

# Dialogic design for the intelligent enterprise: Collaborative strategy, process, and action

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**Abstract.** Dialogic design provides efficient, reliable approaches for organizations to envision and implement cohesive, comprehensive, and compelling roadmaps for enterprise evolution. Using structured dialogue to integrate the collective intelligence of stakeholders, we produce a shared representation of the intelligent enterprise, enabling “organizing around intellect.” Dialogic design is progressive in focus, scaling from strategic vision to business process design to system requirements, mapping each level’s priorities to successive requirements. Each focus inquiry iterates from deep problem understanding, to generative solution design, through consensus action planning.

We applied Structured Dialogic Design to the transformation of a small consultancy, with findings applicable to any enterprise. The process efficiently enables a democratic, collaborative approach to redesign of socio-organizational systems and practices, using a software-supported collaborative process. It efficiently achieves true consensus on organizational and business strategy, resolves multiple conflicts of values and resource decisions, and determines the most effective priorities while preventing groupthink errors.

## 1. Introduction

**Context for Intelligent Enterprises: Organizational Transformation.** Throughout the lifecycle of any enterprise, market or environmental changes force the organization to evaluate and reconfigure core assumptions, operational processes, product lines, and even core values. We proceed from the context of managing transformation efforts to create an “intelligent enterprise.” While there may be multiple perspectives and definitions of the intelligent enterprise, we consider it the ideal of the self-organizing enterprise, dynamically interacting with a distributed network of stakeholders within and external to the firm. Organizational agents operate interdependently in this context, not aligned to top-down authority but rather interacting with organizational and market agents with a knowledgeable autonomy of decision-making and action. In a complex network such as an enterprise, knowledge is widely distributed and remains in flow; the assumption of intelligence concentrated at the top is antithetical to innovation, knowledge creation, and the generation of intelligent structures. The structure of organizations aiming to transform as intelligent enterprises must become more democratic and self-organizing to develop and learn from the collective intelligence of the *enterprise as network*. The challenges to organizational culture and leadership of this type of transformation cannot be understated. Most Western organizations will be unable to sustain such a program, and some that attempt the

transformation may fail in the process and lose competitive ground due to strategic confusion.

Rouse (2005) identifies experienced or anticipated value deficiencies as a driver for transformative change. While value is normally considered an economic criterion, transformation can also be driven by purpose (“doing the right business”), values (“doing right in business”), or profitability. Management theorists have defined different types or levels of transformation, including improving operations, strategic transformation, or corporate self-renewal (Blumenthal and Haspeslagh, 1994). The general thrust of transformation efforts aims toward significant organizational changes that institutionalize desired behaviors necessary for long-term business success. While some management thinkers may place the responsibility solely on management to accomplish transformation, in our view successful transformation depends on the collaboration of all stakeholders in the enterprise, at a minimum by adopting the new practices as full participants. This view is supported by Kotter (1995), whose findings show transformation efforts fail to the extent that organizational communication and collaboration fails. While every employee may have a stake in transformation, only a smaller number of stakeholders can be directly involved in collaborative design of the new organizational architecture. For enterprises that espouse organizational values of participation, innovation, and trust we advocate a democratic approach to collaboration involving organizational representatives in structured dialogic design. We present such an approach applied to collaborative enterprise redesign.

Two predominant themes of systemic organizational change include enterprise *transformation* (Rouse, 2005) and design or structuring organizational *architecture* (Ioannides, 1987, Sauer and Willcocks, 2003). These are strategic processes aimed at redefining the operational structures, processes, and business models of an enterprise, involving systemic design comparable in complexity to system engineering. Rouse (2005) notes that architectures are expressed in multiple views, of which he identifies three models as the operational, technical, and system. Enterprise transformation reconfigures the operational architecture, and the other views are inherently adapted to the new operational work processes. The management literature reveals inherent conflicts question regarding the alignment or reconciliation of system and information architectures with operations. While the concept of alignment (of IT or processes) is traditionally conceived as a managerial control system that reorganizes work practices, roles, and even peripheral tasks to identified strategic requirements, some (Jones, 2006, Ciborra, 1998) have criticized the concept as not demonstrating empirical validity. Dialogic design resolves the issues of alignment through iterative learning and negotiations toward a consensus on priorities within each view.

For more tactical requirements, we find *analytic* change processes commonly referred to as restructuring or reengineering as being relevant and applicable. The most significant difference between the change programs is the degree to which core operations, market structures/portfolios, and organizational values are reconfigured to serve a significantly revised strategy. Reengineering and restructuring may be market-driven, but are more typically motivated by internally-focused cost management or product line changes. Transformation assumes a comprehensive shift in market-facing operations, business strategy, line processes, and organizational vision and values. We describe a collaborative design methodology applicable to both of these large-scale enterprise change processes.

Given the depth of organizational intervention in transformation efforts, we believe firms require a disciplined, auditable, and transparent method for participatory design and decision-making. Traditional open forum strategic planning, decision processes, or visioning workshops bias outcomes based upon over reliance on the views of the powerful and the passionate.

