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An Ontological Analysis of Value Propositions

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Abstract—In competitive markets, companies need well-designed business strategies if they seek to grow and obtain sustainable competitive advantage. At the core of a successful business strategy there is a carefully crafted value proposition, which ultimately defines what a company delivers to its customers. Despite their widely recognized importance, there is however little agreement on what exactly value propositions are. This lack of conceptual clarity harms the communication among stakeholders and the harmonization of current business strategy theories and strategy support frameworks. Furthermore, it hinders the development of systematic methodologies for crafting value propositions, as well as adequate support for representing and analyzing them. In this paper, we present an ontological analysis of value propositions based on a review of most relevant business and marketing theories and on previous work on value ascription, grounded in the Unified Foundational Ontology (UFO). Our investigation clarifies how value propositions are different from value presentations, and shows the difference between value propositions at the business level from those related to specific offerings.

Index Terms—ontological analysis, formal ontology, value proposition.

1. Introduction

In competitive markets, companies need well-designed business strategies if they seek to grow and obtain sustainable competitive advantage. Crafting a business strategy, however, is a complex and laborious activity, since one must consider various internal and external factors and make important decisions that will define how the company operates in its market. This strategic process includes understanding what customers need, designing the value to be delivered, choosing revenue models, amongst other decisions.

There are various theories and frameworks for supporting strategic and business analysis. These include simple strategic models (e.g. SWOT), generic strategic frameworks [1], and tools and methodologies for designing business models [2] and value propositions [3]. Most proposals, however, put forth concepts without properly defining them.

Such informality hinders the use of these proposals in practice, for some concepts can be interpreted in different, and potentially contradicting, ways. It also compromises the development of computational tools to support strategic and business analysis, for these require a precise semantics for the notions being represented.

In this paper, we analyze the nature of a crucial component of a business strategy, the value proposition (VP). The conceptual confusion and semantic overloading of the term VP is clearly recognized in the literature [3], [4], [5], as well as its importance and increasing adoption in practice [6]. The intuition behind a value proposition is that it describes what a company delivers to its customers. In other words, it is the ultimate answer for why customers choose to hire their services or buy their products. Carefully crafting a value proposition aids companies in understanding their customers, positioning themselves in the market, and identifying relevant competition.

The main contribution of this paper is to provide an ontological analysis and conceptual clarification of the notion of value proposition. This project is carried out by employing a foundational ontology, namely, the Unified Foundational Ontology (UFO) [7], which we briefly present in Section 2. The analysis uses, as theoretical reference for domain knowledge, various contributions to the study of value propositions from strategic management, marketing science, and e-business modeling. We discuss these contributions in Section 3.

Our analysis builds upon previous ontological work on the process of value ascription [8], which we revisit and extend in Section 4. In the ontological analysis *per se*, described in Section 5, we differentiate value propositions from offerings and value presentations, and also distinguish between the value proposition of a whole business and the value proposition of a single offering. Such distinctions are used then to characterize different quality requirements for value propositions found in the literature, such as profitability and clarity. In Section 6, to validate and demonstrate the contribution of our value proposition ontology to the modeling practice, we apply it to model the value propositions of a well-known service provider (Netflix). We finalize the paper in Section 7 with some final considerations and directions

for future works.

2. Ontological Foundations

UFO is an axiomatic formal theory based on theories from analytic metaphysics, philosophical logics, cognitive psychology and linguistics, which is a result of an integration and re-visitation of previous foundational approaches such as OntoClean [9], DOLCE [10] and GFO [11]. UFO is the theoretical basis of OntoUML, a language for ontology-driven conceptual modeling that has been successfully employed in a number of industrial projects in several different domains, such as petroleum and gas, complex digital media management, off-shore software engineering, telecommunications, retail product recommendation, and government [12]. A recent study shows that UFO is the second-most used foundational ontology in conceptual modeling and the one with the fastest adoption rate [13]. Moreover, the study also shows OntoUML is among the most used languages in ontology-driven conceptual modeling (together with UML, (E)ER, OWL [14] and BPMN [15]). Finally, the study shows that UFO is perceived by modelers as particularly useful when analyzing notions pertaining to social and intentional aspects of reality.

UFO has been successfully employed to analyze, (re)design and integrate several different modeling languages and standards [12]. In particular, in the area of enterprise modeling, it has been used to analyze the ontological nature of basic notions such as those of *organizational role*, *motivation*, *capacity* and *service* in Archimate, *business process* and *organizational structure* in ARIS [16], and other aspects of enterprise modeling languages and standards ranging from BPMN to RM-ODP [17]. Moreover, UFO and OntoUML have been employed to promote conceptual clarification and develop core ontologies in domains such as services [18] and micro-economics [8]. Therefore, we shall adopt UFO and OntoUML throughout this paper.

In particular, we shall rely on a recent re-visitation of the notion of *relationship* [19], which plays a fundamental role in our analysis. In UFO, most relationships (the so-called *descriptive* ones) are *reified*, that is, they are considered as elements of the domain of discourse, modeled as clusters of relational aspects termed *relators*. A relationship is considered as the truth-maker of a relation, i.e., a relation holds because a relationship exists. Take for instance the relation between a student and an university. Why is it true that a particular student studies at a particular university? Because there is an enrollment relationship (a relator) that sustains this relation. An important consequence of relationships reification in an ontology is the possibility to describe how they can change through time. Reified relationships have been shown to be fundamental for modeling social and enterprise phenomena such as services [18], contracts [20] and value ascription [8], [21].

Finally, a clarification is needed concerning the use of stereotypes in OntoUML. The semantics of a stereotype is that of a metaclass, so if a class has the stereotype «role» it means that such a class is an instance of the role metaclass.

So, a particular class of relators should have «relator *kind*» as a stereotype, and, similarly, classes of modes, qualities, and events should have «mode *kind*» as a stereotype, and so on. However, in OntoUML the term *kind* is omitted for reasons of visual compactness.

