

WHY A VALUE-ORIENTED PROCESS MODELLING CONCEPT IS NEEDED

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Abstract

This paper focuses on the need for a Value Oriented Process Modelling concept, both in terms of why it is needed, what it is as well as how and where it could be applied. This includes Value Oriented Process analysis, design, implementation and governance considerations. Enabling organizations, with the ability, to interlink value modelling, value engineering¹ and value architecture² concepts with process aspects.

Key Words

Value Oriented Process Modelling, Value Modelling, Value Engineering, Value Architecture, Process Ontology, Extended Process Modelling, Value Management, Value Governance

INTRODUCTION

The Value Delivery Modeling Language (VDML)³ is an Object Management Group (OMG) software standard specification. It is intended to provide business design models for managers that fill the gap between strategic planning and business operations. According to their own specification, they integrate multiple aspects together that are relevant for value modelling. Based on their description, the level of abstraction, is more appropriate for executives and top management. While the VDML specification also has the notation of activity within it and activities are according to the VDML standard the sources of value. The VDML Value contributions are aggregated to support value propositions that represent the particular interests of different stakeholders and market segments. Values can also be traced back from a value proposition to the contributing activities. Even the roles of people and the consumption of resources are represented in the activity networks. So, in short, while VDML could capture information about sequences of activities, activities that collaborate, roles in activities, capabilities that are required to perform an activity, activities that delegate to other capability methods that are engaged through delegation, the flow of deliverables between activities, stores and collaborations. The value contributions of an activity (please note that when VDML talks about value it does so in the context of value proposition, not in the context of strategic value i.e. a must win strategy, or an objective that is marked critical (critical success factor)).

THE GAP IN VALUE MODELLING CONCEPTS

Even though the above discussed is possible to capture within VDML, still one can't model processes according to value relevant perspectives. For that OMG has the BPMN standard⁴. While it isn't ideal to have two different views/models, one could argue that this is due to the nature of the different views and in general it is important to separate the why, the what and the how. In the usual and broad-spectrum this might also be true, especially in the case of

VDML that has the purpose of integrating seven existing value concepts and thereby views: Porter's Value Chain, Business Model Ontology of Osterwalder and thereby business model innovation⁵, Verna Allee's Value Network Analysis, E3-Value analysis, Resources, Events, Agents (REA) analysis, Value Stream Mapping and Service-Oriented Business Architecture analysis.

But in the case of the BPMN standard, that has the purpose to model processes, there seems to be a clear gap it can neither relate to the concept of strategy, objectives, goals, critical success factors, performance indicators, capabilities or even value proposition. This was according to the developers of BPMN left out on purpose⁶. Therefore, there is a gap between VDML's concept of value modelling, other value concepts as mentioned above and business process modelling concepts. This gap has been partly studied and tried to be addressed by researchers such as Hassan Fatemi, Marten van Sinderen, and Roel Wieringa. Their research focus was to define a model transformation between two languages commonly used for modeling business collaborations: the e3value methodology⁷ and the Business Process Modeling Notation (BPMN). It should be pointed out that E3value is a notation, to model a business web from a value point of view. It shows the creation, distribution, and consumption of goods or services of economic value in a business web. The main goal of E3value modeling is to reach agreement amongst profit-and-loss responsible stakeholders regarding the question "Who is offering what of value to whom and expects what of value in return?"⁸. It doesn't focus on all the same value aspects of VDML. In researching value modelling, what becomes apparent to most is that in the value modelling universe, value is not only modelled inversely, but is also defined differently:

- **VDML:** Value Proposition articulates the value and activities create and/or consume the value⁹.
- **E3value:** Value objects are things of economic value¹⁰.
- **Business Model Generation:** The main purpose of the business model is to define how to create a value proposition for the customers¹¹.
- **Value Stream Mapping:** is a lean management tool that helps visualize the steps needed to take from product creation to delivering it to the end-customer¹². The goal is optimization. So, while it uses the word value, it relates to the economic value of making something lean.
- **Porter's Value Chain:** a collection of activities that are performed by a company to create value for its customers¹³.
- **Verna Allee's Value Network Analysis:** assesses current and future capabilities for value creation and to describe and analyze a business model¹⁴.
- **REA:** Actors exchange value objects, which are services, products, money, or even consumer experiences. A value object is valuable to one or more actors.

Despite the above difference of how value modelling is interpreted and achieved the need to model processes that are interlinked with value aspects remain.

