

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

“ The value of a thing is estimated from the advantages supposed to be derived from it, and depends very much upon time, place, and circumstances” ”

E.P. Day

Day's Collacon: An encyclopaedia of prose quotations

Balancing various stakeholder (often contradictory) expectations creates tensions when developing value propositions for a new firm. Customers, funders, owners, and society-at-large often expect different value outcomes from a firm. They therefore have different motivations for being involved in the firm. These differences in value expectations are more strongly expressed in technology-based ventures, which often rely heavily on access to heterogeneous external resources such as capital, specialised knowledge, distribution, and service. In this paper, we use a wicked problem lens to explore specific challenges for companies to mediate seemingly contradictory propositions. We use two dimensions of wicked problems involving complexity and complicatedness, and conduct a secondary analysis of seven technology venture case studies from Australia and New Zealand. We then categorise the configuration types of these firms' stakeholder value propositions in the context of their scale-up process. We contribute to the value proposition and business model development research streams by suggesting that the challenge of mediating value propositions that conflict can manifest itself in four types of configurations: easy, complicated, complex and wicked. Complicated and complex propositions are thorny, but with structures and processes in place, they can be adequately addressed. On the other hand, wicked propositions consist of many unknowns and require firms to collaborate with stakeholders to derive outcomes that align company scaling objective with stakeholder value propositions.

Introduction

The value proposition (VP) concept increasingly attracts attention beyond the marketing domain (Eggert et al., 2020). Scholars and practitioners of business model innovation have highlighted the importance of VPs when designing various business model activities (Teece, 2010; Priem et al., 2018). More importantly, there is a growth in firms looking towards developing business practices that balance multiple outcomes. An example is the triple bottom line approach, which suggests that firms should aspire to achieve economic, ecological, and social outcomes (Hart, 1995; Kiel et al., 2017). Consequently, both new and established firms will increasingly consider how their business model can balance different stakeholders' conflicting needs (Scherer et al., 2013).

Various stakeholders can have conflicting expectations. For instance, there can be expectations to create products customers want, increase profits to maximise investor returns, produce what the co-founders think the market needs, and ensure business activities promote sustainability (Gladwin et al., 1995; Chesbrough & Rosenbloom, 2002; Liu et al., 2015; Loureiro et al., 2020). To avoid stifling tension between these seemingly opposing needs, a firm needs to create propositions that align stakeholder needs and expectations (Ballantyne et al., 2011; Bailetti et al., 2020). This alignment is even more crucial for new technology ventures, which operate in a highly dynamic environment, and often lack the resources and capabilities needed to manage the VP development and alignment process (Scherer et al., 2013).

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

We suggest that by investigating VPs through the lens of “wicked problems” (Churchman, 1967), people can better understand the specific challenges caused by different configurations of multi-stakeholder propositions. By and large, wicked problems are complex and complicated (Andersson et al., 2014; Alford & Head, 2017). The terms “complex” and “complicated” are conceptually distinct, but often used interchangeably (Andersson et al., 2014; Kinni, 2017). “Complicatedness” is associated with a situation where most of the causes of a problem can be identified and addressed with additional learning (Kinni, 2017). This means that most times for complicatedness, the causal effects between problems and solutions are knowable (Snowden & Boone, 2007). On the other hand, “complexity” is characterised by the inability to identify the cause of a problem and predict accurate solutions required. In this case, the complex causal relationships between problems and solutions are mostly unknown (Manson, 2001; Dorst, 2015). Hence, while a multidimensional VP contains, amongst other components, the problems that a firm needs to solve, such a VP is bound to be more wicked when the problem component is highly complicated and complex (Andersson et al., 2014; Alford & Head, 2017).

