

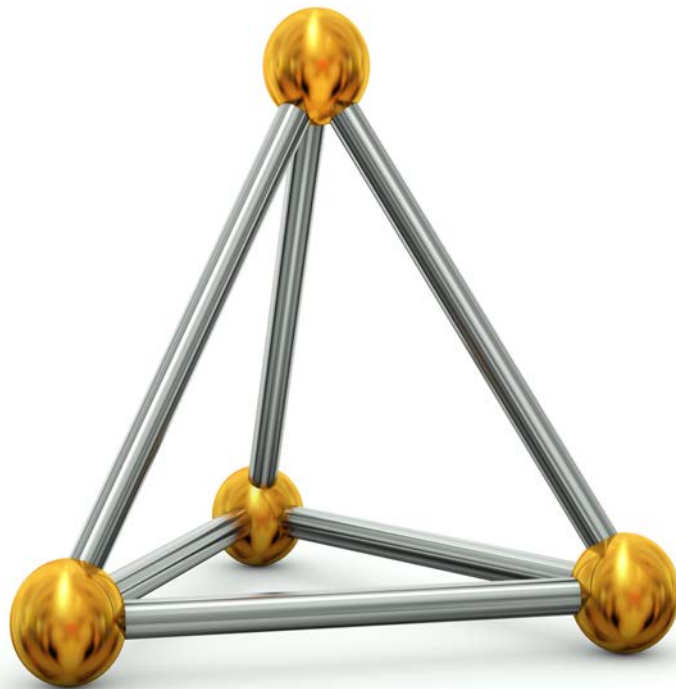
Cambridge Judge Business School

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THE 3D+ CUBE-ORBIT MODEL

A Conceptual Framework for Change and Development
in Fragmented, Decentralised, Cross Regional or Multi-
Level Complex Contexts

Developed by Dr Mona Jebril



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A Conceptual Model for Complex Research and Practice

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Foreword

In my work as an academic researcher at the university of Cambridge, I have more than once encountered a need for a new conceptual model for change and development in complex settings, both in relation to academic research in conflict, as well as in organisational cultural change research in peaceful contexts such as the Universities of Cambridge and Oxford:

First, the complexity and volatility of the Gaza context exposed the limits of conventional development and highlighted the need to think innovatively and creatively, to account for resistance, unpredictability, fragmentation, and systemic constraints. These reflections emerged from extensive research on the Gaza Strip, particularly on the political economy of health (Jebril, 2021; Jebril & Deakin, 2022) as part of the UKRI Global Challenges Fund project '*R4HC-MENA: Research for Health in Conflict: Building Capabilities, Partnerships and Research in the Middle East and North Africa*'¹ (2019-2022), which was conducted at the University of Cambridge Centre for Business Research. This work, along with my earlier PhD research on higher education in Gaza (Jebril, 2018) at the University of Cambridge Faculty of Education (2012-2017), and my prior practitioner experience in education within Gaza's public schools and two of its universities, revealed how prolonged occupation, conflict, and siege create persistent "de-development" (Roy, 1995), limiting and even reversing gains despite sustained efforts by donors, professionals, and local actors. Dependency on donor money and internationally funded projects has resulted in fragmentation, duplication, and contention (Jebril, 2018; Le More, 2008). Reflecting on this, I found myself continually asking how such fragmentation might be addressed, particularly when it lies beyond the control of Gaza and, at times, even international donors. As a researcher, I was also considering how change and development could be meaningfully measured within this and other complex contexts in a way that enables us to focus on constructive progress—with optimism and encouragement, while recognising both our achievements and the significant gaps that remain.

Second, my engagement with the '*Close the Gap: Fair Admissions for Postgraduate Research*' project², although focused on higher education in the UK (specifically the universities of Oxford and Cambridge), reinforced these insights. During the period 20 June 2022–20 June 2023, I worked as a Research Associate on the project. I conducted about 52 semi-structured, in-depth interviews across approximately nine departments at the University of Cambridge. My extensive conversations with academics, senior professional services staff, and students from different departments and thus also mostly across different disciplines about improving admissions practices and what initiatives would work for widening participation for marginalised applicants deepened my understanding of the nuances of this complexity from different angles. This aligns with Hébert-Dufresne et al. (2024) who argue that the study of complex systems "often requires a collaborative approach to science, studying a problem across scales and disciplinary domains" (p.1).

¹ For more projects on R4HC-MENA project, see: <https://r4hc-mena.org/>

² A project partially funded by the Office for Students and UKRI Research England to enhance access to doctoral study for UK Black, Asian and minority ethnic students. The project, delivered as a partnership between the Universities of Oxford and Cambridge, began in 2022/23 and concluded in December 2025.

Working to achieve cultural change—and measure its impact—within the decentralised, layered structures of institutions like Cambridge and Oxford made it clear to me how uneven change can be, and how difficult it is to conceptualise or track its progress within a single coherent vision. Change is continuously evolving, may take different shapes and forms, and is influenced by shifting power dynamics, varied governance approaches, resource availability, and specific cultural contexts across and within departments and the institution. Although these insights were personal, they sharpened my thinking about organisational transformation in complex environments (and at times resonated with broader discussions). This experience shaped a conviction: rather than be hindered by the challenges of complexity, or pursue abstract, often restrictive or inapplicable notions of change and development, we must focus on fostering meaningful interventions that protect, support, and enhance outcomes within the realities of each context. To do this, however, we needed models and frameworks flexible enough to accommodate multi-sized and multi-level interventions, along with their evolving shades and dimensions, within a holistic view. I was convinced that complex situations sometimes require models that are themselves sufficiently complex to meet the challenge. In a Close the Gap workshop held in March 2023 at the University of Oxford, a senior external invitee similarly emphasised the need for creativity to navigate the above-mentioned complex mix of challenges inherent in cultural change in admissions. This affirmation validated my longstanding reflections and encouraged me to continue searching for a model capable of addressing such complexity. In my view, and recognising that team discussions were at times valuable, approaches such as the logic model or the systems-thinking model were not capable of accounting for this level of complexity—although these models may be appropriate for other purposes or situations.

The 3D+ Cube-Orbit Model: A Conceptual Framework for Change and Development in Fragmented, Decentralised, Cross-regional or Multi-level Complex Contexts

April 2026

Summary

This paper introduces a novel conceptual model, the 3D+ Cube-Orbit Model. It contributes to both research and practice by offering a framework that emphasizes sense-making, integration, and cross-cutting analysis of impact through a flexible and creative approach. The model can be applied across a wide range of contexts related to change and development and is particularly effective in complex settings, including fragmented, decentralised, cross-regional, or multi-level contexts.

The 3D+ Cube-Orbit Model is built on a visual-spatial structure that supports systematic thinking across variable complex contexts, alongside multi-layered analysis and reflection. It is user-centred, allowing users to determine the scale of analysis following the 3D+ logic, select relevant themes and sub-themes, choose appropriate methodological and analytical approaches (qualitative, quantitative, or mixed methods), and engage in adaptive and participatory modes of evaluation and design.

Beyond its analytical function, the 3D+ Cube-Orbit Model also operates as a methodological tool that can be used both prospectively and retrospectively. For example, in research-based interventions, the model may initially be used to organise analytical themes. Following data collection or implementation, findings and observed impacts can then be mapped retrospectively onto the model, enabling a holistic understanding of impact that does not obscure gaps, but instead visualises relationships despite fragmentation.

The paper provides the conceptual grounding for the model, explaining why a new framework is needed, followed by a detailed presentation of its structure, components, and 3D+ logic. It then outlines methodological considerations, approaches to analysis and interpretation, and the model's contribution to knowledge and practice. The paper concludes by illustrating how the model can be integrated into research and practice on change and development through selected applied scenarios.

The 3D+ Cube-Orbit Model is a developing conceptual framework with significant potential, the full scope of which will become clearer through application in real-world contexts. While a careful reading of this paper supports a deeper understanding of the model, it is designed to be accessible and adaptable. Users are invited to explore how it applies within their own contexts and to innovate in ways that best suit their analytical and practical needs.

The need for this model is informed by the author's experience of researching and working within fragmented and decentralised settings, where conventional analytical frameworks often struggle to capture complexity, interaction, and uneven change.

I. Background: why a new model is needed?

Many talks about change and development, often presenting evidence through checklists, matrices, or testimonies of impact. Yet change and development often escapes clear measurement, especially in complex contexts marked by fragmentation, nonlinearity or/and asymmetrical change. Life itself resists control and standardization. Likewise, change and development cannot be entirely captured within fixed parameters. Despite scientific models or idealistic assumptions, the extent, depth, and interaction of change processes, both within domains and across them, remain dynamic, creative, and often unpredictable. Nevertheless, we still need ways to advance analysis, track progress, reflect on action, and build a vision of what is next. To engage meaningfully with fragmented, decentralised, cross-regional or multi-level contexts, we need approaches that do not oversimplify but instead help us navigate uncertainty creatively and practically.

The literature highlights the limitations of existing models in dealing with complexity. As Young et al. (n.d.) notes: "while complexity science is a relatively recent field, humans have always been trying to understand and make sense of complex systems. However, we tend to think and structure work in reductionist ways that make it difficult to grasp the inherent complexity we are trying to understand" (p. 8).

For example Onyura et al. (2021) explain that "as commonly used, logic models focus on succinct, visual synthesis of program components, and linearly depict program functioning" (p. 96). So far, this seems to undermine "the complexity that underlies social and educational interventions" (ibid, p. 96), to "constrain thinking about external influences on the problem or limit exploration of adaptations to enhance compatibility", and to "neglect to identify the undesirable outcomes that interventions can inadvertently precipitate" (ibid, p. 97). That said, "these limitations make some evaluators hesitant to use logic models" (ibid. p. 97).

Similarly, Renger et al. (2019) point out that as a result of several limitations, "the logic model creates an artificial representation of reality. This in turn often leaves evaluators using inadequate logic models and struggling to interpret evaluation findings" (p. 82). Therefore, "a growing number of evaluators are suggesting methods grounded in systems and systems thinking concepts" (Renger et al., 2019, p. 82). That said, "many evaluators see systems thinking concepts as distinct from logic models [...]. However, this is a fallacy" as in the logic model, several systems thinking concepts are evident." (ibid, p. 84). From another perspective, "using more logic models to capture system complexity is not the answer" (ibid., p.84)

Although logic or system thinking models can be useful in some cases, researchers and "evaluators should always seek the most appropriate methods for the problem at hand [...]. We need to be careful not to swing the pendulum so far into system thinking [or another model] that all problems are seen as a nail because our only tool is a hammer" (Renger et al., 2019, p. 83). That said, "decision-making in the modern world is becoming more difficult across all types of organizations, from governments and agencies to small businesses and charities. Issues and events from previously distinct spheres are increasingly overlapping with unexpected consequences evolving rapidly" (Young et al., n.d., p. 3). This, conversely, suggests the need to think creatively, and to update our research and evaluation toolkit, so that our work can endure newly arising complexity, particularly in fragmented, decentralised, cross-regional and multi-level contexts. Thus, "when a system includes mutual dependencies and causation across scales and levels, seeking to analyse it by reducing it into component parts will miss critical features of the system. That said, complex

systems require us to think differently about how we analyse and understand them”(Young et al., n.d., p. 6).

