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# Caring for the Future: The Systemic Design of Flourishing Enterprises

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## Sustainable Governance, a Matter of Concern

Human commerce utilizes the most significant share of natural resources and produces the largest aggregate impact on the earth's environment. As a consequence of modern employment and work cultures, commerce (corporations as opposed to governments) now constructs much of the social contract and social organizational forms in developed societies. Therefore our attempts toward collective or polycentric governance (Ostrom, 2010) of environmental or social commons and societal assets are as much guided by the requirements for systemic design practices in commerce, as well as sustaining legislative and social movements.

Our current era is characterized by enterprises organized by profit-driven business models that render a narrow range of social benefits and typically allow, if not encourage, significant environmental exploitation. Corporations have externalized ecosystem consumption and social costs as a norm of doing business. Environmental responsibility is often demonstrated only by adopting cleaner production technologies and enforcing incremental supply chain improvements, i.e. becoming "less unsustainable." Sustainable development movements to conserve resources and to democratize or enhance organizational practices have called for culture change or transformation. However, these approaches have not yielded results that will significantly enhance human flourishing in the face of globalized commerce, which has no common governance system. We suggest that the goals of alignment toward sustainable development or so-called corporate sustainability are misguided and systemically depreciative, as they purport to sustain activities that foreseeably accelerate ecological degradation (Ehrenfeld, 2014). Corporate management have continued to promote growth strategies for sustaining business goals, without recognizing the systemic effect of continual growth across a limited ecosystem.

We propose a modeling practice for stakeholder design of strongly sustainable enterprises for the intention of whole system flourishing across living ecosystems and organized social systems. This systemic design approach to business transformation functions at the level of the business model. We claim that the execution of strategy following a sustainable business model affords the highest leverage across all modes of organizing for collective cultural adoption of ecosystemic practices. Recent research in business model innovation (Chesbrough, 2010; Kiron, Kruschwitz, Reeves, & Goh, 2013) has led to explicit inquiry into the formation of preferred operating and strategic principles from which to guide business model design and change decisions. But where these consider sustainability, at best, they are inspired by weakly sustainable sociological theories of "ecological modernization" (McLaughlin, 2012; Mol & Spaargaren, 2006), and natural resource and environmental economic theory (Røpke, 2004). These approaches are "too little, too late" as when incorporated into business model assumptions, they maintain the status quo (at worst) and have insufficient ecosystemic improvement (at best).

Sustainability and social factors are rarely considered aspects of a business model. A recent research trend has advanced sustainability integrated into conventional business models (Rohrbeck, Konnertz, & Knab, 2013), but no authors have advanced guidelines for “strongly sustainable” business management. Recent interest in business model innovation has led to explicit inquiry into radically revised principles that guide business model design and process change. However, no general process has emerged that might reliably transfer the now considerable body of scientific sustainability and resilience knowledge to smaller businesses and non-profits. There are also no generally accepted valuation and design principles for social and environmental sustainability in business methods and management practices, a larger research problem that emerges within the context of business model design and adoption.

From these gaps in the literature and practices of business innovation we find that the ethical, normative, environmental and social perspectives in business models remain underdeveloped, with few reference models or research publications addressing this focus. Hence the known benefits of the business model innovation lens are not available to managers wishing use scientifically credentialed knowledge to improve, or at least avoid worsening, the environmental and societal concerns as implicated in the “Global Problematique” (Ozbekhan, 1970).

We advance a means to describe a holistic view of the functional logic of an organization’s operation consistent with a planet with limited and shared resources and a common shared societal future. A systemic design process based on strongly sustainable business models can enable a wide variety of organizational stakeholders to adopt a design practice, a valuation schema and business strategies that measure success in terms of environmental and societal values as well as monetary benefits. To achieve such a radically redefined business model for real firms, the definition of the business model itself must shift from a concern for value generation measured exclusively in term of monetary profit toward a shared value (Porter and Kramer, 2011). We propose a measure of “tri-profit” that shifts strategic emphasis toward ecological services and societal benefit flows, as such a distinction is necessary in business model formulation.

## **Defining a Business Model as an Anticipatory System**

Our conception of a business model is the operational logic of the purpose and processes of a social value network. A business model describes for an organization the logical for its existence, who it does it for, to and with; what it does now and the future; how, where and with what does it do it; and how it defines and measures its success. The business model can be constructed as a cognitive artifact (Jones and Nemeth, 2005, Norman, 1990) used in practice to create a shared mental model, a representation of reality for making decisions about an operating business’ value network. Any business model is a shared mental model used by managers to understand the effects of business choices, organizational changes, and relationships between firms and their customers and other actors in its value network.