3. Previous Work on Value Proposition

The concept of value proposition (henceforth VP) was proposed by Lanning and Michaels in 1988 [22], who defined it as a promise a company makes to a customer segment to deliver some value, which in turn is understood as benefits minus price. They exemplified the concept using Domino's, an American pizza restaurant chain. Domino's value proposition was made towards convenience-oriented pizza lovers (the customer segment) and consisted in a guaranteed speedy deliver of consistently good-tasting pizzas (the benefits), whose price would be 10-20% more than that of their competitors.

Value propositions are the ultimate answer for why customers engage in a business relationship with one company as opposed to another—customers choose offerings for which they perceive a higher value. This claim suggests that market leaders gain their position not just by having a better product or a superior marketing strategy, but by delivering a superior value proposition.

Consciously choosing a VP was not the only thing defended by Lanning and Michaels in their seminal work. They also emphasized the importance of echoing it throughout the company. By making the proposed value clear and communicating it to the company, top management could understand what contributed or harmed the creation of value, including business processes, sales channels, and service/product features. This discovery would help the company redesign itself and its offerings to maximize the value being created to their customers.

Since its creation, the concept of VP has been extended and analyzed by several researchers. An insightful contribution was made by Kambil et al. [23], who extended the original idea by further detailing the main parts of a VP, namely benefits, costs, and customers.

As a first contribution, the authors proposed two additional dimensions of value-reducing factors besides price, namely *risk* and *effort*. To exemplify why risk reduces value, suppose two online retailers offer the same clothes at the same price. One of them allows you to return purchased items in case you are not happy when you try them on, while the other does not. The first company offers a superior value because it reduces the risk of customers ending up with unwanted clothes. To illustrate why effort reduces value, consider two companies that sell the same phones at the same price. The first is an e-commerce company that allows customers to purchase from the comfort of their homes; the second company is a physical store that requires customers to reach it in order to buy something. For busy people, the low effort required for acquisition offered by the e-commerce company increases the value of its offering.

As a second contribution, Kambil et al. classified product/service attributes according to the way they match customers' needs. This resulted in four categories. *Basic attributes* are those necessary to satisfy the basic customer's needs (e.g., for a restaurant, serving food). *Expected attributes* are those that typically the competition offers (e.g., for a restaurant, allowing reservations). *Desired attributes* are those the customer would want to have, but are incompatible with the desired price range (e.g., imported wine at a cheap price). Finally, *unanticipated attributes* are those customers would appreciate but are not typically aware of.

As a third contribution, the authors distinguished between four roles played by customers. The *buyer role* is the one played by an actor responsible for determining needs, assessing alternatives and making the purchase; the *user role* is played by the actor that will actually use the product/service; the *co-creator role* is played by those actors that collaborate with suppliers to actually produce the value; finally, the *transferer role* is played when products are disposed of, including actions such as discarding, recycling and reselling. These roles could be played by the same actor (e.g. a person buying a jacket for herself) or by different ones (e.g. a mother buying a happy meal for her kids). The usefulness of distinguishing these roles lies on accounting how customers playing these different roles might ascribe different values to the same product/service.

This revisited view on value propositions influenced the development of the Business Model Ontology (BMO) [24], which is the conceptual basis for the popular Business Model Canvas [2]. Nonetheless, BMO provides its own informal definition, which states that a value proposition is “an overall view of a firm’s bundle of products and services that together represent a value for a specific customer segment”. ‘Value proposition’ is one of the core classes of BMO, being related to ‘Offering’, ‘Target customer’, (customer) ‘Relationship’, ‘Revenue model’, ‘Distribution channel’, ‘Capability’, and ‘Partnership’.

In BMO, however, the core properties of a VP are only the target customer, a set of offerings, and a set of capabilities. Offerings describe how a product, service, or features thereof, create value for the target customers (although no explicit representation of products and services are included in the ontology). This is meant to enable a company to compare its VP to the one of its competitors. BMO characterizes an offering by the following properties: a *reasoning*, which describes the belief of why an offering creates value (e.g., Amazon’s delivery service reduces the effort of purchasing); a *life cycle*, which identifies when in the value life cycle the offering actually creates value (e.g., Netflix’s online streaming services creates value during consumption); a *value level*, which identifies how valuable the offering is believed to be (e.g., a camera in a smartphone might be considered as very valuable); and a *price level*, which positions the price of the offering w.r.t. to the competition (e.g., an iPhone is a high-end smartphone).

Although the refinement of VPs into offerings in BMO was meant to allow for a finer grained representation of this notion, it resulted in conflating too many notions (services,

products, features, economic offerings). As a consequence, this hinders the understandability and reuse of the ontology. Furthermore, it does not account for the additional types of costs proposed by Kambil et al. [23], nor for the aggregated value of the entire proposition.

Historically, VPs were mostly thought of as being oriented towards customers. However, the idea is generalizable towards other types of target audiences. In particular, Ballantyne et al. [5] discuss the design of VPs for current and potential employees of the firm, suppliers and partners, influencers, and shareholders.

Another line of investigation introduced *reciprocal value propositions* [25]. From this perspective, a VP should not only state the benefits and costs for the target audience, but also for the company that makes the proposition. This view is particularly useful when considering VPs for audiences other than customers. For instance, a VP for a business partner would not only state how a partner benefits from engaging with the company, but also what the company gets in return.

It is important to highlight that all the aforementioned contributions attempted to further clarify the meaning of VPs. Still, there are also works in the literature that go in another direction by attempting to radically simplify its definition. An example is the paper by Bagchi and Tulsikie [26], who (mistakenly, in our opinion) reduce the concept to a simple list of benefits offered to a customer.

3.1. Patterns of Value Propositions

In parallel with the advancements discussed in the previous section, other academics investigated the use of VPs in order to discover emerging patterns. In general, the goal was to discover commonalities among successful VPs and how these could guide the design and presentation of new ones.

A popular example of this type of contribution is the one made by Treacy and Wierisma in [1], who propose a generic approach for designing value propositions¹. They argue that there are ultimately only three types of “winning” value propositions; thus, companies should choose one of them. The first, *operational excellence*, means offering lower prices and a high convenience. The second is *customer intimacy*, which means carefully segmenting the market and designing very specific propositions. Third, there is *product leadership*, which means offering the best product among the competition.