In the paper that follows, we aim to contribute to the VP and business model research streams (Spieth et al., 2014) by categorising VPs based on their problem components, while highlighting specific challenges associated with VP configurations. To determine the types of propositions a firm engages in during the early and scaling-up stages of its life cycle, we conducted a secondary analysis on seven case studies from Australia and New Zealand (NZ). The case studies focus on technology start-ups at the growth (scaling up) and maturity stages of their business life cycle (Miller & Friesen, 1984). We found that complicated propositions are tricky, but can be addressed adequately with structures and processes in place. Contrarily, complex propositions consist of too many unknowns and require firms to co-learn with stakeholders to derive an outcome that aligns with other propositions and company scaling objectives. From these complicated and complex dimensions, we proposed four VP configurations and their implications.

Theoretical Background

Value proposition research insights

Research focusing on the VP concept has been growing and progressing steadily. Studies from the field of

marketing provide fine-grained nuances on the various elements of a VP (Payne & Frow, 2014; Payne et al., 2017; Eggert et al., 2020). Furthermore, a visible shift has taken place towards adopting multiple stakeholder and co-creation perspectives when developing VPs (Frow & Payne, 2011). This shift displays an extension of the initial customer-focused perspective on VPs, reflecting the realisation that a company’s value creation efforts require a holistic view that focuses on collaborative processes (Anderson et al., 2006; Frow et al., 2015; Eggert et al., 2018). Furthermore, stakeholder-based perspectives on VPs provide an alternative view for companies when considering the relationship between value, customer experiences, and business processes such as organisational learning in shaping and refining VPs (Payne et al., 2008).

This paper’s research approach adopts the VP framework suggested by Johnson, Christensen, and Kagermann (2008) to define VPs as a company’s promise to stakeholders (for example, customers, investors, partners) on the value that its products or services bring. Value is the benefit or advantage that stakeholders obtain from investing, collaborating, purchasing, and using a firm’s products or services (Frow & Payne, 2011; Bohnsack & Pinkse, 2017; Priem et al., 2018; Bailetti et al., 2020). A firm communicates this value to stakeholders in the form of VPs and by reconfiguring its business strategy to reflect and deliver these VPs (Tantalo & Priem, 2016; Eggert et al., 2018; Lanning, 2020). VPs themselves are an essential component in business models (Johnson et al., 2008). In their study of technology-based spin-offs from Xerox, Chesbrough and Rosenbloom (2002) highlighted the centrality of VPs in technology firms’ efforts to create value. They demonstrated how business models commonly revolve around specific VPs, as well as the significance of offering better linkages between value creation and capture processes.

Bohnsack and Pinkse (2017) examined how firms could reconfigure their VPs to appeal to various stakeholders at the operational level. The authors proposed that companies could employ compensating, enhancing, and coupling mechanisms to reconfigure their VPs. The reconfigured VP’s focus is on showcasing, exploiting or mitigating the features of a firm’s technology to stakeholders, such as investors, partners, customers, and users (Bohnsack & Pinkse, 2017). It was implied here that new VPs would require firms to reconfigure other related activities into their business model, such as focusing not only on their profits, but also on their

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

value creation activities' environmental and social impacts (Kiel et al., 2017). Paying attention to a triple bottom line ensures that a firm operates effectively while aiming at long-term sustainability (Hart, 1995). Firms nowadays thus need to appease a more diverse group of stakeholders than ever before. Simultaneously aligning stakeholder VPs to business strategies has become essential (Scherer et al., 2013). This is not easy, however, especially for a company at the scaling-up stage of its life cycle. As new ventures are more likely to face technical, market, and social uncertainties (Reymen et al., 2017), a need arises to reframe company VPs to reflect the uncertainties and complexities associated with their business.