Against this backdrop, the present paper intentionally departs from established models of change and development. Instead, it takes inspiration from the research challenges encountered in practice and on a reasoned reflection on these challenges at the time. The approach is both inductive and visionary: it seeks to invent a model tailored to the author’s research needs while also offering potential value to scholars grappling with similar forms of complexity.

The paper is anchored in a fundamental question: **How can we meaningfully engage with change and development when contexts resist measurement, standardization, or control?** To address this, the paper introduces an original conceptual framework—the **3D+ Cube-Orbit Model**. The model enhances our ability to conceptualise, implement, and evaluate change and development in fragmented, decentralised, cross-regional, or multi-level complex contexts, offering a practical and innovative pathway forward.

II. Introducing the 3D+ Cube-Orbit Model

The overall structure of this model combines between two primary metaphors: (1) the solar system, and (2) the cube. This inspired its naming as a 3-D+ Cube-Orbit Model. While the orbit or the cube structure may have been used elsewhere as model structure, the model in hand is unique in combining both, together, although they are not used equally as cube here is integrated within the wider solar system structure of the project, as will be explained shortly. Below is an outline of Model’s components as well as a structural overview of how they interact and connect, and the 3D+ logic that binds them.

II.A. Model’s components

Drawing on the solar system metaphor, the 3D + Cube-Orbit Model comprises four components, mirroring the sun, planets, orbits, and solar waves. The specific definitions of these components, as well as their illustrations, are included below:

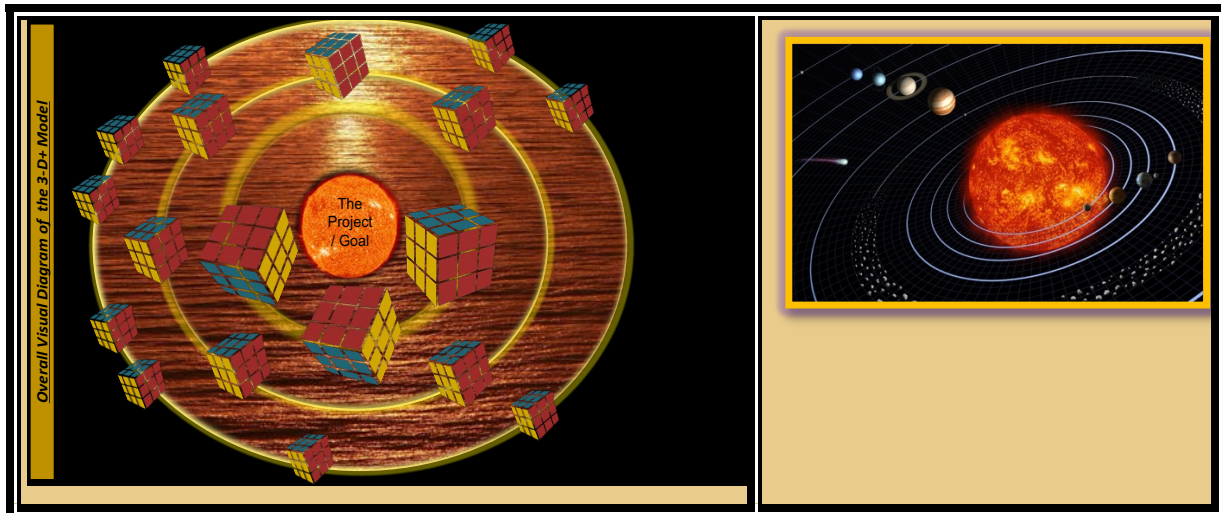


Figure II.A.I Mirroring the solar system: the 3D+ Cube-Orbit Model

Component	Solar system metaphor
The Centre , representing the overall project goal.	<i>The Sun</i>
A Cube , representing themes, or areas of work, each with facets, and layered, for example to individual, group and system/organisation levels.	<i>Planet/s</i>
Orbits around a centre, showing classifications of thematic dimensions, for example, some are central, others more supportive or peripheral, but all connected.	<i>Orbit/s</i>
Waves of influence , recognising that impact ripples, overlaps, and interact across dimensions and themes.	<i>Solar waves</i>

Figure II.A.II below is an illustration of these four components:

A 3-D+ Cube-Orbit Model: The Components

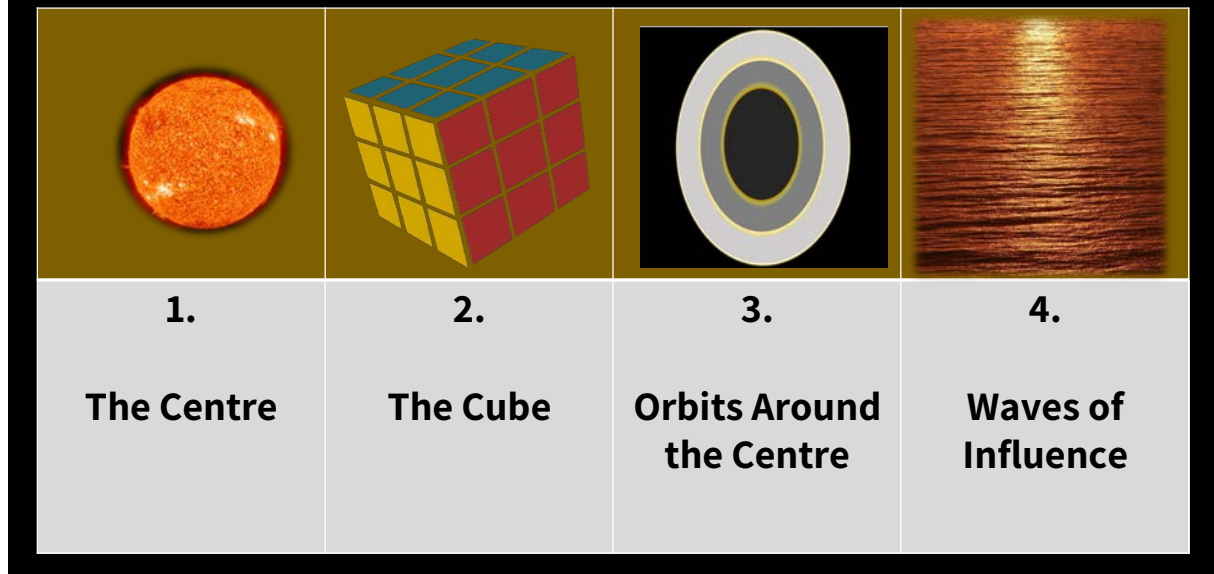


Figure II.A.II Model's components

II.B Structural overview: how the components interact and connect

Once the central element is defined as a single project (or the shared goal of multiple projects), three surrounding orbits are created. These orbits classify the project's themes or objectives into three layers:

- **Core orbit** (central dimensions)
- **First orbit** (key supporting dimensions)
- **Second orbit** (peripheral dimensions).

Figure II.B.I below includes an illustration of these orbits:

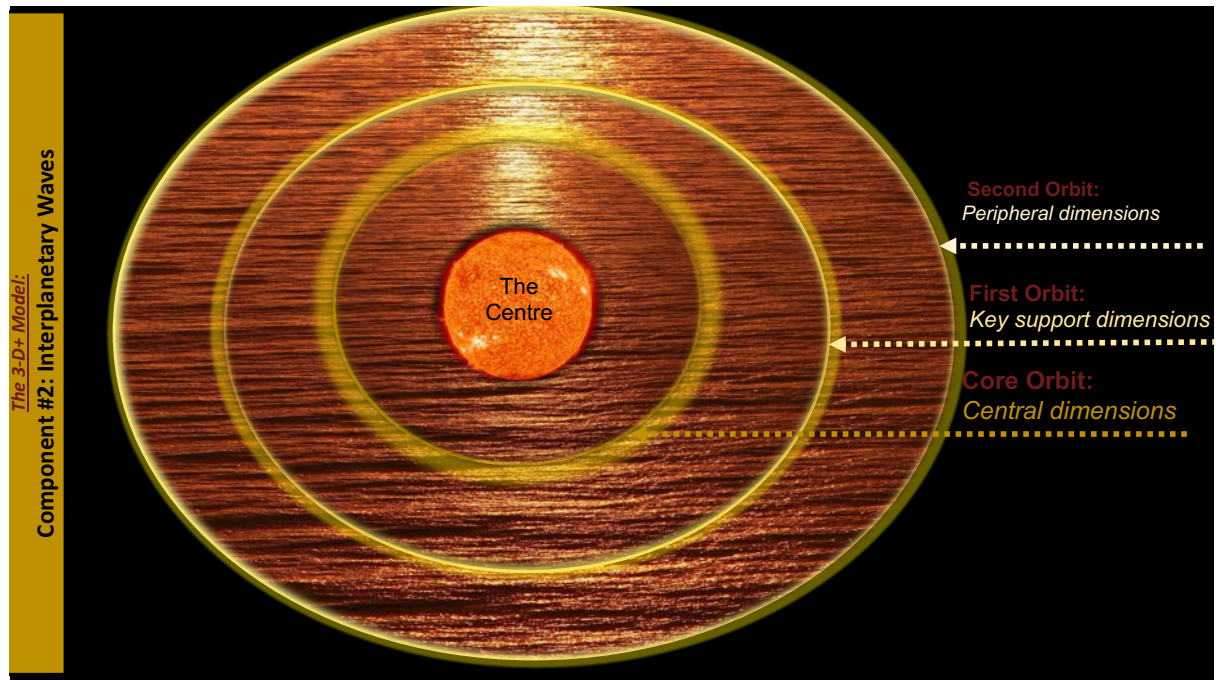


Figure II.B.I Centre, orbits, and interplanetary and cross-planetary waves

The solar-wave lines in Figure II.B.I above, illustrate that, despite being organized into distinct rings/spheres, the orbits remain interconnected. These wave zones highlight the dynamic relationships across dimensions, underscoring that influence flows in multiple directions rather than in a simple linear way. To simplify, the waves can be understood as interplanetary and cross-planetary, while remaining in continuous interaction with one another.

In Figure II.B.II below, cubes placed on the core orbit represent the primary themes under consideration. Those positioned on the first orbit reflect major supporting themes, while those on the second orbit denote peripheral themes. The cube structure will be explained shortly.



Figure II.B.II How the Model's components interact and connect

The model is designed to be adaptable. It can be applied as a single overarching structure for the entire project or used separately for individual workstreams, depending on the project's complexity and needs.