An alternative classification was later proposed by Rintamäki et al. [27] to guide companies in crafting VPs for retailing. This approach uses the most prominent aspect of a VP to classify it within the following four categories: *Economic VPs* regard low prices as the most important aspect of a proposition; *Functional VPs* are aimed at customers who prefer convenience over price; *Emotional VPs* highlight the experience of buying and using the products; lastly,

1. In their work, Treacy and Wierisma use the term value discipline, but meaning the same thing as a value proposition

Symbolic VPs are those where the benefits arise through self-expression.

A third classification is presented by Anderson and Narus, [4], who discuss generic strategies to present a VP. They describe three ways in which a VP can be framed: (i) *benefits only*, when companies describe only the benefits they believe customers will receive from their offerings; (ii) *favorable points of difference*, when the VP contains all the favorable points in comparison to the competitors' offerings; and (iii) *resonating focus*, when only the most relevant favorable points are presented, accompanied by points of parity with alternative VPs.

3.2. Value Propositions in Enterprise Modeling

Despite the core role of value propositions in strategic analysis, few enterprise modeling approaches include them as first-class citizens in their underlying ontologies. Those that do include VPs or closely-related concepts, still fall short on providing a clear definition of the term.

One of such languages is e3value [28], which aims at the representation and analysis of value networks. In e3value, the concept most similar to that of value proposition is that of value offering, which is intended as what an actor offers or requests from a network. This concept, however, assumes a very objective view on value, in terms of what is exchanged in the network, and it does not account for *why* and *when* agents may value things.

Another language that includes value-related concepts is Archimate 3.0 [29]. Even though it does not have an explicit representation of value propositions, some of the concepts in the language, namely *actor*, *value*, *business product*, *business service*, and *goal* could be used to describe some aspects of them. Archimate lacks, however, an explicit distinction between *costs* and *benefits*, which are essential components of value.

Lastly, the Value Delivery Modeling Language (VDML) [30] is a standardization effort aimed at describing and analyzing the operations of an organization with an emphasis on how value is created and exchanged. VDML describes value propositions as the aggregation of values that emerge from measurable characteristics of deliverables. VPs are represented from the point of view of their recipient, capturing the recipient's overall level of satisfaction with an exchange. Although VDML provides a detailed account for value propositions, it still adopts a very objective view of value, disregarding why things may be valuable for a particular audience. In addition, VDML does not account for the use of value propositions in a more abstract way – when they are used to describe a whole business addressing a market segment (see the discussion in section 5.2).

4. Revisiting the Value Ascription Ontology

In order to provide a clear and sound theory of value propositions, we must first understand the nature of (economic) value, which “things” can have value, and how the process of *ascribing value* works. In particular, we shall

focus on *use* value (henceforth just ‘value’), as opposed to *exchange* (or *market*) value, since this seems to be what counts most in a value proposition. To address these issues, we shall build upon the Value Ascription Ontology (VAO) [8], refining and extending it when necessary.

A first observation at the basis of the VAO is that nothing is intrinsically valuable. Value only exists because people ascribe it to things, and thus, value is, to a great extent, subjective. Teenagers might ascribe a high value to video-game consoles, whilst their grand parents are unlikely to do so. This is because value depends on mental aspects of the value-ascribing stakeholders (henceforth value beholders), such as desires, goals, needs, preferences and so on.

A further observation is that value is not a synonym of benefit. Value arises from weighing benefits and sacrifices. The value of an airline service is not taking passengers to a location within a short time, but doing so minus paying the respective ticket. For instance, consider owning a car that has a market price of five thousand euros. When we say that that car has a certain value for a particular person, we do not refer to this amount, but the resultant of the benefits and sacrifices of owning it.

Claiming that value depends on the beholder (and its mental aspects) does not mean, however, that the intrinsic aspects of an object (or its parts) do not influence the value people ascribe to it. We do ascribe a high value to a safe car or a comfortable bed. Note that such intrinsic aspects include qualities (e.g. the softness of a mattress), but also dispositions and capabilities [31]. In fact, value is perceived when particular properties of an object match particular mental aspects of a value beholder. For instance, one may ascribe a higher value to a car with an airbag because it matches the goal of *protecting oneself from accidents*.

A valuation is also affected by the *context* in which it is made. Consider, for example, being at a restaurant and wanting a bottle of water. Being charged two euros for it seems fair (meaning drinking the water has a value compatible with the money paid for it), while being charged twenty euros does not. Now consider a radically different scenario, being very thirsty in a desert. In this case, a bottle of water is much more likely to be worth those twenty euros. So, ascribed value depends on whatever happens and whatever is present in the specific spatio-temporal region where the valuation occurs, which in the VAO is generically labeled as *context*.

Despite its useful clarifications, the VAO does not provide all the necessary conceptual primitives to describe value propositions. A first reason is that proposing value requires an agent to assume that somebody *else* values something. This suggests that a valuation judgment involves two roles, the *value beholder*, who actually ascribes the value, and the *value beneficiary*, who is supposed to “enjoy” the value. To exemplify the distinction between these two roles, consider the situation where a father is deciding what to give his daughter for lunch. Eventually, he decides to cook a meal, which he knows will be healthy for her, instead of buying a sandwich from a fast food chain, which he knows she would prefer. In this picture, the father (the value beholder) ascribes

a higher value to a home-cooked meal for his daughter (the value beneficiary), while she ascribes a higher value to the sandwich for herself (in this case she plays both the role of value beholder and that of beneficiary). Based on this distinction between beholder and beneficiary, we classify value ascription in two types:

- *Value perception*: when the value beholder and the value beneficiary are the same agent;
- *Value assertion*: when the value beholder is different from the value beneficiary;

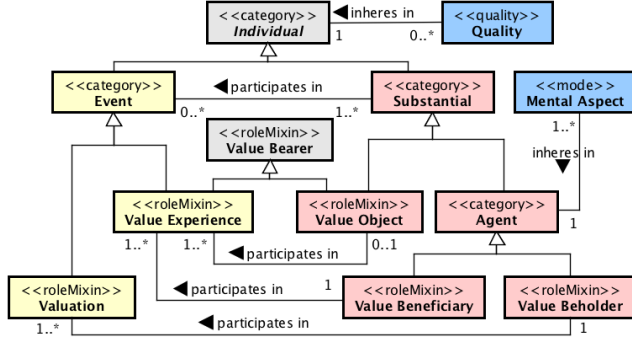


Figure 1. VAO revisited (fragment): value bearers, experiences and objects.

