



**Strategic Change Management in
Multi-Governmental Organisations: An
Ethnographic Study of The European Organisation
for Nuclear Research (CERN)**

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DISSERTATION WRITTEN UNDER THE SUPERVISION OF PEDRO
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Dissertation submitted in partial fulfilment of requirements for the MSc in
Business, at the Universidade Católica Portuguesa.

31-05-2024

Abstract

Title: Strategic Change Management in Multi-Governmental Organisations:
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This dissertation investigates the dynamics of strategic change management within multi-governmental organisations, focusing on the European Organisation for Nuclear Research (CERN). It identifies a significant gap in existing literature, often neglecting the complexities faced by such organisations due to bureaucratic hurdles and political influences. Using an ethnographic approach, the research delves into the complex organisational and cultural dynamics impacting strategic change at CERN. The methodology includes in-depth interviews and participant observations during a year-long internship, providing a rich qualitative dataset. These methods are complemented by a thematic analysis based on Jick's Ten Commandments for Implementing Change, adapted to CERN's unique environment. Findings reveal that effective change management in multi-governmental organisations requires a nuanced understanding of cultural perceptiveness, leadership roles, and political power dynamics. Key insights highlight challenges posed by short-term contracts, which disrupt continuity in change initiatives and the impact of cultural differences on communication and collaboration. The research underscores the importance of inclusive communication strategies and stable leadership to drive and sustain change. Additionally, it identifies the underestimation of administrative staff's contributions as a barrier to successful change implementation. The dissertation provides theoretical insights by suggesting ways Jick's framework can incorporate elements tailored to multi-governmental contexts, emphasising cultural awareness, adaptive leadership, and administrative continuity. It concludes with comprehensive recommendations for enhancing change management practices at CERN and similar organisations, aiming to foster a collaborative environment that supports effective and sustainable strategic change.

Keywords: Strategic Change Management, Multi-Governmental Organisations, CERN, Ethnographic Study, Organisational Dynamics, Bureaucratic Hurdles, Political Influences, Jick's 10 Commandments for Change

Resumo

Esta dissertação investiga as dinâmicas da gestão de mudança estratégica em organizações multilaterais, com foco na Organização Europeia para a Pesquisa Nuclear (CERN). O estudo identifica uma lacuna na literatura, que frequentemente negligencia as complexidades dessas organizações devido à inércia burocrática e às influências políticas. Utilizando uma abordagem etnográfica, a pesquisa explora as dinâmicas culturais e organizacionais que impactam a mudança estratégica no CERN. A metodologia inclui entrevistas aprofundadas e observações durante um estágio de um ano, proporcionando um rico conjunto de dados qualitativos, complementados por uma análise temática baseada nos Dez Mandamentos de Jick para Implementação de Mudanças, adaptados ao ambiente do CERN. As descobertas revelam que uma gestão eficaz da mudança em organizações multilaterais requer uma compreensão das sensibilidades culturais, dos papéis de liderança e das dinâmicas de poder. Destacam-se desafios como os contratos de curto prazo, que interrompem a continuidade das iniciativas de mudança, e o impacto das diferenças culturais na comunicação e colaboração. A pesquisa sublinha a importância de estratégias de comunicação inclusivas e de uma liderança estável para sustentar a mudança. Além disso, identifica a subestimação das contribuições do pessoal administrativo como uma barreira à implementação bem-sucedida. A dissertação sugere maneiras para que o modelo de Jick incorpore elementos mais relevantes, adaptados aos contextos multilaterais, enfatizando a consciência cultural, a liderança adaptativa e a continuidade administrativa. Conclui com recomendações para aprimorar as práticas de gestão de mudanças no CERN e em organizações similares, promovendo um ambiente colaborativo que suporte mudanças estratégicas eficazes e sustentáveis.

Palavras-chave: Gestão de Mudança Estratégica, Organizações Multi-Governamentais, CERN, Estudo Etnográfico, Dinâmicas Organizacionais, Obstáculos Burocráticos, Influências Políticas, Os 10 Mandamentos de Jick para a Mudança

Acknowledgements

My sincere appreciation goes out to Pedro Parada, my supervisor, for all of his help, expertise, and support during my research project. He has been a great source of guidance, counsel, and useful input. Your attention to detail and effort have been instrumental in helping to shape this thesis.

My genuine thanks to my colleagues at CERN for their collaboration and companionship. Special thanks to my team leader for encouraging me to conduct my research at CERN, my supervisor for uplifting my spirit in times of hardship, and my co-workers for their assistance in accommodating and helping arrange interviews at CERN.

Family and friends, your steadfast support and belief in me. I am grateful for your love and encouragement.

Finally, a special thank you to my boyfriend, Tord, for your constant support and understanding. Your encouragement and help has been my source of strength and motivation.

Disclaimer

In the preparation of this thesis, I have utilised ChatGPT, an AI language model, to assist in structuring sentences and linking paragraphs. Additionally, in some instances, ChatGPT has been employed to rephrase sentences for enhanced clarity. Furthermore, I have used Grammarly to correct spelling mistakes. All intellectual content, analysis, and conclusions presented in this thesis are my own. If they are not my own, they are cited accordingly.

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1 Introduction

Navigating strategic change within multi-governmental organisations is a complex task that challenges standard business practices. These organisations operate across various geopolitical environments, requiring an understanding of change management that extends beyond typical private-sector strategies. This thesis carefully investigates these distinctive organisational structures, particularly where profit is not the primary focus.

There is a notable gap in the literature, which predominantly discusses change management in profit-oriented organisations. While regular firms also struggle with change management, multi-governmental organisations face additional complexity. These organisations must account for external stakeholders, each bringing their unique priorities and cultural nuances. This gap highlights the relevance and importance of this study. Multi-governmental organisations function on a large scale and encompass a intricate network of stakeholders. These complexities introduce challenges that standard change management frameworks often struggle to address. As these organisations increasingly play central roles in global health, environmental policy, and scientific research, understanding and refining their change processes becomes crucial.

Profit-driven companies also face challenges in implementing change frameworks to meet profit demands, but they typically have more straightforward objectives. Multi-governmental organisations like CERN, on the other hand, must adapt these frameworks while also managing external stakeholders such as member states and research institutes. This added layer of complexity requires strategies that balance innovation with the need to maintain collaborative frameworks and institutional stability.

This thesis is based on my year-long experience working at the European Organisation for Nuclear Research (CERN). It involves an ethnographic study aimed at exploring strategic change processes in environments where collaboration and knowledge-sharing are more important than financial considerations. By examining how CERN adapts to rapidly changing demands in science and technology, this study aims to shed light on the various challenges faced by organisations of this character and propose methodologies that can lead to more effective governance and operational agility in similar organisations. The next sections will explore the theory of strategic change, question if existing models work for multi-governmental organisations, and suggest elements to consider that address their unique challenges and responsibilities.

1.1 Background of the research

In contemporary literature, there are many frameworks on effective change management and strategic change. However, why is it that something seemingly straightforward can lose mo-

mentum once put into action? In private firms, this may have serious complications for the firm's profitability, urging quick implementation of change efforts to solve problems threatening the company's viability. However, this is not as obvious in large, multi-governmental organisations, where initiating change processes requires considering additional factors including politics, complex departmental processes, and organisational interests. The resilience to change in large multi-governmental organisations seems to be deeply rooted in routines, traditions, and rigid processes that demand greater investigation than ordinary private firms.

For instance, multi-governmental organisations have various "nontraditional" stakeholders to consider in a change initiative. Nontraditional stakeholders can include founding state members, research institutes, governments, scientific experiment groups, and internal departments from various professional fields. In such environments, there can be a lack of clarity and responsibility regarding change. This often results in change processes undergoing many checks and balances across several departmental managers and supervisors, each with different goals and philosophies on best practices and how change management should be conducted. Additionally, since the organisation's funding primarily comes from governments, every change requires careful consideration and sometimes input from these stakeholders, as the organisation depends on their continued support.

1.1.1 Importance of Strategic Change

Slow change processes not only impede organisational progress but also create a cumulative burden. As tasks and responsibilities accumulate, the capacity of staff members to effectively manage their roles can become increasingly overwhelmed. This gradual buildup can make the processes progressively complicated and difficult to untangle over time. In the context of intergovernmental organisations, which are substantial both in size and in their impact on geopolitical, economic, and technological domains, the agility to adapt is not just beneficial but essential. Moreover, in rapidly advancing technical contexts, it's crucial to manage the risks of stagnation. Integrating AI can revolutionise productivity but requires careful navigation of data protection, ethics, and scientific integrity. Strategic change is crucial for maintaining operational viability and ensuring that organisations contribute valuable insights and solutions to global challenges

1.1.2 Strategic Change at CERN

Using CERN as an ethnographic study highlights how strategic change is managed in a non-profit organisation focused on scientific knowledge and collaboration. Unlike profit-driven enterprises, CERN's unique setting offers insights into strategic change to advance scientific understanding and global cooperation. Analysing CERN's strategic decisions provides lessons on

managing change to achieve non-financial objectives applicable across various sectors.

However, strategic redirection at CERN faces challenges due to its complex stakeholder landscape and intricate processes typical of a large multi-governmental non-profit. Strategic decisions involve diplomatic, bureaucratic, and cultural considerations, often prolonging the decision-making process. Additionally, the scale of CERN’s operations presents logistical challenges in implementing strategic changes without disrupting ongoing research. Balancing innovation with the need to maintain collaborative frameworks and institutional stability is crucial for managing strategic redirection at CERN. An introduction to CERN and its governing structure can be found in more detail in the appendix. This analysis sheds light on the dynamics of organisational change management in organisations like CERN.

1.1.3 Organisational composition of CERN

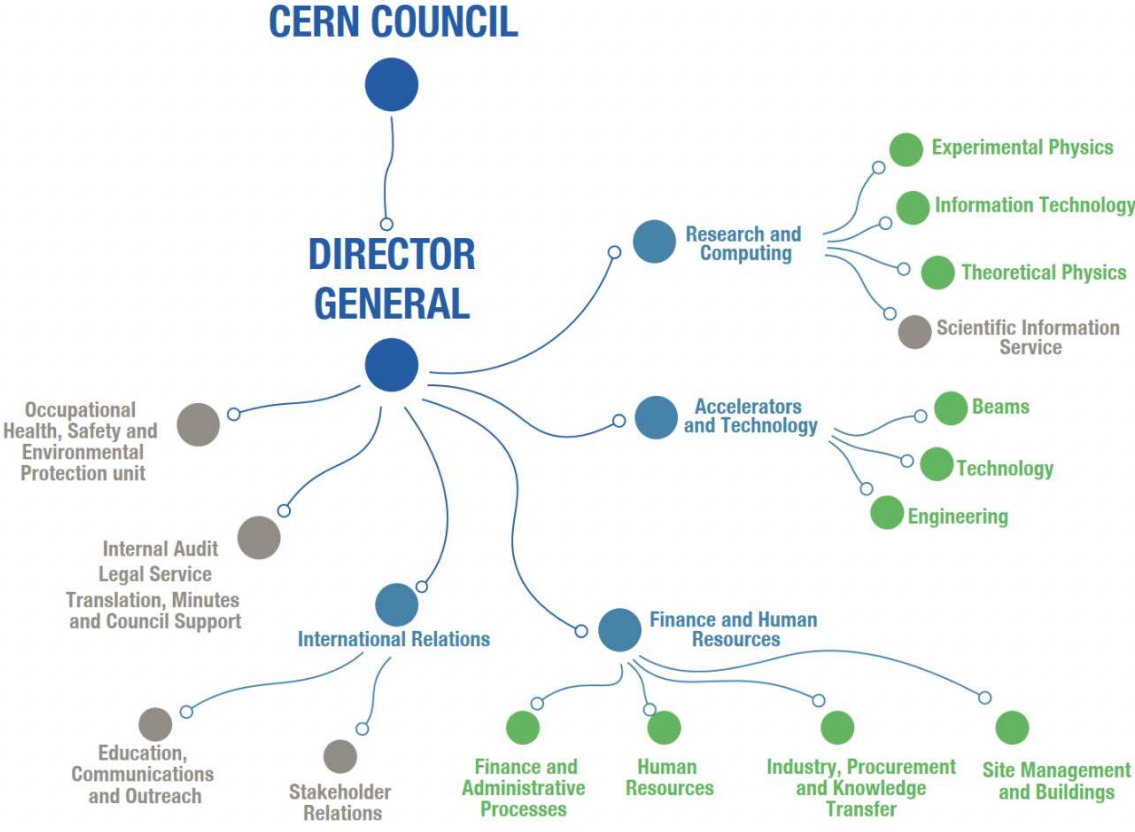


Figure 1: Governance Overview of CERN.