Value Is A Different Kind Of Concept For Process Teams

Value planning, value identification, value creation and value realization are not really methods and approaches that are used by process teams today (27). Value Modeling is one of the most common dilemmas and challenges confronting companies today, regardless of factors such as size, revenue, industry, region or business model¹⁵. There is a need to manage decisions to make large-scale investments in business and IT-enabled capabilities as well as to ensure that these complex investments are effectively and efficiently transformed into the different competencies to realize concrete business value¹⁶. In far too many cases, this

business value simply is not realized¹⁷. Just consider the many different cases and evidence in the research space today. In recent years, survey after survey has revealed that from 30 to 70 percent of large-scale investments in, for example IT-enabled change, is wasted, challenged or fails to bring a return to the company. In fact, one survey from the Butler Group¹⁸ on measuring costs and value found that, in many enterprises, less than 8 percent of the IT budget is actually spent on initiatives that bring value for the company. After years of McKinsey research on organizational transformations (2011-2012), the results from the latest (2018) McKinsey Global Survey¹⁹ on the topic confirm a long-standing trend: few executives say their companies' value creation succeeded. In Today, just 26 percent of respondents say their investment in value creation have been successful in equipping the organization to sustain improvements over time or improving performance. The issues of creating performance and real value, for most companies are not new; they have been accentuated by stiffer cost competition, commoditization of products and slower growth in traditional markets. The current business environment of the digital revolution makes addressing these issues increasingly urgent. Targeting value systematically requires the appropriate segmentation of processes as basis for a differentiated design and implementation approach²⁰. Process models developed during the process design need to reflect the requirements of those different process segments and the importance of the resulting business processes for the strategy of an organization.

Segmentation of Business Processes

A business strategy needs to be operationalized in order to use it to drive process design and implementation. This is done by deriving strategic value-drivers of an organization from its strategy. Those value-drivers describe necessary achievements to make the strategy happen. The degree of realization of a value oriented is measured through key performance indicators (KPIs). A business process assessment based on the impact of a business process on strategic value-drivers is the basis for the segmentation of processes into high impact and commodity processes.^{21, 22} This process assessment is the key tool to align business strategy with process design and implementation. It enables the desired value oriented approach and makes it part of a BPM discipline to transfer strategy into execution.

The value-drivers are derived from the business strategy of the organization using value-driver-tree models (value-driver trees). This is a way of transferring the strategic intension of an organization into operational value oriented business targets. An example for such a value-driver tree is shown in figure 1. The value-drivers themselves can again be weighted to focus the segmentation on the most important value-drivers. In practice a three step approach to developing a value-driver tree has proven to be successful. The strategy delivers the business priorities showing the overall direction a company has to move to. These priorities are decomposed into strategic objectives, describing the key components of a business priority. Then one or several value-drivers are identified for each objective, hence the operational achievements that make this objective happen.

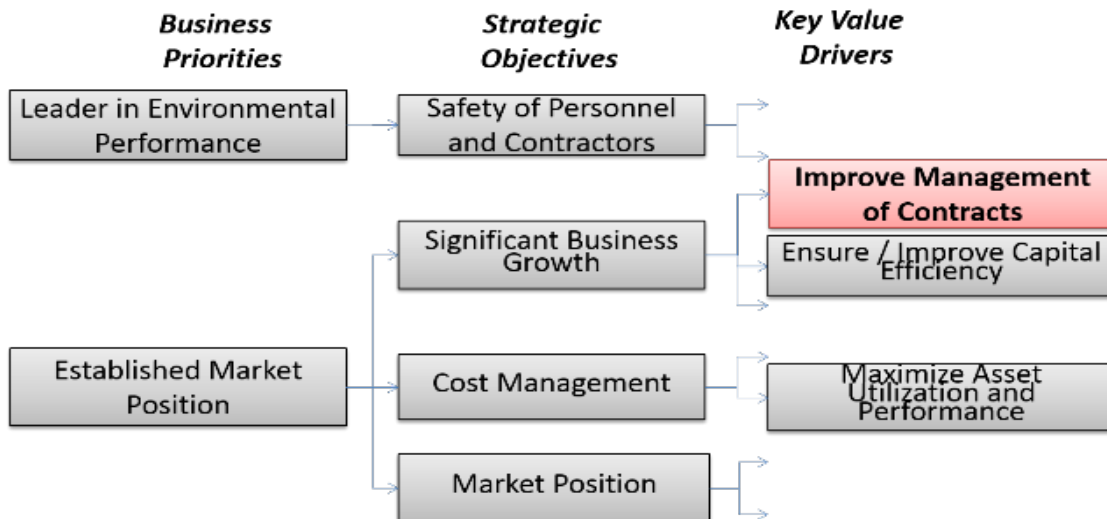


Figure 1: Value-driver Tree (Excerpt)

For a full value driver tree and reference content that can be used by organizations please see the Value Tree²³. The business processes of an organization are then evaluated based on their total impact on the specific value-drivers. Result are two segments of business processes: high impact and commodity processes. “High impact” processes are the ones that are key to make the business strategy of the organization happen: the “competitive” processes and supporting core processes. They are the most important link of business strategy to execution. This approach is visualized in figure 2.