Another clarification we need to make regards the *value bearers*, i.e., the “things” which people attach value to. The VAO does not make any claim regarding the nature of these entities, which may be goods, services, actions, or economic offerings. In this paper, we take a stronger position, namely that, as depicted in Fig. 1², a value bearer can be either a *value experience*, but any value ascription presupposes an *value experience*. This means that, in accordance with the notion of use value, value is always relative to one or more (envisioned, actual or past) experiences, and therefore results from the valuation of such experiences, which are the ultimate bearers of value. Typically, such experiences, which always involve the beneficiary, are direct experiences of a value object, such as owning/controlling/using (or just having the right to use) a good, enjoying a service, performing an action, or obeying to the conditions of an offering. Adopting a term largely used in marketing science [32], we shall call them *value experiences*. Note that, in ontological terms, we consider value objects as *substantials* in UFO (i.e., entities that keep their identity in time), while value experiences are considered as events, in the non-standard sense to be explained in the sequel.

A first important aspect of events, in the way we understand them in this paper, is that each of them includes a *context* (i.e., whatever it happens meanwhile, that is, a *scene* according to [19]), which contributes to the valuation judgment. For example, the noise coming from the neighbors would be part of the value experience of living in a

house, while the behavior of the tenant would be part of the value experience of renting a house. Similarly, while deciding whether buying a car or relying on a car-sharing service, one would consider the actual experiential context, including his working needs, the actual family needs, the car-sharing service request convenience, and so on.

There is however another modeling challenge concerning events that we need to face if we anchor value judgment in experiences. This seems an obvious and natural choice for *ex post* evaluations, made after the experience took place, but how to deal with *ex ante* evaluations, made before the experience actually occurred, or did actually finish? The traditional ontological view of events assumes that they are static entities “frozen in time”, so that we can only refer to them in the past [33]. Still *ex ante* evaluations seem to be unavoidable for any serious theory of value, and definitely fundamental for an account of value propositions, which are intrinsically bound to future expectations. This means that we need to refer to envisioned events, whose expected temporal properties are not completely fixed (so that they may change in time before the event occurs), but still are considered as first-class citizens in our domain of discourse. We are aware that this is a bold assumption (discussed in detail in [34]), but we think it is unavoidable, especially given the explanatory purposes of our paper – indeed, explaining value proposition without any reference to the future would sound as an oxymoron to us. So, in this paper we shall talk of expected events as if they were regular entities of our domain, not differently from, say, a planned air trip in a flight reservation system.

Our position on value objects and value experiences has a consequence on the original formulation of value ascription w.r.t how qualities influence the valuation. In the original VAO’s formulation, the relevant qualities are those that inhere in the value object. In our position, they are the qualities that either inhere in the value experience or in the objects that participate in it (possibly including a value object). Consider, for example, that a student claims to value a course on ontologies more than another on patent law because the professor (a participant of the event) is more eloquent (a quality of the participant), and the course (the experience) has a shorter duration (a quality of the event).

In conclusion, we model a value ascription as a judgment relationship between an agent (the *value beholder*) and a *value bearer* that the beholder judges as having *value* for someone (the *value beneficiary*), as shown in Fig. 2. A value bearer can either be an experience or a value object, in which case a set of relevant experiences enabled by the value object are also evaluated. Moreover, we represent a value ascription as an aggregation of “smaller” judgments, namely the *value ascription components*. Each component focuses on an experience of the beneficiary under the perspective of one of its mental aspects, which considers relevant qualities of the experience or of its participants to identify a set of *benefits* and *sacrifices*.

2. In all diagrams, we represent classes of events in yellow, classes of substantials in pink, classes of relators in green, classes of intrinsic aspects in blue, and classes whose instances might be of different ontological nature in gray.

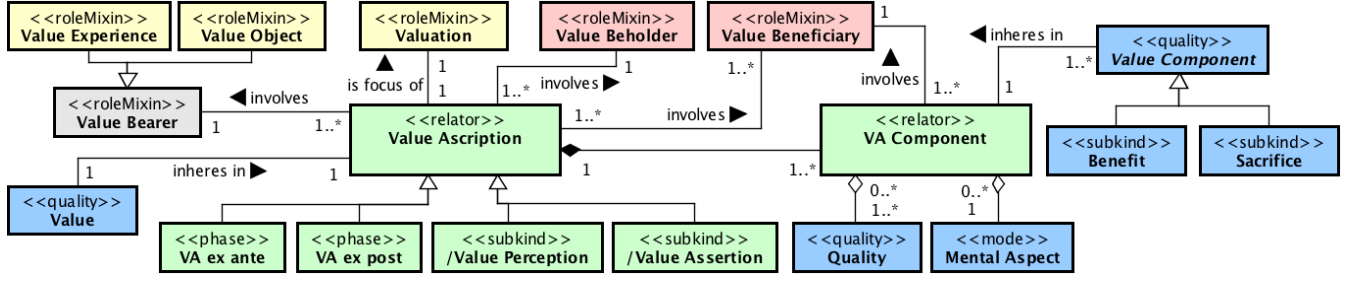


Figure 2. VAO revised (fragment): value ascription relationship.

5. Understanding Value Propositions

In this section, we use the aforementioned theory of value ascription to characterize value propositions, while confronting them with closely related concepts and alternative interpretations found in the literature. In particular, we discuss the differences between VPs and offerings, between business VPs and offering VPs, and between VPs and their presentations. Lastly, we show how these distinctions can be used to characterize different *quality requirements* for value propositions.

5.1. Value Propositions *versus* Offerings

Value propositions and offerings are closely related concepts that are often confused with one another, since both concepts convey the intuition of what a company "offers" to its customers. This confusion can be quickly revealed through an online search for examples of value proposition, in which one can find various VPs that are mere descriptions of the services offered by a company.

