



SCORE Project

Structural Capacities for Tackling Wicked Problems

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1. Introduction

Wicked problems represent some of the most pressing challenges facing our world today, including climate change, poverty, public health crises, and gender inequality. These problems are deeply interconnected, making them resistant to traditional approaches and requiring innovative, interdisciplinary methods to address them effectively. Our work builds on an extensive analysis of the literature on wicked problems and explores existing frameworks and tools designed to tackle similar challenges. Through this, we identified a need for a structured yet flexible model that could offer actionable solutions while accommodating the complexity of these issues.

The SCORE model emerged from this effort as a comprehensive framework that facilitates understanding and addressing wicked problems systematically. This guideline provides an explanation of the SCORE model's elements, their theoretical underpinnings, and their transformation into a practical tool. By combining stakeholder engagement, contextualized problem analysis, and strong visualization support, the SCORE model empowers users to navigate the intricacies of wicked problems and develop impactful strategies.

Throughout this project, the team collaborated to brainstorm, refine, and adapt ideas to ensure the model's relevance and effectiveness. By converting the SCORE model into an e-tool, we have further enhanced its usability, enabling real-time analysis, data visualization, and adaptive decision-making. This document serves an overview of the model for addressing wicked problems, equipping users with the tools to foster collaboration, innovation, and sustainable solutions.

2. Wicked problems

Wicked problems are central to some of the most pressing global challenges, such as climate change, poverty, gender inequality, and public health crises. Addressing these problems is crucial for ensuring sustainable development, fostering social equity, and improving quality of life. Their interconnected nature means that ignoring them can exacerbate other issues, creating cascading negative impacts. Solving these problems requires innovative and interdisciplinary approaches that engage stakeholders across sectors and disciplines.

To solve wicked problems, policymakers must be aware of the social, economic, and environmental impacts of the problems, the importance of sustainable development, and the urgency for innovative approaches and collaboration. Addressing wicked

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problems requires urgent and innovative approaches that involve collaboration and interdisciplinary efforts. Solving wicked problems is also crucial due to their significant social, economic, and environmental impacts. These problems are often deeply ingrained in society and have far-reaching consequences that affect people's lives and well-being. For example, climate change, one of the wicked problems, has caused adverse impacts such as rising sea levels, natural disasters, and health epidemics. Poverty, another wicked problem, has significant impacts on individuals, communities, and society as a whole, such as limiting access to education, healthcare and employment opportunities. It has been demonstrated that interactions and feedbacks among users and between users and landscapes significantly ease the process to manage the problem. Several other strategies can be used based on the wicked problem matrix to help structure and solve wicked problems.

Wicked problems for sustainable development also require solutions. Sustainable development refers to meeting the needs of the present without compromising the ability of future generations to meet their own needs. Solving wicked problems is crucial to achieve sustainable development goals and ensure that resources are used in a responsible and equitable manner, considering the long-term impacts on the environment and society.

In addition, an urgency of innovative approaches and collaboration is needed to solve wicked problems. These problems often require interdisciplinary solutions that go beyond traditional approaches. Solving them requires the participation of various stakeholders, including policymakers, academia, the private sector, and civil society. Collaborative efforts help to bring together diverse perspectives, skills, and knowledge needed to identify and implement effective solutions to wicked problems.

Traditional problem-solving approaches often fail with wicked problems due to their inherent complexity and the diverse stakeholder interests involved. Key challenges include:

- Identifying the problem's boundaries and underlying causes is difficult due to its multifaceted nature and the differing perspectives of stakeholders.
- Diverse and often opposing priorities among stakeholders create tension and complicate consensus-building.
- Gaps in data, along with inconsistent or unreliable information, hinder the development of well-informed solutions.
- Even well-intentioned solutions can lead to unforeseen negative outcomes, requiring iterative and adaptive approaches

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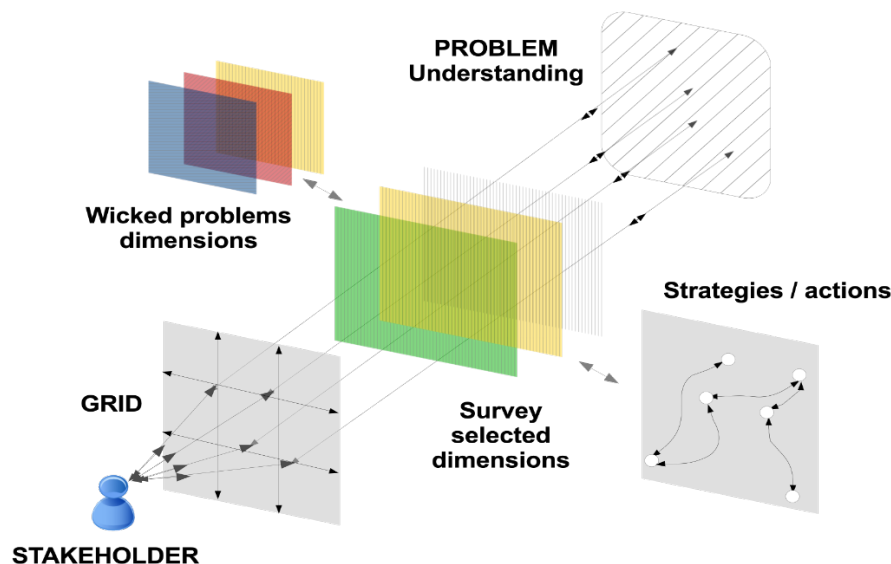
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3. Theoretical Overview of the SCORE Model

The SCORE model was developed within the framework of the SCORE project to provide policymakers and organizations with a structured approach to address wicked problems. By incorporating interdisciplinary research and collaborative input, the model aims to overcome the limitations of traditional methodologies. Its development was informed by systematic literature reviews and case studies that highlighted the need for a flexible, yet methodical approach to problem-solving. The key components and principles of the model is that involves four interrelated pillars: Stakeholder, Dimensions, Strategies and Visualization.