The 'problem' of aligning multi-stakeholder value propositions

Problem-solving theory suggests that problems with high degrees of complexity and complicatedness tend to be more challenging to solve and could be considered "wicked" (Simon, 1962; Andersson et al., 2014; Alford & Head, 2017). A common understanding holds that new ventures working closely with various stakeholders to develop mutually beneficial VPs is invariably a complex process. A myriad of stakeholders could be relevant, such as users, customers, suppliers, co-founders, venture capitalists, bankers, partners, and even family members (Moore, 1990). While "value" means different things to different stakeholders, similar stakeholders may sometimes also have disparate value expectations. What creates value for one stakeholder (for example, a customer), who will acquire a customised product and subsequent service to get a job done is unlikely to be aligned with the value of another stakeholder (for example, an investor), who might see a higher short-

term return on investment as valuable instead. Thus, working with stakeholders that have seemingly different goals tends to increase a firm's difficulty to grasp and incorporate disparate stakeholder value interpretations (Stacey, 1995; Manson, 2001; Lyles, 2014). The existence of multiple interpretations of value by different stakeholders pivots toward complexity, and more complicated states involved with problem-solving (Simon, 1962; Newell & Simon, 1972; Lyles, 2014; Dorst, 2015).

In their Cynefin framework, Snowden and Boone (2007) delineated business problems into four categories: simple, complicated, complex, and chaotic. The decision-making process changes depending on the problem decision-makers are facing. In the context of developing VPs, research by Reymen et al. (2017) suggested that while new ventures create VPs for customers through iterative interactions with broader stakeholder groups, the company decisions are guided by effectuation. They focused on the resources available to new ventures now, rather than predicting what can be achieved. The common principle in these two studies was the notion that when decision-makers face complex and complicated problems laden with unpredictability, traditional systematic problem-solving processes that work for more simple problems would not work. We adopted the Cynefin framework's dimensions of complexity and complicatedness for this paper (outlined in Table 1) to examine the problem components of various stakeholder VPs that scaling companies need to address. Our aim was to provide these firms a better understanding of these propositions and ways of addressing them.

Table 1. Complex vs complicated characteristics

| | Complex | Complicated |
|---------------------|--|---|
| Solution | Unknown | Mostly known |
| Cause-effect | Causal effects between problem and solution unknown | Causal effects between problem and solution can be identified |
| Resource components | Utilising many resource (and knowledge) components known and unknown to the firm and those possessed by stakeholders | Utilising many resource (and knowledge) components that are known and unknown to the firm |

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

Methodology

Research into the VP concept is still an underdeveloped area. We believe it warrants a research approach that supports normative interpretations and the development of practical tools to apply in marketing and beyond (Frow & Payne, 2011; Payne et al., 2017; Eggert et al., 2020). Furthermore, previous research has not looked at categorising VPs based on complexity and complicatedness.

Our paper adopts a methodology that combines inductive top-down theorising (Shepherd & Sutcliffe, 2011) and directed content analysis (Hsieh & Shannon, 2005). This methodological choice allowed us to analyse the available evidence based on some predetermined dimensions. We took one current understandings of VPs into account while analysing evidence for their complex and complicated characteristics. As mentioned, a VP is conceptualised as a multidimensional concept that includes the customer problem new venture firms need to address during value creation (Johnson et al., 2008). Analysing the problem component of VPs using our proposed theoretical perspective helped in identifying specific configurations of VPs, and highlighted the challenges associated with various VP types (Mayer & Sparrowe, 2013).

Sample and data collection

The initial empirical context of this study was NZ companies going through a scaling-up process. The sample involved firms that had successfully scaled-up. Including such firms minimised time-lag effects, where there was a delay between implementing business practices and subsequent reporting of these practices. We established a list of potential companies, and one of the authors conducted preliminary screening of this initial list by searching in Katalyst Business, Kompass, and MarketLine databases. The objective of this screening process was to make a final selection of suitable companies for our study. During this process, the authors added two successful Australian companies with evidence of multi-stakeholder engagement. The final list included seven companies of various ages, operating in several industries, and adopting different technologies.