Traditional top-down analytic approaches are well suited for describing the past, but consistently underconceptualize opportunities for the future. When fundamental assumptions or business requirements are poorly defined or erroneously prioritized, the entire “transformation” restructuring may be based upon on a flawed model, which could be impossible or costly to change once firmly set. To mitigate these risks, as well as leverage the pragmatic strategic thinking available in a collective group of diversified stakeholders, we prescribe a democratic process of progressive inquiry drawn from systems thinking and dialogic design methodology.

Organizational research reported in the associated case study demonstrates the application of dialogic design as a validated method for generative enterprise redesign. The case reveals the definition of core commitments (values and vision), the achievement of consensus on business strategy, and the unique contribution of stakeholder participation in redesigning a firm’s structure and strategy. Consistent with de Zeeuw’s (2002) definition of *third-phase science*, where reflective co-investigation improves the quality of observations, the intent of this research was not only to study the firm’s design dynamics, but to observe while in the process of redesigning the firm. The methodology chosen for such *in situ* organizational research was the action research approach.

**Context for Dialogue.** Dialogic design is a class of process planning and systems design methods which have been employed as a validated, complementary methodology for enterprise design. Dialogic design is a form of participatory design and decision making that employs a structured and scalable group dialogue process, systematically eliciting individual contributions to defining a complex problem domain. In this context, dialogue is “the participation of observers engaged in creating meaning, wisdom, and action through communication and collaborative interaction.”

The need for a new, formal process for managing dialogue was initially envisioned by systems thinkers in the Club of Rome (Özbekhan, 1969). Thirty years of rigorous research and practical validation of dialogue management gave rise to the practices of Interactive Management (Warfield, 1999, Alexander, 2002, Christakis, 1998, Gharajedaghi, 1999), and Structured Dialogic Design (SDD) (Christakis, 2006). Software tools emerged in parallel with the practice, providing practitioners with facile access to the power of the Interpretive Structural Modeling (ISM) algorithm to organize and evaluate options generated in a dialogue setting. Other methods such as Dialogue Mapping (Conklin, 2006) emerged through separate and complementary pathways. The key difference between these two methods is both in the process for engaging stakeholders and the outcome. Dialogic design moves participatory dialogue beyond the fundamental phase of understanding issues to the higher phase of explicitly and comprehensively of understanding systemic relationships that link all issues. The dialogic design approach also provides a rigorous, audit trail that is particularly useful for the high-risk, high-complexity inquiries needed for enterprise redesign.

**Context for application.** The application was conducted as an action research project, the organizational redesign for a rapidly developing consulting firm and its use of dialogic design practices in constructing an intentional business strategy. The organizational change cycle started in 1999, and continued through 2006. Strategic dialogue was employed in October 2006 through a newly-enabled Internet toolkit for Structured Dialogic Design. These tools included web-based, virtual collaboration using teleconference, screen sharing, and a wiki website in combination with principles of Interactive Management.

This application of dialogic design methodology begins to address some significant problems identified in the organizational and technology literatures:

- The unavailability of reliable methods for consensus-based strategic, long-range, or visionary planning that leverages the expertise and knowledge of a larger, diverse group of managers.
- The unavailability of effective organizational planning methods for non-traditional enterprises, such as consulting firms, distributed or “virtual” organizations, and start-ups.
- The inability to establish appropriate normative directives for ethical business practices in these firms, or a traceable pathway from organizational values to processes and resource decisions.
- The unavailability of a design methodology for capturing and representing collective learning and internal knowledge to serve as guidance for planning and design of the organization, its products and services.

Our case study provides a starting point for constituting an intelligent enterprise framework based on consensus knowledge representations. A framework of explicit requirements and their relationships is generated, representing a shared mapping of strategies, visions, and values of all participants. While the resulting architectural representations create a foundation for organizational decision-making, they are not merely a cataloging of available explicit knowledge representations. Dialogic design requires that participants test the influence of multiple propositions, leading to a collective view of the connectivity of relationships among system requirements. Participants report that the dialogic process generates a context for organizational learning that leads to unforeseeable, emergent patterns of knowledge. This emergence of significant discovery in the context of shared organizational knowledge has not been reported in the literature of strategic management or knowledge management.

## 2. Organizational Architectures in the Intelligent Enterprise

An intelligent enterprise may be viewed as the organized intelligence of managers, workers, and stakeholders interdependently engaged toward a common vision. This is not the vision of a top-down control system; intelligence must assume a dynamic, adaptive strategy that enables organizational agents to independently deploy their knowledge in everyday work. The capacity to define such strategies in today’s enterprise environments does not reside with a strategist or even a management team – intelligent capacity is widely distributed among organizational participants and the total operational network of the enterprise. As the originator of the term “intelligent enterprise,” James Brian Quinn (2002) noted: “The self-sufficient enterprise is becoming anachronistic. Each organization is part of a matrix of merging and evolving ideas and opportunities. To realize its own potential, a company must engage external knowledge centers through well-developed alliances. Leading companies focus less on positioning and more on patterns of people and institutions they work with — or against.”