The underlying reason is that wicked problems involve various stakeholders, each with distinct interests, values, and potential contributions. This is why it's essential to identify the main stakeholders affected by these problems. When creating the tool, the goal was to ensure every stakeholder can provide their perspective, enhancing understanding of the specific dimensions of the wicked problem.

Based on our literature analysis, we have identified four core dimensions of wicked problems. The model is designed to allow stakeholders to express their opinions on each dimension, thereby achieving a more holistic and integrated understanding of these issues.

Thus, the wicked problem matrix evaluates the problem across four key dimensions:

- Complexity: Interrelated and dynamic factors that complicate solutions.
- Uncertainty: Lack of knowledge or predictability in outcomes.
- Conflict: Competing interests and values among stakeholders.
- Scale: Breadth and depth of the problem's impact.

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Different stakeholders in various aspects of a wicked problem lead to numerous variables that need consideration. Therefore, policymakers and users must collaborate to develop a contextualized solution, along with strategies and action plans for addressing air pollution. This section of the wicked problems matrix is designed to offer flexibility, providing policymakers with different strategies and actions.

A core element of this approach is strong support through visualization. The matrix provides this by forming relationships, allowing users to display results on spider charts. These charts will indicate which segments and dimensions are identified as wicked problems.

The benefits of this model are

- Provides a systematic and transparent framework for understanding and addressing complex problems.
- Facilitates stakeholder engagement and collaboration, ensuring diverse perspectives are incorporated.
- Reduces the time required to analyze problems and propose strategies, enhancing decision-making efficiency.
- Offers flexibility, allowing for adaptation to different problem contexts and scales.

The limitations are:

- The model's effectiveness depends heavily on the quality of stakeholder engagement and the accuracy of data collected.
- There is potential for bias if stakeholders dominate or manipulate the process, highlighting the need for careful facilitation.

4. Appropriateness of the SCORE Model to be E-Tool

The SCORE model addresses inherently wicked problems characterized by interdependent factors, conflicting stakeholder interests, and uncertainty. While its theoretical framework provides a structured methodology, its application requires extensive data gathering, analysis, and visualization, which can be challenging and time-consuming without digital assistance.

Converting the SCORE model into an e-tool significantly enhances its usability by automating the data collection and visualization, reducing manual effort and error. Furthermore, complex calculations, such as deriving scores for wickedness across

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dimensions, are processed instantly, ensuring accuracy and efficiency. This is possible because users are guided through each step of the SCORE model via intuitive interfaces, helping non-experts navigate the model effectively. Finally, the e-tool standardizes processes, ensuring methodological consistency regardless of the user's expertise.

On the other hand the e-tool provides real-time analysis, such as radar charts and graphical outputs, enabling immediate feedback and iterative adjustments. Based on this the users can test scenarios, compare strategies, and predict outcomes dynamically, fostering adaptive decision-making.

Converting the model to e-tool provides the following advantages:

- The e-tool rapidly identifies problem dimensions and visualizes areas of concern, reducing the time required for initial assessments.
- Data visualizations, such as radar charts, make complex problems accessible to diverse stakeholders, bridging knowledge gaps and fostering informed discussions.
- Users can experiment with various inputs, assessing their potential impacts without real-world risks. This helps identify optimal strategies while considering unintended consequences.
- The e-tool analyzes data to propose context-specific, actionable solutions aligned with the SCORE model's principles, and
- Insights generated by the e-tool can be documented, shared, and revisited, creating a repository of knowledge for future problem-solving.

5. Conclusion

The SCORE model provides a robust, systematic framework for addressing wicked problems, offering a structured methodology to analyze complexity, uncertainty, conflict, and scale. By involving diverse stakeholders and leveraging tools like the wicked problem matrix and visualizations, it facilitates a deeper understanding of intricate challenges and supports the development of context-specific strategies.

The conversion of the SCORE model into an e-tool amplifies its impact by making the methodology accessible, efficient, and adaptable. The e-tool automates labor-intensive processes, such as data collection and visualization, allowing users to focus on critical decision-making. Features like real-time analysis, scenario testing, and collaborative platforms enable stakeholders to engage meaningfully and iteratively refine their strategies.

By streamlining the application of the SCORE model, the e-tool enhances our ability to tackle some of the most pressing global challenges effectively. It not only reduces the

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time required for analysis but also fosters transparent, inclusive, and evidence-based decision-making. Ultimately, the SCORE e-tool equips policymakers, organizations, and researchers with the capabilities needed to address wicked problems and contribute to sustainable development and societal well-being.

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