We collected data from secondary sources, analysed seven case studies, company websites, and news and magazine articles related to the chosen firms. We used Google search engine, ProQuest and Newztext databases to search for news and magazine articles. Our unit of analysis was company VPs. When VP statements were not explicitly labelled as propositions in the evidence, in such cases published descriptions and explanations of

Table 2. Sample

| Company | Location | Technology | Industry | Founded |
|---|-------------|--|------------------------|---------|
| Cochlear | Australia | Hearing aid | Medical devices | 1981 |
| Smorgon Steel | Australia | Steel products | Manufacturing | 2001 |
| Buckley Systems (formerly Buckley Engineering) | New Zealand | Nuclear physics equipment silicon chip | Engineering | 1968 |
| Lanzatech | New Zealand | Carbon recycling | Clean energy | 2005 |
| Living Cell Technologies | New Zealand | Medical research | Biotechnology research | 1987 |
| PowerbyProxi | New Zealand | Wireless power | Power charging | 2007 |
| StretchSense Ltd | New Zealand | Sensors, wearable technology | Wearable electronics | 2012 |

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

how these companies create value for different stakeholders were used as a proxy.

Data analysis

We conducted content analysis using Nvivo 12. A computer-aided analysis allowed better organisation of coding schemes, as well as easier checking. We interpreted documented accounts of experiences and actions to handle stakeholder performance and value expectations as a way to represent VP characteristics. Although practitioners discuss VPs, actual propositional statements are not usually published by firms (Frow & Payne, 2011). As such, analysing documents showing how new ventures respond to stakeholder expectations can be valid as a proxy to analysing actual propositional statements (Bowen, 2009).

Since we were interested in categorising VPs based on their problem characteristics, we followed Saldaña's (2013) coding procedure and coded data in two cycles. In the first cycle, data were coded based on the dimensions of complex and complicated. Data not fitting these two preselected categories were coded separately as emerging themes to minimise researcher

bias. In the second coding cycle, we employed pattern coding on the codes that do not fit into the two predetermined categories to identify additional characteristics of VPs that have emerged (Miles et al., 2014). We triangulated the coding schemes by searching for related characteristics in more than one data source (Miles et al., 2014; Patton, 2015). A single researcher conducted the two-stage data analysis process. Therefore, we thoroughly discussed the following:

- The accuracy of the coding scheme.
- The reliable inference of triangulated texts and their respective coding dimensions.
- The findings from our analysis and conclusions from these interpretations.

Findings

Our analysis revealed that the problem components of the seven companies' VPs fall on a spectrum anchored by "complex" and "complicated" dimensions. The problem characteristics that make up these two