An attempt to distinguish between these two concepts was made by Osterwalder in the Business Model Ontology (BMO) [24], who claimed that value propositions are particular types of composite offerings that target a specific market segment. We argue that this is not the case. As we discuss in the following paragraphs, we also believe that value propositions and offerings are directly related, but not through a subsumption relationship.

Following [35], we define an *offering* as a promise with a conditional content, made by an agent, the *offeror*, towards a group of agents, the *eligible market*. An offering (which by itself is a particular kind of *speech act*) is described by an *offering description*, which is composed by two parts, the content description and the condition description. The content description describes the actions to be performed by the offeror, such as transferring the ownership of a car, or allowing the right to use a streaming service. The condition description, on the other hand, describes the expected actions (usually some sort of payment) the offerees must perform if they want to take advantage of the offering's content. The following statements exemplify offerings: "John offers Mary to sell her his car for 5.000 euros", "Netflix offers video streaming services in Italy for 9,99 euros per month".

We emphasize that an offering may contain different types of promises. As discussed in [20], they may be

commitments to perform particular actions (e.g. Amazon promises to deliver the goods you purchased at your home) or not to perform actions (e.g. Netflix commits *not* to embed commercials in their content). Moreover, these promises may contain restrictions on how the action will be performed. For instance, Amazon Prime's 1-Day delivery service contains a commitment to deliver an order within the next 24 hours.

Moreover, offerings typically specify the channels through which they are accessible or even restrictions on who can accept them. Netflix's offerings, for example, are accessible through their web portal and mobile applications. Yet note that Netflix has different offers for each country, thus, Netflix's Italian standard plan can only be hired by those who are in Italy. Our account of offerings is depicted in Figure 3.

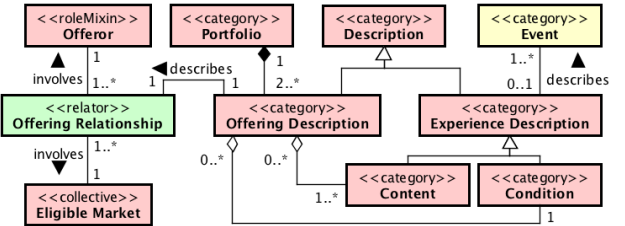


Figure 3. Properties of an offering.

Let us now consider the notion of value proposition. Differently from an offering, this is not a promise, but rather an assertion of the value resulting from a trade-off between the benefits and sacrifices one gets from taking an offering. As depicted in Figure 4, we define a *value proposition* as a value assertion a company makes (as the value beholder) that a given market segment (the beneficiaries) will ascribe a particular value to the experiences enabled by an offering (the value object). To make such an assertion, a company must presuppose that the members of a segment share the same types of goals, as well as that they value the experiences in the same way. Simply put, the difference between value propositions and offerings is that the former answer *what* customer value and why, whilst the latter describes *how* value is delivered by the company.

Note that value propositions depend on specific offerings, but not the other way around. To see why, consider a pharmaceutical company that developed a new drug for

treating patients with fever. It makes an offering to sell this drug for two euros a packet. On top of this offering, the company crafts a value proposition that claims a shorter time for the drug to work than the alternatives. Now, suppose that the company discovers that the same drug might be used in a preventive treatment for heart attacks. It could keep the same offering (two euros a packet) and craft an additional value proposition focused on another market segment, patients with heart conditions. However, if the company decides to sell the same drug for fifty euros a packet, this definitely implies a different value proposition, since the sacrifice embedded in the offering changed.

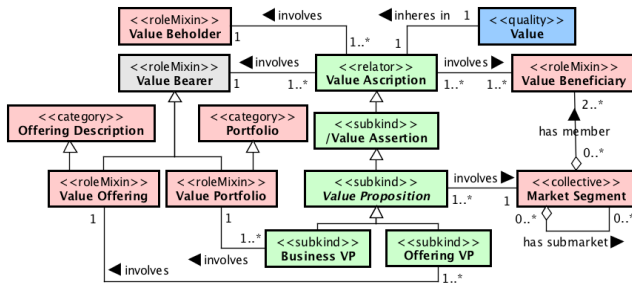


Figure 4. Value proposition as a type of value ascription.

A further difference between VPs and offerings concerns their targets. On one hand, the target of a VP (its market segment) includes those whom the proposition is designed for. On the other hand, the target of an offering (its eligible customers) includes those who are allowed to take the offering. Yet note that if a VP is crafted for an offering, it is reasonable to assert that its market segment is a subset of the eligible customers. Consider, for instance, a company that rents cars. Its target community includes every person that is legally allowed to drive a car. Its VP, however, aims at travelers who prefer the flexibility and comfort of a car over public transportation, besides being legally allowed to drive.

Finally, note that the notion of value proposition, in the way we defined it, is at the core of a particular type of strategic analysis, namely, choosing the offering that delivers the best VP. This scenario can be interpreted as an optimization problem, in which one describes multiple possible configurations of an offering and the problem is to find the configuration that optimizes the value the offering delivers.³

5.2. Business VPs versus Offering VPs

Explaining value propositions only through offerings, however, is not enough. Consider Netflix, a popular company that offers online video streaming services. It seems reasonable to state that Netflix has just one value proposition: to help their customers relax and entertain themselves by means of online video content (e.g. series, movies) that

can be accessed anywhere at anytime, at the price of a low monthly fee. If we take a closer look, however, we find that Netflix offers three subscription plans: Basic, Standard, and Premium. Each plan offers different levels of service, such as number of simultaneous devices, at different costs. Yet, offering different benefits at different costs means offering different values, thus different value propositions. This may suggest that Netflix has three value propositions, and not just one.

This contradiction occurs due to the use of VPs at very different levels of abstraction. On one hand, there are value propositions described at the *business level*, which provide an abstract idea of the value offered by the company through all of its offerings for a specific market segment, measuring benefits and costs with a coarse granularity. On the other hand, there are value propositions described at the *offering level*, which are very accurate in terms of benefits and costs. The former notion, which we name *business value proposition (BVP)*, conveys the idea of what the company delivers to its customers by means of its *portfolio* (the set of offerings made toward the same market segment), while the latter, named *offering value proposition (OVP)*, specifies the actual value embedded in each offering, which conforms to the former. Besides making the benefits and costs concrete, OVPs may focus on specific sub-segments or on specific additional benefits. This distinction between value propositions is depicted in Figure 4.