Source: CERN 2020

1.2 Gap in the Literature and Significance of Study

As noted earlier, most existing change management models are tailored for private, profit-focused organisations and do not fully address the unique challenges faced by large multi-governmental organisations like CERN. The literature often lacks in-depth studies of how these organisations handle complex, bureaucratic, and politically influenced environments. Moreover, real-life observational studies of day-to-day operations in such organisations are scarce. This study aims to delve into the strategic change behaviours of large multi-governmental organisations, exploring why certain changes are slow to implement or remain in planning stages for extended periods. By understanding these mechanisms, this research seeks to comprehend how change operates in organisations like CERN, ultimately enhancing the ability of multi-governmental settings to adapt and innovate.

1.3 Research Question

Conventional change management models often struggle in multi-governmental organisations due to operational complexities and diverse stakeholder interests. Given these complexities, the core research question emerges: *How can strategic change be effectively adapted for multi-governmental, non-profit organisations, given their unique challenges and dynamics?* This question aims to bridge the theoretical gap and guide practical strategies to improve understanding of the challenges and complexities that need to be included in change frameworks. This research question lays the groundwork for the thesis, which aims to offer both theoretical contributions to change management literature and practical insights into managing strategic change in multi-governmental settings.

1.3.1 Overview of the Thesis Structure

The thesis systematically examines strategic change management in multi-governmental organisations. It begins with a theoretical discussion of existing literature, focusing on Jick's Ten Commandments for Implementing Change (Jick 1993). Jick's framework was selected due to its attention to political complexities, making it particularly relevant for assessing effective change management practices and identifying areas for improvement in multi-governmental contexts like CERN. The methodology section outlines the ethnographic approach used, leveraging my position at CERN. It employs qualitative research techniques, including observations and in-depth interviews with senior managers, graduates, and staff from various departments to understand the complexities of strategic change in this environment.

After collecting the data, the findings are analysed to draw key insights and discuss their im-

plications for change management in similar organisations. The thesis concludes by outlining potential improvements, discussing the study's limitations, and suggesting directions for future research. This approach aims to enhance operational effectiveness and align with best practices in multi-governmental and scientific research settings, providing valuable insights into change management.

2 Theoretical discussion

This section of the thesis is dedicated to an examination of the literature concerning strategic change processes within large multi-governmental organisations. The review is methodically split into several key areas to ensure a comprehensive understanding of the field. Initially, the discussion begins with an analysis of historical and traditional literature on change management. This part explores various schools of thought regarding strategic change, delving into their associated frameworks and models, and outlines the evolution of these methodologies from traditional to modern approaches. Subsequently, the focus shifts to the typical challenges and dynamics of managing change within multi-governmental organisations where profit is not the primary driver. This segment assesses how strategic change processes are uniquely shaped by the non-profit motives of such organisations, incorporating considerations of organisational resilience. It involves a detailed evaluation of previous studies' main research methodologies, key findings, and conclusions. Lastly, the literature review aims to identify gaps and limitations in academic work on change processes in multi-governmental environments. It examines management dynamics and resource constraints, providing insights for future research in this critical area.

2.0.1 Understanding Strategic Change Processes; Main Theoretical Perspectives

Most of the available literature on change management theory and framework is built around corporate and private firms. The general literature on strategic change management theory defines the topic as a multidimensional process that involves identifying strategic change directions, preparing for strategic shifts, aligning with strategic goals, managing the change process, and adapting staff to the changes within an organisation (Coble Vinzant and Vinzant 1996; Shapa and Ufimtseva 2022; Tulloch 1993). Various schools of philosophy on change management in firms have been explored in the literature. The classical, linear approach assumes a predictable sequence of steps for organisational change (Sandi et al. 2021.) This differs from a more contemporary understanding that emphasises the duality of change and stability, highlighting their interplay in facilitating critical developments like innovation and strategic renewal (Fink et al. 2015.) Change management strategies focus on ensuring smooth transitions during

changes, ranging from minor process adjustments to important system overhauls, with a substantial focus on individuals and their behaviour throughout the change (Huschbeck et al. 2022). Organisations are under growing pressure to alter into "Learning Organisations" in order to improve knowledge management and human capital strategies and respond to ongoing change (Graetz and Smith 2010). With the help of this multi-philosophy approach, companies may explore opportunities by managing the continuity-change continuum to avoid complacency and stagnation (Hamilton 2021).

Furthermore, more modern writing frequently questions the more established methods of approaching strategic transformation. It challenges the widespread understanding that strategy change is a predictable, straightforward, and purely cognitive process by highlighting the significance of integrating cognition and emotion. Strategic change management is thought of as a repeating, continual process that includes preparing for experiments, carrying them out, learning from them, and modifying plans of action in reaction to the results (Quy and Sonenshein 2015). Additionally, effective change management strategies are highlighted as essential for ensuring smooth transitions and enhancing organisational adaptability to external threats and internal challenges

2.1 Change Management Models

A common denominator for most of the literature on strategic change processes, is the focus on elements of 'success' for strategic change. This is often expressed through models and frameworks as well as step-by-step guides. Strategic change processes are a vital area of study because companies need to be able to adapt to change quickly; failing to do so could lead to a potential downfall. Likewise, organisations reliant on a continuous output of new research for ongoing funding must conform to and adjust to the most pressing economic, scientific, and technological challenges.

A lot of theoretical perspectives is anchored in change management models and frameworks. "A change management model serves as a compass that can facilitate or lead change efforts by determining the specific processes and steps to follow, by illustrating the various factors influencing change, or by determining the levers used to succeed in the change management process" (Errida and Lotfi 2021 pp.2) Most literature on change models can be divided into two main categories: processual models and descriptive models Parry et al. 2013. The processual models encompass the models offering a "step-by-step" guide to strategic change. For instance, models like Lewin's 3-stage model of change (Lewin 1947). Kotter's 8-step model (Kotter 1995), Kanter's change wheel (Rosabeth Moss Kanter 2011), Mento et al.'s Twelve-steps for Change (Mento et al. 2002), and Luecke's 7-step model (Luecke 2003). Descriptive models on the other hand, go into detail of the main variables and factors that influence organisational per-

formance and success. This can be studied in literature like Parry et al's change tracking model Parry et al. 2013, Cummings and Worley's change management model (Cummings and Worley 2013), Burke and Litwin (1992) model of organisational change, and Nadler and Tushman's congruence model (Nadler and Tushman 1980).

2.1.1 Change Models and Their Applicability to Large Multi-Governmental Organisations

In the context of multi-governmental organisations, applying conventional strategic change models faces significant obstacles. Unlike private firms, swift change implementation driven by profitability is not feasible. Multi-governmental organisations navigate political landscapes, complex procedures, and diverse organisational interests, making change difficult. Decisions undergo exhaustive vetting, and funding primarily comes from governmental sources, impacting potential changes. Traditional change models are inadequate for addressing the multi-dimensional challenges faced by multi-governmental organisations, requiring a more tailored and flexible approach to change management. Thus, traditional change models often fall short in addressing the complexities inherent in large multi-governmental organisations. Models like Lewin's business transformation (Lewin 1958, Kotter's 8 step model, Hiatt's ADKAR model, McKinsey's 7-S model, E and O theories, Kruger's iceberg model, and Bridges' transition model are argued to be more adept at managing these complexities. These models emphasise critical aspects such as awareness, knowledge, and reinforcement, which are pivotal in dealing with resistance and focusing on employee development and strategic alignment (Havlovská 2023).

The model developed by Lewin (1958) provides a structured yet adaptable framework, essential for ensuring standardised yet culturally sensitive change processes across diverse governmental units. The ADKAR model enhances individual change management capabilities, aligning personal growth with organisational goals—a crucial factor in multi-governmental settings where skepticism and change fatigue are common. The McKinsey 7-S Model's comprehensive approach ensures that both hard elements (strategy, structure, and systems) and soft elements (shared values, skills, style, staff) are harmoniously integrated, accommodating multi-governmental organisations' varied operational and cultural frameworks.

Kotter's 8-Step Model, developed by Harvard professor Kotter (1996, 2007), provides a robust framework for managing change, particularly within large and complex organisations such as multi-governmental entities. This model emphasises the strategic and organisational layers of change, rather than focusing solely on the individual. It begins with creating a sense of urgency, crucial for motivating stakeholders across diverse organisational sections to recognise the need for change. This is followed by forming a powerful coalition of change leaders who can cham-

pion the initiative across different departments and cultural boundaries. Creating a vision for change and communicating the vision are pivotal steps that ensure all members understand and align with the change objectives, essential for cohesive action in large organisations.

The next steps involve empowering action by removing barriers, thus enabling employees to implement the change, and generating quick wins, which are vital for building momentum and overcoming cynicism. Consolidating gains involves leveraging initial successes to initiate deeper changes, preventing regression to old habits. Finally, anchoring the organisational culture change ensures that new practices are deeply embedded and sustained. This comprehensive approach is particularly beneficial for multi-governmental organisations, where changes need to be implemented across varied and often rigid systems. Kotter's model provides a structured yet adaptable roadmap that helps ensure changes are not only implemented but are also accepted and integrated into the long-term operational fabric of the organisation.

