coordinated execution involving training and support, and regular evaluations and adjustments to ensure the plan’s success. The interviews highlight the importance of a well-

defined action plan to guide digital transformation initiatives and address any challenges that arise.

The action plan for digital transformation in healthcare is thorough and systematic, encompassing initiatives such as “office in the pocket” and virtual consultations. This plan outlines clear steps and responsibilities, with early IT involvement being crucial for the successful implementation of digital tools. Regular evaluations and adjustments are made to address any challenges that arise, ensuring the plan remains effective and on track (Dk1).

One of the key objectives of the action plan is to make 30% of consultations virtual and to expand telemedicine to other medical conditions. The joint secretariat coordinates specific steps, timelines, and responsibilities, ensuring regular evaluations and feedback loops to keep the plan aligned with its goals (Dk2).

To implement telemedicine solutions effectively, the action plan includes detailed steps, clear timelines, and defined responsibilities. Execution is supported by continuous education and training, ensuring healthcare professionals are well-prepared. Regular monitoring and adjustments are crucial to maintaining the plan’s effectiveness (Dk3). The joint secretariat plays a pivotal role in coordinating telemedicine implementation, with training and early IT involvement being key elements. Regular evaluations and adjustments help in addressing challenges and ensuring progress (Dk4).

The action plan also includes detailed steps for integrating telemedicine across municipalities, with clear timelines and responsibilities. Execution involves coordinated efforts, regular evaluations, and feedback loops to ensure the plan’s effectiveness (Dk5). Similarly, the action plan for other digital solutions outlines specific steps, timelines, and responsibilities. Execution involves coordinated efforts and continuous training, with regular evaluations and adjustments to keep the plan on track (Fi1).

For integrating digital solutions into homecare services, the action plan specifies clear steps. Execution involves job guidance, training, and continuous monitoring. Regular feedback and adjustments are made to ensure the plan’s success (Fi2). The joint secretariat coordinates the implementation of telecare and digital solutions, involving training and regular feedback sessions. Continuous monitoring and adjustments are vital for ensuring progress (No1).

The action plan for integrating digital tools into HR processes includes clear steps, timelines, and responsibilities. Execution involves training and regular evaluations, with feedback-based adjustments to ensure effectiveness (No2). Similarly, the plan for implementing video consultations and digital tools outlines specific steps, timelines, and responsibilities. Execution involves thorough training and continuous support, with regular monitoring and feedback to ensure success (No3).

For integrating video consultations, the action plan provides detailed steps, clear timelines, and responsibilities. Execution involves comprehensive training and regular feedback sessions, with continuous monitoring and adjustments to ensure progress (No4). Lastly, the action plan for integrating telecare and digital solutions includes specific steps, timelines, and responsibilities. Execution involves training and continuous support, with regular evaluations and adjustments to ensure the plan’s effectiveness (No5).

## Conclusion

The deductive analysis of interviews with leaders in Nordic sparsely populated areas reveals substantial evidence supporting the applicability of the Lippitt-Knoster Model for successful implementation HWT. The recurring theme of digital transformation across various healthcare initiatives underscores the critical components of the model: Vision, Consensus, Skills, Incentives, Resources, and Action Plan.

The Vision component is evident in the overarching goal to create digital units with virtual treatment options for patients, such as “office in the pocket” and virtual consultations aiming to make 30% of consultations virtual (Dk1, Dk2). This vision extends to enhancing access to healthcare through virtual meetings, emphasizing the use of digital tools to respect patients’ time and improve care delivery (Dk3). Consensus is achieved through the political decisions and collaborative efforts to integrate telemedicine for conditions like COPD and heart failure, focusing on efficient and patient-centred care (Dk4). The seamless integration of telemedicine into healthcare services highlights the collective agreement and coordinated efforts among stakeholders to enhance care quality and efficiency (Dk5). The Skills component is addressed through the comprehensive use of digital tools for administrative and clinical tasks, such as electronic appointment scheduling and remote consultations, which create a more efficient and transparent healthcare system (Fi1). Moreover, digital solutions enabling clients to live independently at home, like remote call teams and smart medication dosages, showcase the development and application of necessary skills to support these technologies (Fi2).

Incentives for adopting digital solutions are illustrated by the anticipated improvements in efficiency, service delivery, and recruitment possibilities. The emphasis on telecare and other digital solutions (No1), along with streamlined HR processes and improved service quality through digital patient journals and sick leave notes (No2), highlight the motivational factors driving these initiatives.