II.C Understanding the Model's "3D+" logic

All elements of the model follow a 3-dimensional structural pattern. This applies to the number of orbits, the number of cubes within each orbit, and the internal layers and 'windows or units' within each cube face. This consistent structural logic keeps the model easy to navigate while allowing it to scale according to the needs and capacity of each project. This scalability is denoted by the '+' in the 3D+ Cube-Orbit Model.

The standard configuration contains three orbits. As the orbits move outward, the cubes appear progressively smaller. This visual scaling signals their relative importance, as well as the level of measurement, attention, and resources devoted—particularly in the case of interventions.

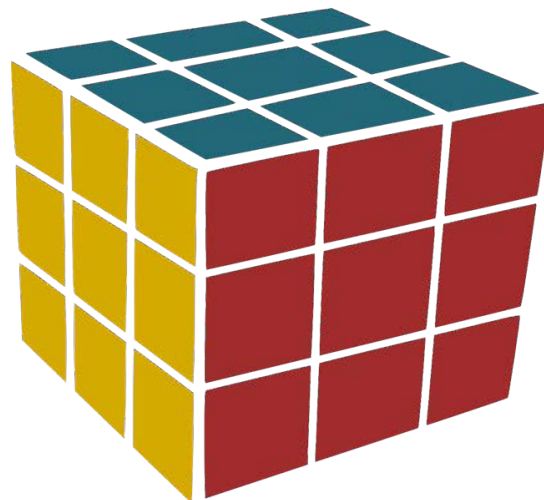
The number of cubes in each orbit follows a balanced-attention sequence of 3, 6, and 9. For example, as mentioned above, the core orbit contains 3 larger cubes, reflecting their higher importance and the greater focus they receive. The first orbit contains 6 cubes, and the second orbit contains 9 cubes, each proportionally smaller.

The table below illustrates how this balanced-attention logic scales the cubes across the three orbits so that their combined weighting sums to 100%.

Table II.C.I The 3D+ Cube-Orbit balanced attention model

Balanced Attention Model (3,6,9 Scaling)				
Orbit	Number of cubes	Reflection weight (per cube)	Total attention units	Percentage
Core Orbit	3	7 units	21	43.75%
First Orbit	6	3 units	18	37.50%
Second Orbit	9	1 unit	9	18.75%
Total	-	-	48 units	100%

II.D The cube structure: architecture of the creative cube



The cube referred to in this document is the standard cube (3x3x3). It has six faces; each could be assigned a distinctive colour. When the 3D+ Cube-Orbit Model scales up, it does so by increasing the number of cubes within each orbit rather than altering the cube’s faces or internal structure.

Each cube face is divided into three layers, and each layer contains three indicators. These layers may be used to represent different levels of analysis, for example, institutional, departmental, and individual. Within each layer, the three indicators allow users to specify what evidence or reflections matter most for that level. This level of granularity is optional: in contexts where a broader view is more practical, users may choose to treat each face as a single thematic area which has indicators, without engaging with the internal indicator-by-layer structure.

In this Model

Each orbit contains several cubes, with each representing a main theme

Each cube has six coloured faces, with each colour identifying a distinct sub-theme

Each face comprises three layers, and each layer includes three indicators, giving each face nine indicators overall

A full cube therefore holds 54 indicators (9 indicators x6 faces), allowing detailed examination when needed

Using the puzzle-cube structure highlights the interdependence of the sub-themes. The faces, layers, and indicators connect across the cube, reflecting how knowledge, experience, and change processes form a coherent whole rather than isolated fragments. This design enables users to map themes (cubes), sub-themes (cube-faces), categories (cube face layers), and indicators (cube face windows) in a way that captures both complexity and clarity, supporting nuanced reflection across multiple dimensions of a project or system.

Notes

- Deactivation
 - If necessary, users may choose to deactivate certain cubes, faces or windows within the basic structure of the model (3,6,9); however, doing so requires recalibrating the measurement balance, particularly mathematical balance in quantitative analyses.
- Supporting material:
 - Appendix I includes a form for identifying and selecting themes for each cube. Appendix II supports the organisation of themes, sub-themes, and theme indicators across cubes within each orbit. Appendix III can be used to map layers and indicators for each cube face. These forms are adaptable and may be modified or supplemented with additional forms as needed.

III. Methodology, analysis and interpretation

The model supports multi-layered and adaptable analysis, allowing users to work at detailed or generalist levels, and to apply qualitative, quantitative, or mixed methods approaches. While this paper does not capture every possible analytical pathway, it offers a framework that can inspire flexible approaches to understanding change and development under challenging conditions.

The principles behind both qualitative and quantitative analysis or mixed methods is the same in terms of what needs to be evaluated, but this is done in different methods, as we shall see shortly. A qualitative orientation is recommended for simplicity and depth, especially in contexts marked by complexity, fragmentation, or limited data; quantitative analysis can be complimentary.

What needs to be evaluated

Analysis can be carried out at a single level, across selected zones or across the entire Model. The latter is recommended to provide a comprehensive view that captures both the depth and breadth of the interventions. The zones for analysis may include:

What needs to be evaluated?
Evaluate each cube (thematic cluster).
Evaluate each orbit (core, support and peripheral dimensions)
Evaluate within each orbit (relationships among cubes in a ring).
Evaluate across orbits (core, support, peripheral).
Evaluate solar waves (interactions and influence across layers)
Evaluate the whole system (overall coherence, direction, and impact).

Although this document introduces the model by moving from the solar-system structure to the cube, analysis proceeds in the opposite direction: beginning with the cube (the most granular level) and working outward towards the orbits, the waves, and finally the full solar-system structure.

III.A Qualitative analysis: an overview

Qualitative analysis within the 3D+ Cube-Orbit Model is intentionally flexible. Because projects differ in purpose, team capacity, epistemological preferences, contextual factors and levels of complexity, the model could accommodate a wide range of qualitative approaches (e.g., thematic, narrative, interpretive, comparative, artistic, or mixed). What matters is that analysis engages with the main conceptual thread of the project, as expressed through core, support and peripheral dimensions, and attends to how these interact across the cube, orbits and wider system.

Depending on the project's needs, qualitative analysis may include several points:

For qualitative analysis

Examining each sub-theme within a cube, with the option to go further into layers or indicators when deeper specificity is required.

Analysing the cube as a whole, exploring how sub-themes relate, reinforce, or challenge one another.

Analysing each orbit ring, looking at patterns across cubes and the interplanetary waves within that orbit.

Analysing across all orbits, including cross-planetary waves and wider relationships that cut across themes, levels, or clusters.

While the model leaves room for creativity in how users conduct qualitative analysis, a few guiding considerations can strengthen the process:

- **Reflection is central**, not optional. Users are encouraged to integrate reflective thinking throughout the project's lifecycle, not only at the end.
- **The depth of analysis is adjustable**. Users may adopt a broad, holistic view or undertake detailed, layer-by-layer exploration, depending on the purpose and the nature of the project.
- **Movement between scales is expected**. Analysis may move creatively, shifting back and forth between the cube, the orbit, and the wider system as new relationships, tensions, and patterns become visible. These shifts can later be articulated through interplanetary or cross-planetary interactions, as appropriate.

This open structure allows teams to select an analytical approach that fits their project's context, and interpret findings in creative ways, while still benefiting from the conceptual clarity and systemic perspective offered by the 3D+ Cube-Orbit Model.

III.B Quantitative analysis: an overview

Quantitative scoring begins within each cube and expands outward through the orbit structure:

- Each cube is first scored internally (based on its faces, layers, or indicators as defined by the user).
- The cube's score is then multiplied by its orbit-specific contribution weight, reflecting its relative importance in the system.
- Interplanetary outcomes (i.e., interactions between cubes within the same orbit) are scored for each orbit.
- Each orbit's total score is calculated by combining the weighted cube scores with the interplanetary interaction score.
- Cross-planetary waves (interactions across orbits) are then scored.
- Finally, all orbit scores and cross-planetary wave scores are combined to produce the overall quantitative outcome for the project.

For an illustrative of quantitative analysis steps, see Figure III.B.I below:

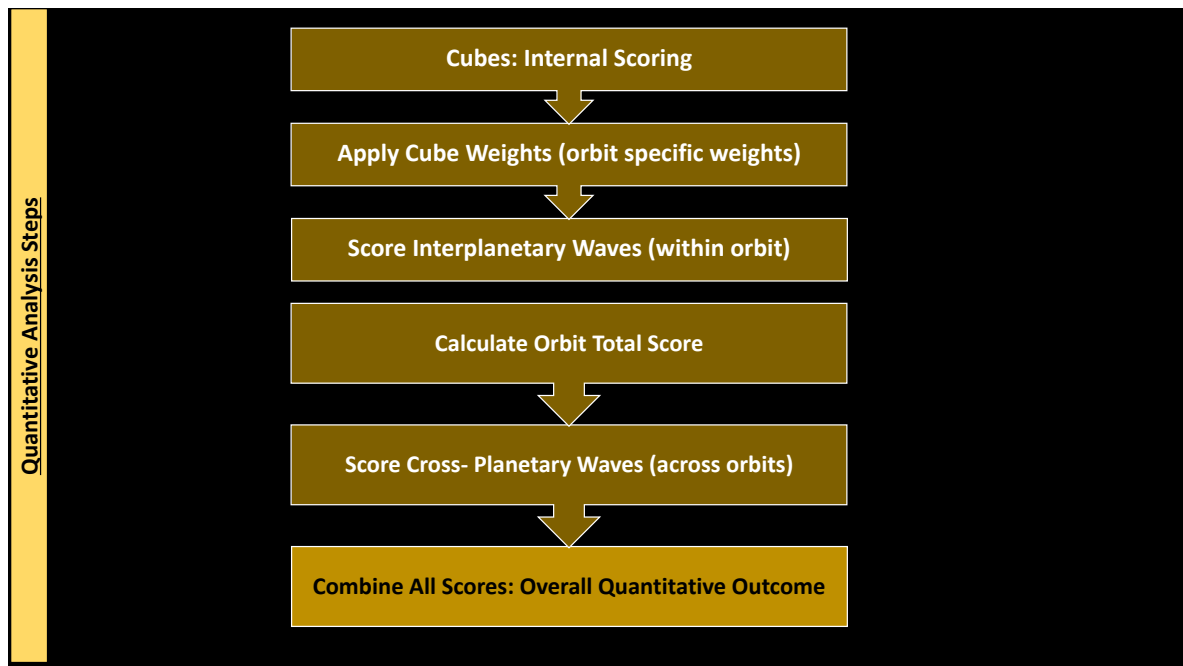


Figure III.B.I Quantitative analysis at glance

Notes

- Flexibility in scoring
 - The specific details of the quantitative scoring mechanism are left for the user to determine, based on the context, preferences, and the priorities of the project team.
- Wave scoring could be indicative :
 - The scoring for interplanetary and cross-planetary waves could be indicative —intended to inform reflective judgement rather than to produce precise measurement. For example, maximum interaction = 3, medium interaction = 2, and minimum interaction = 1. Maximum interaction refers to strong and consistent interaction; medium interaction to some or occasional reinforcement; and minimum interaction to weak, incidental, or no meaningful interaction. Users may adapt or select alternative scores according to their project needs and preferences.
- Supporting material:
 - Appendix IV includes a form that can be used to assess interplanetary and cross-planetary waves using both qualitative and quantitative approaches.