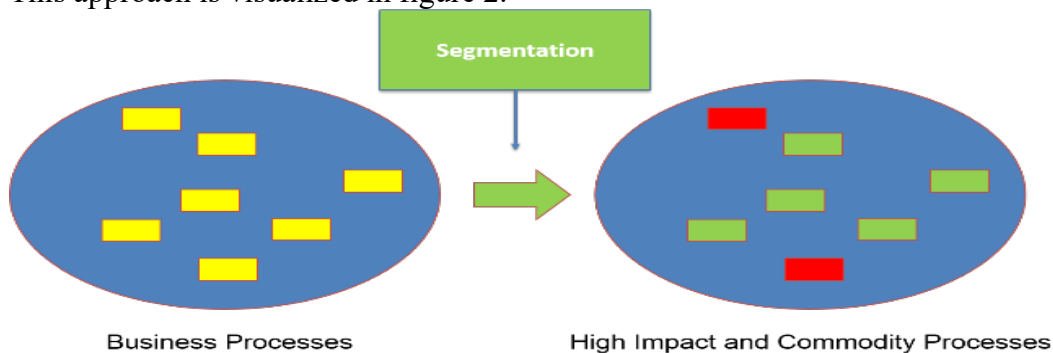


Figure 2: High Impact and Commodity Processes

The value-drivers can be weighted regarding their importance. Minor changes and adjustments in strategy can then be reflected through adjustments of those weights. Larger strategy changes result in different or additional value-drivers. This update of value-drivers and their weights enables an agile adjustment of process-priorities to updated strategies reflecting changing business environments. For each process it has to be defined if it has no (0), low (1), medium (2) or high (3) impact on each of the value-drivers. Then the overall impact is calculated in a process assessment matrix by multiplying impact with the weight of the appropriate value-driver and calculating the total of all impacts of a process. An example of a process assessment matrix is shown in figure 3.

#	Level 1	Level 2	Level 3	Major Value Drivers				Average Score	RED
				Ensure Regulatory Compliance	Improve Management of Contracts, Partners and JVs	Improve Project Realization and Risk Management	Reduce Operating Cost		
				35.0%	10.0%	20.0%	35.0%	100%	
31	Operational Business - Development	Well Development	Development Drilling & Completion	1	1	3	3	2.1	2
32	Operational Business - Development	Well Development	Develop Field Operational Plan	1	2	3	3	2.2	2
33	Processes on different levels of detail			1			1	Overall Process Impact	
34				3			3		
35				1			2		
36				1			3		
36	Operational Business - Production	Reservoir Management	Reservoir Management	1			1	1.2	1
37	Operational Business - Production	Production Operations	Oil & Gas Sales	1			1	1.4	0
38	Operational Business - Production	Well Abandonment	Abandon Assets	1	1	1	2	2.2	2
39	Operational Business - Production	Operations Management	Project Management	1	2	3	3	1.0	0
40	Operational Business - Production	Operations Management	Research & Development	1	1	1	1	1.0	0
41	Shared Services	Physical Infrastructure	Property / Facility Management	1	1	1	1	1.0	0
42	Shared Services	Physical Infrastructure	Property / Facility Management	2	2	2	2	1.0	0

Figure 3: Process Assessment Matrix (Excerpt)

The high impact processes have then to be evaluated based on general industry practices, e.g. through benchmarks or purely qualitative evaluations. In that way you identify the high impact “high opportunity” business processes. These are the processes where improvements have the biggest value potential since the process has a high impact on the strategy, but it currently performs only in or even under the industry average. Practice experience with different companies has shown that the processes should be identified on a level of detail so that 150-200 process definitions describe the entire organization. This is often referred to as “level 3” (L3). This level is detailed enough to obtain differentiated results but high level enough to avoid to high work efforts. Using the results of the process assessment matrix the 20% of the processes that are classified as high impact can be identified. The others are considered the commodity processes. In practice there is often a “grey” area of processes that could be in either group. Hence there may be slightly more or less than 20% of the processes in the high impact segment. This issue has to be resolved in a case to case basis reflecting the specific situation of an organization and its business strategy and the overall business environment it works in.