The allocation of adequate Resources is critical for the successful implementation of HWT. The deployment of video consultations and conferences to enhance patient care and streamline operations (No3), and the application of digital tools in mental health services (No4), demonstrate the strategic allocation and utilization of resources. Furthermore, the integration of telecare, remote monitoring alarms, GPS tracking, and digital medication dispensers aims to enhance patient care and operational efficiency, allowing individuals to live at home longer (No5).

Finally, the Action Plan is evident in the detailed steps and responsibilities outlined for implementing these digital solutions. The continuous monitoring, feedback loops, and adjustments to address challenges ensure that the initiatives remain on track and effective.

Overall, the leaders’ experiences and initiatives align well with the Lippitt-Knoster Model, providing a structured approach to managing complex change in the healthcare sector. The evidence from these interviews highlights the model’s relevance and effectiveness in driving successful digital transformation and implementation of Health and Welfare Technologies in sparsely populated Nordic areas.



# Discussion

It is concluded that the analyses demonstrate a robust application of the Lippitt-Knostrer Model in managing digital transformation (managing complex change) across various regions and healthcare services. Each project highlighted in the interviews exhibits a clear vision, strong stakeholder consensus, ongoing skill development, recognition of intrinsic incentives, strategic resource allocation, and a well-defined action plan. These elements collectively contribute to the successful adoption and implementation of digital and telemedicine solutions, enhancing efficiency and patient care. The consistent alignment with the Lippitt-Knostrer Model across diverse contexts underscores its efficacy as a framework for managing complex change in healthcare settings. However, attention to more detailed planning and explicit staff incentives could further enhance the effectiveness of these change management processes.

## Benefits of Lippitt-Knostrer Model for Complex Change

The Lippitt-Knostrer model for managing complex change offers several benefits for organizations navigating the intricacies of change management. This structured approach to change is particularly advantageous, as it breaks down the process into six essential components: Vision, Consensus, Skills, Incentives, Resources, and Action Plan. This framework ensures that all critical areas are addressed systematically, facilitating a comprehensive approach to change management.

### **Structured approach and enhanced clarity**

By providing a clear and compelling vision, the model ensures that everyone in the organization understands the purpose and direction of the change. This clarity aligns efforts and reduces confusion, enabling team members to contribute effectively towards the change objectives. The model's emphasis on consensus-building fosters stakeholder engagement and buy-in, which is crucial for overcoming resistance and ensuring successful implementation. Engaging stakeholders early and often helps build broad support, which is vital for the change process.

### **Skills development and motivation**

The model's recognition of the importance of skills ensures that organizations identify and address skill gaps, preparing teams for the challenges of change. This approach reduces anxiety and resistance while enhancing overall effectiveness. Additionally, by aligning incentives with desired outcomes, the model motivates individuals to participate in the change process, sustaining momentum and commitment over time.

### **Efficient resource allocation and adaptive planning**

Highlighting the need for adequate resources prompts organizations to allocate necessary time, budget, and other resources proactively. This preparation ensures that the change initiative can proceed without unnecessary delays, increasing the likelihood of success. The requirement for a detailed action plan, combined with the flexibility to adjust, helps organizations stay focused and responsive, allowing them to navigate unforeseen challenges effectively.

### **Monitoring, evaluation, and broad applicability**

The model facilitates ongoing monitoring and evaluation of the change process. Organizations can track progress against their action plan, assess the effectiveness of their strategies, and make data-driven adjustments to improve outcomes. The principles of the Lippitt-Knoster Model are applicable across various types of organizations and industries, making it a versatile framework for managing complex changes, from technological innovations to cultural shifts and process improvements.

### **Promoting continuous improvement**

By encouraging organizations to regularly assess their change initiatives and adapt their approaches, the model fosters a culture of continuous improvement. This leads to enhanced organizational agility, resilience, and the ability to thrive in a rapidly changing environment.

### **Analysis results and application**

A deductive analysis of interviews with leaders in Nordic sparsely populated areas reveals substantial evidence supporting the applicability of the Lippitt-Knoster Model for successful implementation of HWT. The recurring theme of digital transformation across various healthcare initiatives underscores the critical components of the model: Vision, Consensus, Skills, Incentives, Resources, and Action Plan.