**Organizational architectures** The purpose of the action research was to apply dialogic design as a business experiment to the collective design of business strategy and planning for resource management to support future growth. We initiated research with the assumption of designing an organizational architecture supporting the collectively determined priorities and objectives. Business research shows several approaches to organizational architecture (Ioannides (1987), the

virtual organization (Sotto, 1997), linking strategic vision to IT architecture (Bloomfield and Vurdubakis, 1997), and knowledge architectures (von Krogh and Roos 1995). We recognize the *strategic management orientation* as best fitting enterprise transformation, following Sauer and Willcocks (2003):

“Organizational Architecture refers to the thinking that encompasses not only current organization design but the kind of organizational designs that might be required in the future. This embraces the design parameters that specify the requirements for such organizational designs (ibid, p. 502).”

Their model structures organizational architecture as a translation between the *vision*, the highest level of enterprise design, and the IT platforms and applications that coordinate operations. Sauer and Willcocks (2001) suggest an organizational architecture consisting of five business model components, and four organizational components:

**Business model:** Source of financial contribution; Type of commerce; Structural model of the organization; Market reach; and Stage of maturity.

**Organizational:** Responsiveness; Leverage; Operational performance; and Risk management.

But while this function of architecture is clearly desirable and necessary, combining external strategy (market-oriented business model) and internal strategy (organization), their orientation is strongly operational and not transformative. This model identifies technology investments that support the dynamic strategies required to anticipate future enterprise needs. It does not claim transformative intent, let alone organizational consensus or collective enterprise intelligence.

**Organizational Ontology.** While the operational function remains important to any business or strategic plan, we conceived a model that translates from the enterprise vision to an organizational definition of purpose and values, then to processes. This framework defines core intentions, which leads to a more fundamental design; and thus serves as a collaborative roadmap for guiding organizational actions over a long duration. In redefining the purposes of the enterprise, the framework serves an *ontological* function, that of generating agreement on the purpose for being in business, and the shared values which guide action. An ontology is a framework of vision-process-values that constitutes the fundamental commitments of the firm in its *idealized state*. In an ontological representation, organizational values establish the ethical basis for decision-making and organizational behavior, and operational functions, network relationships, and market behaviors follow from the agreements structured in that blueprint.

An organizational ontology becomes generated from inquiries such as “what are the organization’s foundations for values, action, and choice?” and the design question “how do we motivate future growth consistent with our shared values?” By focusing on these questions, we are designing the future business from goals, philosophies, intentions, and values shared by all the stakeholders, creating a basis for true consensus.

Prior work discussed the potential to apply Interactive Management to challenges of revealing and shaping ontological structures (Jones and Dye, 2000). Precedent exists for mapping a taxonomy of object, functions, and definitions in computer science applications to enable multiple agents to interact using a common language for a domain. Such ontologies have been described as “an explicit account of a shared understanding,” (Uschold and Gruninger, 1996) useful for understanding domains of expertise, and in improving organizational communication in managing the development process, and as “an explicit specification of shared conceptualization that aims to facilitate communication between people and organizations and inter-operability between systems and systems engineering” (Abou-Zeid, 2003).

**Resolving Strategy with Ontology.** In the context of an organizational architecture, dialogic design generates a framework, essentially a consensual taxonomy (vision, values, requirements, and directives) for strategic design and planning, and meets the criteria suggested by prior studies. This framework for strategic design differs from strategic planning itself.

Considering that the organizational architecture was designed for use as an instrument of a consensus vision, organizational direction, and pragmatic design action, how does a dialogic design “ontology” differ from a strategic plan? The role of strategic planning “is to enhance the organizations’ abilities to adapt to changing environmental conditions, to allow organizations to respond proactively to threats and opportunities presented by their environments, and to provide a mechanism for reducing environmental uncertainties” (Yasai-Ardekani and Haug, 1997). Strategic planning is primarily focused on responding to external contingency and managing uncertainty, and is not as concerned with constructing the idealized organization or designing an organization’s structure and processes to be consistent with its purpose and values. Organizations are thought to be “aligned” to a strategy, but an ontology generates an internally-focused view of the firm, aligned to purpose and not primarily to a competitive strategy.

A strategy establishes goals that are assumed to be within the firm’s reach. An ontology specifies a vision that may not be within reach. It states, regardless of goals, the firm “stands for this...” It creates a basis for goals and strategy consistent with core values (Özbekhan, 1969).