The ADKAR Model developed by Hiatt (2006), builds upon Kotter's change management principles and specifically addresses the implementation challenges of organisational change initiatives. This model ensures that change gains momentum and is embraced at the individual level, offering a structured pathway for individual change crucial for the success of organisational transformations in the context of multi-governmental organisations, Hiatt's model is particularly valuable. These entities face unique challenges due to their diverse and geographically dispersed workforce, which can result in varied levels of resistance and uneven skill sets. The ADKAR elements of Awareness and Desire help individuals understand and support the need for change, bridging cultural and operational divides. Knowledge and Ability ensure that employees are equipped to implement changes effectively, while Reinforcement solidifies these changes, preventing regression to old habits. Hiatt emphasised the relevance of ADKAR in today's agile-oriented business strategies, marking it as essential for managing the intricate, "last mile" dynamics of change in large, complex organisations

The McKinsey 7-S Model (Peters and Waterman Jr 1982), known for its comprehensive approach to organisational analysis, proves particularly adaptable to the complexities of multi-governmental organisations undergoing strategic changes. This model integrates seven interdependent factors: strategy, structure, systems, shared values, skills, style, and staff, which are critical in ensuring that all aspects of the organisation are aligned during the change process. In the context of multi-governmental organisations, the 7-S model's strength lies in its ability to address an organisation's tangible and intangible elements. For example, aligning shared values—a core component of the model—helps build consensus across culturally diverse entities and aligning disparate goals, which is essential when dealing with multiple government stakeholders. Similarly, the model's emphasis on structure and systems ensures that changes in operational processes are in sync with organisational hierarchies and governance frameworks, often a challenge in layered multi-governmental setups. Furthermore, the 7-S model encourages

a comprehensive review of skills and staff to ensure that personnel are well-prepared and capable of implementing and sustaining the change. This holistic approach ensures that strategic changes are implemented and embedded within the organisation's culture and operational practices, making the 7-S model a robust framework for managing change in complex environments where alignment and coherence across various dimensions are crucial for success.

Moreover, Krüger (1996) Iceberg Model and Bridges (1991) Transition Model delve into the psychological and cultural layers of organisations. Kruger's Iceberg Model serves as a crucial framework in this context, revealing that beneath the visible surface of organisational change lie deeper, submerged elements that are key to the success or failure of change initiatives. These elements include beliefs and values, perceptions and attitudes, emotions, unwritten rules, informal networks, group dynamics, power structures, and past experiences with change. The beliefs, values, power structures, unwritten rules, and informal networks within multi-governmental organisations can significantly impact the acceptance and implementation of changes. Past experiences with change shape organisational memory and influence future initiatives. Poorly managed change projects can lead to scepticism and resistance among employees, complicating new efforts. Recognising and addressing these factors is essential for successful change in complex organisations, especially in multi-governmental contexts. Kruger's Iceberg Model is crucial for leaders navigating organisational change in such environments, ensuring that change is implemented, adopted, and sustained over time.

Bridges (1991) Transition Model focuses on psychological transitions, facilitating smoother changes and reducing resistance. It identifies three stages: Ending, Losing, and Letting Go; The Neutral Zone; and The New Beginning. The first stage addresses the emotional impacts of ending old ways, requiring empathetic support to help employees detach from outdated practices. The Neutral Zone, marked by uncertainty, needs leadership to guide employees, foster innovation, and set interim objectives. The New Beginning solidifies changes, encouraging commitment to new practices and reinforcing the new organisational identity. This model is crucial in multi-governmental settings for managing psychological transitions, enabling smoother and more sustainable change.

The E and O Theories balance economic efficiencies (Theory E) and organisational capabilities (Theory O), helping organisations adapt to international changes while maintaining stability (Beer and Nohria 2000). Theory O is particularly effective in multi-governmental contexts, focusing on cultivating corporate culture and emphasising employee behaviours, attitudes, capabilities, and commitment. It encourages a learning-oriented culture, enabling organisations to respond to continuous changes. Theory O's emphasis on developing a resilient and committed workforce is vital for successfully implementing strategic changes in multi-governmental organisations like CERN, ensuring changes are embraced and sustained over time.

2.1.2 Ten Commandments for Implementing Change

The Challenge of Organisational Change, a fundamental study by Rosabeth Kanter, Barry Stein, and Todd Jick, examines the complexities of organisational change management. They emphasise the multifaceted challenges that arise, including resistance from employees due to uncertainty, fear of losing power, and economic concerns, underscoring the critical roles of effective leadership, clear communication, and strong managerial support for successful transitions (Rosabeth M. Kanter et al. 1992). The authors delve into how these elements are interconnected with the strategic implementation of organisational change, advocating for a thorough comprehension of these dynamics to foster successful change initiatives.

Building on these foundational insights, Kanter, Stein, and Jick also address specific challenges such as overcoming organisational inertia and cultural barriers, which are particularly pertinent when managing change in multi-governmental organisations. A standout aspect of Jick's model is its attention to lining up political sponsorship. In multi-governmental settings like CERN, securing political sponsorship from external stakeholders such as member states and council members is crucial. This model emphasises the need for executive and middle management support, allowing for the adaptation of strategies to secure political buy-in.

The complexity in such settings escalates with the diversity of stakeholders and cultural dimensions involved. Effective change management necessitates developing a shared vision that resonates across all entities involved, fostering inter-organisational cooperation, and navigating diverse cultural landscapes to secure alignment and buy-in. These strategies underscore the necessity for skilled diplomacy and nuanced communication, tailored to engage varied cultural backgrounds and interests, thereby facilitating successful navigation of change across governmental borders.

The '*Ten Commandments for Implementing Change*' by Jick (1993) offers a practical, action-oriented framework highly relevant to the dynamics of multi-governmental organisations. This approach integrates strategic foresight with tactical execution, emphasising the importance of clear communication, involvement, and commitment across all organisational levels. Two key elements from Jick's model particularly resonate in the context of large, complex entities: the need for clear and consistent communication to create shared understanding and buy-in, and the requirement for visible support and commitment from leadership to drive change.

In multi-governmental organisations, Jick's commandments such as "create a sense of urgency" and "communicate and involve people" are critical for aligning different groups towards common goals and addressing the challenges of managing change across diverse landscapes. "Involve people at all levels" and "institutionalise change" ensure that changes are integrated into daily operations and the organisation's culture, facilitating a smoother transition and minimising resistance. Jick's model emphasises the importance of political sponsorship in multi-

governmental organisations like CERN. Securing the support of political leaders and key stakeholders ensures that change initiatives receive the necessary backing and resources to succeed. This sponsorship helps to overcome resistance and navigate the complexities of multi-national governance structures. Jick’s framework stands out as a robust model for managing strategic change in such environments, making it the main anchor for this research.”

JICK’S 10 COMMANDMENTS FOR IMPLEMENTING CHANGE



Figure 2: Jick’s ten step model for change (Jick, 1993)

2.1.3 Factors Influencing Strategic Change Processes in Multi-Governmental Organisations

Applying change management models in non-profit and public sectors, especially within large multi-governmental organisations, requires a deeper investigation of these entities’ unique operational and governance structures. Models like Jick and Kotter’s 8-Step Model, noted for its utility in non-profit settings, prioritise organisational wins that go beyond mere output metrics (Jick 1993; Kotter 1995). These models emphasise engaging employees and fostering a bottom-up approach to change, which Richesin (2011) highlights as critical in ensuring successful outcomes by addressing specific organisational deficiencies and areas for improvement. However, in the context of multi-governmental organisations, such engagement must also nav-

igate the complex interplay of international norms and varying stakeholder expectations, which can complicate the implementation of universally effective change strategies.

Research in this area, such as that by Richesin (2011), underscores the importance of staff perceptions and the necessity for robust communication channels and empowerment strategies to drive change. Yet, the challenges extend further in multi-governmental contexts where employee involvement might be hampered by bureaucratic inertia and cross-national cultural differences. For instance, public sector organisations often face obstacles due to inadequate involvement in change planning, lack of sufficient rewards, and high stress levels (Stojanović Aleksić et al. 2015). These factors suggest that developing an effective reward system and enhancing working conditions are crucial for fostering a supportive environment for change.

Despite the relatively scarce literature specifically focused on strategic transformations in large multi-governmental organisations, existing studies such as those by James et al. (2022) and Malik (2014) provide valuable insights. These studies highlight the effect of institutional pressures and the need for flexible, systemic thinking to manage strategic changes effectively. For example, in intergovernmental organisations, strategic changes must be adaptable enough to accommodate the diverse operational cultures and political environments of member states.

Further critiques across various sectors point to the essential roles of executive support and stakeholder engagement in driving organisational performance (Ibrahim and Robert 2018). This is particularly evident in healthcare, where the complex interrelations between the context, process, and content of change require a thorough understanding of both internal dynamics and external forces impacting the organisation (Allen and Currie 2011). Moreover, the success of strategic change in public sector organisations like universities and multi-governmental organisations depends on independent strategic behaviours, strong management support, an entrepreneurial mindset, and dynamic leadership (Malik 2014).

2.1.4 Approaches and Methods Used to Study Strategic Change in Large Multi-Governmental Organisations

Research on change management within public or international organisations often involves using both qualitative and quantitative methods to understand complex organisational dynamics. This can include the case study methodology, which uses interviews with stakeholders and analysis of documents to uncover the dynamics of strategic change processes within public sector organisations (Apelt 2014). Similarly, Knill and Balint (2008) study on human resource management reforms in multi-governmental organisations uses a comparative approach. Their research integrates document analysis and structured interviews to evaluate the impact of new public management practices across different institutional cultures, illustrating how adaptations to these practices vary based on organisational context and history.

Surveys are also a common tool employed to complement these qualitative insights with quantitative data. For example, Riddle's research (Riddle 2012) and Jung's study (Jung 2012) utilise surveys to measure individual perceptions of change processes, employing statistical methods like regression analysis to explore how personality traits and cultural factors influence readiness for change and its outcomes. The thoroughness of these methodologies is enhanced by using multiple data references, ensuring reliability and depth in the analysis. This approach not only corroborates findings from interviews but also provides additional context (Yin 2009), as seen in the work of Knill and Balint (2008), which helps in understanding the broader institutional and cultural impact on strategic change initiatives.

2.1.5 Identifying Weaknesses and Gaps of Existing Papers

The literature review has shown that while many studies use detailed methods like case studies and surveys to look at change management in public and international organisations, they often miss some important aspects when it comes to very complex organisations like CERN. For example, studies by researchers like Apelt (2014) and Knill and Balint (2008) focus on specific areas like organisational behaviour or policy but don't fully explore how deep-rooted bureaucratic and member-state stakeholders relationships affect big changes. Thus, most of these studies tend to ignore the subtle, cultural habits that has built up over time in a niche organisation like CERN exploring the limits of the universe, and how it influences strategic change initiatives. They often rely mainly on interviews and analysing documents, which might not catch the informal rules and behaviours that play a big role in how decisions are made and how people act in organisations that involve multiple governments.

In contrast to traditional research methods, my study uses an ethnographic approach to conduct in-depth interviews at CERN. This approach involves continuous engagement with the organisation, enabling a deeper understanding of organisational culture and dynamics. By integrating interviews with direct observations and adaptive questioning, this method provides a comprehensive exploration of how bureaucratic and intergovernmental dynamics impact strategic changes at CERN. It aims to capture nuanced interactions and behaviours, shedding light on the mechanisms of change in this unique international setting and filling essential gaps in existing literature.

3 Methodology

This chapter outlines the methods and techniques used to investigate the strategic change processes at CERN, providing a detailed framework to understand organisational change within this complex, multi-governmental setting. Using an ethnographic approach, this research deeply

immerses into the organisational dynamics at CERN to capture the intricate factors driving strategic transformation. This method is particularly guided by Jick's (1991) "Ten Commandments for Implementing Change," which serves as a robust theoretical foundation for designing the ethnographic interview questions and guiding the overall investigation. Jick's framework was chosen due to its comprehensive attention to political complexities, making it particularly relevant for examining change within a multi-governmental institutions like CERN.

