

Enterprise Modelling – a History

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Abstract

Over the years since enterprise modelling emerged as a practice area, with its distinct body of concepts and techniques, there have often been conflicting ideas and unquestioned assumptions about the purpose, perspective and scope of such models. This paper looks at how these historical origins continue to influence enterprise modelling as it is practised, and identifies some outstanding challenges for theory and practice.

Keywords

Enterprise Architecture, Enterprise Modelling

1. Introduction

Practitioners in enterprise modelling and architecture tend to be strongly influenced by a small number of codified frameworks, such as TOGAF. Support from commercial tools is concentrated on a narrow range of general-purpose notations, such as IDEF, UML, BPMN and ArchiMate.

And much of this thinking can be traced back to some key ideas that circulated in the 1980s and 1990s, strongly supported by vendors of computer hardware and software, and by consultancies whose services were largely focused on the planning, development and implementation of information systems. A key text from this period was written by James Martin, who left IBM to become a leading methodology guru [1].

If academic researchers would like to see their ideas adopted by mainstream practitioners, they would do well to pay attention to these hidden assumptions and motivations, either to work within them as constraints or else to lead practice away from them by exposing and challenging anything that is no longer valid or helpful.

2. Reviewing Mainstream Practice

A traditional style of enterprise model takes the form of an array of boxes representing capabilities or functions. These are often drawn with strategy at the top, and operations underneath, as in **Figure 1**.



Figure 1: Enterprise Capability Model

Such models offer a highly generic view of the enterprise. While the processes (the middle layer) may differ from one industry to another, it's often difficult to see much in the top or bottom layer that is specific to any given industry. To the extent that these models are intended to show WHAT rather than HOW, the expectation is that every enterprise of any significant size will have these functions, and that the organization structure will broadly reflect these functions. Any differences in these functions are not directly linked to the industry value chain, and are more likely to be driven by such factors as the size and nature of the workforce, geographic footprint, and the extent to which business functions are performed inhouse or contracted out.

And even in the middle layer of the sandwich, the processes or value chains look much the same for every enterprise in that sector, regardless of size. In this kind of enterprise model, all supermarket chains look the same, and you would not see any difference between an airport where only a few planes land through the day, and an airport where two or three planes arrive every minute. The strategy and critical success factors of a specific enterprise are explicitly excluded from this kind of model.

Furthermore, when enterprise models include any technology, the technologies they choose to depict are the very technologies – for example, database systems – that are sold by the companies that developed this style of enterprise modelling in the first place. And by omitting the specifics of any single enterprise, the model indicates that the same off-the-shelf products and services can be used by (sold to) many different companies.

Whatever the declared purpose of such enterprise models might be, they may be used to identify opportunities to implement certain technological products, to work out how multiple products will fit together to support the business, and to produce a business case (financial or other justification) for investing in these products. From which it follows that the commercial interests of IT vendors are embedded in these enterprise modelling practices, even if most practitioners are not consciously aware of this.

3. Shifting Orientation

In recent years an interesting shift in orientation can sometimes be detected. Whereas early enterprise models tended to put the activities of senior management at the top of the diagram, thus reflecting a traditional view of the command-and-control enterprise, there is an increasing trend of putting the customer at the top of the diagram, thus reflecting a customer-driven view – therefore *power-to-the-edge*. [2] [3]

The next step would be to shift from an *inside-out view* (“here is some structure and behaviour that somehow meets customer demand”) to an *outside-in view* (“here is the structure of customer demand, and this is how it might be satisfied”). However, it is rare to find enterprise models that model customer demand properly – for example looking at questions of *requisite variety*.

And although the Open Group has been promoting the concept of the *extended enterprise* (including partners, suppliers and customers) for over twenty years [4], this concept has not been widely adopted in mainstream practice.

People sometimes assert that we should regard an enterprise as a system. But this statement is either vacuous or problematic, depending on how we think about systems. One of the key questions for understanding a system is *how does the system hang together* – and perhaps even *how does the system hang together for whom*. We might judge enterprise modelling practice, among other things, in terms of its ability to address these questions.

4. Summary

Structural complexities in any enterprise can critically affect value, both internally and externally. To manage these structural complexities, we need to think architecturally about *being enterprising*. So my challenge for enterprise modelling is this: How can enterprise models be used to help coordinate specific forms of congruence and requisite variety across the extended enterprise, and how can theory and practice attain critical distance from this historical legacy.

5. Acknowledgements

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Declaration: I worked for James Martin Associates from 1986 until its partial acquisition by Texas Instruments in 1991.

6. References

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- [4] The Open Group, TOGAF 7, 2001.