Core values are the first step in an ontological basis of organizational design. Values statements serve as the basis for organizational direction and decision making (Keeney, 1994), and are part of a focused organizational mission (Drucker, 1992). The organization of a firm’s strategy around the fulcrum of shared values was first suggested in Özbekhan’s “idealized design” (1969), later reiterated by Ackoff (1993), Christakis (2006), and Jones (2007). A values-centered strategy can be considered the *highest-leverage function* of leadership (Jones, 2007). It establishes a set of commitments and values for agreement by all members of an organization. From this perspective, any strategy or direction chosen for action can be assessed against the values-based ontology. In specifying these commitments, any action can be evaluated as supportive, irrelevant, or diminishing. It ensures strategy remains consistent with values.

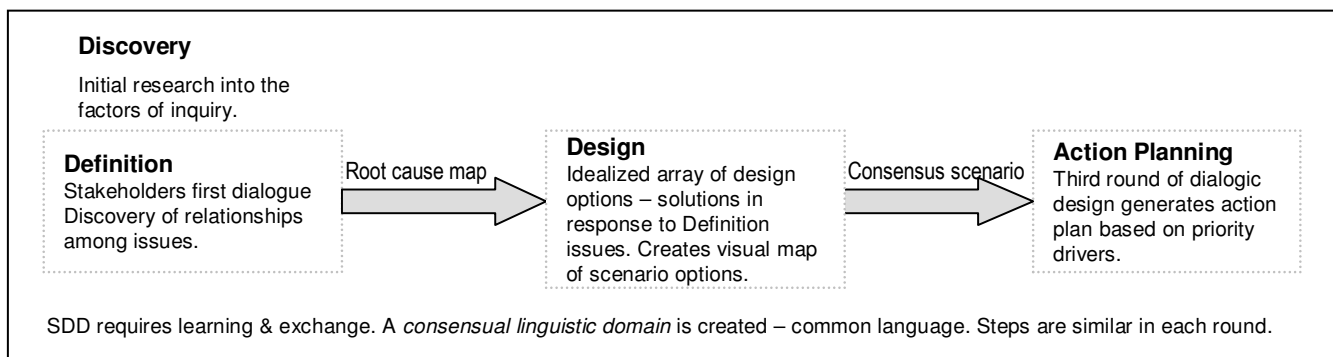
Development of ontology is participatory, and should be pursued by other organizations as a democratic process engaging representatives of as many stakeholder groups as practical. Although in this case, customers were not involved with the design, organizations might consider the strategic value of incorporating the ideas and values of their closest customers as part of their organizational definition. However, a guiding purpose of the ontology was to foster a values-oriented context for market development and client communication, so the ontology specified the types of *customers of interest* to the organization.

### 3. Research Approach

**Research Methodology.** We report an action research project as participant-observers engaged in intentional innovation of the dialogic design process in an organizational design context. Action research is recognized as an effective methodology for conducting process research and evaluating working theories in organizations, through iterative development of theory and testing it in practice, modifying propositions and approaches, and continuing to apply and test in the practice environment. Action research methodologies such as Checkland’s (1991), based on Soft Systems Methodology (SSM) are conceptually similar in practice to the Structured Dialogic Design (SSD). Checkland and others (Avison, et al, 1999) have identified the need to declare an explicit methodology to establish validity in action research, and to distinguish it from consultancy in its practice. Dialogic design methodology is supported by an explicit set of tested principles, and has been employed (as IM) in hundreds of applications (Warfield, 2006). More importantly, SSM is not dialogic or democratic by design; we consider fully diversified stakeholder participation essential to generating a full spectrum of factors to define a problem area, and to elicit emergent relationships that transcend the collection of individual analytical contributions.

**Structured Dialogic Design as Research Method.** Banathy (1996) documents the *Cogniscope* method (i.e., structured dialogic design) as the first design inquiry process that “applies a thoroughly tested cognitive technology that integrates software as ‘groupware’ in the work of a designing community” (p.149). The *SDD* software (used in dialogic design) decomposes complex meaning into dialogue elements that are acted upon by stakeholders to approximate the digital manipulation of meaning (Christakis and Bausch, 2006). The practice of SDD integrates the pluralistic views of the stakeholders, reaching consensus with a minimum of compromise.

Christakis (2006) describes dialogic design as a 4-stage model (including the Discovery phase which is conducted by the core team, and is not dialogic), as shown in Figure 1.



**Figure 1. Four phases of Structured Dialogic Design.**

Summarizing the four stages in terms of their performance, each stage leads to the next in a natural sequence from understanding to action.

1. **Discovery: Understanding the Design Space (Environment).** A core team, including managers and the dialogue (knowledge management) team develop background reports and initial research for distribution to all stakeholders, to establish overall goals and prepare for the dialogue process. Discovery frames the scope of the proceedings (e.g. scope of organizational architecture) and constructs the “triggering question” that focuses participants’ responses in dialogue.
2. **Definition:** *Definition* equates to the conventional dialogue goal of “understanding,” the origination and terminus of traditional dialogue engagements. The initial dialogue stage defines the domain/situation, employing the trigger question to prompt stakeholders to express their understanding. The initial dialogue inquiry is a collaborative inductive elicitation to reach a consensus understanding of the factors and their relationships in the domain. Its product is an SDD influence map (and subsequent products), as shown in Figure 1.
3. **Design:** This stage follows as a deductive inquiry, using a triggering question that focuses group insight on designing solutions to factors from Definition. The goal is collaborative construction of scenarios and alternatives, aiming toward identifying and mapping the best design intent of all stakeholders. The Design stage develops scenarios for a preferred alternative, represented with influence maps and supporting work products.
4. **Action Planning:** Action planning synthesizes the design scenario into a consensus working plan based on the influence mapping of priorities. The collective priority commitments and objectives are translated to assignments and milestones for executing the plan.