Note that the existence of multiple offerings might even be a value-creating factor for the BVP. For instance, if a restaurant has only one dish in its menu, its BVP is probably lower than that of another restaurant offering a variety of dishes to choose from. Note also that companies may have more than one BVP, typically one for each macro customer segment in their business model. Uber, for instance, has a general BVP for passengers, which includes a short waiting time and low effort to request vehicles, associated to its portfolio of offerings to passengers (e.g. UberBlack, UberPOOL). It has another BVP for drivers, which includes flexibility on working hours and access to customers through their mobile app. Also note that there might be no intersection between the BVPs of a company for different segments (e.g. Uber's BVP for passengers and Uber's BVP for drivers), but whenever these are refined into OVPs, the latter should not violate assumptions of the former.

We are aware that this distinction suggests that VPs could be organized in a hierarchy (in line of what is discussed in [3]), accounting for more than the two levels discussed so far. A situation in which such a hierarchy would be useful is when companies have product lines and customized products. Apple, for example, owns the iPhone line, which in turn has various models (e.g. iPhone 7), which are sold with different configurations (e.g. iPhone 7 128GB Black). We could try to craft different VPs for each of these levels. We refrain from such a refinement for now, since the two levels of VP we discussed seem to be more commonly used in practice.

3. Note that we are focusing on optimizing *customer* value here. A dual reasoning can be done from the company's perspective.

5.3. Value Propositions *versus* Value Presentations

The importance of *communicating* a value proposition has been emphasized in the literature since Lanning and Michaels [22] coined the term. It helps customers understand why they should hire the company, explain to the employees why the company exists, or convince investors that the business idea is worth their investment.

Nonetheless, a VP presentation should not be confused with the VP itself. As we previously argued, a VP is a judgment made by a company that a particular set of customers value its offering in a particular context, assuming that such an offering fulfills their goals. A *value proposition presentation* is the communication of such a VP for a particular audience, not necessarily the audience it is made towards. A VP may be presented to employees, investors, partners, influencers, and, obviously, to the customers.

When presenting a VP, companies might focus on specific aspects they believe will serve their communication's purpose. When used in marketing campaigns, companies might decide to highlight the core benefits of the proposition in order to attract customers. When used as an input for strategic planning, all aspects might be described. In competitive analysis, the focus might be on the comparison with competing VPs. What is fundamental is that making a different presentation does not imply making a new value proposition.

To exemplify how different presentations may be coined for the same VP, consider Turo⁴, an American company that offers a online marketplace where travelers can rent cars from local owners. One can describe their business value proposition through a simple analogy with Airbnb: "Turo is the Airbnb for cars". This suggests that one can ascribe the same type of value expected from Airbnb to Turo. Another statement could be: "Turo enables travelers to rent unique cars at a cheaper price than car rental chains". This statement identifies the customer segment (travelers), highlights one benefit (uniqueness of the cars), and provides a comparative notion of the price (cheaper than rental chains).

5.4. Quality Requirements for Value Propositions

In the literature, several requirements have been proposed to qualify a good VP, including clarity and persuasiveness [3], [4], profitability [3], competitiveness [27] and uniqueness [23]. In this section, we use the VP-related notions we have described to better understand what these requirements are about.

Clarity and persuasiveness refer to *value proposition presentations*. Clarity describes how easy it is for someone to understand the most important aspects of a VP from its presentation. The same VP can be described in a very clear or a very confusing and imprecise way. In fact, the same presentation might be clear for a particular audience and unclear for another. The important point is that crafting different statements does not imply crafting different VPs.

4. <http://www.turo.com>

Persuasiveness refers to how convincing and believable the VP presentation is to its target audience. In fact, when Anderson et al. [4] suggest that VPs should only contain the most important benefits and points of parity with the alternatives, they do not mean that a VP does not include the remaining properties, but that by presenting it in this way, it is easier to persuade the audience.

Profitability, in turn, is a requirement of an *offering*, not of a value proposition. Profitability means that the company must be able to fulfill the promise within an offering and still make a profit. Note that multiple VPs can be made on top of the same offering and, thus profitability cannot be a direct property of a VP.

The last two requirements, competitiveness and uniqueness, are the only two that actually concern value proposition as we conceptualized it. A VP is competitive if it is perceived as superior by at least a subset of the market segment. Finally, a VP may be unique for different reasons. It might target an audience that is not addressed by another company, it might propose a novel value, or maybe just a benefit no other company has foreseen to offer. Ultimately, uniqueness is about avoiding the commoditization trap [23], namely the situation in which the value propositions made by all the competitors in a market are so similar that customers only consider price when choosing amongst them – a scenario that might significantly harm profit margins.

6. Use Case Illustration: Netflix

Netflix aims at addressing a very simple desire people have – to relax and entertain themselves. It does that by offering its customers the experience of watching a wide range of video contents, such as movies, series and documentaries, in exchange for monthly payments. This general idea is in fact Netflix's business value proposition.

Netflix offers propose to entertain their customers by means of three service modalities (composing its offering portfolio), namely the Basic, Standard and Premium subscription plans. Each plan has a specific price and promises an experience of a certain quality level. For instance, the Standard plan costs 9.99 euros/month and enables customers to watch movies in high-definition (HD).

We depict a prototypical watching experience enabled by the Standard plan in Figure 5. Note that such an experience involves various elements, including the viewer (as the value beneficiary), but also the movie being watched, the Netflix App, the device used for streaming (e.g. a computer, a table), and even the internet connection required for accessing the service. In order to describe how this experience creates value, we also identify some relevant qualities of these participants, such as the entertainability and the resolution of the movie, and the speed of the Internet connection.