During a year-long internship at CERN, I observed the organisational dynamics and how they evolve, gaining a deep understanding of the daily realities and changes affecting employees. By combining in-depth interviews with both senior and junior employees and analysing organisational documents, this study captures diverse perspectives and experiences related to strategic change.

The research questions and objectives guiding this study focus on understanding why change processes are slow within large multi-governmental organisations. By examining the dynamics of strategic change at CERN, this research aims to highlight the challenges and barriers that slow down change initiatives, ensuring a thorough exploration of the key factors affecting these processes.

3.0.1 Justification of method

The ethnographic approach is chosen for its holistic nature, essential for fully understanding the complex dynamics at CERN. By engaging in in-depth interviews with employees from various roles, observations, and document analysis, this method captures rich qualitative data that shows the perspectives and behaviours of those involved in strategic change initiatives. This approach aligns with recommendations for ethnographic studies, which provide a full account of phenomena within their real-life context, crucial for understanding the factors affecting change in such a complex setting (Burnham et al. 2004).

3.0.2 Integration of Methods

To ensure a robust exploration of strategic change at CERN, this study integrates several ethnographic methods:

1. **Observations:** These provide contextual depth, revealing underlying patterns and informal practices that influence change processes.
2. **In-depth Interviews:** Conducted with a diverse range of CERN's employees to gain varied insights into the strategic change experiences.

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3. Document Analysis: This helps corroborate interview and observational data, providing a fuller picture of the organisational strategies and practices.

These methods reflect the recommendation by (Yin 2009) on using multiple data sources to enrich the research findings. Such triangulation enhances the reliability and depth of the analysis, ensuring a comprehensive understanding of the change processes at CERN.

3.1 Methodological Procedures

This study utilises semi-structured in-depth interviews, participant observation, and purposeful sampling strategies for selecting interview participants. Purposeful sampling, also known as purposive sampling, is a non-probability sampling technique that involves selecting specific individuals or groups intentionally based on the researcher's judgement and the specific purpose of the study (Chan et al. 2008). Ethical integrity is essential in this study, including informed consent, confidentiality, respect for participants' rights, and minimisation of harm. The chapter details the data analysis process, coding procedures, and thematic analysis techniques. Addressing practical factors such as access to participants, logistical challenges, and resource constraints is crucial for successful completion of the research. Gaining access to senior stakeholders and securing their participation often requires navigating bureaucratic processes within CERN.

Additionally, logistical challenges like scheduling interviews and managing data collection across different organisational units must be carefully managed. While the ethnographic approach provides in-depth insights into the organisational dynamics at CERN, it also has limitations. Potential biases due to the researcher's background and position within the organisation are acknowledged. To mitigate these influences, strategies such as reflective note-taking and triangulation of data sources are used. A more thorough discussion of these limitations will be presented in the limitations chapter.

3.1.1 Interview Questions

The interview questions (seen in Appendix) are designed to explore the effectiveness of strategic change management at CERN based on Jick's ten commandments of change. They aim to reveal barriers to change, evaluate past initiatives, and consider the effectiveness of strategies like creating a shared vision and implementing strategic plans within the organisation. Each question targets key elements of change management, highlighting their impact on the success of change initiatives at CERN. The goal is to derive actionable recommendations that improve CERN's response to its scientific mission.

4 Analysis and Discussion of Results

This chapter discusses and analyses the findings from the ethnographic research conducted at CERN, interpreting qualitative data from interviews, observations, and document analysis to draw insights into strategic change management in multi-governmental organisations.

Previous chapters explored theoretical perspectives on strategic change and detailed the methodologies used. In-depth interviews, crucial for capturing detailed perspectives within CERN, provided rich data revealing underlying themes and patterns (Burnham et al. 2004). Observations added contextual depth, offering real-time insights into organisational dynamics, while document analysis corroborated and enriched these findings.

This chapter synthesises the collected data into key themes and examines them in light of Jick's Ten Commandments, which is proven from the literature review to be the most relevant framework for exploring change in multi-governmental organisations. It starts with an overview of the main themes, highlighting their relevance to the research questions. This is followed by an in-depth examination of each theme, supported by quotes from the interviews and observational notes, discussing how these findings align with or challenge Jick's framework. The chapter then explores the interconnections between the identified themes and their combined impact on strategic change at CERN. Additionally, it evaluates the applicability of Jick's change management model to the context of multi-governmental organisations. Based on the findings, practical recommendations aim to improve change management practices at CERN and similar organisations. Finally, the chapter acknowledges the study's limitations and concludes with a recap of the key insights and their contributions to the field of strategic change management.

4.0.1 Analysis Approach

In this study, I adopted a researcher-as-participant ethnographic approach, conducting field notes to capture the nuanced interactions and cultural dynamics within CERN. Furthermore, I conducted in-depth interviews with twelve CERN employees from various positions, using Office 365 speech-to-text to transcribe the responses to questions related to their experiences with CERN and strategic change (questions can be assessed in the appendix). These questions are based on Jick's 10 commandments for successful strategic change. I used a thematic approach to analyse and clean the raw transcripts, interpreting the emerging themes. This approach, while systematic, involves repetition and reflection to interpret the implicit connotations of the responses Creswell (1997) and Miles and Huberman (1984). Additionally, I performed document analysis, reviewing archival records, meeting documents, presentations, and emails to provide a comprehensive understanding of the organisational context and processes.

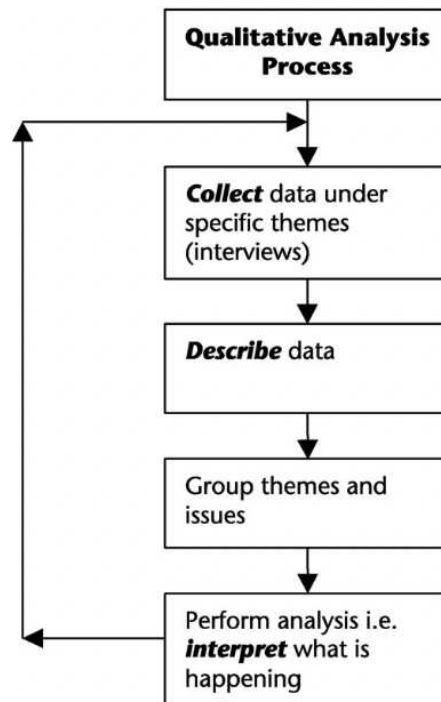


Figure 3: Qualitative data analysis process.

Source: Biggam 2018

4.0.2 Access and Ethical Challenges in Ethnography

One of the most important, and sometimes difficult, steps in ethnography is gaining access to a social setting that is relevant to your research problem or questions. The way access is approached differs according to whether the setting is relatively open or closed (Bell 1969). The sometimes intricate topics of the interview were not always easy for the interview subjects; this was evident in one of the cases where a scheduled interview fell through, and the senior employee withdrew from the interview after disclosing some of the questions ahead of the interview for the subject's preparation. This is a known challenge when conducting ethnographic research, as bringing up challenging topics like weaknesses or failure of their change management experiences can be uncomfortable. Although the interview was of an anonymous nature, the candidate still felt uncomfortable disclosing information and thus did not participate in my interview.

4.1 Field Notes: Ethnographic Observation

In this study of CERN, I employed a participant-as-observer method, facilitated by my one-year internship. I continuously took field notes over several months to ensure authenticity and minimise self-consciousness among participants, collecting small bits at a time, which

required significant dedication (Lok and De Rond 2013). This approach carries the risk of over-identification or "going native," which I will address in the implications section.

The aim of these field notes is to capture how change processes begin, are executed, and followed up at CERN. Change at CERN must navigate extraordinary factors such as political stakeholders, diverse scientific department criteria, and a complex internal structure. I have documented the intricate processes I observed during my internship.

The following field notes are primarily from the Talent Acquisition department, which is responsible for recruiting professionals across various scientific sectors and managing external communication. The department defines its recruitment strategies in alignment with the council and director general's directives. Recently, the focus has been on restructuring departmental processes to meet the growing demands of member states and applications.

4.1.1 Excellence as CERN value

"Strive for Excellence" is a core saying and value at CERN, evidenced by the presence of highly skilled professionals. CERN is in a compelling growth phase, with Brazil recently becoming a member in April 2024 and a significant increase in applications across the organisation. For instance, the Summer Student Programme I managed received over 10,000 applications for 300 placements. Additionally, the former CEO of Google recently granted CERN's talent acquisition millions to increase staff in the IT sector. Additionally, with China announcing that they are building a super-accelerator, CERN faces competitive pressure, calling for strategic initiatives to navigate these changes.

However, this growth has led to burnout and overworked colleagues. Common hallway conversations reflect a lack of time, with colleagues often working late hours, skipping lunch or deferring tasks. There is a prevalent desire to step back and reconsider processes from start to finish, but administrative duties dominate their time. One colleague expressed frustration that supervisors rarely seek input from lower-level employees during weekly meetings despite these employees performing time-consuming tasks that need change.

For example, colleagues manually screen every application, despite software designed to filter ineligible candidates. This task, requiring meticulous attention to detail, could be streamlined with advanced AI or improved software. Employees often feel like assistants to hiring managers rather than experts, with their educational potential underutilised. This inefficiency is a significant barrier to change.

Jick's model emphasises the need to analyse the organisation before implementing change and develop enabling structures. However, it does not explicitly address how to navigate strategic change when staff are overworked or preoccupied with urgent operational tasks. Jick's frame-

work could be interpreted to underscore the need for creating sufficient space and time for employees to think through and execute change initiatives. This could involve mapping out time frames and strategies to balance operational demands with the need for strategic change. By incorporating these considerations, Jick's model can be adapted to better suit environments like CERN's, where high workloads and operational pressures are prevalent. Ensuring that employees have the necessary resources and time to focus on change initiatives can enhance the effectiveness of strategic change and prevent burnout, ultimately aligning with CERN's value of striving for excellence.

4.1.2 Leadership Roles and Responsibility Gaps

There is a noticeable gap among leaders regarding responsibility for implementing change. In a workshop held in February, several initiatives and areas for improvement were discussed, resulting in many tangible ideas. For instance, participants suggested that weekly team meetings should cover fewer topics, incorporate anonymous opinion polls using tools like Trello, and include a short summary at the end to recap decisions and changes. An agenda distributed before each meeting was also requested.

Another significant point addressed in the workshop was the need for transparency between departmental teams and groups, particularly regarding workload. Change processes are difficult to implement when team members are unaware of each other's responsibilities. Additionally, there was a call for the ability to set personal boundaries and improve self-management. Participants expressed concerns about balancing their individual work with team goals.

However, It seems that the suggested changes have not been implemented yet. There are no meeting agendas, open-floor discussions, or summaries provided. This lack of follow-through raises questions about responsibility and accountability. It appears that there is a passive approach to implementing these changes, with no clear owner for the tasks. This passiveness may be due to colleagues feeling overworked and hesitant to take on additional responsibilities. Developing a road-map took four months, causing frustration among team members. The delay in moving from planning to implementation has negatively impacted the momentum of change initiatives and the team's overall morale. Besides, the ambiguity surrounding responsibilities often results in unrecognised contributions to change efforts, leading to decreased motivation. When team members do not receive acknowledgement for their efforts, it can lead to a sense of reluctance to participate in future initiatives. Effective change management requires a clear road-map, well-defined roles, and recognition of contributions to maintain engagement and motivation. Addressing these internal disagreements and ensuring a structured approach to implementing change can help overcome the current challenges and drive more successful outcomes.