Several process innovations were employed in an attempt to advance the practice of dialogic design and to coordinate the interactions and discourse of both collocated and distributed participants. A series of sessions of Web-enabled applications of SDD was coordinated, following dialogic design principles, using the *Cogniscope* software with synchronous teleconferencing. A wiki website was also developed to capture contributions and to display and maintain the results of dialogue content structuring.

Several unique representations are generated from Structured Dialogic Design, including structural diagrams of influence relationships, affinity clusters, ranked lists of proposed directives, propositions evaluated and selected by group inquiry, and supporting discourse for each proposition or directive.



## 4. Dialogic Design of Organizational Architecture

We describe a Web-enabled application of a participatory decision-making method for reconfiguring the strategy and core operations for a distributed global consultancy. The SDD process was deployed in this case by a team of international systems science practitioners who, collectively, had been engaged in meetings, telephone conferences and document exchange for six years duration, bookended by two cycles of planned organizational strategy. Two phases of organizational strategy development were conducted for the consulting firm, one that initiated a major reorganization and repositioning of the firm in 1999, and a significant revision of strategy with new stakeholders conducted in 2006. The 1999 investigation began as a strategy for managing the complexity of a growing business developing new services and for managing internal and network communications. Two dimensions defining the initial organizational architecture, *relationships and assets*, were derived and mapped. These two dimensions were further framed in terms of stewardship as the context for action, reflecting the intention to foster individual responsibility, as well as shared understanding in the organization.

During this period, value deficiencies were recognized, prompting the need for constructive redesign of organizational functions. New products and consulting services were being developed without marketing plans for promotion; clients were sought without a plan for integration into a value network that would leverage the value of additional customers. Considerable frustration was accumulating around the collective impression that the group was not making sufficient progress toward implementing its vision. There was no succession plan and staff development was inconsistent. In response, the group agreed to address its needs through the application of a formal design process that would link participants through a combined use of groupware, teleconference and a three-stage design event.

We are keenly aware of the limitations of dialogue using a mixed process of synchronous and asynchronous, electronic and collocated communications, and present our case as a contribution to furthering virtual collaboration. The endpoints for measuring the success of SDD in virtual collaboration include both group assessment of the appropriate product of design and empirical evidence that the design was effective in catalyzing intended action.

**A Social Architecture.** This action research was driven by the real necessity to grow and coordinate a distributed consulting business. We view a distributed enterprise as a network of commitments managed by decentralized decision making and project subteams. According to Charan (1991), the network is characterized by a *social architecture* that differs from organizational structure. It is concerned with *values leadership* (“intensity, substance, output, and quality of interactions”) and *organizational communications* (“the frequency and character of dialogue among members on a day-to-day basis,” *ibid*, p. 107). An organizational architecture is necessarily a social design, leading action by mapping values, process/practices, and strategic business requirements. Our distributed model of social architecture establishes:

- An authentic shared vision and language shared among all stakeholders
- A system of values and the ethical priorities for leadership and decision making
- A structure of enterprise processes, knowledge practices, and operational guidance
- A set of shared organizational directives applicable to all stakeholder members
- An action plan for determining the order and priority of selected alternatives.

## Dialogic Design Process

A complete dialogic design process engages four distinct stages. For an application as complex as developing an organizational architecture (the metadesign of a complex system), multiple dialogues were required within each stage. The essential requirements for each stage are summarized here; full details for conducting dialogic design are available in the references.