This research contributes a conceptual framework and ontology for defining a “strongly sustainable” or flourishing business as a business model. We present a simplified model of the ontology used for collaborative definition, the strongly sustainable business model ontology (Upward, 2013). The visual template externalizes business model knowledge for design and development of initial and ongoing review and refinement of models.

A business model formalism functions as a shared cognitive artifact providing a specified range of categories associated with the decisions and values determined as essential for defining a given instantiation of a business model. The business model construct is consistent with Rosen's (1991) system model relationship to a natural biophysical environment. Rosen's living system model represents an anticipatory system, hypothesized as a biological process whereby an organism's causation in the natural world – the effects of actions – can be anticipated by inferences from a model relationship. Rosen (1991) defined the anticipatory system as follows:

*An anticipatory system is a natural system that contains an internal predictive model of itself and of its environment, which allows it to change state at an instant in accord with the model's predictions pertaining to a later instant.*

This process distinguishes a future-facing activity, as opposed to a merely reactive living agent. The model entails feed-forward loops rather than feedback, enables an actor to identify preferred future outcomes as anticipatory potentials. The present state is continually updated by representations of future outcomes, which are inferred as guidance for action and decisions. Rather than simulating the outcomes of assigned values based on assumptions, a deterministic process and worldview, the anticipatory model assumes a continual adaptation of the living system (here a business by way of its managers) to its environment. We have expanded the scope of the environment to encompass the full range of resources and their sources, as would a living system with knowledge of its environment.

Such a model can be adopted for reasoning about proposed alterations to business operations. The encoding loop of the enterprise (natural system) to the model (formal system) represents the functional relationships in a going business understood from experience. The decoding loop represents the mapping of operations from the model onto the enterprise. Feeding forward, the enterprise decodes the model to instantiate changes anticipated to demonstrate the desired effects on the system.

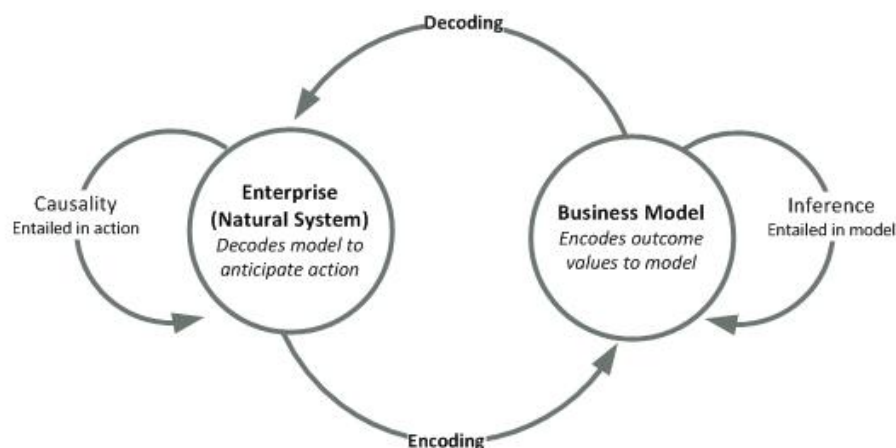


Figure 1. Business Model as Rosen System Model

The figure shows the enterprise as a living system referring to decoded references to a business model, from which it anticipates outcomes from decisions made based on this conceptual model. In a strongly sustainable context the enterprise will be constructed as a real business with a network of stakeholders (i.e. suppliers, customers, communities, investors, distributors, etc.) all having material impacts in the natural environment and a shared human society. The causal entailments (here the enterprise in relationship to its environment) of these actions and relationships are not simulatable, as the entailments (possible relationships and outcomes) in the natural world are too complex to model. However, these complex relationships and outcomes are anticipatory, in that expected outcomes can be guided by updating the model with feedback information (encoding) and updating new decisions with updated representations (decoding). As in effect a complex natural system is being modeled, the business model provides a formal system model of the world, mapping relationships between the enterprise and the world, within the model (inferences).

### **A Methodology for Designing Strongly Sustainable Business Models**

Our surveys of the art over several years have identified a small number of business models, design tools and / or methods that explicitly considered elements of strong sustainability. The majority are published outside the peer review process, and several are self-published. Many business model frameworks tend to be extensions of Osterwalder's (2004) business model ontology, indicating other practitioners identified the same gap that this research identified (Upward, 2013).

The normative intention of the strongly sustainable business model research is to enable managers and stakeholders to sustain a business model employing the qualities consistent with ecological balance and social benefit with a high degree of reliability; therefore there may be many potentially useful design tools (and methods). Figure 2 presents the current template or canvas used in our research (which has been substantially revised, see Jones and Upward, 2015 in press).