This situation directly relates to Jick's framework, particularly the fifth commandment, which emphasises the need for strong and enabling leadership to ensure the follow-through of change initiatives. Effective leaders are crucial for providing direction, maintaining momentum, and holding team members accountable. Additionally, Jick's seventh commandment, which advocates for crafting an implementation plan, is central to successful change management. However, this principle could be expanded to address the gaps between idea and execution, as hurdles often impede the transition from planning to implementation. By enhancing leadership roles and refining implementation strategies, CERN can better navigate these challenges and achieve more effective change outcomes.

4.1.3 Cultural Challenges in Communication

CERN operates primarily in French and English, but cultural differences significantly influence communication. The international nature of the department means that communication styles vary, affecting how change is communicated and received. For instance, the French influence tends to favour more diplomatic and less direct communication, while Germans and Norwegians typically prefer straightforwardness. I have witnessed quite a few change initiatives fall through due to miscommunication of expectations or responsibilities of a project.

One specific incident during a team meeting, was when a colleague raised the need for a new procedure to evaluate graduate candidates, but another colleague dismissed the topic to save time for what they considered "more pressing" issues. This left the first employee feeling discouraged, while the colleague who dismissed the topic was unaware of the impact of their actions. These differences can lead to tensions, particularly when direct criticism from some is perceived as harsh by others accustomed to more nuanced communication. This cultural clash can result in a "silence is compliance" dynamic, where those less comfortable with direct confrontation may refrain from voicing their opinions. Consequently, stronger voices often dominate discussions, potentially suppressing diverse perspectives and restricting collaborative change efforts.

This observation underscores the importance of cultural perceptiveness and highlights the need for transparent communication strategies within multinational organisations. Understanding and addressing these cultural nuances can improve the inclusiveness and effectiveness of change management processes at CERN. Jick's framework is particularly relevant here. His ninth commandment, "Communicate, involve people, and be honest," emphasises the importance of open and transparent communication. This is crucial in a multicultural environment where varying communication styles can lead to misunderstandings. Implementing structured communication strategies that respect cultural differences can help ensure that all voices are heard and valued, fostering a more inclusive environment.

Furthermore, Jick's tenth commandment, "Reinforce and institutionalise change," highlights the need to embed change into the organisational culture. This includes making "cultural adjustments" to support new ways of working. At CERN, reinforcing change through continuous cultural sensitivity training and promoting open dialogue can help bridge the communication gaps. Leaders should actively encourage participation from all team members, ensuring that diverse perspectives are included in decision-making processes.

4.1.4 Impact of Short-Term Contracts on Change Initiatives

At CERN, I noticed that many employees are on short-term contracts, which causes a high staff turnover. Because of this, employees often don't have enough time to get fully familiar with the environment before they can suggest or lead a change. Sometimes, by the time an idea for change is ready to be put into action, the employee's contract has already ended. This is unfortunate because successful change initiatives need ongoing evaluation and a dedicated person to see them through. For example, A colleague joined CERN as a student intern and was responsible for coordinating a program. Despite her effective management and insightful observations, she was moved to a different department when her contract was extended. This created a knowledge gap for the person taking over the project. The previous coordinator had noted necessary changes to streamline the program, but these recommendations were not executed because she left before implementing them.

The high turnover disrupts the continuity of change initiatives, resulting in a loss of institutional knowledge and momentum. Each time a project changes hands, there is a risk that critical insights and plans for improvement may be lost or overlooked. This repeating disruption makes it difficult to achieve sustained progress and can lead to repeated efforts to address the same issues without making significant headway. To mitigate these challenges, it is crucial to establish more robust knowledge transfer processes and consider longer contract duration for key roles involved in change initiatives. Ensuring that employees have enough time to acclimatise, contribute, and see projects through to completion would greatly enhance the effectiveness and continuity of change efforts at CERN.

Jick's framework emphasises the need for "enabling structures" to ensure the necessary conditions and resources are in place for change initiatives to succeed. This concept can be expanded to include strategies for retaining key staff members for longer periods, allowing employees to fully engage with and see through change initiatives without disruptions. Additionally, Jick's tenth commandment, "Reinforce and institutionalise change," underscores the importance of maintaining continuity in the workforce to drive and complete change initiatives

4.1.5 Historical Perceptions and Their Impact on Change Initiatives

There is a long-standing perception at CERN that physicists could manage HR tasks; some even believe they could do it better. This stems from a time 20 years ago when physicists managed nearly all aspects of CERN. This lingering notion means that staff and hiring managers from various experiments often treat talent acquisition professionals as personal assistants rather than recognising them as independent experts in their field. This outdated attitude is damaging to the self-esteem of administrative employees and often results in their new processes being halted by unnecessary checks and balances imposed by physicists who prefer traditional methods. For instance, hiring managers frequently try to bypass procedures and changes the Talent Acquisition (TA) department implements to push through their preferred candidates.

Moreover, hiring managers often get their way simply because they are the most vocal, not necessarily because their ideas are the best. This dynamic leads to decisions that benefit a select few rather than the broader CERN community. Consequently, CERN invests in large-scale change initiatives that are costly and underutilised. For example, the DAXTRA project, which aimed to streamline hiring processes, required countless hours of development and refinement but was too complex for most users.

To foster a more collaborative and effective change management environment, it is essential to shift the perception of administrative professionals from mere assistants to valued experts. Recognising and leveraging their expertise can help ensure that change initiatives are practical, widely accepted, and beneficial to the entire organisation. This issue pertains to Jick's ninth commandment, "Communicate, involve people, and be honest," which emphasises involving all stakeholders in the change process through transparent communication. CERN can create a more inclusive environment by fostering discussions about administrative staff's roles and expertise. This involves necessary conversations about the practical use of change initiatives to save resources and align efforts with organisational goals. Furthermore, Jick's sixth commandment, "line up political sponsorship," highlights the need to secure key stakeholders' support. At CERN, gaining the trust of physicists and influential staff is crucial for successful change. By acknowledging administrative professionals' expertise and integrating their insights, CERN can build a foundation for collaborative change management.

4.2 Interview Analysis

4.2.1 Implementing New Changes in high-pressure environments

Many interviewees stressed the need for sufficient "checks and balances" to approve change initiatives, given the heavy workloads within their teams. They highlighted the paradox of lacking

time and energy to implement changes due to the additional workload and operational hurdles. Overworked staff often hinder the implementation of new changes, leading to a highlighted paradox.

- “It takes more effort to sit down and figure out solutions when you are required to keep up with operational tasks and ‘put out fires’ every day (interviewee 6).”
- “It’s ironic because it’s more workload to even start a change process that would eventually help with the workload (interviewee 5).”
- “Because of high workload and big flow of requests, there is a lot of firefighting (interviewee 12).”
- “People have become generalists because of the increasing workload, no one is experts anymore and that prevents good ideas of change to flourish, it also means that expertise is being wasted by administrative operational tasks that steal away from their time to do other things (interviewee 2).”

Examining these findings, it can be connected to Jick’s 8th rule “develop enabling structures” which emphasise that change can best be enabled when there are frameworks that support the change (Kotter 1995).

4.2.2 Alignment and Coordination

At CERN, there was a lack of alignment and communication across departments, which hindered collaborative change efforts.

- “We have seven or more main departments at CERN, so they sometimes operate as individual organisms (interviewee 5).”
- “The idea of “25 by 25” lacked a clear path and tools needed to achieve it (interviewee 11).”
- “Working in silos prevent us from seeing the bigger picture or purpose with a change (interviewee 9).”

It seems like CERN lacked clear communication and alignment in change initiatives, leading to confusion and unclear instructions for implementing new processes. For example, the 25 by 25 initiative to have 25 percent female employees in each department by 2025 lacked a clear strategy, resulting in murky hiring processes and invalidated candidate selections. Jick’s model

pinpoints the need of "creating a shared vision", "crafting an Implementation plan" and "reinforcing and institutionalising change". These are three relevant factors that can be applied to circumstances like this. For instance, a shared channel for strategic change procedures could help inform relevant employees of the knowledge necessary to implement a change. Furthermore, having a detailed road-map and institutionalising the changes through regular follow-ups can also help combat misalignment amongst departments.

4.2.3 Analysing the Need for Change

To ask one-self "why" we are changing is a clear focal point throughout the interviews. A reoccurring theme was to go to the root of the need for change:

- "The biggest obstacle is to identify why you are changing, what problem you're trying to solve before thinking about solutions (interviewee 2)."
- "Changes like DAXTRA were driven by complaints without clear benefits, leading to costly initiatives (interviewee 1)."
- "Be open about not every change being great, it shouldn't always be presented in a super positive way, be open for amendments and feedback and that its not always perfect (interviewee 10)."

The interviews highlight the importance of clearly laying out the rationale for change before implementation. At CERN, there have been instances where change initiatives were implemented without fully addressing the reasoning behind them. For example, individuals with significant influence have pushed for costly projects that primarily benefited a few hiring managers. These projects required extensive work from the entire department, involving countless hours of development, training, and refinement, only for the tools to be largely unused by most staff. Therefore, it is crucial to be selective and not support every initiative indiscriminately. The key is to ask why the change is needed and who will benefit from it before starting the process.

4.2.4 Communication and Involvement

Contrary to a lot of the literature's belief that it is important to involve stakeholders early, there is a notion that there is too much noise at CERN, so small teams in the early stages of change are advised. However, there are also opinions voiced over the pitfalls of this approach. This is seen continually throughout the interviews:

- "Careful not to involve too many people early on; craft a small team that knows the process well (interviewee 7)."

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- “Conformity bias can be an issue; we have to be realistic in our expectations (interviewee 10).”

The interviews show that change happens slowly in a big organisation like CERN. To make changes work better, it’s best to form small expert teams and only seek approval when really necessary to avoid too many checks. But there’s a catch—conformity bias. This happens when these “experts” just agree with the majority, resisting new or different ideas. This can kill creativity and keep things stuck in the same old way.

Small expert teams are great for quick decision-making but must be diverse and willing to challenge the norm to innovate. Jick’s framework doesn’t say exactly how many people to involve or when, but it stresses the need to “communicate, involve people, and be honest.” This suggests picking the right people carefully and being transparent about decisions.

Even though Jick’s framework does not directly address conformity bias, the idea of “being honest” means decisions should be clear and open. This helps fight conformity bias by creating an environment where different opinions are welcomed, and important discussions happen. So, while Jick’s rules are a good starting point, we need to use them wisely to tackle specific issues like conformity bias in a big place like CERN.

4.2.5 Bureaucracy and Checks and Balances

The root of a lot of the responses regarding change seems to be related to the challenge of CERN’s bureaucratic processes and the need for multiple approvals.

- “CERN change processes are slower because we always have to seek approval from very high up (interviewee 4).”
- “So many checks it almost is not worth the effort (interviewee 6).”
- “At CERN, everyone used to have to agree on decisions, but with more member states and people involved now, it’s getting harder to get everyone on the same page (interviewee 3).”