IV. Distinctive value to knowledge and development

This section explains briefly the 3D+ Cube-Orbit Model's advantages, and values, through highlighting its originality, contribution to the field of knowledge and development, limitations and prospects, some of the benefits of using this model, as well as selected scenarios of where the model adds analytical and methodological value to research and practice.

IV.A. Originality

The 3D+ Cube Orbit Model demonstrates originality in several ways. First, its design employs a visual-spatial structure, using the 3D+ cube and orbit metaphors, to support systematic thinking within variable complex contexts including fragmented and decentralised settings. Second, it is both scalable and flexible, enabling adaptation, while maintaining coherence within the 3D+ logic. Third, it facilitates multi-layered analysis and reflection, for example, integrating individual, departmental and institutional perspectives, alongside core, support and peripheral thematic dimensions. Fourth, it brings together qualitative enquiry and narrative reflection with structured quantitative weighting, allowing for either single method or a comprehensive multi-method approach. Finally, it is user-centred, allowing users to determine the scope, focus themes, and sub-themes, methodology, and analytic approach, based on their needs, capacity, timeline, and resources. All this encourages adaptable and participatory evaluation of impact and design that is grounded into the specific nature of the research and/or intervention project, and the specificity of the contextual setting, rather than a top-down model.

IV.B. Contribution

This 3D+ Cube-Orbit Model addresses a significant gap in the literature by offering a conceptual framework that fosters flexibility, creativity, involvement and ownership of change. It empowers users, whether individuals or organizations, to adapt the Model to their specific contexts and needs. It also provides an innovative approach to navigating complexity, recognizing non-linearity and the adaptive nature of change and development within nonstandard environments. Moreover, the Model's visualization as a solar system, offers a language through which to understand how project themes and interventions interact and generate ripple effects across the project itself.

IV.C. Limitations and prospects for growth

Although the Model's design is intuitive, drawing on the familiar solar system and creative cube metaphors, understanding the Model requires a thorough reading of this paper; the figures serve as illustrations rather than shortcuts. Also, this Model remains untested in real-world settings, which raises several considerations: Practical testing is essential to refine the Model's strengths and identify areas for improvement. It could also help determine how to adapt the Model to contextual sensitivities, as its effectiveness may vary across settings (e.g., conflict vs. stability; short-term vs. sustainable projects; scholarly vs practical intervention; change vs. development; broad vs. specific scope or location, and regional localities and specific conditions). While significant adjustments are not anticipated, the possibility should not be overlooked. Supporting material provided in the appendices of this paper could be enhanced to facilitate use of the Model across different scenarios.

IV.D. Situations where the 3D+ Cube-Orbit Model adds analytical value

The following contexts demonstrate where this model is most effective, and outline the key benefits of its application:

- **Fragmented, decentralised, cross-regional or multi-level complex environments:** The Model's flexibility makes it suitable to use in research and/or intervention in these settings, as it can be adjusted based on need, capacity and resources.
- **Capturing visible and hidden dynamics:** The Model could be used to identify/track the main themes, sub-themes and indicators as well as the interactions between them, and how these contribute to the overall project.
- **Tracking change across multiple sites:** The Model can enable synergizing cross-cutting insights from localized context and the analytical progressing towards comprehensive view for overall transformation and development.
- **Facilitating collective team understanding, follow-up and collaboration:** The Model can support meaningful discussion on research projects and practical interventions involving complex, uneven change, wide-ranging, and multi-sized research and intervention aspects, in a systematic way that support collective team understanding, follow-up and collaboration.

V. Integrating the 3D+ Cube-Orbit Model: a guide for scholarly and intervention practice

The following scenarios are intended as guiding frameworks that can be adapted to suit the requirements of each specific research or intervention context.

V.A. Research on development 'across regions'

Figure V.A.I below illustrates how the 3D+ Cube-Orbit Model can be integrated into research on development (or related fields) conducted across multiple regions. In such contexts, the model supports analytical progression by enabling the identification and interpretation of cross-cutting insights that emerge across different geographical settings, without requiring standardization or direct comparison.

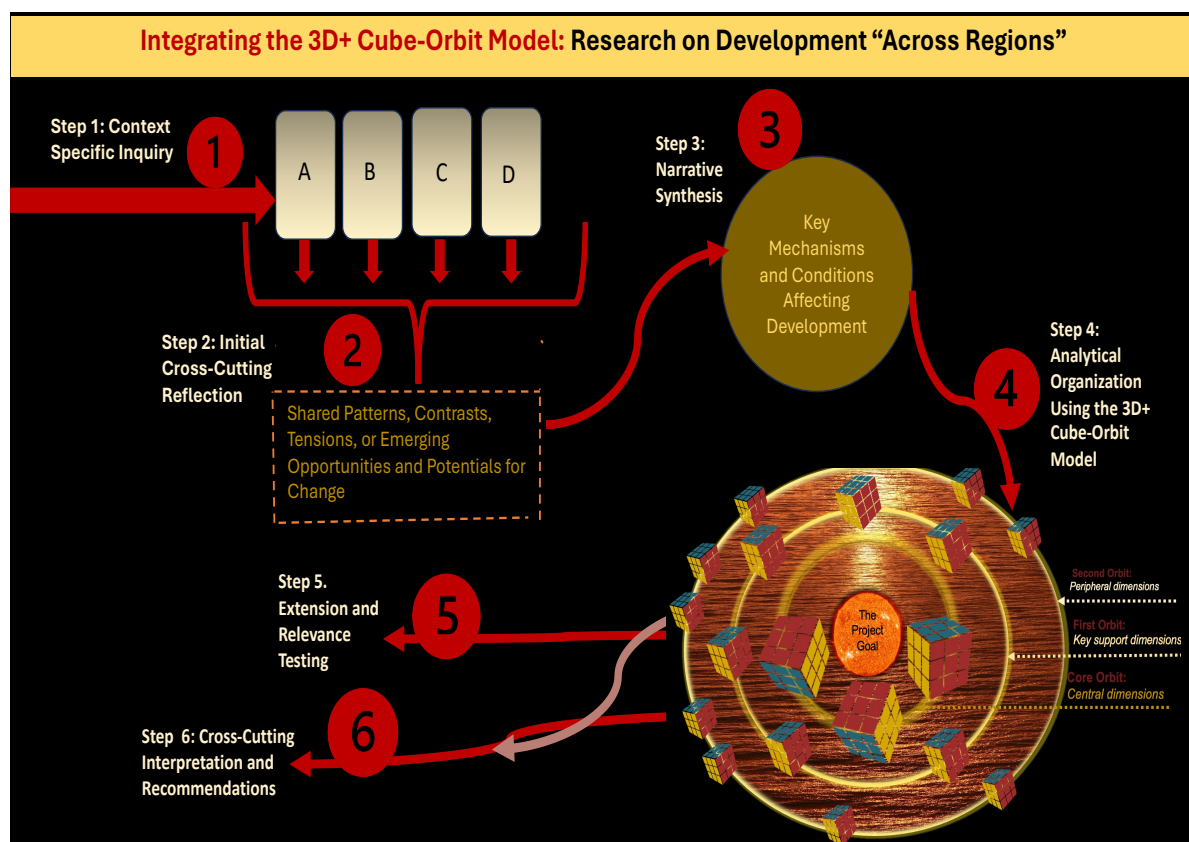


Figure V.A.I Research on development 'across regions'

In the scenario in Figure (V.A.I), the overall research process is structured as follows:

No.	Step Title	Description
V.A.1.	Context specific inquiry	<p>The research team conducts empirical studies in each country (A, B, C, and D) separately. All studies focus on a defined development-related sector, such as health, education, the labour market, or a comparable field, while remaining attentive to local conditions and dynamics. Using a shared sectoral focus helps foreground contextual sensitivities while also providing a common analytical foundation for understanding development across settings.</p>
V.A.2.	Initial cross-context reflection	<p>Based on the analysed material from each country, the research team identifies initial analytical connections across contexts. These may include shared patterns, contrasts, tensions, constraints, or emerging opportunities relevant to the project's central focus.</p>
V.A.3.	Narrative synthesis of mechanisms	<p>The team develops a narrative account of the key mechanisms, processes, and conditions shaping development across the wider region. At this stage, the emphasis is on sense-making rather than formal structuring.</p>
V.A.4.	Analytical organization using the 3D+ Cube-Orbit model	<p>The 3D+ Cube-Orbit Model is then used as the analytical space in which these mechanisms and conditions are organized. Themes are positioned into cubes and orbits (core, key support, and peripheral) according to their analytical relevance. Qualitative, quantitative, or mixed analysis is conducted to explore relationships among themes and sub-themes, as well as interactions within and across orbits, following the operational logic of the model.</p>
V.A.5.	Extension and relevance testing (optional)	<p>The research team may proceed either directly to interpretation or, where appropriate, test the applicability of selected insights in additional geographical contexts within the region. This step supports reflection on relevance, resonance, and potential transferability without assuming generalization.</p>

V.A.6. Cross-cutting interpretation and recommendations

The final step synthesizes cross-cutting insights and formulates interpretive conclusions and recommendations relevant to development across regions.

V.B. Cultural change in 'decentralised' contexts

The scenario illustrated in Figure (V.B.I) below demonstrates how research-based intervention, such as initiatives aimed at cultural change can be designed and analysed in decentralised, multi-level contexts (for example, within a university context of governance level, senior administrative and managerial level, and departmental level). It also shows how the impact of dispersed and uneven interventions can be understood through a holistic lens in settings that are both decentralised and multi-layered.

In a university context, achieving cultural change often requires a combination of interventions of varying scale. Some may be substantial, others modest, and they may occur across different departments, each with distinct internal systems, needs, capacities, and resources. Additional interventions may be required at the level of schools, senior administrative and managerial clusters, or overall governance structures. In practice, however, funded projects rarely have sufficient time, resources, or personnel to intervene in-depth, and comprehensively across all these areas. As a result, gaps, fragments, and mismatches are common, increasing both the complexity of enacting cohesive change at departmental levels which are usually the intended final target of university organizational change project funding, and the difficulty of theoretically understanding and analysing the overall impact of the research-based intervention in academic or policy studies.

The 3D+ Cube-Orbit Model offers a useful conceptual framework for working within such conditions. It accommodates decentralisation and uneven coverage as inherent features rather than shortcomings, while still providing a coherent framework for organizing, reflecting on, and evaluating intervention efforts. The model supports adaptive, flexible, and creative engagement with change processes, enabling analysis and learning without forcing interventions to conform to rigid theoretical boundaries or creating an illusion of coherence where it does not exist.