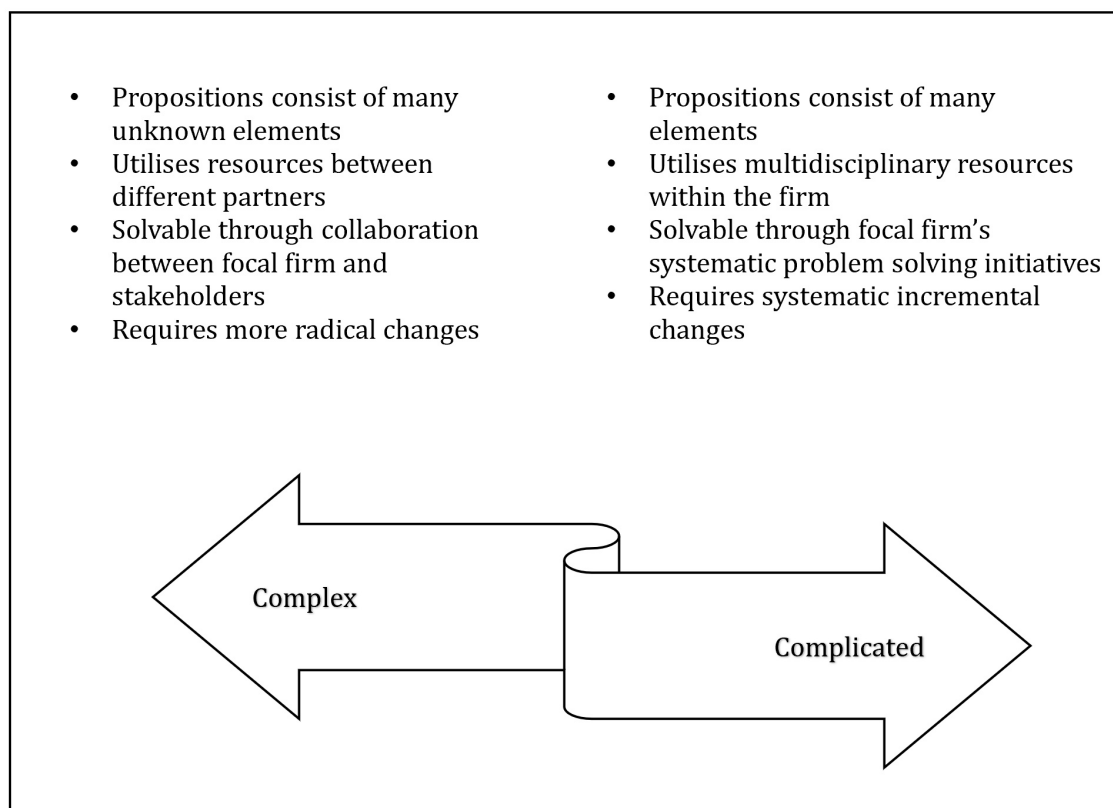


Figure 1. Complex and complicated dimensions of value propositions

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

Table 3. Stakeholders and types of propositions derived from analysis

| Stakeholders | Definition | Sample proposition | Companies |
|----------------------|--|--|--|
| Business partner | Individual who invested in the company and played a role in the operations | Want the company to pursue activities that meet their expectations | Living Cell, PowerbyProxi |
| Collaborators | Individuals and organisations involved in joint development of products | Want to co-develop a product to meet its objectives using the focal company's technology and expertise | Buckley, LanzaTech, Living Cell, PowerbyProxi, Smorgon, StretchSense |
| Customers | Individuals and organisations purchasing the company's product | Want a product that meets their perceived value gained from using the product | All companies |
| End-user | Individuals and organisations who use the product, but did not pay for it | Want a product that brings them benefit, is easy to use and safe | Buckley, Cochlear, PowerbyProxi, StretchSense |
| Founder | Individuals who founded the company | Wants to pursue activities that meet their various goals | All companies |
| Industry/ Government | Industry groups and government with interest in the company's product | Want to ensure the product meets industry standards or regulate usage and adoption of the product | All companies |
| Investor | Individuals and organisations who invested in the company | Want a good return on their investments | All companies |
| Licensor | An organisation that licenses its intellectual property to the company | Wants to choose application areas for its intellectual property and a fee | PowerbyProxi |

dimensions are presented in Figure 1. The companies were required to meet the expectations of various stakeholders (see Table 3). Overall, complex VPs were those requiring both technical and non-technical interdisciplinary knowledge. These propositions were characterised by high uncertainty and a company's lack of expertise in addressing them alone.

The need for interdisciplinary knowledge typically meant that firms needed to collaborate with various

partners. For example, in 1997, Buckley Systems developed the world's first commercial applications of high-temperature superconductors. It collaborated with three other research and commercial organisations to design, build, and market the new technology. In comparison, complicated VPs consisted of less uncertain components, which a company could address, albeit needing more resources than relatively simple propositions. In the company Cochlear, for instance, experts in audiology believed they would be

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

able to systematically address concerns about their hearing implant, through incremental research and development efforts.

Complex vs. complicated propositions

In addition to the above, three key distinctions arise between complex and complicated propositions. First, evidence showed stark contrast between complex and complicated propositions in the number of constituent elements underpinning these propositions. A complicated proposition was comprised of many different problem components, which were usually known to the case firms, but still relatively difficult to articulate. However, this characteristic was exacerbated in a complex proposition by the sheer amount of unknown problem components that were mostly interrelated.

When the company LanzaTech was searching for investors to scale-up its operations, an investor agreed to provide funding but required the firm to open research facilities in the United States. Although this proposition was complicated, LanzaTech met this request after systematically tackling the resource and legal requirements of setting-up facilities in the United States. In contrast, when PowerbyProxi entered into an agreement with an investor to develop its wireless slip ring for harvesting equipment, the situation was more complex. The relatively nascent technological expertise of PowerbyProxi at that time meant that many unknown variables could impact the company's success or failure in meeting the investor's needs.