At CERN, long approval chains across departments and leadership structures can delay change initiatives, often halting them in the pipeline. This is particularly challenging in an organisation like CERN, where these delays slow down change processes and significantly impact staff on short or limited contracts. For instance, a project like the advanced search tool “DAXTRA” took four years from idea to product, with the initiator’s contract ending before the change was implemented. This can affect the motivation of the employees:

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- "high turnover could be a reason; due to our contract structure, most people are only here for three years, the majority are students and grads, and so these people are here for a limited time, which means they can only do a project for that time (interviewee 5)."

The combination of slow bureaucratic processes and short contract duration of 2-5 years creates a demotivating environment for fostering change. Jick's framework does not explicitly address the role of bureaucracy. However, elements like "creating a sense of urgency" and "securing executive and middle management support" suggest that instilling urgency and obtaining management backing can help speed up changes in the organisation. While these aspects are crucial, the framework lacks specific guidance on overcoming the slow movement typical of large organisations like CERN.

4.2.6 Politics and Stakeholders

Perhaps the most reoccurring and unique theme that appeared in the interviews was the influence of political factors and stakeholder dynamics at CERN:

- "Change initiatives are sometimes trickled down without consultation, e.g., the Pakistani candidate ban (interviewee 6)."
- "We have to follow rules that have been created by a consensus, and this can be very difficult - CERN's governing bodies, like the council, work exactly like a democracy (interviewee 11)."
- "If one country doesn't like what is proposed in one of the experiments or one country doesn't understand it at all and doesn't see the purpose of it, they will, of course, vote against it (interviewee 9)."

Decisions are often slowed down or stopped due to the democratic voting system at CERN. All opinions are considered, and the majority rule applies. This affects experiments beyond just scientific factors, as fairness in country representation is crucial. Employees must navigate the council's consensus, which is critical for experiment development. Favouring one country's employees or institutions over another can lead to serious consequences, such as a country withdrawing funding from CERN. Thus, employees must ensure underrepresented countries are considered in hiring, experiments, and other decisions. This means hiring managers can't always choose the most available or strategically rational option:

- "A strategy is to get underrepresented countries to join us when they are young, and then for them to make connections and stay here. There is a long-term investment strategy

to have talent stay at CERN. But CERN only have programs where you can climb up – which means they may not have the chance to get the next contract. More and more competition for higher contracts(interviewee 5).”

- ”I have to consider member state employees – this affects and limits the staff and knowledge you can acquire. This is tough when working with such a niche skill-set that adhering to quotas can be restrictive, resource-draining and slow down the process (interviewee 9).”
- ”Sometimes that means shutting down very available and relevant competencies from easily accessible resources like people from Switzerland not being chosen because an underrepresented from Norway may come instead (interviewee 12).”

Jick’s framework is one of the few to include a political lens in implementing change, specifically in rule six: ”line up political sponsorship.” It emphasises securing support from executives and middle management. While this is tailored to private companies, it can be adapted for CERN, where external stakeholders seek scientific breakthroughs rather than financial returns, unlike shareholders. Thus, political support is crucial for navigating change initiatives and securing member state representatives’ approval.

4.2.7 Non-Profit Context and its Implications for Creating a Shared Vision

Being a non-profit organisation, CERN has particular circumstances that affect its change management procedures.

- “The goal can feel intangible, driven by science and not profit (interviewee 6).”
- “Changes are slow because they are not as pressing as in the private sector (interviewee 5).”
- ”It is a multi-governmental organisation, so they can’t give you a bonus. Instead, they dangle the carrot of reaching a category 7-8. However, it’s very difficult because we can’t promote someone to a higher grade simply for doing a good job (interviewee 11).”

Traditional for-profit incentives are limited at CERN, requiring a strong passion for scientific advancement to drive change. The contract structure also limits the opportunities to reach higher categories that offer better salaries. Most contracts are indefinite and typically last 2-5 years, creating internal imbalances and challenging the motivation for change:

- “What reinforces change is the scientific goal, not money (interviewee 1).”

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- “Indefinite contracts are conditional and limited, creating tension (interviewee 9).”
 - ”People with short contracts don’t dare to speak up or there is not enough window to see the change through and also not enough time to familiarise yourself with process before finding what can be done to improve (interviewee 12).”

Jick’s framework highlights the need to create a ”shared vision,” emphasising the strength of a common goal. However, this can be challenging when goals are intangible and uncertain. CERN’s mission to push the frontiers of knowledge naturally involves uncertainty. Additionally, traditional incentives like bonuses or permanent contracts are scarce, affecting employees’ sense of appreciation and accomplishment. Change initiatives usually require internal motivation, which can be difficult when the context is vague. While Jick’s framework outlines the essentials, it does not fully capture the complexities of conducting change in an environment like CERN’s.

4.2.8 Culture and Governance Structures

CERN’s internal structures significantly influence change management:

- “we have large and diverse teams, meetings are hectic and subject to leaders and other top prioritised projects, small voices may not be heard nor considered or welcomed (interviewee 9).”
- ”I think horizontal hierarchy improves organisational functioning. It’s a cultural approach with two types of leaders: classical leaders who scream at poor performance, and motivational leaders who inquire about issues. The latter promotes horizontal hierarchy, enhancing functionality. In vertical hierarchies, progress stalls as people only follow orders without deeper engagement or extra effort (interviewee 11).”
- ”It’s like an experiment with monkeys in a cage that get electrocuted when reaching for a banana. Even when members leave, the group rule persists, teaching newcomers it doesn’t work. However, what failed before might work now. With many new people at CERN, we need to embrace their fresh perspectives. We should encourage trying new ideas instead of dismissing them. If a pattern emerges, bring it up to leadership for possible solutions or training (interviewee 5).”
- ”because CERN is so big obviously but almost has the old school physicists in one hand and then you’ve got all this influx of grads and new technology and then they have to function somehow or align (interviewee 11).”

These findings relate to several of Jick’s commandments, emphasising the need for open communication and involvement from all levels of the organisation (Commandment 9). At CERN,

small voices often go unheard, and high prestige impacts communication, highlighting the importance of transparent and inclusive dialogue. The contrast between classical and motivational leaders underscores the necessity for strong leadership (Commandment 5), with motivational leaders supporting horizontal hierarchies facilitating deeper employee engagement and initiative. Creating a shared vision (Commandment 2) is crucial to overcoming outdated group rules and resistance to new ideas, promoting a unified and innovative organisational direction. Additionally, developing enabling structures (Commandment 8) is vital for aligning the diverse teams at CERN, ensuring that organisational systems and processes support rather than hinder change initiatives.

Furthermore, specific cultural contexts in change initiatives were also pointed out in the interviews:

- "When I was new, I did not want to speak up, and that's normal. However, we need to accommodate different ways of coping with and expressing feelings of change. At CERN, we have so many different people from high-contrast and low-contrast cultures. For example, Germany and Scandinavia are low-context cultures that are quite direct and low in emotion. Then you have high-contrast cultures, usually in southern Europe, that are more passionate and expressive (interviewee 5)."
- "I think there sometimes is a cultural clash between change initiative approaches. For example, a German colleague gave a presentation pinpointing what was not working with the current procedure. However, it came off as quite negative to my French and Italian colleagues. For me, he was just being clear and straight to the point. However, this could have implications for the internal support of the project; sometimes you have to communicate it correctly in the cultural context (interviewee 4)."

These insights emphasise the importance of cultural sensitivity in change management, an area not directly addressed by Jick's framework. Addressing cultural clashes and ensuring culturally appropriate communication is crucial for involving people effectively and honestly (Commandment 9). While Jick's commandment to communicate openly is vital, it must be adapted to consider cultural nuances to ensure that messages are received as intended and foster support for change initiatives. Additionally, to institutionalise change, it is essential to make cultural adjustments that accommodate diverse communication styles and ways of expressing feedback (Commandment 10). Jick's framework highlights the importance of embedding change into the organisational culture but lacks specific guidance on managing cultural differences. Proactive measures to bridge these gaps are necessary for successful change management in culturally diverse environments like CERN.

In conclusion, the interviews highlight several significant barriers and challenges to strategic change at CERN, including high workloads, alignment issues, bureaucratic processes, polit-

ical dynamics, and cultural differences. These findings provide valuable insights for future change initiatives, emphasising the need for clear communication, strong leadership, strategic oversight, and stakeholder involvement. These findings align with the literature on change management in large multi-stakeholder environments, underscoring the importance of strategic planning, effective communication, and efficient process integration.

4.3 Document Analysis

I conducted document analysis to complement field notes and interviews. The analysis reviewed archival records such as emails, PowerPoint presentations, procedures, and other related documents to understand organisational processes, communication patterns, and decision-making practices at CERN. I categorised the documents based on their content and relevance to specific themes identified in the interviews and field notes. I used a coding system to identify recurring document themes and patterns, and analysed the coded data to interpret the underlying messages and implications for the organisation's change initiatives. The findings from the documents will be compared against Jick's framework to evaluate their alignment with established change management principles.

4.3.1 Analysis

1. Emails

An analysis of internal emails revealed distinct communication styles among different departments. Emails from the Talent Acquisition (TA) department were often detailed and formal, emphasising procedural adherence. In contrast, emails from scientific departments tended to be more informal and direct. This difference in communication style reflects how hiring managers view the TA team more as assistants rather than experts in their field. Furthermore, there was frequent back-and-forth communication due to the lack of clarity and occasional errors in the emails from scientific departments. This miscommunication often led to delays and misunderstandings, highlighting the need for more standardised communication protocols.

Emails also shed light on the decision-making processes within CERN. Decisions were often made collaboratively, with input from multiple stakeholders. However, there were notable instances where senior physicists made unilateral decisions, reflecting the historical power dynamics within the organisation. This challenge was evident in email chains, particularly when teams deviated from the strategic change initiatives directed by the council and facilitated by the TA group.

For instance, one strategic initiative was to hire candidates from underrepresented countries.

While this direction was emphasised in HR-related communications, it was often overlooked or not taken seriously by the physics departments. During selection committees in collaboration with the TA, hiring managers frequently sent special requests to select specific candidates from over-represented countries, such as Italy, after the committee concluded. These requests were often presented with a sense of urgency, leaving little room for negotiation and ignoring the strategic goal of diversifying the workforce.

This situation underscores the power of personal connections at CERN, creating tension between the TA team and hiring managers from different departments. The underlying frustration was observable despite the apparent politeness in the emails, adhering to French cultural norms of courtesy and avoiding conflict. This frustration was often expressed internally within the TA team during informal conversations and coffee breaks.

2. Presentations

Presentations from various meetings provided valuable insights into the proposed change initiatives at CERN. These documents often outlined detailed plans and objectives, but a noticeable gap existed between the planning and execution phases. The presentations frequently emphasised the need for change but lacked concrete steps for implementation.

For instance, several change initiatives were proposed after a workshop to streamline internal processes. One significant proposal was to revise the screening procedure. Following the workshop, team leaders compiled a "road-map" in a PowerPoint presentation detailing the proposed changes and their quarterly deadlines. This presentation included the names of the change initiatives, the time frames, and the designated owners of each project. However, it lacked detailed plans and actionable steps for implementation. This responsibility was left to the individuals in charge of the initiatives, resulting in significant ambiguity about the progress and status of each project.