The following steps outline how the 3D+ Cube-Orbit Model can be applied in this scenario:

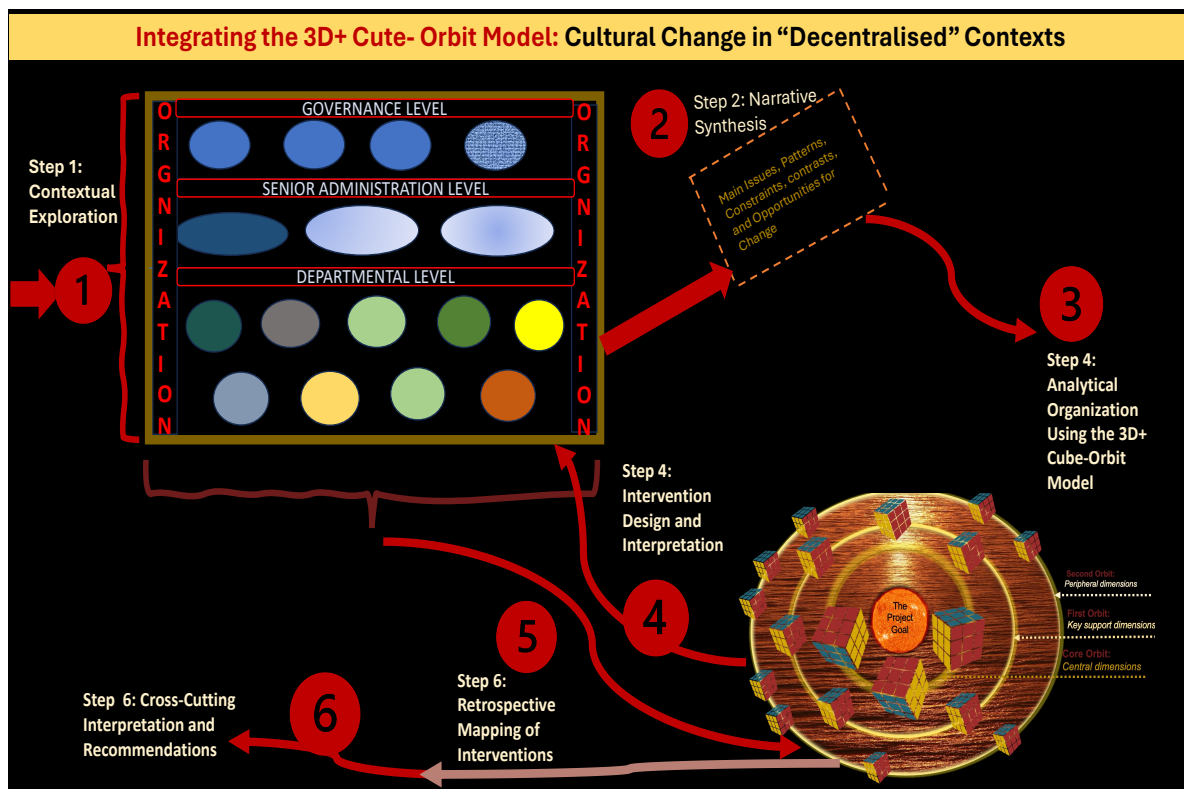


Figure V.B.I Cultural change in 'decentralised' contexts

No.	Step title	Description
V.B.1.	Contextual exploration	The research team conducts exploratory research on targeted departments to identify values, practices, and structures that require change in relation to the project's aims. For example, the focus could be fair admissions, decolonizing education, gender equity, anti-racism, anti-corruption, or similar objectives.
V.B.2.	Narrative synthesis	The team produces a narrative that brings together insights from different departments, and where relevant, across multiple universities. This narrative highlights patterns, contrasts, constraints, and opportunities for change within and across organizational spaces.
V.B.3.	Analytical organization using the 3D+ Cube-Orbit model	As outlined in Section IV.A.4, the 3D+ Cube-Orbit model is then used as the analytical space in which these issues are organized. Themes are positioned into cubes and orbits (core, key support, and peripheral), according to their analytical relevance and/or priority for intervention.
V.B.4.	Intervention design and interpretation (two options)	<p>-Option 1 (Participatory approach): The team engages departments in dialogue, sharing the analysis and inviting them to identify and commit to interventions they are willing and able to implement that can address the themes in the Model.</p> <p>-Option 2 (Analytical approach): Qualitative, quantitative, or mixed analysis is conducted to explore relationships among themes and sub-themes, as well as interactions within and across orbits. Based on this analysis, interpretations are developed and recommendations are proposed regarding appropriate interventions at departmental and institutional levels.</p>

V.B.5.	Retrospective mapping of interventions	<p>As departments and institutional bodies implement different interventions over time (whether chosen through option 1 or option 2 in Step 4 above), the project team documents these actions and retrospectively maps them onto the relevant cubes and orbits. This process enables a consolidated view of interventions achieved under each theme across the institution(s), regardless of their scale or the organizational space in which they occur.</p> <p>In addition, the 3D+ Cube-Orbit Model allows interventions to be distinguished; for example, across institutional, departmental, and individual dimensions, where relevant, through the layered structure of each cube, as outlined earlier in the description of the creative cube structure.</p>
V.B.6.	Impact interpretation	<p>The final interpretation of the project's impact considers both thematic outcomes (from all interventions), and interactions within and across orbits. This allows for an assessment of overall (cultural) change achieved in the specified context(s), whether within a single institution or across multiple institutions.</p>

V.C Tracking development in 'fragmented' contexts

Figure (V.I.C) below illustrates one possible scenario for tracking development in fragmented contexts. Such contexts may involve multiple donors implementing parallel or overlapping initiatives that target a range of entities, either within one type of institution (e.g. public or private, or non-governmental organizations) or across different institutional types simultaneously. Examples might include efforts to implement or assess the cumulative impact of multiple gender equality initiatives, or public health interventions.

This line of thinking is informed by research conducted in Gaza, where development interventions are frequently fragmented across actors, sectors, and timeframes. In such settings, constructing a coherent picture of change and development, particularly at a national or system-wide level, can be highly challenging.

However, similar dynamics are evident in many other fragmented contexts. In these cases, the 3D+ Cube-Orbit Model offers a structured yet flexible framework for making sense of dispersed interventions, enabling a more systematic understanding of development processes amid fragmentation.

The specific steps involved in applying the Model in this scenario will vary depending on the project's objective, whether the aim is to track development, conduct research, or design and implement interventions.

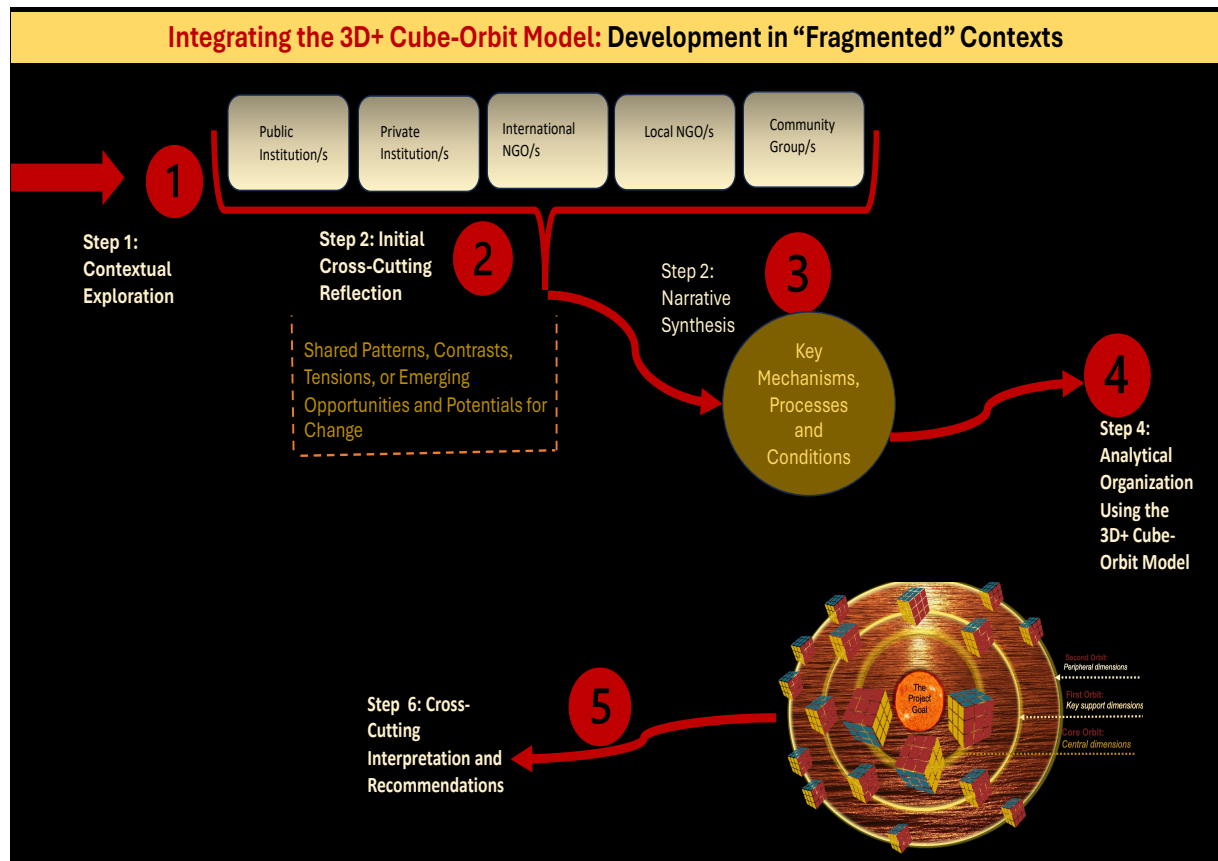


Figure V.C.I. Tracking development in 'fragmented' contexts

Figure (V.C.I) specifically illustrates the steps for tracking development in fragmented contexts, which are outlined below:

No.	Step Title	Description
V.C.1.	Contextual exploration	Data are collected from each target institution regarding the issue in focus. For example, data may be gathered from public hospitals, UNRWA clinics, and medical NGOs concerning gender-related initiatives.
V.C.2.	Initial Cross-Cutting Reflections	Based on the analysed material from each institution, the research team identifies initial analytical connections across settings. These may include shared patterns, contrasts, tensions, constraints, or emerging opportunities relevant to the project's central focus.
V.C.3.	Narrative synthesis of mechanisms	The team develops a narrative account of the key mechanisms, processes, and conditions shaping development with regard to the project's central focus across the various institutions. At this stage, the emphasis is on sense-making rather than formal structuring.
V.C.4.	Analytical organization using the 3D+ Cube-Orbit model	As outlined above, the 3D+ Cube-Orbit Model is used as the analytical space in which these issues are organized. Themes are positioned into cubes and orbits (core, key support, and peripheral) according to their analytical relevance and/or priority for intervention. Qualitative, quantitative, or mixed methods may then be applied to explore relationships among themes and sub-themes, as well as interactions within and across orbits, following the operational logic of the model.
V.C.5.	Cross-cutting interpretation and recommendations	The final step synthesizes cross-cutting insights regarding impact and formulates interpretive conclusions and recommendations relevant to development across institutions, sectors, or at a national level.