Value-Oriented Process Modelling

The Value Oriented Process Modelling concepts require more consideration to the design and modelling aspects than traditional process design and process modelling. For the most, since Value-Oriented Process Modelling needs a formalized breakdown of strategic business objectives (SBOs) into critical success factors (CSFs), with their associated key performance indicators (KPIs) and process performance indicators (PPIs). Only then, the right measurements can be put in place in a manner that ensures that they are integrated and strategically aligned, as well as linked to the proper responsible decision-making bodies, in a way that they allow performance improvement to occur. This brings support to this complex task by providing the discussed value tree, as shown in figure 4, a taxonomy of the previously mentioned value indicators and performance indicators and how they relate to each other²⁴. Enabling organizations to categorize and classify their value indicators and performance indicators according to the enterprise tiers, focus area and existing measures.

Tiers	Focus Area	Measurement
Strategic	SBO (Strategic Business Objective)	BPI (Business Performance Indicator)
Tactical	CSF (Critical Success Factor)	
Operational		KPI (Key Performance Indicator)
		PPI (Process Performance Indicator)
	Value Indicators	Performance Indicators

Figure 4: Value indicators and Performance indicators²⁵

Many organizations realize that traditional process design does not consider the Value Oriented aspects of one's organization. Executives that ask themselves what it takes to move from traditional process design to Value Oriented Process design have to consider the strategic role that Value Oriented aspects plays in their organization, but also how and where to apply the concepts. The ability to succeed with one's Value Oriented initiatives is directly related to the ability to connect the defined value drivers (SBO's and CSF's) and the performance drivers (KPI's & PPI's), as well as how the organization applies them to their competencies, processes, and services. As illustrated in figure 5, the core aspects of Value Oriented Process Modelling are therefore about linking the various aspects together, this includes:

1. Value Drivers (SBO's and CSF's)
2. Performance Drivers (KPI's & PPI's)
3. Organizational components (relevant Business Competencies)
4. The responsible person
5. The relevant business tier i.e. strategic, tactical or operational
6. The appropriate and related process that links to all above points
7. Specification of the innovation and transformation aspects:

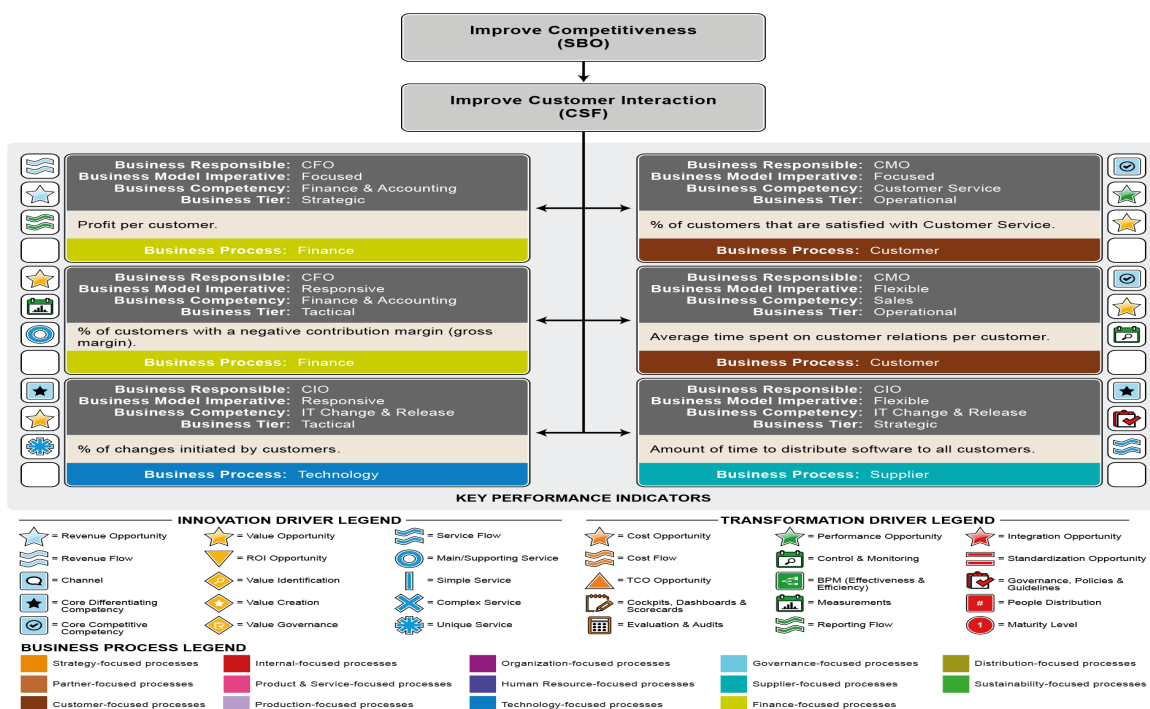


Figure 5: Value Oriented Process Modelling (25)