The absence of specific implementation plans creates several issues:

- **Unclear Responsibilities:** Without detailed plans, the designated owners often find themselves uncertain about their specific tasks and responsibilities. This can lead to confusion and delays as team members spend time determining what needs to be done rather than executing the tasks.
- **Lack of Accountability:** The vagueness of the road-map makes it difficult to hold individuals accountable for progress. If the steps to achieve the objectives are unclear, it is challenging to estimate success or identify areas needing improvement.
- **Inefficient Execution:** The gap between planning and execution phases often results in slowed projects. Without a clear way forward, initiatives may remain in the planning

phase indefinitely, leading to frustration among team members and a lack of tangible progress.

3. Procedural Documents

The procedural documents at CERN revealed significant issues with consistency and alignment, leading to confusion and inefficiency. Inconsistent procedures can hinder change management and create resistance among staff. The analysis also highlighted a lack of transparency in certain processes, contributing to misunderstandings and mistrust. A notable issue was the procedure for screening graduates. The guidelines often lacked detail for handling tricky cases, leaving many aspects in a grey area. This ambiguity forced staff to rely on their judgement and interpretation. For instance, some staff members would reject applications if all required documents were not initially provided, while others would contact candidates to give them a second chance to upload missing documents. This inconsistent application of procedures led to varying outcomes and confusion among staff, undermining the overall efficiency and fairness of the process.

To address these issues and support effective change management, it is crucial to update and clarify procedural documents, ensuring they provide comprehensive guidance for all potential scenarios. This would help standardise processes, reduce ambiguity, and enhance trust and efficiency within the organisation. Clear, consistent, and transparent procedures are essential for the successful implementation of change initiatives, as they provide a stable foundation upon which new processes can be built and accepted by all staff members.

4.3.2 Link to Jick's 10 Framework

While Jick's commandments provide a robust framework for strategic change, applying them to a complex, multi-governmental organisation like CERN reveals areas for improvement. For example, the commandment to "communicate, involve people and be honest" implies fostering a culture of trust and transparency, which is needed to account for the diverse cultural norms and communication styles present in an international organisation. Jick's framework could be enhanced by incorporating strategies to navigate cultural differences and power dynamics that affect trust and transparency.

The commandment to "craft an implementation plan" should include detailed guidelines for implementation that address the unique challenges of large, decentralised organisations. This will bridge the gap between planning and execution, ensuring well-documented and adaptable initiatives. Additionally, Jick's emphasis on strong leadership must be contextualised to address the specific power dynamics within CERN, where traditional hierarchies and personal connections can influence decision-making. Enhancing this commandment to include strategies for

balancing power and ensuring equitable participation across all levels of the organisation would make it more applicable to CERN's environment.

5 Conclusion

5.1 Summary of Findings and Contribution to Literature

This study has examined the dynamics of strategic change within a complex, multi-governmental organisation, using CERN as a subject of ethnographic study. By using this approach, the research investigated the practical and theoretical aspects of change management, offering insights that benefit both the theoretical field and practical applications.

5.1.1 Practical Findings:

The interviews and ethnographic observations revealed a divide in the leadership responsibilities for driving change. Clear planning and vision are essential for effective change management, but so is committed ownership to carry projects through to completion. Despite numerous suggestions for improving team meetings, these ideas often remained unimplemented due to a lack of clear ownership. Furthermore, communication challenges, heightened by cultural differences within the multinational environment of CERN, often delay the change process. Effective change initiatives must account for these cultural nuances to ensure that all stakeholders are engaged and informed. The dominance of stronger voices in meetings suggests a need for more inclusive communication strategies.

Additionally, the prevalence of short-term contracts at CERN leads to high staff turnover, disrupting the continuity of change initiatives. Long-term success in change management requires steady, ongoing involvement from dedicated team members. Enhancing knowledge transfer processes and considering longer contracts for key roles could mitigate these issues. Moreover, there is a need to address the long-standing perceptions about roles within CERN, especially the underestimation of administrative staff by scientific personnel, which pose substantial barriers to effective change. Recognising the expertise of all staff members and promoting a more collaborative environment is important for successful change management.

5.2 Theoretical Contributions

5.2.1 Strengths of Jick's Framework:

Theoretically, this research advances the understanding of change management frameworks, particularly Jick's Ten Commandments for Implementing Change, within the context of a multi-governmental organisation like CERN. Jick's focus on clear and consistent communication is well-suited to CERN's diverse and culturally varied environment. This emphasis helps align different departments and stakeholders towards common goals, fostering a sense of shared purpose despite the complicated organisational structure. Furthermore, securing political sponsorship is crucial for CERN, something which Jick's framework does address to a certain extent. The support of member state representatives and other key stakeholders is fundamental for successful change initiatives. Jick's framework highlights the importance of political sponsorship for navigating multi-national governance structures. While it doesn't explicitly address the complexities of managing external shareholders, it underscores the necessity of their support. Further investigation into CERN's external stakeholders could enhance the framework's applicability, addressing the intricacies of managing relationships with diverse, influential parties. Lastly, Jick's attention to the need to facilitate changes can be extended to address the bureaucratic processes and extensive checks that are inherent in an organisation like CERN, and can hinder the timely implementation of change. Instead of focusing on urgency, it is crucial to rethink the role of bureaucracy to facilitate effective change. Leaders can work on streamlining processes, reducing unnecessary red tape, and creating more efficient pathways for change initiatives. By making the institution more adaptive and supportive of change, CERN can better navigate the complexities of its non-profit, multi-governmental structure and achieve more sustainable and effective change outcomes.

5.2.2 Weaknesses and Areas for Improvement:

While Jick's framework touches on the need for political sponsorship and support, it does not explicitly address the extensive bureaucratic processes that can slow down change in organisations like CERN. Future framework adaptations could incorporate specific strategies for streamlining approvals and reducing administrative bottlenecks. Furthermore, navigating Cultural Differences; The framework could benefit from a more nuanced approach to managing cultural differences within a diverse, international workforce. This includes strategies for fostering a culture of trust and transparency across different cultural norms and communication styles, which is crucial for effective change management at CERN.

Additionally, there is room for defining leadership roles. Jick's framework emphasises strong leadership but lacks detailed guidance on navigating the complex power dynamics and mul-

multiple layers of leadership present at CERN. Enhancing this commandment to include strategies for balancing power and ensuring equitable participation across all levels of the organisation would make it more applicable to CERN's environment. Moreover, the framework needs more detailed implementation plans. The framework's recommendation to craft an implementation plan is valuable, but it could be improved by including more detailed guidelines that bridge the gap between planning and execution. This would ensure that initiatives are well-documented, actionable, and adaptable to different departmental contexts.

Following the analysis, the framework should address conformity bias and involvement. Jick's model addresses conformity bias but not explicitly, and it does not specify when or how many individuals are involved in the change process. Providing clearer guidelines on these aspects would help ensure broader participation and reduce the risk of conformity bias undermining change efforts. Similarly, the sixth commandment should include political influence beyond internal levels. While Jick's framework addresses political influence, it primarily focuses on internal politics. Expanding this to include external political dynamics would provide a more comprehensive approach for organisations like CERN, which operate under multi-national governance. Lastly, there is a need to improve the commandment on crafting shared visions. Creating a shared vision is challenging in the CERN context due to cultural differences and the diverse objectives of various departments. The framework could be enhanced by incorporating strategies for developing a shared vision that embraces these complexities and promotes greater transparency.

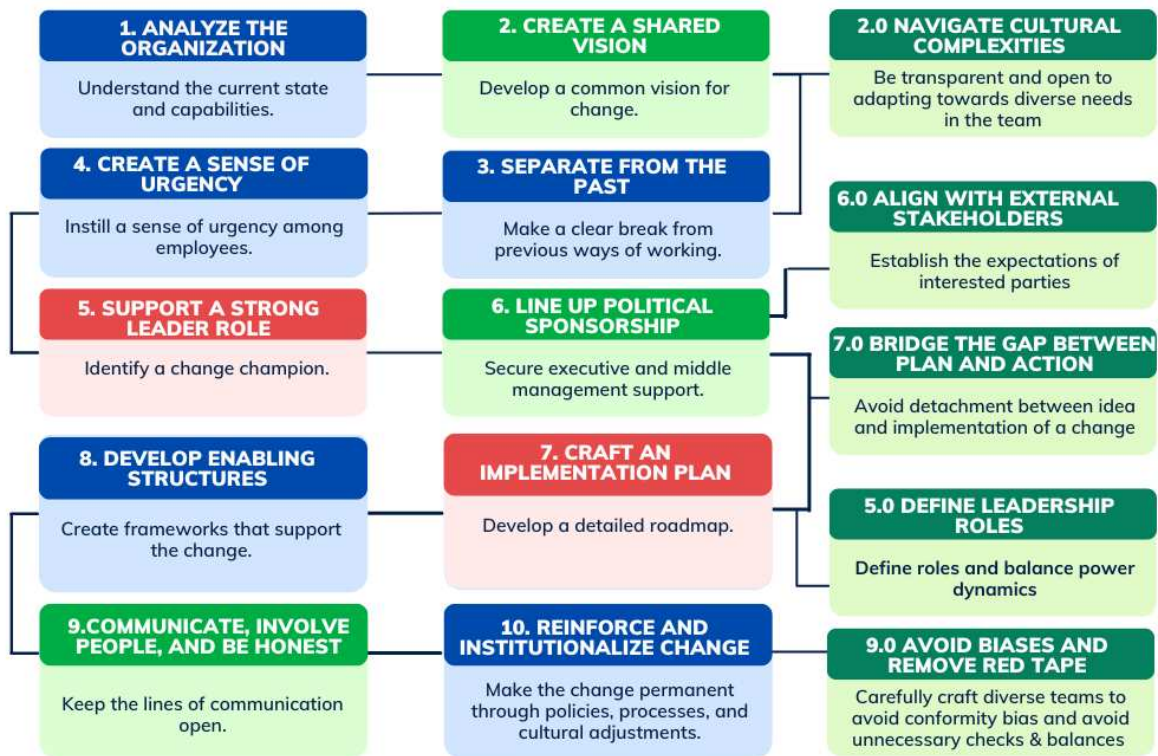


Figure 4: Revised model based on Jick’s commandments.

5.2.3 Revised Model and Summary

The revised model shows the strengths and weaknesses of Jick’s framework. It highlights specific guidelines that could be improved and elements that could be added or expanded upon, as addressed in this paper on the right-hand side. By making these modifications, Jick’s framework can be better prepared to address the complexities of multi-governmental organisations. like CERN. In conclusion, while Jick’s *”Ten Commandments for Implementing Change”* provides a strong foundation for managing strategic change, adapting the framework better to suit the unique challenges of multi-governmental organisations like CERN can enhance its effectiveness. By addressing the specific needs related to bureaucratic processes, cultural differences, and complex leadership structures, the framework can become more comprehensive and applicable, ultimately facilitating more successful and sustainable change initiatives in such environments.

5.3 Future Research and Limitations

This study points out several areas for future research. One important area is the development of change management frameworks that address the challenges of bureaucratic processes and cultural diversity in multi-governmental organisations. Additionally, investigating the role of informal networks—unofficial and non-structured relationships and communication channels among employees and their influence on change initiatives could provide valuable insights into more effective change management in these complex environments. The impact of contract duration on change initiatives also merits further investigation.