The Vision component is evident in the goal to create digital units with virtual treatment options, such as "office in the pocket" and virtual consultations aiming to make 30% of consultations virtual. This vision extends to enhancing healthcare access through virtual meetings, emphasizing the use of digital tools to respect patients' time and improve care delivery.

Consensus is achieved through political decisions and collaborative efforts to integrate telemedicine for conditions like COPD and heart failure, focusing on efficient and patient-centred care. The seamless integration of telemedicine highlights the collective agreement and coordinated efforts among stakeholders to enhance care quality and efficiency. The Skills component is addressed through the comprehensive use of digital tools for administrative and clinical tasks, such as electronic appointment scheduling and remote consultations. Digital solutions enabling clients to live independently at home showcase the development and application of necessary skills to support these technologies.

Incentives for adopting digital solutions are illustrated by anticipated improvements in efficiency, service delivery, and recruitment possibilities. The emphasis on telecare and other digital solutions, along with streamlined HR processes and improved service quality through digital patient journals and sick leave notes, highlight the motivational factors driving these

initiatives. The allocation of adequate resources is critical for the successful implementation of HWT. The deployment of video consultations and conferences to enhance patient care and streamline operations, and the application of digital tools in mental health services, demonstrate the strategic allocation and utilization of resources. The Action Plan is evident in the detailed steps and responsibilities outlined for implementing these digital solutions. Continuous monitoring, feedback loops, and adjustments to address challenges ensure that the initiatives remain on track and effective.

Overall, the leaders' experiences and initiatives align well with the Lippitt-Knoster Model, providing a structured approach to managing complex change in the healthcare sector. The evidence from these interviews highlights the model's relevance and effectiveness in driving successful digital transformation and implementation of Health and Welfare Technologies in sparsely populated Nordic areas. By requiring a clear and compelling vision, the model ensures that everyone in the organization understands the purpose and direction of the change. This clarity helps to align efforts and reduces confusion, making it easier for team members to contribute effectively towards the change objectives.

The emphasis on consensus-building encourages the involvement of various stakeholders in the change process. By engaging these individuals early and often, the model helps to build broad support for the change, which is critical for overcoming resistance and ensuring successful implementation. The model acknowledges the importance of having the right skills to navigate and implement change. By identifying and addressing skill gaps, organizations can better prepare their teams for the challenges of change, thereby reducing anxiety and resistance while enhancing overall effectiveness.

Recognizing the role of incentives in motivating individuals, the model guides organizations to align rewards with desired outcomes. This approach not only encourages participation in the change process but also helps to sustain momentum and commitment over time. By highlighting the need for adequate resources, the model prompts organizations to proactively allocate the necessary time, budget, and other resources. This preparation ensures that the change initiative can proceed without unnecessary delays or resource constraints, increasing the likelihood of success.

The requirement for a detailed action plan, along with the flexibility to make adjustments, helps organizations to stay focused and responsive. The model supports adaptive change management, allowing teams to navigate unforeseen challenges and adapt their strategies as needed. Through its structured approach, the Lippitt-Knoster Model facilitates ongoing monitoring and evaluation of the change process. Organizations can track progress against their action plan, assess the effectiveness of their strategies, and make data-driven adjustments to improve outcomes.

The model's principles are applicable across various types of organizations and industries. Whether implementing technological innovations, cultural shifts, or process improvements, the Lippitt-Knoster Model provides a versatile framework for managing complex changes. By encouraging organizations to regularly assess their change initiatives and adapt their approaches, the model fosters a culture of continuous improvement. This can lead to enhanced organizational agility, resilience, and the ability to thrive in a rapidly changing environment.

## Critical aspects of the Lippitt-Knostrer Model

The Lippitt-Knostrer Model for managing complex change offers a robust framework, but it also presents several challenges that need to be addressed for optimal implementation. One notable issue is the model's potential rigidity. Its structured nature, while providing a comprehensive approach, can limit flexibility in dynamic environments where adaptability is crucial. Project managers must strike a balance between maintaining structure and allowing for flexibility to adapt to changing circumstances and unforeseen challenges.

Another significant problem is the complexity of implementation. Applying all six elements of the model comprehensively can be complex and resource-intensive, particularly for smaller organizations with limited capabilities. The thoroughness required by the model demands significant resources and coordination, which may overwhelm smaller organizations. Therefore, a tailored approach that considers specific constraints is necessary to implement the model effectively.

