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Enterprise Architecture through the Lens of Conway's Law

Exploring the Impact of Organizational Structures

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This talk advocates employing Conway's Law as a lens to study the socio-technical dependencies within enterprise architectures (EA). According to Conway's Law (1968), a company's communication and organizational structures are mirrored in the systems and technical artifacts they design ("socio-technical congruence"). In other words, the way how people interact and work together shapes the design and structure of the systems they create. EA is a holistic view of the enterprise and includes, among others, data, business processes, and computer systems. This makes EA an inherently socio-technical subject because the technical artifacts are always considered within the organizational embedding. Organizations utilize EA to systematically organize and direct the development of individual architectural elements to align with strategic objectives (Schmidt and Buxmann, 2011). By examining how organizational traits influence the characteristics of technical artifacts, we aim to generate novel insights that explain the relationship between technical and organizational structures in enterprises. We propose one central research question to address the socio-technical congruence in technical artifacts of enterprise architectures: *What is the relationship between organizational structure and the characteristics of the same organization's enterprise architecture?*

To answer this question, we employ a quantitative research design using network analysis methods on Git repositories. By correlating software metrics with collaboration patterns derived from Git code authorship data, we aim to explain how organizational factors such as team structure, communication flows, and governance affect software architecture quality and evolution. From Git repositories, we can directly measure how developers collaborate on architectural decisions and then use the characteristics of the resulting software architectures as representative technical artifacts of EA. In this context, MacCormack et al. (2012) observed that open-source software is more modular than software developed by enterprises; this can be traced back to the distributed and asynchronous nature of open-source development practices. By analyzing the rich dataset captured in Git repositories, we seek to investigate potential socio-technical congruence in software architectures, eventually informing the design of practical architectural principles for technical artifacts of EA in general.

References

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