Conversely, the evaluation process may adopt a deductive approach, beginning with indicative themes and sub-themes structured through the 3D+ Cube-Orbit model. The analysis then explores how, and to what

extent, these themes manifest across the different target bodies or institutions, followed by retrospective mapping within the model and progression to impact analysis, interpretation, and recommendations.

V.D Change in 'multi-level' contexts

A similar approach to integrating the 3D+ Cube-Orbit Model can be followed when researching or tracking intervention-driven change across multiple levels. Indeed, in the scenario discussed in Section V.B on cultural change in decentralised contexts, multi-level dynamics are already embedded within the organizational structure itself. This makes that scenario suitable for generating insights into both decentralised and multi-level change processes simultaneously.

An additional consideration relates to the internal architecture of the cube itself. Each 3×3 cube face is structured into three layers, which can be used to represent different analytical levels, such as institutional, departmental, and individual levels, or governance, senior administration, and departmental levels. This layered structure enables explicit attention to multi-level dynamics within a single cube, and can be directly leveraged when applying the 3D+ Cube-Orbit Model to multi-level contexts.

Conclusion

This conceptual paper has introduced the 3D+ Cube-Orbit Model as a novel framework for research and practice across a range of settings, particularly complex environments such as fragmented, decentralised, cross-regional, and multi-level contexts. The model constitutes an original contribution with the potential to support processes of change and development both analytically and, in the context of interventions, methodologically.

The paper outlined the rationale for developing the 3D+ Cube-Orbit Model. It then detailed the model's structure, components, and 3D+ logic, alongside its methodological, analytical, and interpretive applications, and demonstrated how it can be integrated into diverse scenarios of research and practice.

The 3D+ Cube-Orbit Model offers a new perspective on how impact can be understood, organized, and evaluated in complex settings, particularly where change processes are uneven, dispersed, or non-linear. The Model is inspired by research conducted in fragmented and decentralised contexts and reflects a deliberate effort to address gaps in existing conceptual and methodological tools. While the Model will continue to evolve through application and experimentation, it is offered here as a meaningful contribution to the field; one that invites further testing, adaptation, and innovation, and that aims to stimulate new ways of thinking about change and development amid complexity.

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Appendices	Title
Appendix I	Setting the scene
Appendix II	Themes, sub-themes, and theme indicators
Appendix III	A 3x3 puzzle cube face: mapping Layers and indicators
Appendix IV	Interaction assessment: interplanetary and cross-planetary waves

Appendix I Setting the scene

This form is designed to support the initial scoping of the 3D+ Cube-Orbit Model by identifying and organizing core dimension themes, key support themes, and peripheral themes in the cubes (each represented here as 3x3x3 puzzle cube). It provides a structured way to set the analytical scene prior to deeper qualitative or quantitative or mixed analysis. There is also a dedicated space for recording notes and reflections that emerge during the scoping and planning process, which can be expanded as needed.

Orbit	Orbit ring	Number of cubes per orbit	Cube/Theme	Cube faces/sub-themes	
Orbit (o)	Core Dimensions	3	A	A-1	
				A-2	
				A-3	
				A-4	
				A-5	
				A-6	
			B	B-1	
				B-2	
				B-3	
				B-4	
				B-5	
				B-6	
			C	C-1	
				C-2	
				C-3	
				C-4	
				C-5	
				C-6	
-Notes-					

Orbit	Orbit ring	Number of cubes per orbit	Cube/Theme	Cube faces/sub-themes	
Orbit (1)	Key Support Dimensions	6	D	D-1	
				D-2	
				D-3	
				D-4	
				D-5	
				D-6	
			E	E-1	
				E-2	
				E-3	
				E-4	
				E-5	
				E-6	
			F	F-1	
				F-2	
				F-3	
				F-4	
				F-5	
				F-6	
			G	G-1	
				G-2	
				G-3	
				G-4	
				G-5	
				G-6	

			H	H-1	
				H-2	
				H-3	
				H-4	
				H-5	
				H-6	
			I	I-1	
				I-2	
				I-3	
				I-4	
				I-5	
				I-6	

-Notes-



Orbit	Orbit ring	Number of cubes per orbit	Cube/Theme	Cube faces/sub-themes	
Orbit (2)	Peripheral dimensions	9	J	J-1	
				J-2	
				J-3	
				J-4	
				J-5	
				J-6	

			K	K-1	
				K-2	
				K-3	
				K-4	
				K-5	
				K-6	
			L	L-1	
				L-2	
				L-3	
				L-4	
				L-5	
				L-6	
			M	M-1	
				M-2	
				M-3	
				M-4	
				M-5	
				M-6	
			N	N-1	
				N-2	
				N-3	
				N-4	
				N-5	
				N-6	
O	O-1				
	O-2				
	O-3				

				O-4	
				O-5	
				O-6	
			P	P-1	
				P-2	
				P-3	
				P-4	
				P-5	
				P-6	
			Q	Q-1	
				Q-2	
				Q-3	
				Q-4	
				Q-5	
				Q-6	
			R	R-1	
				R-2	
				R-3	
				R-4	
				R-5	
				R-6	

-Notes-

Appendix II Themes, sub-themes and theme indicators

This form incorporates the three orbits (0, 1, and 2) of the 3D+ Cube-Orbit Model. It is designed to support the planning and organisation of themes, sub-themes, and indicators within the cubes, while simultaneously maintaining clarity regarding the distinctions between the orbits to which they belong. In relevant cases, for example, in cultural change interventions (see section V.B in this paper), the form can also be used, or adapted, for the retrospective mapping of interventions. For each cube, dedicated spaces are provided to record the cube theme, sub-themes (cube faces), and sub-theme indicators (face windows).

Orbit [o]: Core dimensions (=3 Cubes: A, B, and C)					
Cube A	=Theme A=				
Cube faces/ sub-themes (x6)	A-1		Face sub- theme indicators (x9)	A-1.1	
				A-1.2	
				A-1.3	
				A-1.4	
				A-1.5	
				A-1.5	
				A-1.6	
				A-1.7	
				A-1.8	
	A-1.9				
	A-2		Face sub- theme indicators (x9)	A-2.1	
				A-2.2	
				A-2.3	
				A-2.4	

					A-2.5	
					A-2.6	
					A-2.7	
					A-2.8	
					A-2.9	
		A-3		Face sub-theme indicators (x9)	A-3.1	
					A-3.2	
					A-3.3	
					A-3.4	
					A-3.5	
					A.3.6	
					A.3.7	
					A.3.8	
					A.3.9	
		A-4		Face sub-theme indicators (x9)	A-4.1	
					A-4.2	
					A-4.3	
					A-4.4	
					A-4.5	
					A-4.6	

					A-4.7	
					A-4.8	
					A-4.9	
		A-5		Face sub-theme indicators (x9)	A-5.1	
					A-5.2	
					A-5.3	
					A-5.4	
					A-5.5	
					A-5.6	
					A-5.7	
					A-5.8	
					A-5.9	
		A-6		Face sub-theme indicators (x9)	A-6.1	
					A-6.2	
					A-6.3	
					A-6.4	
					A-6.5	
					A-6.6	

					A-6.7	
					A-6.8	
					A-6.9	
Cube B	=Theme B=					
	Cube faces/sub-themes (x6)	B-1		Face sub-theme indicators (x9)	B-1.1	
					B-1.2	
					B-1.3	
					B-1.4	
					B-1.5	
					B-1.6	
					B-1.7	
					B-1.8	
					B-1.9	
		B-2		Face sub-theme indicators (x9)	B-2.1	
					B-2.2	
					B-2.3	
					B-2.4	
					B-2.5	
					B-2.6	
					B-2.7	

					B-2.8	
					B-2.9	
		B-3		Face sub-theme indicators (x9)	B-3.1	
					B-3.2	
					B-3.3	
					B-3.4	
					B-3.5	
					B-3.6	
					B-3.7	
					B-3.8	
					B-3.9	
		B-4		Face sub-theme indicators (x9)	B-4.1	
					B-4.2	
					B-4.3	
					B-4.4	
					B-4.5	
					B-4.6	
					B-4.7	
					B-4.8	

					B-4.9	
		B-5		Face sub-theme indicators (x9)	B-5.1	
					B-5.2	
					B-5.3	
					B-5.4	
					B-5.5	
					B-5.6	
					B-5.7	
					B-5.8	
					B-5.9	
		B-6		Face sub-theme indicators (x9)	B-6.1	
					B-6.2	
					B-6.3	
					B-6.4	
					B-6.5	
					B-6.6	
					B-6.7	
					B-6.8	
					B-6.9	

Cube C	Theme C					
Cube C	Theme C Cube faces/sub-themes (x6)	C-1		Face sub-theme indicators (x9)	C-1.1	
					C-1.2	
					C-1.3	
					C-1.4	
					C-1.5	
					C-1.6	
					C-1.7	
					C-1.8	
					C-1.9	
		C-2		Face sub-theme indicators (x9)	C-2.1	
					C-2.2	
					C-2.3	
					C-2.4	
					C-2.5	
					C-2.6	
					C-2.7	
					C-2.8	
					C-2.9	

	C-3		Face sub-theme indicators (x9)	C-3.1	
				C-3.2	
				C-3.3	
				C-3.4	
				C-3.5	
				C-3.6	
				C-3.7	
				C-3.8	
				C-3.9	
	C-4		Face sub-theme indicators (x9)	C-4.1	
				C-4.2	
				C-4.3	
				C-4.4	
				C-4.5	
				C-4.6	
				C-4.7	
				C-4.8	
				C-4.9	
	C-5		Face sub-theme	C-5.1	
C-5.2					

				indicators (x9)	C-5.3 C-5.4 C-5.5 C-5.6 C-5.7 C-5.8 C-5.9	
		C-6		Face sub-theme indicators (x9)	C-6.1 C-6.2 C-6.3 C-6.4 C-6.5 C-6.6 C-6.7 C-6.8 C-6.9	

Orbit [1]: Key support dimensions (=6 Cubes: D, E, F, G, H and I)

Cube D	=Theme D=					
	Cube Faces/ Sub-themes (x6)	D-1		Face Sub- theme indicators (x9)	D-1.1	
					D-1.2	
					D-1.3	
					D-1.4	
					D-1.5	
					D-1.5	
					D-1.6	
					D-1.7	
					D-1.8	
		D-1.9				
		D-2		Sub- theme indicators (x9)	D-2.1	
					D-2.2	
					D-2.3	
					D-2.4	
					D-2.5	
					D-2.6	
					D-2.7	