The strongly sustainable business model ontology is characterized by four contexts (boundaries, or containing systems) and four perspectives on the definition of an enterprise. These are summarized as shown in Figure 2. The three boundary contexts are indicated by the labeled outer boxes surrounding the content area:

- Environment (Physical, Chemical, Biological)
- Society (Social, Technological)
- Financial Economy (Monetary)

The four perspectives are a strongly sustainable adaptation of Kaplan's (1996) Balanced Scorecard:

- Stakeholder – who the organization does it for, to and with
- Product, Learning and Development – what the organization does now and the future
- Process – how, where and with what does the organization do it
- Measurement – how does the organization define and measure its success

Together these four perspectives suggest a detailed definition of a business model, to complement our revised summary definition introduced earlier. A business model describes for an organization the logic for its existence, who it does it for, to and with; what it does now and the future; how, where and with what does it do it; and how it defines and measures its success.

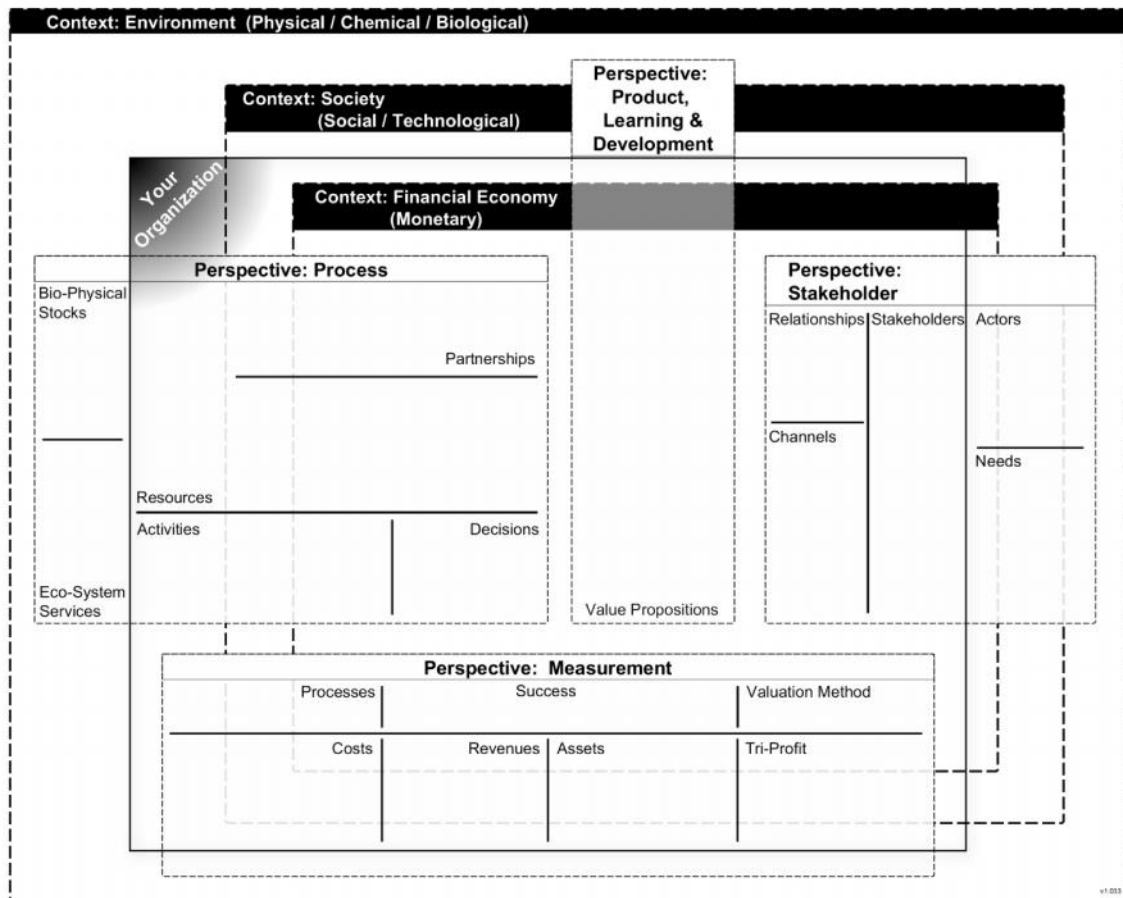


Figure 2. Strongly Sustainable Business Model Canvas

Each of the 20 blocks of Figure 2 references design questions relevant to the underlying concepts suggested by the literature and whose relationships are recorded in the ontology, that are required to create a business model that might enable strongly sustainable outcomes. The following are defined in the original ontology (Upward, 2013).