Second, from our evidence, case firms employed various resources when addressing complex and complicated propositions. Given that complicated propositions consisted of different problem components, case firms were required to draw from multidisciplinary resources within the firm. Contrastingly, evidence showed that complex propositions required case firms to draw on resources from outside their boundaries. These firms collaborated closely with their partners to access resources held by these partners.

Cochlear frequently drew on research and development capabilities within the firm to design better implants in its quest to meet the demand for better hearing implants. For instance, its 22-channel implant and wearable speech processor was built on its first implant technology to incrementally change hearing implants, making them less intrusive to customers and easier for future upgrading. In contrast, Living Cell Technologies

drew from partner research and market access capabilities when developing its NTCell for new application areas, such as Parkinson's and other neurological illnesses. The proposition to explore these new application areas was highly complex, involving new technical and non-technical resources. It focused on finding collaborators to provide the funds, complementary technical expertise, and the market knowledge Living Cell Technologies lacked.

Third, and relatedly, addressing these propositions followed a slightly different process. Disciplined, systematic problem-solving abilities were essential for firms to address the problem components in complicated propositions. Alternatively, complex propositions required firms to utilise their collaborative abilities more than problem-solving initiatives. For instance, when developing a body measurement product for its investor, StretchSense was given US\$20 million, which it used to expand its research and production operations. Given that no product of this type existed at the time, StretchSense believed that it could build on its core technology, but that the process would be complicated. To address the complicated request, StretchSense systematically expanded its core technology to design and build the final product called ZoZoSuit. However, for Buckley Systems, even though it reinvested 20% of its profits into R&D annually, developing an alternative to copper wire for use in electromagnets required more than just problem-solving abilities. Instead, Buckley collaborated with organisations in industrial research and electromagnets to develop and commercialise a new technology to replace copper wires.

Framing value propositions

The findings on different problem characteristics between complex and complicated propositions showed that these were indeed different from one another. Hence, we used complexity and complicatedness dimensions to frame VPs, based on the problem components that firms were likely to face when scaling-up, as shown in in Figure 2. These types of VPs are outlined below with examples from the data collected.

• Easy proposition

Propositions here were low in problem complicatedness and complexity, where a firm would consider them as easy fixes. These could take the form of customer need

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

for an improved product. For example, Smorgon Steel was able to address requests for customised products from customers easily. This ability was tied to its usage of electric arc furnaces in manufacturing, which allowed for manufacturing of non-standardised steel products with idiosyncratic specifications.

• Complicated proposition

Propositions here contained problem components that could be difficult to comprehend, or when addressing them required a company to draw on the multidisciplinary resources it possessed but was not considered as complex. As part of its expansion plan, Living Cell Technologies needed to address various investor and regulatory body propositions. These propositions were considered complicated as they required Living Cell Technologies to draw on multidisciplinary resources. For instance, to obtain a global manufacturing practice certification, it drew resources and knowledge in production. For certification by International Accreditation New Zealand (IANZ), it drew on its scientific and technical resources to ensure diagnostic laboratory and systems met IANZ standards.

• Complex proposition

Propositions here contained problem components that were highly complex but not considered overly complicated. This could occur when the elements of the proposition were unknown at first, but as these elements emerged, firms could address them easily. During PowerbyProxi's expansion, it partnered with John Deere to develop and build a rotating, wireless slip-ring to be fitted on John Deere's machinery and equipment. This proposition was complex for PowerbyProxi because John Deere required a 120-fold increase in charging capacity from PowerbyProxi's existing capacity of 2 watts. Despite the complexity and uncertainty surrounding this proposition, it was able to push through and provided a working prototype to John Deere within the stipulated 12-month timeframe.