					D-2.8	
					D-2.9	
		D-3		Face sub-theme indicators (x9)	D-3.1	
					D-3.2	
					D-3.3	
					D-3.4	
					D-3.5	
					D.3.6	
					D.3.7	
					D.3.8	
					D.3.9	
		D-4		Face sub-theme indicators (x9)	D-4.1	
					D-4.2	
					D-4.3	
					D-4.4	
					D-4.5	
					D-4.6	
					D-4.7	
					D-4.8	
					D-4.9	

		D-5		Face sub- theme indicators (x9)	D- 5.1	
					D- 5.2	
					D- 5.3	
					D- 5.4	
					D- 5.5	
					D- 5.6	
					D-5.7	
					D- 5.8	
					D- 5.9	
		D-6		Face sub- theme indicators (x9)	D- 6.1	
					D- 6.2	
					D- 6.3	
					D- 6.4	
					D- 6.5	
					D- 6.6	
					D- 6.7	
					D- 6.8	
					D- 6.9	

Cube E	=Theme E=							
Cube faces/sub-themes (x6)	E-1			Face sub-theme Indicators (x9)	E-1.1			
					E-1.2			
					E-1.3			
					E-1.4			
					E-1.5			
					E-1.6			
					E-1.7			
					E-1.8			
					E-1.9			
	E-2			Face sub-theme indicators (x9)	E-2.1			
					E-2.2			
					E-2.3			
					E-2.4			
					E-2.5			
					E-2.6			
					E-2.7			
					E-2.8			
					E-2.9			
	E-3			Face sub-theme indicators (x9)	E-3.1			
					E-3.2			
					E-3.3			
					E-3.4			
					E-3.5			
					E-3.6			
					E-3.7			

		E-4			B-3.8			
							B-3.9	
				Face sub-theme indicators (x9)			E-4.1	
								E-4.2
								E-4.3
								E-4.4
								E-4.5
								E-4.6
								E-4.7
								E-4.8
								E-4.9
			E-5		Face sub-theme indicators (x9)		E-5.1	
								E-5.3
								E-5.4
								E-5.5
								E-5.6
								E-5.7
								E-5.8
								E-5.9
		E-6		Face sub-theme indicators (x9)	E-6.1			
								E-6.2
								E-6.3
								E-6.4

					E-6.5	
					E-6.6	
					E-6.7	
					E-6.8	
					E-6.9	
Cube F	=Theme F= Cube faces/sub-themes (x6)	F-1		Face sub-theme Indicators (x9)	F-1.1	
					F-1.2	
					F-1.3	
					F-1.4	
					F-1.5	
					F-1.6	
					F-1.7	
					F-1.8	
					F-1.9	
		F-2		Face sub-theme indicators (x9)	F-2.1	
					F-2.2	
					F-2.3	
					F-2.4	
					F-2.5	
					F-2.6	
					F-2.7	
					F-2.8	
					F-2.9	
		F-3			F-3.1	

				Face sub-theme indicators (x9)	F-3.2	
					F-3.3	
					F-3.4	
					F-3.5	
					F-3.6	
					F-3.7	
					F-3.8	
					F-3.9	
		F-4			Face sub-theme indicators (x9)	F-4.1
				F-4.2		
				F-4.3		
				F-4.4		
				F-4.5		
				F-4.6		
				F-4.7		
				F-4.8		
				F-4.9		
		F-5		Face sub-theme indicators (x9)	F-5.1	
					F-5.2	
					F-5.3	
					F-5.4	
					F-5.5	
					F-5.6	
					F-5.7	
					F-5.8	
					F-5.9	

		F-6		Face sub-theme indicators (x9)	F-6.1	
					F-6.2	
					F-6.3	
					F-6.4	
					F-6.5	
					F-6.6	
					F-6.7	
					F-6.8	
					F-6.9	
Cube G	=Theme G=					
	Cube faces/sub-themes (x6)	G-1		Face sub-theme indicators (x9)	G-1.1	
					G-1.2	
					G-1.3	
					G-1.4	
					G-1.5	
					G-1.6	
					G-1.7	
					G-1.8	
					G-1.9	
		G-2		Face sub-theme indicators (x9)	G-2.1	
					G-2.2	
					G-2.3	

					G-2.4	
					G-2.5	
					G-2.6	
					G-2.7	
					G-2.8	
					G-2.9	
		G-3		Face sub-theme indicators (x9)	G-3.1	
					G-3.2	
					G-3.3	
					G-3.4	
					G-3.5	
					G-3.6	
					G-3.7	
					G-3.8	
					G-3.9	
		G-4		Face sub-theme indicators (x9)	G-4.1	
					G-4.2	
					G-4.3	
					G-4.4	

					G-4.5	
					G-4.6	
					G-4.7	
					G-4.8	
					G-4.9	
		G-5		Face sub-theme indicators (x9)	G-5.1	
					G-5.2	
					G-5.3	
					G-5.4	
					G-5.5	
					G-5.6	
					G-5.7	
					G-5.8	
					G-5.9	
		G-6		Face sub-theme indicators (x9)	G-6.1	
					G-6.2	
					G-6.3	
					G-6.4	

					G-6.5	
					G-6.6	
					G-6.7	
					G-6.8	
					G-6.9	
Cube H	=Theme H=					
Cube faces/sub-themes (x6)	H-1			Face sub-theme indicators (x9)	H-1.1	
					H-1.2	
					H-1.3	
					H-1.4	
					H-1.5	
					H-1.6	
					H-1.7	
	H-2			Face sub-theme indicators (x9)	H-1.8	
					H-1.9	
					H-2.1	
					H-2.2	
					H-2.3	
					H-2.4	

					H-2.5	
					H-2.6	
					H-2.7	
					H-2.8	
					H-2.9	
		H-3		Face sub-theme indicators (x9)	H-3.1	
					H-3.2	
					H-3.3	
					H-3.4	
					H-3.5	
					H-3.6	
					H-3.7	
					H-3.8	
					H-3.9	
		H-4		Face sub-theme indicators (x9)	H-4.1	
					H-4.2	
					H-4.3	
					H-4.4	
					H-4.5	

					H-4.6	
					H-4.7	
					H-4.8	
					H-4.9	
		H-5		Face sub-theme indicators (x9)	H-5.1	
					H-5.2	
					H-5.3	
					H-5.4	
					H-5.5	
					H-5.6	
					H-5.7	
					H-5.8	
					H-5.9	
		H-6		Face sub-theme indicators (x9)	H-6.1	
					H-6.2	
					H-6.3	
					H-6.4	
					H-6.5	

					H-6.6	
					H-6.7	
					H-6.8	
					H-6.9	
Cube I	=Theme I=					
Cube faces/sub-themes (x6)	I-1		Face sub-theme indicators (x9)	I-1.1		
				I-1.2		
				I-1.3		
				I-1.4		
				I-1.5		
				I-1.6		
				I-1.7		
				I-1.8		
				I-1.9		
	I-2		Face sub-theme indicators (x9)	I-2.1		
				I-2.2		
				I-2.3		
				I-2.4		
				I-2.5		
				I-2.6		
				I-2.7		
				I-2.8		
				I-2.9		

		I-3		Face sub-theme indicators (x9)	l-3.1	
					l-3.2	
					l-3.3	
					l-3.4	
					l-3.5	
					l-3.6	
					l-3.7	
					l-3.8	
					l-3.9	
		I-4		Face sub-theme indicators (x9)	l-4.1	
					l-4.2	
					l-4.3	
					l-4.4	
					l-4.5	
					l-4.6	
					l-4.7	
					l-4.8	
					l-4.9	
		I-5		Face sub-theme indicators (x9)	l-5.1	
					l-5.2	
					l-5.3	
					l-5.4	
					l-5.5	
					l-5.6	
					l-5.7	
					l-5.8	
					l-5.9	

		I-6		Face sub-theme indicators (x9)	I-6.1	
					I-6.2	
					I-6.3	
					I-6.4	
					I-6.5	
					I-6.6	
					I-6.7	
					I-6.8	
					I-6.9	

Orbit [2]: Peripheral dimensions (=9 cubes: J, K, L, M, N, O, P, Q and R)

Cube	=Theme J=					
J	Cube faces/ sub-themes (x6)	J-1		Face Sub- theme indicators (x9)	J-1.1	
					J-1.2	
					J-1.3	
					J-1.4	
					J-1.5	
					J-1.5	
					J-1.6	
					J-1.7	
					J-1.8	
		J-1.9				
		J-2		Face Sub- theme indicators (x9)	J-2.1	
					J-2.2	
					J-2.3	
					J-2.4	
					J-2.5	
					J-2.6	
					J-2.7	
					J-2.8	
					J-2.9	
		J-3		Face Sub- theme indicators (x9)	J-3.1	
					J-3.2	
					J-3.3	
					J-3.4	
					J-3.5	
					J-3.6	

					J-3.7	
					J-3.8	
					J-3.9	
		J-4		Face Sub-theme indicators (x9)	J-4.1	
					J-4.2	
					J-4.3	
					J-4.4	
					J-4.5	
					J-4.6	
					J-4.7	
					J-4.8	
					J-4.9	
		J-5		Face Sub-theme indicators (x9)	J-5.1	
					J-5.2	
					J-5.3	
					J-5.4	
					J-5.5	
					J-5.6	
					J-5.7	
					J-5.8	
					J-5.9	
		J-6		Face Sub-theme indicators (x9)	J-6.1	
					J-6.2	
					J-6.3	
					J-6.4	
					J-6.5	
					J-6.6	

					J-6.7	
					J-6.8	
					J-6.9	
Cube K	=Theme K=					
	Cube faces/sub-themes (x6)	K-1		Face sub-theme Indicators (x9)	K-1.1	
					K-1.2	
					K-1.3	
					K-1.4	
					K-1.5	
					K-1.6	
					K-1.7	
					K-1.8	
					K-1.9	
		K-2		Face sub-theme indicators (x9)	K-2.1	
					K-2.2	
					K-2.3	
					K-2.4	
					K-2.5	
					K-2.6	
					K-2.7	
					K-2.8	
					K-2.9	

	K-3		Face sub-theme indicators (x9)	K-3.1	
				K-3.2	
				K-3.3	
				K-3.4	
				K-3.5	
				K-3.6	
				K-3.7	
				K-3.8	
				K-3.9	
	K-4		Face sub-theme indicators (x9)	K-4.1	
				K-4.2	
				K-4.3	
				K-4.4	
				K-4.5	
K-5		Face sub-theme indicators (x9)	K-4.6		
			K-4.7		
			K-4.8		
			K-4.9		
			Face sub-theme indicators (x9)	K-5.1	
				K-5.2	
				K-5.3	
				K-5.4	
				K-5.5	

