Chapter 18
Complex Action Methodology for Enterprise Systems (CAMES):
A System to Contextualize the Behavioral Management Issue as Quantum Mechanical Variable

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ABSTRACT

This completed action research utilizes the conceptual framework of quantum mechanics in action science field studies for bias-free behavioral data collection and quantification. The research question tied to experimental verification if action research field studies can practically utilize the theory of communicative action and the theory of quantum mechanics to contextualize the quantification with pathological and distorted behavioral pattern. The result is a quantum-like formalism that provides intermediary conceptuality for organizational intervening initiatives. This process of contextualization behavior in projects via quantum probability experimentally evidenced. The chapter concludes by reviewing the results of two experiments that the hypotheses that the theory of quantum mechanics and the theory of communicative action qualifies as a building block for a planned methodological approach to intervene and steer problematic social structures in the desired direction.

INTRODUCTION

For more than two decades, practitioner studies have shown most Information Technology (IT) projects are not prosper- ous and state behavioural patterns as decisive factors for success or non-success. The IT practice lacks procedures to determine and predict project and organisational member behaviour with certainty.

Current action research methodologies bias observations se- verely and render quantification models of subjective data uncertain. Thus, this research thesis aims to design a scien- tifically rigorous action-science methodology process that is operational for action researchers and practitioners to lower the rate of non-successful IT projects where failure is at- tributable to human behaviour in organisational contexts. This investigation aims to apply scientific rigour to this issue and to verify the general applica- bility of mathematical formalism of quantum mechanics to address organisational venture that includes a wicked problem of how to communicate and collaborate appropriately. The subjective data collection and quantification models of this thesis build on the quantitative formalism of quantum mechanics and qualitative formalism of the theory of com- municative action. Mathematical and ontological formalism combine into a novel research strategy with planned instru- mentation for action research field studies summarised under the term 'Complex Action Methodology for Enterprise Systems' (CAMES). The outcome is a process to understand the behavioural action of project participants better. The process requires that participants act under a new identity, a virtual identity. Data collection occurs in one block with an average duration time of 10 minutes in a virtual location. The practice can, therefore, use these procedures for bias- free quantification of subjective data and prediction of an individual's future be- haviour with certainty. Prediction of an individual's future behaviour with certainty provides to the IT practice what IT practice lacks but urgently requires. The certainty that claimed findings of behaviour in projects and organisational context requires to intervene and steer. Certainty and justification for planned intervening and steering initiatives secure funding.

Lack of Bias-Free Collection and Quantification of Subjective Data in Data Sciences

Conventional social sciences research methodologies bias observations and render quantification models of subjective data uncertain. Researcher bias on observations is severe and reason to dismiss classical quantification models. Influ- ences by the researcher and interaction of measuring research instrumenta- tion on the observed result in methodo- logical flaws, false measures and incomplete interpretation of data. Biased research renders observations unreliable and invalidates data gathered from such biased observations. Collecting and quantifying the interaction occurring by and through biased individuals is considered unsolvable. Behavioural inner dynamics of biased individuals for steering and intervening purposes is not measured. Prediction failures deepen the gap between theory and practice (Kieser & Leiner, 2009). Management science mainstream, traditional understanding to explain behaviour lead to severe deficien- cies for its claimed findings. Direct influences from scien- tists on the observed or researcher contamination of envi- ronmental factors in research setup result in biased measure- ments and render the observed useless for bias-free quanti- fication of subjective data and prediction of an individual's future behaviour. To bias-free collect subjective data, the principles of quantification of subjective data and the re- searcher's analytical procedures require a research strategy with upfront planned instrumentation.

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