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Thesis Proposal

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Title of thesis: "The dynamics of a contingency theoretical system"

Research area: Organization design. Developing design rules applicable for dynamic business environments in disequilibrium.

Research problem: Contingency Theory (CT) is a normative approach and thus concerns itself with identifying organizational designs which lead to superior financial performances. The basic assumption in CT is, that performance of structural designs is contingent upon a fit with the business environment in which it is to operate. This contingent relationship of fit has been conceptualized in an overwhelming number of different ways.

Within CT, the information processing view (IPV) is well established. Here, organization structure is seen as an entity, processing information about its external and internal environment. Different structural designs have different capacities of information processing. Likewise, different business environments call for different amounts of information to be processed; uncertain environment calls for more information to be processed than do more certain ones. Within the IPV, superior performance is contingent upon a fit between the information processing capacity of the structure, and the extent of uncertainty it faces.

This notion of fit assumes positions of equilibrium in time and space. In general, the design rules derived in CT are based on this assumption.

However, in the fast changing business environments of today, positions of equilibrium have become, not the rule, but the exception from it. Indeed, CT researchers acknowledge that balance is likely never obtained, but remains an elusive ideal.

The research problem which emerges, of course, are insufficiencies in existing rules of organizational design, developed in CT under terms of equilibrium: What are the rules of design under terms of disequilibrium?

Relevance of RP: In axiomatic research, the RP has relevance for theoretical validity. The applied ontology of CT is one of substance, assuming homeostasis. However, dealing with rules for adaptive changes in organizational design calls for application of process ontology. The problem is

then a gap between the applied and a necessary and sufficient ontology for examining the phenomena of interest.

Organization design, in general, has a pragmatic approach aimed at application. Managers and policy makers must decide how to design and redesign their organizations, and CT is concerned with deriving applicable design rules. However, these must be derived from a sound theoretical basis, to be of any value. Extending theory expands the basis from which practical design rules can be derived.

Claim:

The research question (RQ) of the thesis is axiomatic. It simply asks: "what are the rules of organisational design under terms of disequilibrium? Sub questions could be such as

RQ_1 : What is the effect from history dependent stock of knowledge/information on stock of profits?

RQ_2 : What is the effect from history dependent stock of profits on future stock of profits?

RQ_3 : What is the effect from delays between changes in stock of knowledge and stock of profits, on stock of profits?

Proposed solution:

The basic research strategy is to develop Galbraith's 1973 information processing model in a process ontology framework:

- Establish an explicit ontological frame of reference. Following Dubin (1978), a theoretical model must comprise conceptualization of variables and their relationships which are *necessary* and **sufficient** for examining the phenomena of interest. This being the performance of adaptive organizations, we find that open systems theory is such a necessary and sufficient ontology. This framework can now act as an explicit frame for building a theoretical model
- Transformation of Galbraith's natural language theory into a formal system dynamics model. Model variables and relationships are deduced through textual analysis. With the open systems theory established, we can assess what it takes to specify a necessary and sufficient model. If textual analysis of Galbraith within the ontological framework displays gaps, necessary and sufficient variables and interrelationships will be deduced by addressing the broader IPV research stream, closing gaps. The first step is thus to build a theoretical model.
- Build a computational model, utilizing SD software with an optimizing algorithm (such as Vensim PRO 5.3). This prerequisites an operationalization of developed theoretical model, in terms of stocks and flows. A major obstacle here is that operationalization of information

economy concepts are very difficult. One can therefore not expect to find empirical data on these concepts. We will therefore largely have to rely on theoretical concepts

- Build simulation plan. This plan should reflect attributes of the RQ. The basic simulation strategy will be to assess effects of different parameter settings on system viability. A proxy for this will be a stock of assets, which are to be maximized.
- Validate computational model in accordance with accepted standards. Run baseline simulations
- Run simulations according to plan
- Analyze simulation data. The goal of analysis is to identify designs with superior performance (maximizing stocks of assets), resulting in normative design rules
- The outcome of analysis is presented as a number of theoretical design propositions, derived under terms of disequilibrium. These propositions lend themselves empirical testing in future research.

Research method:

The research methodology reflects important attributes of the RP and RQ. First, it is axiomatic, concerned with theory building. Second, it is normative, i.e. concerned with improvement (in this case improving organization design). Third, it requires process ontology.

Such attributes seems less compatible with standard methodologies such as surveys, case studies and action research. We will therefore adopt the guidelines from operations management research methodologies using quantitative modelling, departing from Mitroff's (1974) systems view research model. This methodology explicitly comprises System Dynamics approaches.

Expected contributions:

Being axiomatic, contributions from the thesis are first and foremost expected to be theoretical. We expect to be able to make contributions such as

- CT research review, developing a research agenda for future concerns of dynamics
- Theoretical model for measuring uncertainty
- CT concept of fit as vectors, this explicitly incorporating time as factor
- CT design rules under terms of history dependence, equifinality and delays

These contributions pose a necessary first step towards practical application. Later steps, beyond theory testing, could include development of simulation software allowing practicians to explore restraints and possibilities of future designs, based on history dependent designs of their current organization.