Once the process has been sorted according to the value oriented aspects the organization now fully understands the value of their process investments, the relationship to their organizational components (relevant business competencies), the responsible persons or owners involved and thereby also a link to evidence based decision making. Value Oriented Process Modelling in addition enables a whole new way of interlinking to the enterprise innovation and transformation aspects. Thereby enabling not only Value Oriented Process analysis, design, built and implementation, it ensures that the business innovation and transformation happens along in the progression. The interlink to innovation and transformation however prerequisites that all the processes involved need to be mapped to the value and performance indicators. The reason this is so vital is that as illustrated in figure 6, there will be strategies that will have different critical success factors, all however supporting the same strategy. In order to ensure consistency of Value Oriented Process Modelling and to make sure that the strategies are executed all relevant processes must be included. If not it will be a siloed view of strategy execution. Good enough for Value Oriented Process Design, but not good enough for full Value Oriented Process Modelling, which must include aspects of innovation and transformation.

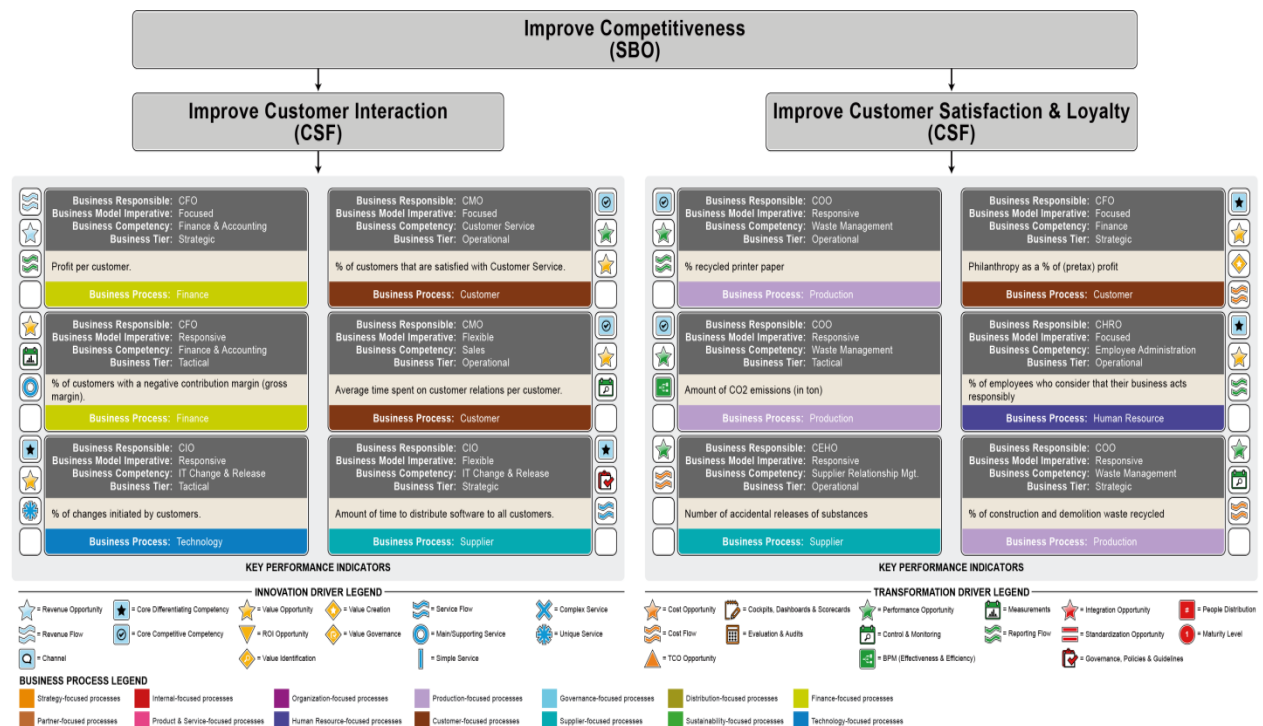


Figure 6: Value Oriented Process Modelling and the link to common strategy but different value and performance indicator (25)

Conclusion

In this Paper we have elaborated on what Value Oriented Process Modelling is and how it differentiates to the traditional process analysis, process design, process implementation and process governance considerations. We furthermore illustrated practical examples on who applies Value Oriented Process Modelling and how it enables the link to innovation and transformation. Enabling organizations, with the ability, to have a whole new way of addressing their processes as core enterprise assets.

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