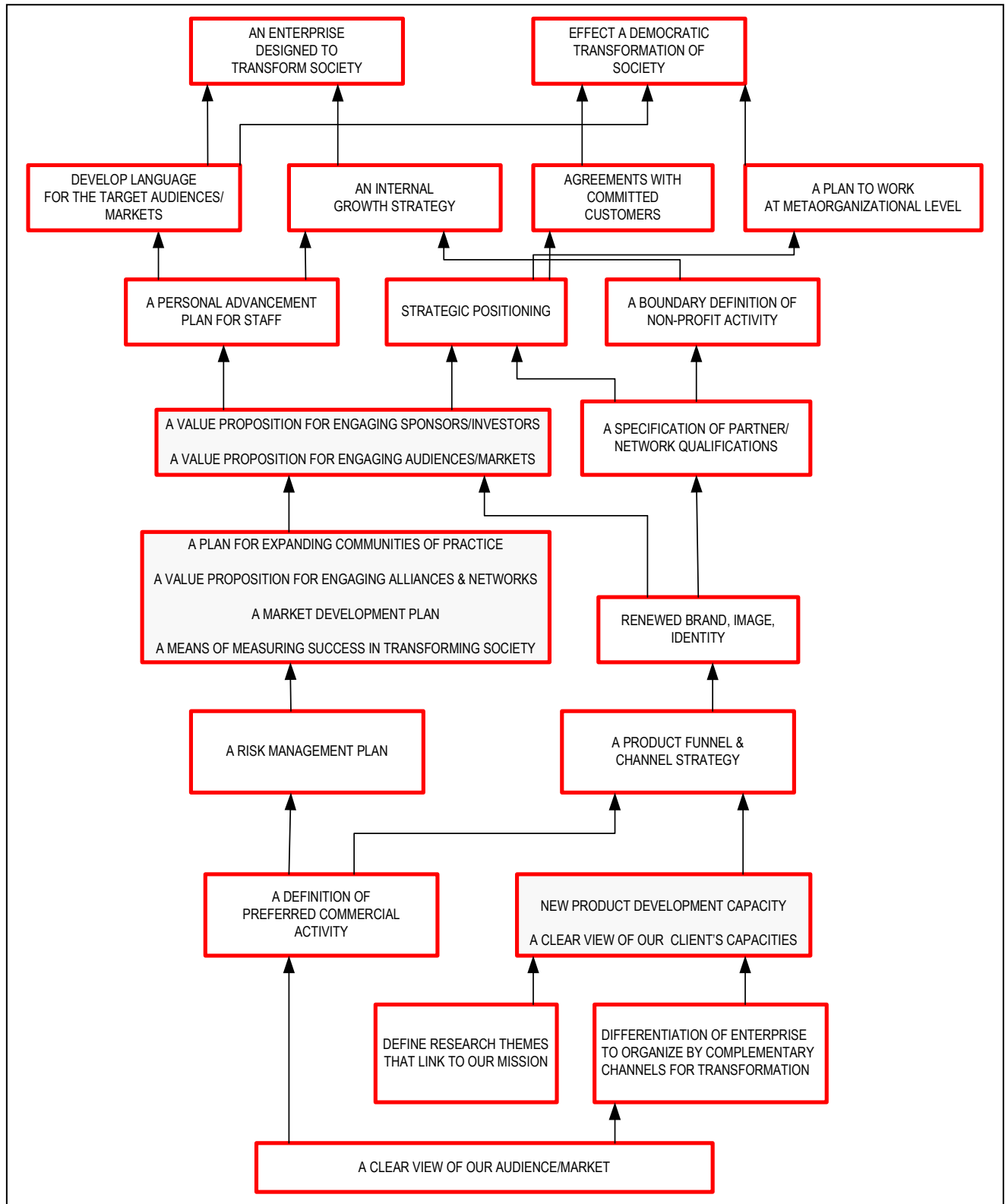
**1. Discovery:** Discovery defines the scope for initial inquiry and requirements, and identifies the appropriate set of representative stakeholders, which may range from less than 10 to well over 30. Discovery includes interviews with key stakeholders, review of other enterprise case studies, emerging business models, and reflection on historical and market context. SDD focuses each dialogue using a “trigger question,” specified to elicit and focus the content of inquiry. For this case, background research was conducted into business plans, product development, and market development to provide a brief to prepare stakeholders for the engagement.

**2. Definition:** Interactive dialogue starts with Definition. Participants respond to a trigger question, resulting in contributions from each stakeholder. Statements are captured in the *Cogniscope* software, and in this case were managed online using a wiki to manage interactive clarification comments. Statements are organized into affinity clusters, and in this inductive process, newly expressed meanings emerge. Affinity clusters were labeled thematically, and participants reflected on a thematic taxonomy of issues. The “deep drivers” surfacing in the Definition were addressed by subsequent dialogic analyses to understand the factors within each driver, or its set of clustered factors. The Definition mapping is shown in Figure 2 below.

**3. Design:** SDD uses interpretive structural modeling (ISM), a matrix algebra algorithm that evaluates pairs of statements, to specify, record and report relationships among statements. Using ISM via the Webscope (Web enabled SDD), the group was led through comparisons among the statements that they had authored with a structuring question. Among the alternatives available for structuring relationships, we adopted *influence*. We asked if addressing one statement would significantly help us to address a specific alternative statement. Participants were prompted with a visual image of the pairwise comparison and voiced a vote on a synchronous conference line. Differences in assessments were discussed, and voting was recast until no significant objection to the group decision was voiced by any participant. The vote was entered into the ISM software which then proceeded iteratively through the matrix of all possible, unaddressed comparisons, prompting members with each subsequent pairwise comparison.

**4. Action Planning.** The resulting structural model (see Figure 1) was displayed through the Web conference, guiding a discussion of influences that linked all of the group’s statements. The analysis makes explicit the shared view of the key drivers for the business/organizational ontology and surfaces the guiding vision, values, and directives for organizational action.