The model also tends to focus predominantly on internal organizational processes, potentially overlooking external factors such as market dynamics, regulatory changes, or technological advancements. While focusing on internal processes ensures thorough preparation and execution, it is equally important to incorporate external environmental scanning and adaptability to remain responsive to broader changes that impact the organization.

Moreover, the model may lack specific guidance on measuring success and outcomes beyond process implementation. Establishing clear metrics and benchmarks for success is crucial to evaluate the effectiveness of digital transformation initiatives comprehensively. Organizations should incorporate outcome-based measures to assess the real impact on patient care and operational efficiency.

Despite these challenges, the Lippitt-Knostrer Model provides a structured approach that addresses critical elements such as vision, consensus, skills, incentives, resources, and action plans comprehensively. The benefits of using this model are evident in the structured approach, stakeholder engagement, and continuous improvement highlighted in the interviews with leaders in Nordic sparsely populated areas.

Overall, the leaders' experiences and initiatives align well with the Lippitt-Knostrer Model, providing a structured approach to managing complex change in the healthcare sector. The evidence from these interviews highlights the model's relevance and effectiveness in driving successful digital transformation and implementation of HWT in sparsely populated Nordic areas.

## Methodological considerations

The deductive qualitative analysis approach applied in this study, as outlined by Barrett & Younas (2023) and Kennedy (2018), took the Lippitt-Knostrer Model's six critical elements—vision, consensus, skills, incentives, resources, and action plan—as the point of departure. This methodology was used to systematically assess each element's presence and impact in the context of digital transformation projects in sparsely populated Nordic areas.

Overall, the deductive qualitative analysis approach provided a structured and comprehensive framework for examining complex change projects.

The interviews with leaders in Nordic sparsely populated areas revealed substantial evidence supporting the model's applicability for successful digital transformation. The model's six critical elements—vision, consensus, skills, incentives, resources, and action plan—were integral to the successful implementation HWT, as demonstrated by the detailed analysis and discussion.

Only three Nordic countries are represented in the interview, there might have been another result if more interviews and representatives from Iceland and Sweden could have been included, however there are similarities in the Nordic countries there are also differences.

## Strengths and weaknesses of the method

Using a structured framework like the Lippitt-Knoster Model provided a systematic approach to analysing complex change projects. This method allowed for detailed insights into specific elements of change management, identifying both strengths and areas for improvement within each component. The interview-based approach captured diverse perspectives from various stakeholders, offering a holistic view of the digital transformation process.

Despite its strengths, the qualitative approach has potential biases, such as social desirability bias or interviewer bias. Steps were taken to mitigate these biases, including the use of a standardized interview protocol. There were also different individuals conducting the interviews, which sometimes is evident in the analysis due to small differences in the interviews from different countries. It is also important to consider that all interviews were translated into English from Danish, Finnish, and Norwegian, which might affect the content and understanding of the interview data. The interviews were conducted before the researcher gained access to the data; if a researcher had been involved in the development of the interview guide, the design might have been different. However, the resource-intensive nature of the method, requiring significant time and effort to conduct and analyse interviews, is a notable limitation. Additionally, the interpretative nature of qualitative analysis means that findings can be subjective, underscoring the importance of multiple analysts or reviewers to enhance reliability. Further the cultural and organizational context in which digital transformation projects are implemented is crucial. Different organizations may face unique challenges and opportunities, affecting the applicability and outcomes of the Lippitt-Knoster Model. The scalability of the findings is another consideration; while the model provides a robust framework, its application may need to be adapted based on the size and complexity of the organization.

Future research could benefit from longitudinal studies to assess the long-term impact of digital transformation initiatives and the sustained effectiveness of the Lippitt-Knoster Model. Comparative analyses with other change management models could also be valuable in identifying areas where the Lippitt-Knoster Model excels or falls short, offering opportunities for refinement and enhancement.

# Conclusion and recommendations

The application of the Lippitt-Knoster Model for Complex Change in implementing Health and Welfare Technology (HWT) in sparsely populated Nordic regions has proven effective and insightful. This model, which encompasses six critical components—Vision, Consensus, Skills, Incentives, Resources, and Action Plan—offers a structured framework for managing complex change in healthcare settings. The analysis of interviews with healthcare leaders across Norway, Denmark, and Finland reveals that the model's components are integral to the successful implementation of HWT. Each element was explicitly articulated in the leaders' experiences, highlighting the model's relevance and effectiveness in driving digital transformation.