					K-5.6	
					K-5.7	
					K-5.8	
					K-5.9	
		K-6		Face sub-theme indicators (x9)	K-6.1	
					K-6.2	
					K-6.3	
					K-6.4	
					K-6.5	
					K-6.6	
					K-6.7	
					K-6.8	
					K-6.9	
Cube L	=Theme L=					
	Cube faces/sub-themes (x6)	L-1		Face sub-theme Indicators (x9)	L-1.1	
					L-1.2	
					L-1.3	
					L-1.4	
					L-1.5	
					L-1.6	
					L-1.7	
					L-1.8	

		L-2		Face sub-theme indicators (x9)	L-1.9	
					L-2.1	
					L-2.2	
					L-2.3	
					L-2.4	
					L-2.5	
					L-2.6	
					L-2.7	
					L-2.8	
		L-3		Face sub-theme indicators (x9)	L-2.9	
					L-3.1	
					L-3.2	
					L-3.3	
					L-3.4	
					L-3.5	
					L-3.6	
					L-3.7	
					L-3.8	
		L-4		Face sub-theme indicators (x9)	L-3.9	
					L-4.1	
					L-4.2	
					L-4.3	
					L-4.4	
					L-4.5	
					L-4.6	
					L-4.7	
			L-4.8			

		L-5		Face sub-theme indicators (x9)	L-4.9	
			L-5.1			
			L-5.2			
			L-5.3			
			L-5.4			
			L-5.5			
			L-5.6			
			L-5.7			
			L-5.8			
			L-5.9			
		L-6		Face sub-theme indicators (x9)	L-6.1	
			L-6.2			
			L-6.3			
			L-6.4			
			L-6.5			
			L-6.6			
			L-6.7			
			L-6.8			
			L-6.9			
Cube M	=Theme M=					
	Cube faces/sub-themes (x6)	M-1		Face sub-theme indicators (x9)	M-1.1	
			M-1.2			
			M-1.3			

					M-1.4	
					M-1.5	
					M-1.6	
					M-1.7	
					M-1.8	
					M-1.9	
		M-2		Face sub-theme indicators (x9)	M-2.1	
					M-2.2	
					M-2.3	
					M-2.4	
					M-2.5	
					M-2.6	
					M-2.7	
					M-2.8	
					M-2.9	
		M-3		Face sub-theme indicators (x9)	M-3.1	
					M-3.2	
					M-3.3	

					M-3-4	
					M-3-5	
					M-3-6	
					M-3-7	
					M-3-8	
					M-3-9	
		M-4		Face sub-theme indicators (x9)	M-4-1	
					M-4-2	
					M-4-3	
					M-4-4	
					M-4-5	
					M-4-6	
					M-4-7	
					M-4-8	
					M-4-9	
		M-5		Face sub-theme indicators (x9)	M-5-1	
					M-5-2	
					M-5-3	

					M-5.4	
					M-5.5	
					M-5.6	
					M-5.7	
					M-5.8	
					M-5.9	
		M-6		Face sub-theme indicators (x9)	M-6.1	
					M-6.2	
					M-6.3	
					M-6.4	
					M-6.5	
					M-6.6	
					M-6.7	
					M-6.8	
					M-6.9	
Cube N	=Theme N=					
	Cube faces/sub-themes (x6)	N-1		Face sub-theme indicators (x9)	N-1.1	
					N-1.2	

					N-1.3	
					N-1.4	
					N-1.5	
					N-1.6	
					N-1.7	
					N-1.8	
					N-1.9	
		N-2		Face sub-theme indicators (x9)	N-2.1	
					N-2.2	
					N-2.3	
					N-2.4	
					N-2.5	
					N-2.6	
					N-2.7	
					N-2.8	
					N-2.9	
		N-3		Face sub-theme indicators (x9)	N-3.1	
					N-3.2	

					N-3.3	
					N-3.4	
					N-3.5	
					N-3.6	
					N-3.7	
					N-3.8	
					N-3.9	
		N-4		Face sub-theme indicators (x9)	N-4.1	
					N-4.2	
					N-4.3	
					N-4.4	
					N-4.5	
					N-4.6	
					N-4.7	
					N-4.8	
					N-4.9	
		N-5		Face sub-theme indicators (x9)	N-5.1	
					N-5.2	

					N-5.3	
					N-5.4	
					N-5.5	
					N-5.6	
					N-5.7	
					N-5.8	
					N-5.9	
		N-6		Face sub-theme indicators (x9)	N-6.1	
					N-6.2	
					N-6.3	
					N-6.4	
					N-6.5	
					N-6.6	
					N-6.7	
					N-6.8	
					N-6.9	

Cube O	=Theme O=					
	Cube faces/sub- themes (x6)	O-1		Face sub- theme indicators (x9)	O- 1.1	
					O- 1.2	
					O- 1.3	
					O- 1.4	
					O- 1.5	
					O- 1.6	
					O- 1.7	
					O- 1.8	
					O- 1.9	
		O-2		Face sub- theme indicators (x9)	O- 2.1	
					O- 2.2	
					O- 2.3	
					O- 2.4	
					O- 2.5	
					O- 2.6	
					O- 2.7	
					O- 2.8	

		O-3		Face sub-theme indicators (x9)	O-2.9	
					O-3.1	
					O-3.2	
					O-3.3	
					O-3.4	
					O-3.5	
					O-3.6	
					O-3.7	
					O-3.8	
					O-3.9	
		O-4		Face sub-theme indicators (x9)	O-4.1	
					O-4.2	
					O-4.3	
					O-4.4	
					O-4.5	
					O-4.6	
					O-4.7	
					O-4.8	

		O-5		Face sub-theme indicators (x9)	O-4.9	
					O-5.1	
					O-5.2	
					O-5.3	
					O-5.4	
					O-5.5	
					O-5.6	
					O-5.7	
					O-5.8	
				O-5.9		
		O-6		Face sub-theme indicators (x9)	O-6.1	
					O-6.2	
					O-6.3	
					O-6.4	
					O-6.5	
					O-6.6	
					O-6.7	
					O-6.8	

					O-6.9	
Cube P	=Theme P=					
Cube faces/sub-themes (x6)	P-1		Face sub-theme indicators (x9)	P-1.1		
				P-1.2		
				P-1.3		
				P-1.4		
				P-1.5		
				P-1.6		
				P-1.7		
				P-1.8		
				P-1.9		
	P-2		Face sub-theme indicators (x9)	P-2.1		
				P-2.2		
				P-2.3		
				P-2.4		
				P-2.5		
				P-2.6		
				P-2.7		
				P-2.8		
				P-2.9		
	P-3		Face sub-theme indicators (x9)	P-3.1		
				P-3.2		
				P-3.3		

					P-3.4	
					P-3.5	
					P-3.6	
					P-3.7	
					P-3.8	
					P-3.9	
		P-4		Face sub-theme indicators (x9)	P-4.1	
					P-4.2	
					P-4.3	
					P-4.4	
					P-4.5	
					P-4.6	
					P-4.7	
					P-4.8	
					P-4.9	
		P-5		Face sub-theme indicators (x9)	P-5.1	
					P-5.2	
					P-5.3	
					P-5.4	
					P-5.5	
					P-5.6	
					P-5.7	
					P-5.8	
					P-5.9	

		P-6		Face sub-theme indicators (x9)	P-6.1	
					P-6.2	
					P-6.3	
					P-6.4	
					P-6.5	
					P-6.6	
					P-6.7	
					P-6.8	
					P-6.9	
Cube Q	=Theme Q=					
	Cube faces/sub-themes (x6)	Q-1		Face sub-theme indicators (x9)	Q-1.1	
					Q-1.2	
					Q-1.3	
					Q-1.4	
					Q-1.5	
					Q-1.6	
					Q-1.7	
					Q-1.8	
					Q-1.9	

		Q-2		Face sub- theme indicators (x9)	Q- 2.1	
					Q- 2.2	
					Q- 2.3	
					Q- 2.4	
					Q- 2.5	
					Q- 2.6	
					Q- 2.7	
					Q- 2.8	
					Q- 2.9	
		Q-3		Face sub- theme indicators (x9)	Q- 3.1	
					Q- 3.2	
					Q- 3.3	
					Q- 3.4	
					Q- 3.5	
					Q- 3.6	
					Q- 3.7	
					Q- 3.8	
					Q- 3.9	

		Q-4		Face sub- theme indicators (x9)	Q- 4.1	
					Q- 4.2	
					Q- 4.3	
					Q- 4.4	
					Q- 4.5	
					Q- 4.6	
					Q- 4.7	
					Q- 4.8	
					Q- 4.9	
		Q-5		Face sub- theme indicators (x9)	Q- 5.1	
					Q- 5.2	
					Q- 5.3	
					Q- 5.4	
					Q- 5.5	
					Q- 5.6	
					Q- 5.7	
					Q- 5.8	
					Q- 5.9	

		Q-6		Face sub-theme indicators (x9)	Q-6.1	
					Q-6.2	
					Q-6.3	
					Q-6.4	
					Q-6.5	
					Q-6.6	
					Q-6.7	
					Q-6.8	
					Q-6.9	
Cube R	=Theme R=					
	Cube faces/sub-themes (x6)	R-1		Face sub-theme indicators (x9)	R-1.1	
					R-1.2	
					R-1.3	
					R-1.4	
					R-1.5	
					R-1.6	
					R-1.7	
					R-1.8	
					R-1.9	
		R-2		Face sub-theme	R-2.1	
					R-2.2	

				indicators (x9)	R-2.3	
					R-2.4	
					R-2.5	
					R-2.6	
					R-2.7	
					R-2.8	
					R-2.9	
		R-3		Face sub-theme indicators (x9)	R-3.1	
					R-3.2	
					R-3.3	
					R-3.4	
					R-3.5	
					R-3.6	
					R-3.7	
					R-3.8	
					R-3.9	
		R-4		Face sub-theme indicators (x9)	R-4.1	
					R-4.2	
					R-4.3	
					R-4.4	
					R-4.5	
					R-4.6	
					R-4.7	

					R-4.8	
					R-4.9	
		R-5		Face sub-theme indicators (x9)	R-5.1	
					R-5.2	
					R-5.3	
					R-5.4	
					R-5.5	
					R-5.6	
					R-5.7	
					R-5.8	
					R-5.9	
		R-6		Face sub-theme indicators (x9)	R-6.1	
					R-6.2	
					R-6.3	
					R-6.4	
					R-6.5	
					R-6.6	
					R-6.7	
					R-6.8	
					R-6.9	

Appendix III A 3x3 puzzle cube face

Orbit	(core/support/periphery)
Cube No.	-----
Cube theme	-----
Cube face	(1/2/3/4/5/6)
Assigned colour	(green/blue/red/yellow/purple/orange)
Sub-theme in Focus	-----

Indicator No. ()	Indicator No. ()	Indicator No. ()	Layer #1
Indicator No. ()	Indicator No. ()	Indicator No. ()	Layer #2
Indicator No. ()	Indicator No. ()	Indicator No. ()	Layer #3

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