Figure 2 shows a representation of the *Cogniscope* product from the Definition stage, generated from the trigger question “What are our essential assumptions for the business architecture?” The diagram reads from the bottom levels (deep drivers) to the top (ultimate results, or completion of mission factors). Starting with only 25 high-level factors contributed in the Definition dialogue stage, the map shows a complex network of 9 distinct levels of influence (where 4-5 levels are typical for moderate complexity). There are 3 *cycles* indicated (grayed boxes), wherein factors are inextricably interconnected. One cycle combines 4 factors, calling for a separate inquiry requiring analysis of each component issue.



**Figure 2. Organizational architecture - Definition roadmap.**

This map should be viewed as the overview of a series of maps, each developing component factors necessary for design and planning for the major influencing factors. A series of successive maps are generated from the factors requiring additional inquiry or analysis.

Figure 3 shows the configuration of the distributed architecture mapping. The initial Definition map (A) comprises the highest abstraction of the problem space, and as such typically contains factors with significant embedded detail to be evaluated in successive inquiry. Subsequent analysis of the deepest driver, *A clear view of our Markets* (B) rejected a priori assumptions of marketing. This definition was conducted as a generation of all possible markets and customer audiences, clustered inductively and labeled as customer types. These clusters were then structured (using *Cogniscope* ISM matrix algorithm) to produce an influence map (C) of customers and markets related by relative priority. These are not decompositions, but inductive dialogic representations contained within the mapped function.

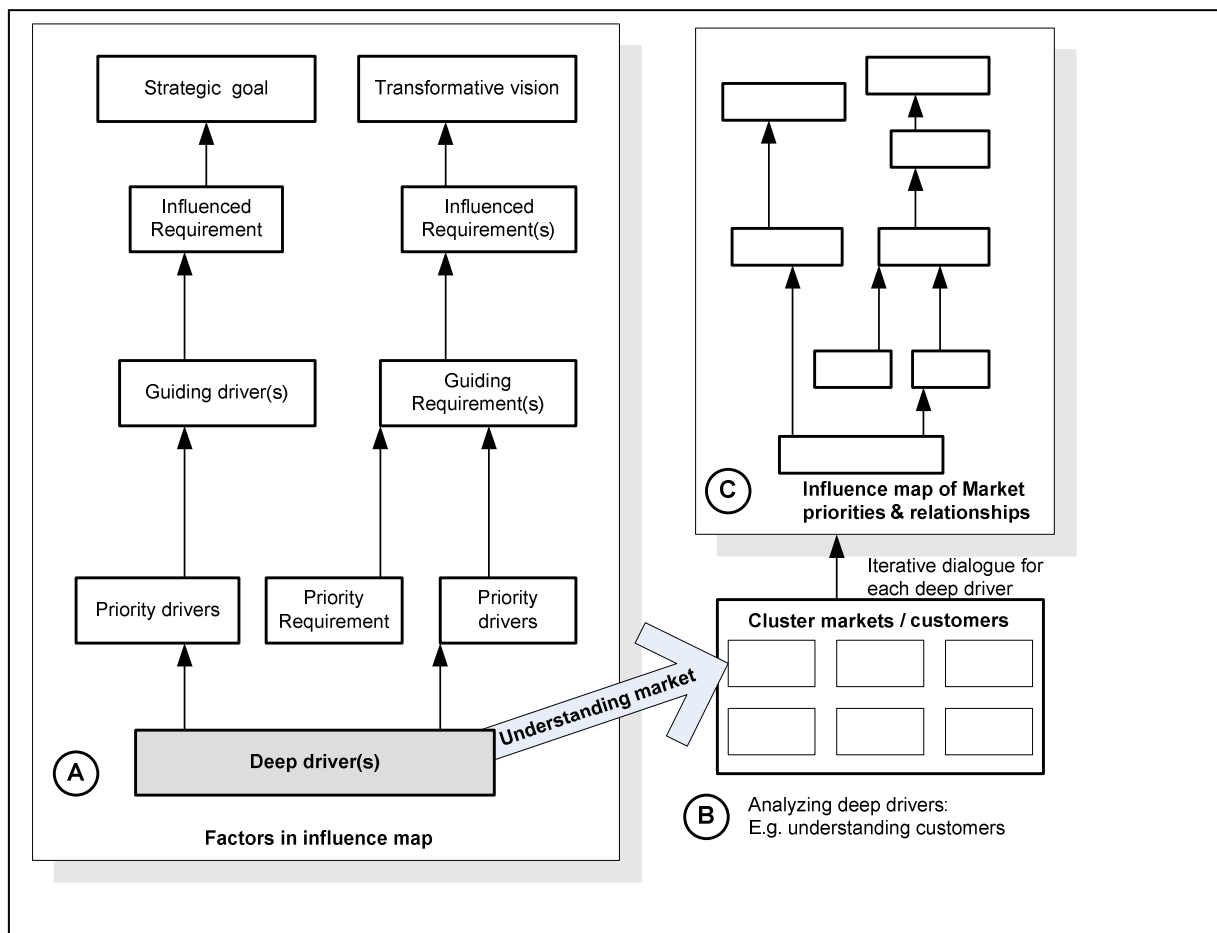


Figure 3. Multi-layered mapping – Analysis by successive induction.