Leaders consistently emphasized a clear and compelling **vision** for digital transformation, aiming to improve patient care, operational efficiency, and access to healthcare services through virtual treatment options and telemedicine. Achieving **consensus** among stakeholders was crucial. Early engagement, regular discussions, and collaborative problem-solving ensured broad support and minimized resistance to change. Continuous training and **skill** development were essential. Leaders recognized the importance of equipping staff with the necessary technical and soft skills to effectively use new digital tools. The intrinsic motivators of improved patient care, operational efficiency, and professional development opportunities (**incentives**), were clearly communicated, driving staff engagement and support for the digital initiatives. Effective allocation of **resources** for training, technology, and support was critical. Continuous assessment and adjustments ensured that necessary tools and resources were available throughout the transformation process. Detailed **action plans** with clear steps, timelines, and responsibilities guided the implementation of digital solutions. Regular evaluations and adjustments addressed challenges and kept the initiatives on track.

The structured approach provided by the Lippitt-Knoster Model facilitated ongoing monitoring, evaluation, and continuous improvement, which are vital for the success of complex change projects in healthcare.

## Enhancing leadership and organizational readiness for digital transformation in healthcare

Given the successful application of the Lippitt-Knoster Model for managing complex change in the implementation of HWT in sparsely populated Nordic areas, several policy recommendations are proposed to enhance leadership and organizational readiness for digital transformation in healthcare.

It is essential to establish clear vision and goals. Developing and communicating a clear, compelling vision for digital transformation is crucial. This vision should outline the benefits, goals, and desired outcomes of implementing HWT. Ensuring that the vision is shared across all levels

of the organization will help align efforts and foster a unified direction. Engaging stakeholders early and often is another critical strategy. Involving key stakeholders, including healthcare professionals, IT staff, patients, and community leaders, early in the planning process is vital. Facilitating regular discussions, feedback sessions, and collaborative problem-solving will help build consensus and address concerns effectively.

Investing in continuous training and skill development is also necessary. Mapping existing skills and identifying gaps that need to be addressed for effective use of new digital tools and technologies is a key step. Providing ongoing education and practical training programs will equip staff with the necessary technical and soft skills required for digital transformation. Aligning incentives with organizational goals can significantly motivate staff to support and participate in the digital transformation process. Designing incentive programs that align individual and organizational goals, including both financial incentives such as bonuses and non-financial incentives such as recognition and career advancement opportunities, will help maintain staff engagement and commitment.

Adequate resource allocation is another cornerstone of successful digital transformation. Ensuring that sufficient resources, including time, budget, technology, and support, are allocated to support digital transformation initiatives is crucial. Continuous monitoring of resource utilization and making necessary adjustments will help address challenges and ensure progress. Developing detailed action plans is also critical. Creating comprehensive action plans that outline specific steps, timelines, responsibilities, and milestones for implementing digital solutions will provide clear guidance. Regularly reviewing progress, soliciting feedback, and adjusting the action plans will help stay responsive to changing circumstances and challenges.

Finally, promoting continuous improvement and adaptability is essential for long-term success. Encouraging a culture of continuous improvement by regularly assessing the effectiveness of digital transformation initiatives and adapting approaches based on feedback and outcomes will help maintain momentum. Staying informed about external factors such as market dynamics, regulatory changes, and technological advancements will ensure the organization remains responsive and adaptable. By adopting these policy recommendations, healthcare organizations can enhance their readiness and capability to manage complex change and successfully implement Health and Welfare Technology. These strategies will support leaders in navigating the complexities of digital transformation, ensuring that changes are sustainable and embedded into the organization's operations and processes. Ultimately, this will improve healthcare delivery and patient outcomes in sparsely populated regions.

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# About this publication

## **The Lippitt & Knoster model: *Managing Complex Change***

- the applicability of the Lippitt-Knoster Model to the experiences of Nordic leaders in implementing health and welfare technology in sparsely populated areas.

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**Published:** 06.11.2024

**Layout:** Sofia Berggren

**Photo:** Linn Johansson/Region Västerbotten  
Therese Asplund / Sophiahemmet



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## **Integrated Healthcare and Care (iHAC)**

The Integrated Healthcare and Care (iHAC) project is a collaboration between the Nordic countries governments and their agencies for integrated healthcare and care, supported by distance spanning solutions.