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CONFERENCE ABSTRACT

Engineering performant, innovative and sustainable health systems

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Background: In a time of growing health expenditures and inefficiencies, ageing populations, rise of chronic diseases, co-morbity and technical evolutions, there is a worldwide quest for performant, innovative and sustainable health systems that are, a.o. effective and cost-efficient, patient-centric and co-creative and able to deal with the growing society dynamics.

Problem statement: Effectively implementing strategic initiatives that tackle these challenges appears a frightening task since the majority of implementations fail.

Current approaches and frameworks addressing organizational changes are fragmented, heterogeneous and mostly descriptive. We aimed to design and develop a more prescriptive, holistic and integrated approach.

Literature review: Methodologies, governance techniques, approaches and other "best practices" from a.o. the manufacturing and generic services sector are being applied to health and health care services.

We observed the existing organizational science literature and found that most existing approaches are not, or inadequately concerned with design and many share the same underlying mechanistic characteristics: strongly management and planning oriented, focus on internal control that apparently should secure success of future health system organizations.

Theory: We summarize the needed concepts and theoretical background of the Enterprise Engineering discipline, including Enterprise Ontology (the implementation-independent essence of organizations) and the DEMO methodology, Enterprise Governance and the Normalized Systems theory.

Method: We used the Design Science Research Methodology (DSRM) and demonstration is based on real health reform proposals and (fictitious) anecdotal scenarios.

Discussion: Formal publication of architectural principles and requirements according to the Enterprise Architecture discipline aids in:

- correlating enterprise design principles to areas of concern, and further to strategic choices, norms and values, and policies;

- providing coherent and consistent attention to the various implications of architecture;

- defining a coherent and consistent set of follow-up activities defined as key actions (studies, pilots, projects) to enable the architecture to be effective;

As main characteristics of using Enterprise Ontology, we demonstrated:

- it ensures completeness in unambiguously discerning all activities required to deliver health services;

- it aids considering and comparing different implementations of these activities and their executing actor roles in health organizations, people and automation;

- the models can be used in "just in time, just enough detail"-mode;

- creating the models is possible with an attractive return-on-modeling-effort (ROME);

Different strategic choices, areas of concern, as well as functional and constructional requirements are not met at the implementation-independent level. In order to perform optimally and to implement changes successfully, these organizations must operate as a unified and integrated whole, which can only be achieved through deliberate Enterprise Development and Enterprise Governance.

Furthermore, we show it is possible to integrate compatible and relevant analysis techniques and improvement/quantification methods to prepare a better, more objective and more "calculated" change reform proposal, or to assess the impact of an existing one.

Conclusion: Lack of enterprise integration and coherence has been identified as one of the core reasons for not successfully operationalizing strategic initiatives. In view of the several enterprise aspects, a design approach must be able to address all aspects. Realization must be intentionally designed, as virtually all causes for poor enterprise performance are systemic.

Also, a fundamentally different perspective on governance is essential for: (1) addressing enterprise dynamics, complexity and associated uncertainty; (2) iteratively, evolutionary, and emergent development of strategic initiatives and their operationalization and (3) realizing a unified and integrated enterprise organization and operation.

The Enterprise Engineering paradigm and integrated with compatible analysis techniques, improvement and quantification methods; provide a solid foundational theory and methodology, different and unified approach for integrating several enterprise aspects that would otherwise be treated incoherently and inconsistently, causing failures in strategic initiative implementations.

In relation to the theories underlying our proposal, we experienced: (1) an initial steep learning curve and emergence of the EE Discipline; (2) that not all activities in organizations are transaction based as they experience emergent properties, and can therefore not be expressed in the current EO theory, e.g. strategy development, decision making processes, knowledge workers or enterprise design itself; (3) that the understandability of the produced EO models by the stakeholders must not be taken for granted; (4) a strong desire for an (unattainable) fully codified method.

During our research, we also experienced a strong pull towards the financing and expenditure context, both in literature interviews, reform proposals, demonstrative cases and interviews. Another phenomena, was the lack of public availability and scarcity of up-to-date, reliable and comparable data and measures to work with.

We have high confidence in the application of our proposal to address problems of inefficiency and unsustainability in health system organization using a deliberate enterprise development and governance approach.

Keywords: enterprise engineering; enterprise governance; enterprise ontology; enterprise architecture; enterprise design; health system; health care; health care reform; health reform; strategic success; organizational design; organizational engineering