In its value proposition, the Standard plan aims at a subsegment of the mass market targeted by Netflix business value proposition. This sub-market includes those customers that prefer to pay a slightly higher price to be able to watch movies in HD. As shown in Fig. 6, to identify the benefits and sacrifices that compose the value of the standard

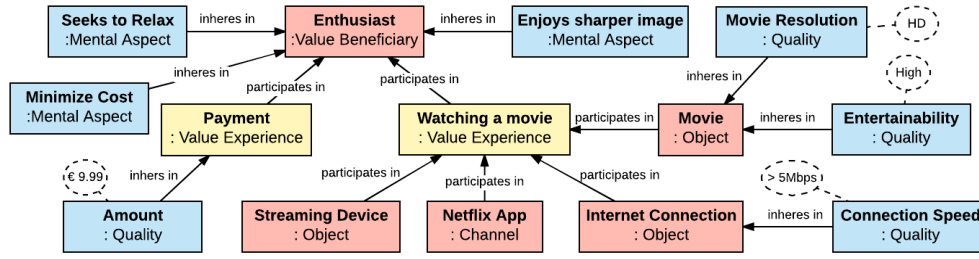


Figure 5. Value experiences of the Netflix service.

plan, we decompose the value proposition in three Value Ascription Components (VAC): the Entertainment VAC, the Video Quality VAC, and the Payment VAC.

The Entertainment VAC “matches” the customers’ goal of relaxing with the entertainability capacity of a movie being watched, thus yielding a relaxing *benefit*. Moreover, the Video Quality VAC explains why videos in HD produce a benefit, by assuming that: (i) customers believe sharper images improve the watching experience; (ii) customers will use the service with an Internet connection that is fast enough (> 5 Mbps) to stream the video without interruptions; and (iii) the device customers use to watch Netflix supports HD resolutions. Note, however, that this benefit might be accompanied by a *sacrifice*, namely the increased data traffic in the network, if customers have a limited Internet contract. Lastly, the Payment VAC identifies the main sacrifice of the Standard plan, i.e., paying for the service. Such a sacrifice exists due to the natural assumption that, in general, customers want to expend as little as possible.

The fact that Netflix offers a viewing experience that is not disturbed by commercials is often described as part of the value proposition. But if we analyze the whole experience closely, there is not a single property of the experience that creates such a value. The “no commercials” part of Netflix’s usual presentation of their value arises from a comparison with alternatives propositions of competitors, in particular with regular television channels and Youtube, offerings that do include commercials and thus, have value diminishing elements (i.e. sacrifices) in their value expe-

riences. If for instance, Youtube and television channels would cease to include advertising in their services, this factor would likely not be included to describe Netflix’s value proposition.

7. Final Remarks

In this paper, we clarified the notion of value proposition through an ontological analysis based on UFO and on the previous work on the ontology of value ascription. We explained value propositions as a particular type of value ascription and distinguished them from offerings and value proposition statements. Moreover, we discussed how VPs can be conceived for offerings and offerings portfolios (i.e., at the business level). We are aware that further clarifications might still be required, however we argue that the discussion regarding VP quality requirements in combination with the Netflix case study exemplified how the distinctions we made contribute to a better understanding, communication and use of VPs in research and practice.

We plan to follow two main directions in future investigations. First, we intend to use the presented ontology to analyze and redesign existing modelling languages (e.g. Archimate) to enable them to consistently describe value propositions. Second, we plan to connect the present ontology to complementary domains that are relevant for strategic analysis. In particular, the domain of markets and competition, to account for external factors that affect strategy, and the domain of capabilities and business processes, to further clarify how value propositions are actually delivered.

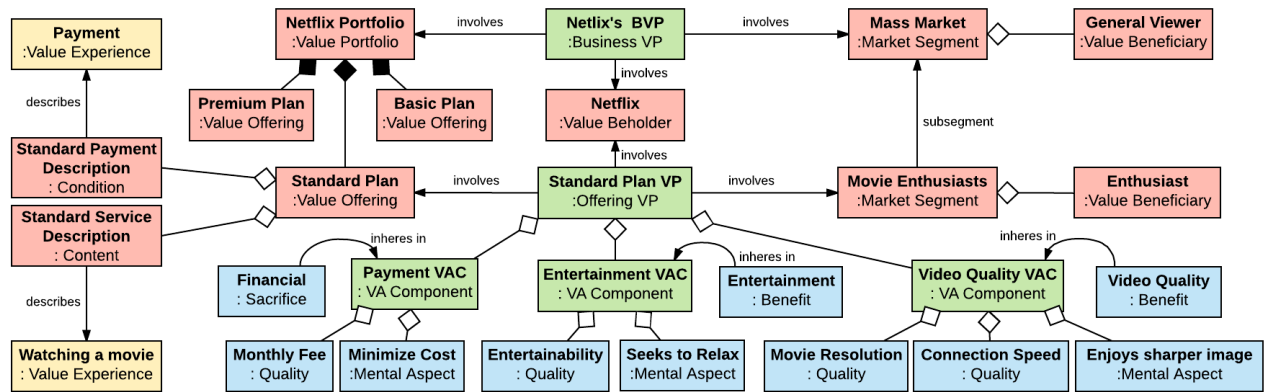


Figure 6. Overview of Netflix’s value propositions.