5.3.1 Limitations:

The study utilised multiple sources of evidence (interviews, documents, and archival records) to ensure construct validity. This approach developed converging lines of inquiry to support data triangulation and corroboration. However, potential biases due to the researcher's background and the specific context of CERN may affect the findings' universality (Creswell 1997). Furthermore, To address internal validity, thematic analysis, observational data, and document analysis were used. Nevertheless, the retrospective nature of the interviews may lead to memory setbacks and rationalisation by interviewees. Strategies such as using a timeline of critical events were applied to limit these effects.

Furthermore, as an ethnographic study, the findings may not be generalised to all multi-governmental organisations due to the unique context and culture of CERN. The specific dynamics, cultural influences, and organisational structures at CERN may differ significantly from other institutions. Further research involving a broader scope of similar organisations is needed to help validate and refine these findings. Comparative studies across different multi-governmental organisations could identify common patterns and unique variations, thereby enhancing the versatile applicability of the results. Additionally, more extended studies could provide deeper insights into how change initiatives evolve over time in various contexts. Lastly, on reliability; the case study protocol, detailed contextual background, and comprehensive document analysis enable the replication of this study. However, the researcher's position as an insider, due to the one-year internship at CERN, could be both a strength and a weakness, potentially influencing the research's objectivity.

Lastly, the study faced several methodological limitations. Sampling bias may have been introduced through the purposeful selection of interviewees, potentially skewing the results. Researcher bias is another concern, as the researcher's background and position within CERN could have influenced the findings, leading to subjective interpretations. The ethnographic approach, while offering rich insights, depends heavily on the researcher's subjective view and

carries the risk of "going native," where immersion in the environment might cause a loss of objectivity. Additionally, the limited time-frame of the study restricted the number of interviews and the ability to observe the long-term effects of change initiatives, potentially impacting the comprehensiveness and applicability of the findings.

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Appendix

A Thematic coding scheme



Time management &
Workload



Process Complexity and Politics



Communication and Alignment

1. Barriers to Change:

What do you see as the primary barriers or obstacles to successful strategic change at CERN, and how do these barriers manifest themselves in practice?

- so I think we have slow power structure, that we have to get approval from so many people, representatives – process can take some time

From HR perspective workload is so high that to take time to take a change takes time .
Almost too much workload to even start, its ironic because its more workload to even start a change process that would eventually help with the workload
That means some are more available than others.

2. Reflection on Past Experiences:

Can you share a specific example of a strategic change initiative at CERN that you were involved in? What were the key challenges faced during this initiative, and how were they addressed?

- I can think of a few – we have 1, I work with Visa, our process is though emails, so every step is through emails and no system in order to streamline the process, the people I work with established this idea to establish registration form, a CERN native admin structure, this would enable more responsibility on the candidate, and faster process to keep track of dozens of candidates we welcome every month, however due to so many stakeholders involved, hard to actually facilitate this project because you need to do all the work from before. So the process takes quite some time.

- I know from talks with other that they have experiences different systematic implementations that takes years. Other stakeholders , you need to have a way to test.
- because of high workload and big flow of requests there is a lot of firefighting, we have so many requests that is urgent. So many have big responsibilities, e.g I had one candidate that lost all their belongings and passport – means I have to prioritise this. Let go of everything.

3. Lessons Learned

Looking back on previous change initiatives at CERN, what lessons have been learned that could inform future approaches to strategic change management?

- I think you sometimes just have to do your best, if its workload you cannot implement a new procedure to lessen your workload, it is like an evil spiral – catch 22 – root of the problem is also the reason you cannot fix it.

B Interview Questions

1. Barriers to Change:

What do you see as the primary barriers or obstacles to successful strategic change at CERN, and how do these barriers manifest themselves in practice?

2. Reflection on Past Experiences:

Can you share a specific example of a strategic change initiative at CERN that you were involved in? What were the key challenges faced during this initiative, and how were they addressed?

3. Lessons Learned:

Looking back on previous change initiatives at CERN, what lessons have been learned that could inform future approaches to strategic change management?

4. Analyse the Need for Change:

How effectively does CERN identify and analyse the need for strategic change initiatives, and are there any areas where this process could be improved?

5. Create a Shared Vision:

How well does CERN engage colleagues in creating a shared vision for change, and are there any challenges or gaps in communication or alignment that hinder this process?

6. Separate from the Past:

How does CERN address resistance to change rooted in traditional practices or old routines, and are there any weaknesses in the organisation's approach to breaking away from outdated ways of working?

7. Create a Sense of Urgency:

How successfully does CERN cultivate a sense of urgency around change initiatives, and are there any areas where the organisation could improve in mobilising people and resources to address pressing challenges?

8. Support a Strong Leader Role:

To what extent does leadership effectively support and drive change at CERN, and are there any weaknesses in leadership involvement or support that hinder the success of change initiatives?

9. Political Sponsorship:

How does CERN navigate political dynamics and secure necessary support for change initiat-

ives, and are there any weaknesses in the organisation's ability to build consensus and advocate for change at higher levels?

10. Establish an Implementation Plan:

How well does CERN translate strategic goals into actionable plans and overcome challenges in implementation, and are there any weaknesses in the organisation's planning processes or execution capabilities?

11. Develop Enabling Structures:

How effectively does CERN align its organisational structures and processes to support change initiatives, and are there any weaknesses in the organisation's capacity to facilitate collaboration and coordination?

12. Communicate and Involve People:

How does the team engage and communicate with colleagues throughout the change process, and are there any weaknesses in the organisation's communication strategies or engagement efforts among the department?

13. Reinforce and Institutionalise Change:

How well does CERN reinforce and embed changes into its culture and practices, and are there any weaknesses in the organisation's ability to institutionalise change and prevent regression to previous ways of working?

C The European Organisation for Nuclear Research

CERN, known as the European Organisation for Nuclear Research, is a prime case study in scientific collaboration and pioneering exploration in particle physics. Established in 1954, its mission is to expand our understanding of the universe by investigating the fundamental structure of matter. At the heart of CERN's operations is the world's largest and most powerful particle accelerator complex, including the famous Large Hadron Collider (LHC). With 23 member states and 11 associate member states (CERN 2024a), CERN exemplifies international cooperation, facilitating a rich exchange of scientific ideas and collaboration. The organisation's divisions and departments are arranged strategically to coordinate engineering, administrative, and scientific efforts to expand our understanding of the fundamental particles and forces of the universe (CERN 2024b).

CERN's funding primarily comes from its member states, based on their gross domestic product (GDP), and is supplemented by partnerships with various international institutions for specific projects. Currently, CERN's exploratory missions range from searching for novel particles beyond the Standard Model to investigating dark matter and the conditions of the early universe. CERN's commitment to open science and groundbreaking research makes it a global beacon in the scientific community, inspiring collective efforts to uncover profound universal truths.

C.1 Practical Facts

Located in Geneva, Switzerland, CERN employs over 17,000 individuals, including scientists, engineers, and administrative staff, making it one of the world's largest scientific research centres. It encompasses a variety of departments spanning theoretical and experimental physics, engineering, computing, and administration. As of April 2024, CERN's membership and associate membership includes 34 countries such as Portugal, Norway and the United Kingdom, and recently Brazil, all contributing financially and scientifically. The organisation also maintains extensive collaborations with more than 47 non-member state countries (CERN 2024a).

C.2 Governing of the European Organisation for Nuclear Research (CERN)

At the top of CERN's structure is the CERN Council, which governs the organisation and sets its scientific and financial directives. This council, made up of representatives from each of CERN's member states, embodies the collaborative spirit essential for international scientific research.

Reporting directly to the Council is the Director-General, who is appointed by the Council for a five-year term. The current Director-General, Italian physicist Dr. Fabiola Gianotti, is

responsible for implementing the Council's strategies and managing CERN's daily operations. This role is crucial in navigating the complex intersections of international science and policy.

D The Role of Organisational Structure and Bureaucracy in Change Management in Multi-Governmental Organisations

Large multi-governmental organisations have complex structures that influence strategic change implementation. These structures include various bureaucratic layers, multiple agencies or departments with overlapping responsibilities, and diverse stakeholders, such as national governments and international bodies. Typically pyramidal, with divisions based on function, projects, or area, this split power structure enables specialisation and local decision-making but can lead to communication difficulties and conflicts of interest.

Implementing strategic change requires extensive coordination and communication. Changes must align vertically within departments and horizontally across divisions spanning geographic and functional boundaries. Diverse stakeholders complicate agreement and slow decision-making due to differing priorities. Successful change necessitates strong governance, open communication, and adaptable strategies tailored to various operational and cultural contexts.

Managers must challenge entrenched bureaucratic norms and adopt a dynamic, people-centred approach. Rodgers (2010) suggests re-framing communication strategies to be inclusive and engaging, leveraging informal networks as change catalysts, and building support coalitions beyond traditional silos. These strategies help mitigate resistance in bureaucratic settings and foster an adaptable environment responsive to diverse stakeholder needs. By integrating such approaches, organisations can effectively implement strategic changes, ensuring initiatives gain traction and support across all levels.

Literature highlights key aspects of organisational structure and bureaucracy in change management. Studies show organisational changes impact communication networks, with self-managing organisations relying less on formal hierarchy (Maurer et al. 2023). In public organisations, bureaucratic structures affect change effectiveness, with transformational leadership playing a critical role, especially in non-bureaucratic contexts (Voet 2013). Planned change, organisational climate, and transformational leadership significantly affect performance, with bureaucratic reform moderating these relationships (Yunita et al. 2020). Duality theory posits that traditional bureaucratic features provide stability, while flexible forms are needed for rapid changes and uncertainties (Graetz and Smith 2009). Understanding bureaucracy's interaction with organisational performance is crucial for adapting to economic changes and optimising decision-making (Qahtani and Mohammed 2012).

E Role of organisational culture in large organisations

Organisational culture plays an indispensable role in steering the process of navigating change within large organisations. It embodies the collective values, beliefs, and behaviours that significantly influence how change initiatives are perceived and implemented. Coomber (Coomber 2022) emphasises that organisational culture is not just a backdrop but a critical factor in the implementation of change, highlighting how different cultural attributes such as hero culture, process culture, and frameworks like unitarist, pluralist, and radicalist cultures influence the acceptance and success of change initiatives.

Building on this understanding, Robertson (Robertson 2022) asserts that an organisation's ability to adapt and remain agile in rapidly changing environments is crucial for maintaining competitiveness. The research suggests a broad spectrum of change management methodologies in the literature, which are not universally applicable but need to be aligned with specific organisational cultures. Robertson identifies significant cultural differences even among organisations of similar size, underscoring that these differences profoundly impact the efficacy of change management processes. This insight is particularly relevant when comparing collaborative change methodologies to more hierarchical, top-down approaches. Collaborative methods may thrive in cultures that are open, flexible, and inclusive, whereas more directive methods might be necessary in cultures characterised by high levels of control and centralisation. Furthermore, encouraging organisations to characterise their cultures and evaluate change management methodologies that would be most effective given the impact it will have on their staff to avoid resilience. This approach helps in selecting strategies that are not only theoretically sound but practically viable, enhancing the likelihood of successful change implementation (Ouma 2017; Robertson 2022).