1. **Actor:** Who are the human and non-human actors who may choose to engage with the business? Which actors are representing the needs of other humans, groups, and non-humans?
2. **Needs:** Which human and non-human actors' fundamental needs is the organization intending to satisfy? What needs do the actors have which the organization can meet or might prevent an actor from fulfilling?
3. **Stakeholders:** What roles do all the actors involved with the organizations take?
4. **Relationships:** What is the nature of the relationships with the organization's stakeholders that must be cultivated and maintained?
5. **Channels:** What channels will be used to communicate, developing the required relationships, with each stakeholder (and vice versa)? How will value propositions be delivered or co-created with each stakeholder?
6. **Value Propositions:** How is value co-created between the organization and stakeholders and other actors? What are the positive (value creating) and negative (value destroying) value propositions for each stakeholder now and in the future? How does each value proposition relate to meeting an actor's need or might prevent an actor from fulfilling a need?

7. **Organization:** What are the business models of the organizations involved in the co-creation, delivery and maintenance of value propositions? How do those organizations' creation, delivery and maintenance of their (positive and negative) value proposition alter the definition and measurement of success?
8. **Decision:** What is the governance of the organization? Which stakeholders get to make decisions about what the organization does, where and how activities are undertaken and resources transformed?
9. **Partnerships:** What formal stakeholder relationships are required to deliver the organization's value propositions? Who are the organization's partners and what agreements for resources and activities have been made with them?
10. **Resources:** What tangible and intangible resources (human, social, knowledge, monetary, energy) are required to co-create, deliver and maintain the organization's value propositions?
11. **Biophysical Stocks:** Which bio-physical materials are moved and / or transformed during the processes which create, deliver and maintain the organization's value propositions? (Considering the entire lifecycle of all technology and biological nutrients)
12. **Activities:** What activities are required to co-create, deliver and maintain the organization's value propositions? What are the organizations business processes? Are these activities social, monetary, or bio-physical or a combination?
13. **Ecosystem Services:** Which outputs from which ecosystem services are used in, harmed or improved by the activities that co-create, deliver and maintain the organization's value propositions?
14. **Success:** How does the organization define success environmentally, socially (from the perspective of all stakeholders), and economically?
15. **Tri-profit:** How does the organization choose to calculate profit – environmentally, socially, financially any point in time? How are the costs 'subtracted' from the revenues for each of environmental, social and monetary costs and revenues and 'summed' to calculate tri-profit (each in their own units)?
16. **Valuation Method:** How does the organization value contributions to success? How does the organization calculate measures of environmental, social or monetary costs, revenues or any and all assets from measures of process performance and / or the value customer and other stakeholders place on the value propositions? (e.g. typically customer stakeholders are willing to pay to receive a value proposition via a monetary pricing calculation)
17. **Processes (Measure):** How does the organization measure those aspects of the organization's processes that define success (e.g. quality, quantity, timeliness, satisfaction, etc.) in environmental (Système International), social (happiness, well-being), and economic (monetary) units?
18. **Costs:** How does the organization measure the costs incurred at any point in time? How are costs valued in financial terms (e.g. payments made to stakeholders, particularly suppliers), social terms (e.g. decreased happiness, illness etc.), environmental terms (e.g. nature harmed or depleted) (each in its own units)?
19. **Revenues:** How does the organization choose to measure the revenue generated at any point in time? How are revenues valued in financial terms (e.g. payments received from customers), social terms (e.g. increased happiness, wellbeing etc.), environmental terms (e.g. improved state of nature) (each in its own units).
20. **Assets:** How does the organization measure the value of the assets required, created or depleted over time? How are assets valued in financial terms (e.g. financial valuation), social terms (e.g. social capital, knowledge capital, brand value), environmental terms (e.g. natural capital restored or harmed) (each in its own units).

In practice, these questions are asked in an order associated with constructing a coherent narrative, rather than a checklist, which their presentation in a list might suggest. Typically a business model design is formulated as a purpose-seeking system, with the idealization of the new business concept constructed to meet the definition of success (14). The organization is not conceived as having a purpose (purposive) such as maximizing profit. Rather, the purpose-seeking nature of the organization is oriented to a larger purpose measured by tri-profit and other benefits to the ecosystem and society. This coherent model can be internalized and shared among all stakeholders.

In summary, the framework described (ontology and visual template) provides a conceptual model of an anticipatory system for business governance, theoretically supportable, and methodologically evaluated by multiple applications with small, medium and large enterprises. The framework provides a formal basis to describe *any* strongly sustainable business models, as well as any for-profit business model irrespective of its current performance against the normative goal of strong sustainability.

The purpose of the current exploratory stage of research was to develop and validate the conceptual foundation for strong sustainability within the business model construct. The next stages of research have been started to develop application methods for use by different enterprise types and contexts.

The design template (business model canvas) has been redesigned, developed in practice and trialed by managers and stakeholders in case reviews and business model design workshops. The most recent versions of these models and templates are presented in the symposium presentation associated with the article.

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