References

- [1] M. Treacy and F. Wiersema, "Customer intimacy and other value disciplines," *Harvard Business Review*, vol. 71, no. 9301, pp. 84–93, 1993.
- [2] A. Osterwalder and Y. Pigneur, *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons, 2010.
- [3] C. Barnes, H. Blake, and D. Pinder, "What is a value proposition?" in *Creating and Delivering Your Value Proposition Managing Customer Experience for Profit*. Kogan Page, 2009, ch. 2, pp. 21–38.
- [4] J. C. Anderson and J. A. Narus, "Customer value propositions in business markets," *Harvard Business Review*, vol. 84, no. 3, pp. 90–99, 2006.
- [5] D. Ballantyne, P. Frow, R. J. Varey, and A. Payne, "Value propositions as communication practice: Taking a wider view," *Industrial Marketing Management*, vol. 40, no. 2, pp. 202–210, 2011.
- [6] P. Frow and A. Payne, "A stakeholder perspective of value: Extending the value proposition concept in the context of stakeholders and service-dominant logic," in *Forum on markets and marketing: Extending service-dominant logic*, vol. 4, no. 6, 2008.
- [7] G. Guizzardi, *Ontological foundations for structural conceptual models*. CTIT, Centre for Telematics and Information Technology, 2005.
- [8] B. Andersson, N. Guarino, P. Johannesson, and B. Livieri, "Towards an ontology of value ascription," in *9th International Conference on Formal Ontology in Information Systems (FOIS)*, vol. 283. IOS Press, 2016, pp. 331–344.
- [9] N. Guarino and C. Welty, "An Overview of OntoClean (revised version)," in *Handbook on Ontologies*, S. Staab and R. Studer, Eds. Berlin, Heidelberg: Springer Berlin Heidelberg, 2009, pp. 201–220.
- [10] S. Borgo and C. Masolo, "Foundational choices in DOLCE," in *Handbook on Ontologies*, S. Staab, S. Staab, and R. Studer, Eds. Berlin, Germany: Springer Verlag, 2009, pp. 361–381.
- [11] H. Herre, "General Formal Ontology (GFO): A foundational ontology for conceptual modelling," in *Theory and Applications of Ontology: Computer Applications*. Springer, 2010, pp. 297–345.
- [12] G. Guizzardi, G. Wagner, J. P. A. Almeida, and R. S. Guizzardi, "Towards ontological foundations for conceptual modeling: the Unified Foundational Ontology (UFO) story," *Applied ontology*, vol. 10, no. 3-4, pp. 259–271, 2015.
- [13] M. Verdonck and F. Gailly, "Insights on the use and application of ontology and conceptual modeling languages in ontology-driven conceptual modeling," in *35th International Conference on Conceptual Modeling (ER)*. Springer, 2016, pp. 83–97.
- [14] W3C, "OWL 2 Web Ontology Language – Structural Specification and Functional-Style Syntax (Second Edition)," Standard, 2012.
- [15] Object Management Group (OMG), "Business process model and notation (bpmn). version 2.0," Standard, 2011.
- [16] A. W. Scheer, *Aris – Business Process Modeling*, 3rd ed. USA: Springer-Verlag New York, Inc., 2000.
- [17] ISO/ITU-T, "Open Distributed Processing – Reference Model, International Standard ISO/IEC 10746-2, ITU-T Recommendation X.902," Standard, 1995.
- [18] J. C. Nardi, R. d. A. Falbo, J. P. A. Almeida, G. Guizzardi, L. F. Pires, M. J. van Sinderen, and N. Guarino, "Towards a commitment-based reference ontology for services," in *17th International Enterprise Distributed Object Computing Conference*. IEEE, 2013, pp. 175–184.
- [19] N. Guarino and G. Guizzardi, "Relationships and events: towards a general theory of reification and truthmaking," in *AI* IA 2016 Advances in Artificial Intelligence*. Springer, 2016, pp. 237–249.
- [20] C. Griffo, J. P. A. Almeida, and G. Guizzardi, "A pattern for the representation of legal relations in a legal core ontology," in *29th Annual Conference on Legal Knowledge and Information Systems (JURIX 2016)*, vol. 294. IOS Press, 2016, pp. 191–194.
- [21] F. Gailly, B. Roelens, and G. Guizzardi, "The design of a core value ontology using ontology patterns," in *35th International Conference on Conceptual Modeling (ER)*. Springer, 2016, pp. 183–193.
- [22] M. J. Lanning and E. G. Michaels, "A business is a value delivery system," *McKinsey staff paper*, vol. 41, July 1988.
- [23] A. Kambil, A. Ginsberg, and M. Bloch, "Re-inventing value propositions," *Information Systems Working Papers Series*, 1996.
- [24] A. Osterwalder and Y. Pigneur, "An ontology for e-business models," in *Value Creation from e-Business Models*, 1st ed., W. Currie, Ed. Elsevier, 2004, ch. 4, pp. 65–97.
- [25] D. Ballantyne and R. Varey, "Creating value-in-use through marketing interaction: the exchange logic of relating, communicating and knowing," *Marketing Theory*, vol. 6, no. 3, pp. 335–348, 2006.
- [26] S. Bagchi and B. Tulske, "E-business models: integrating learning from strategy development experiences and empirical research," in *20th Annual International Conference of the Strategic Management Society*, 2000, pp. 15–18.
- [27] T. Rintamäki, H. Kuusela, and L. Mitronen, "Identifying competitive customer value propositions in retailing," *Managing Service Quality*, vol. 17, no. 6, pp. 621–634, 2007.
- [28] J. Gordijn, H. Akkermans, and J. Van Vliet, "Designing and evaluating e-business models," *IEEE intelligent Systems*, vol. 16, no. 4, pp. 11–17, 2001.
- [29] The Open Group, "Archimate 3.0 specification," Standard, 2016.
- [30] Object Management Group (OMG), "Value delivery metamodel. Version 1.0," Standard, 2015.
- [31] C. L. Azevedo, M.-E. Iacob, J. P. A. Almeida, M. van Sinderen, L. F. Pires, and G. Guizzardi, "An ontology-based well-founded proposal for modeling resources and capabilities in archimate," in *17th International Enterprise Distributed Object Computing Conference (EDOC)*. IEEE, 2013, pp. 39–48.
- [32] R. B. Woodruff, "Customer value: The next source for competitive advantage," *Journal of the Academy of Marketing Science*, vol. 25, no. 2, pp. 139–153, Mar. 1997.
- [33] G. Guizzardi, N. Guarino, and J. P. A. Almeida, "Ontological considerations about the representation of events and endurants in business models," in *International Conference on Business Process Management*. Springer, 2016, pp. 20–36.
- [34] N. Guarino, "On the semantics of ongoing and future occurrence identifiers," in *Conceptual Modeling. Proc. of 36th. Int. Conf. ER 2017, Valencia, Nov. 6-9, 2017*, H. C. Mayr, G. Guizzardi, H. Ma, and O. Pastor, Eds. Lecture Notes in Computer Science, Springer, 2017, pp. 1–14.
- [35] O. Massin and E. Tieffenbach, "The metaphysics of economic exchanges," *Journal of Social Ontology*, pp. 1–39, Sep. 2016.