**Overview of Structured Dialogic Design.** Figure 3 shows how the SDD develops sequential layers to resolve complexity and map out priority factors within the single stage of Definition. Typically the deep drivers and cycles (multiplexed factors) are resolved in a complex system map. A very large enterprise architecture may require further evaluation of every factor in the top-level Definition map to produce a comprehensive distributed mapping of the domain.

The form of this process is repeated for each of the other stages (Design, Action Planning), but the dialogue goal differs substantively for each. In traditional dialogic practice, the conclusion of dialogue is reached with a comprehensive “understanding,” which is the goal of the Definition stage. Dialogic design methods were developed in order to achieve consensus on design and priorities for action. The Definition stage provides the necessary mapping of the problem space from which stakeholder can make informed design decisions.

## From Architecture to Execution

Most dialogue practices focus on achieving a consensus understanding, and leave the stakeholders to their own devices to design and execute their vision. We know of no “traditional” published dialogue methods that reliably achieve large-group consensus for the production of a Design model and Action Plans for highly complex systems. Dialogic design may require substantial discipline, but it rewards its practice with consensus and commitment to collaborative vision, design, and plan.

The organizational architecture established a framework guiding a range of functions from values to operational requirements. The action plan generated as a result of the ontology design was immediately usable in the context of business decision making. It was an effective tool to broadly communicate the “truth” that the dialogue team had defined as a legitimate reality among members of the enterprise, as well as to communicate the values and principles guiding priorities and decisions.

The planning activity resulting from dialogic design was measured in hours, not in weeks or months as typical in deep organizational strategy work. While this was not a large or complex organization, the issues encountered in enterprise-level definition and redesign may be similar among firms at the organizational unit of analysis. We completed the Definition dialogic design process using SDD in approximately 10 hours pre-planning and discussion, and 6 hours in dialogue sessions. Participants were subjectively very satisfied with the process and results. Subsequent SDD sessions required additional brief conferences or half-day sessions for the incremental dialogues leading up to and through the design of organizational architecture.

Several effectiveness criteria were established in advance of the dialogue process, including:

- The decision path was observable and traceable.
- Assertions and criteria were supported by rationale or documented organizational needs.
- The model was tested during the process to ensure its structure was systemic and consistent.
- The dialogue process was completed over all stages within the scheduled duration.

While the Action Planning stage continues at the present time, we expect to share updates in the conference presentation.

## Conclusions

We reported on a dialogic methodology for defining an organizational architecture, a process which generates both a strategic roadmap and an ontological specification for identity, values governance, and operational planning. This architecture emerged from the intentional, collective generation of vision, strategy, and directives using Structured Dialogic Design, a participatory design dialogue method evolved from Interactive Management. The research described in this study was conducted with a distributed team working both synchronously (through the Web-scope software and parallel conference calls) and asynchronously through a dedicated wiki (as a preferred option to free floating email threads). The scheduled web-scope sessions served as marshalling events to keep the team focused on the iterative closure on structuring tasks. In addition to significant time and cost savings, the nonprofit organization's management team achieved in a two month period a level of insight that it had not been able to achieve after four years of more traditional planning efforts.

The architecture revealed through the application provides a strategic planning platform for organizational development, business planning, and product portfolio management. With four months of closing on the ontological analysis, the nonprofit organization launched a major initiative to prepare and distribute support tools for two recently-clarified key audiences.

Dialogic design has application potential that reach well beyond the ontological design illustrated in this report. It provides a uniquely effective methodology for resolving complex, socially organized design and decision making problems, and has been successfully used for:

- Democratic large-group decision making
- Policy design & decision making
- Complex (wicked) problem solving
- Strategic planning & effective priority setting
- Portfolio & business asset allocation
- Problem identification & root cause analysis

Other practitioners of dialogic design methods (e.g., Interactive Management) have used these methods in systems engineering contexts. We note the following applications may be advised for transdisciplinary, mixed-stakeholder systems design situations:

- Development of Concept of Operations for new systems
- Human systems design and integration trade-offs
- Function allocation, for consensus on priority of function and assignment
- IT and large-scale systems design consistent with enterprise and operations

We conclude by emphasizing the role that dialogic design serves for mapping the deep structure of a new, growing, or changing enterprise. It provides an explicit basis for strategic planning, and the same dialogic design process may also be extended to directly support the strategic planning process itself. The key distinction between the uses of SDD in these two distinct applications rests with the “trigger question” that aims the process either internally (for ontological analysis) or externally (for strategic planning).

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