Towards a Taxonomy for Enterprise Architecture Debts

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Abstract. Enterprise Architecture (EA) plays a vital role in aligning business and IT, yet its implementation often encounters challenges due to evolving needs and past architectural decisions. These challenges, termed Enterprise Architecture debt (EA debt), arise from short-term decisions or misalignments that hinder progress toward an optimal architecture. This study proposes two taxonomies: one to characterize EA debt descriptively and another to assess its impact. The taxonomies were developed using systematic literature reviews and refined with practitioner feedback. They offer a structured approach to identify, describe, and evaluate EA debts, enabling organizations to address them systematically. The study demonstrates the application of the taxonomies through a real-world case study, illustrating their potential to support strategic and operational decision-making. These contributions aim to enhance the theoretical foundation and practical management of EA debts, fostering better alignment of architectures with organizational goals.

Keywords: Enterprise Architecture · EA Debt · Taxonomy.

Appendix: Categories and Sources

Sources

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Table 1. Categories identified from TD taxonomies

category	concepts	publications
artefact	documentation, requirement, architecture, data, IT system	[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24]
business	process, social, service, economic	[15, 16, 19, 20, 8]
consciousness	deliberate, inadvertent, reckless, prudent, self-admitted	[25, 5, 6, 26, 8, 9, 10, 27, 14, 28, 29, 30, 21, 23, 24]
organisation	skill, staffing, outsourcing, organisation, people	[4, 31, 10, 11, 15, 16, 17, 19, 24]
technology	infrastructure, interoperability	[2, 12, 13, 14, 15, 16, 17, 19, 20, 21]
—	usability, environment	[3, 9, 15, 16, 19, 20, 23]

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Table 2. Categories identified from EA impact

category	concepts	publications
management	strategy, business objective, resource usage, management, governance, decision making, business development	[32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48]
business	project, service, product, business process, business capability, operations, business model	[32, 33, 34, 49, 50, 51, 52, 53, 54, 42, 55, 44, 45, 46, 47, 48]
application	portfolio, solution, application, information system, information, data	[32, 33, 34, 56, 35, 36, 57, 38, 54, 58, 42, 45, 46, 47, 48]
technology	IT, IT efficiency, IT effectiveness, IT reliability, IT quality, technical capability	[35, 49, 37, 38, 39, 40, 41, 54, 43, 45, 46, 47, 48]
compliance	(regulatory) compliance, social responsibility, data protection law	[33, 34, 59, 51, 45, 46, 47]
risk	risk, security, data protection	[34, 35, 45, 46, 47, 48]
performance	quality, efficiency, business performance, productivity	[34, 35, 36, 41, 54, 58, 45, 46, 47]
resilience	innovation, sustainability, adaptability, agility, stability, change	[35, 36, 52, 53, 54, 38, 38, 44, 45, 46, 47, 48]
collaboration	business support, business-IT alignment, organizational alignment, people, usage, knowledge, communication, collaboration	[34, 35, 49, 36, 50, 53, 60, 39, 40, 58, 43, 44, 45, 46, 47, 48]
finance	ROI, cost, revenue, market share	[34, 35, 36, 52, 54, 58, 45, 46, 47, 48]
external	stakeholder, customer, partner, interoperability	[4, 6, 31, 54, 44, 45, 46, 47, 48]

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