• "Wicked" proposition

Propositions considered as "wicked" exhibited problem components with strong complexity that are also highly complicated. These have known and unknown problem components that are both interrelated and difficult to comprehend and address. Throughout LanzaTech's

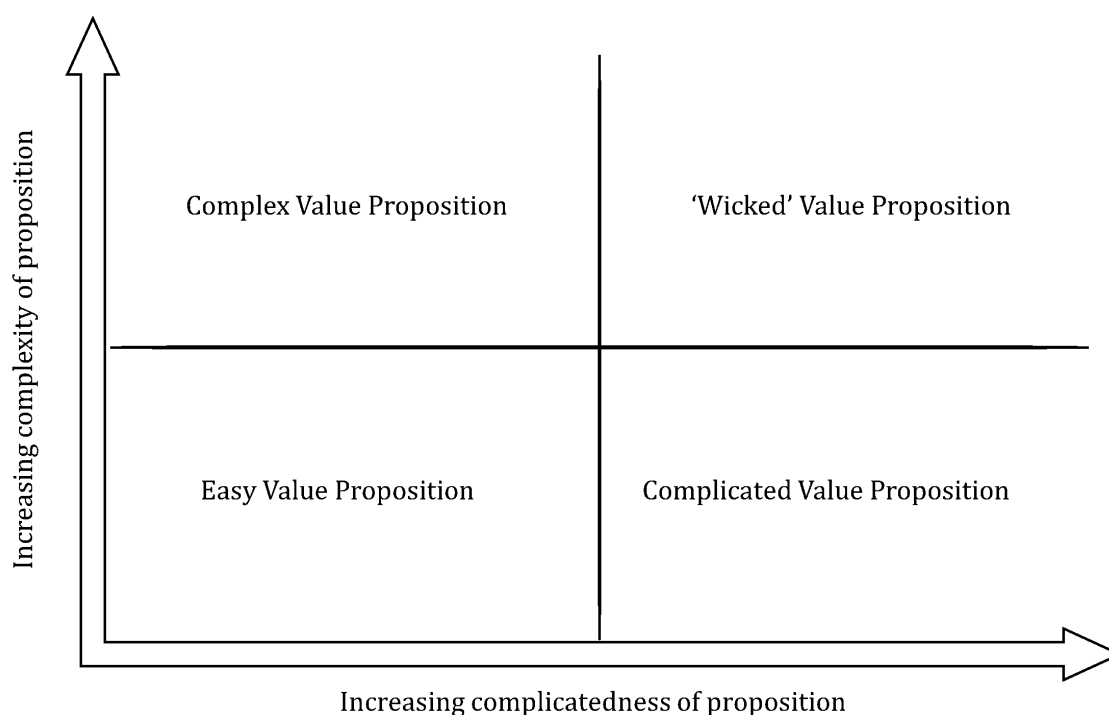


Figure 2. Framing value propositions through their problem components

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

expansion, it faced several tough propositions from investors and collaborators. One such proposition, the building of a first testing plant for its microbe, was considered a wicked proposition. As part of a US-based investor's requirements, LanzaTech needed to build a testing plant as a commercial proof-of-concept for its microbe. This was a highly complex and complicated endeavour for LanzaTech as its microbe was only ever proven in a laboratory environment. Furthermore, the efficiency targets for LanzaTech set by the investor were almost impossible. The test plant thus failed to achieve its objectives.

Discussion

Our study contributes to VP and business model concepts by utilising complexity and problem-solving lenses to categorise propositions that a firm could face in its start-up, growth, and scale-up stages. In doing so, we answered recent calls (Spieth et al., 2014; Bailetti et al., 2020) to further illuminate the relationship between companies and their external stakeholders in creating and shaping VPs. Furthermore, the findings provide a precursor to studies examining causal linkages on how value is captured from strong VPs (Priem et al., 2018).

We argue that VPs are important elements underpinning a company's business model. These propositions are more than about just communicating a firm's value creation, delivery, and capture initiatives. They are also a firm's guide towards achieving sustainable growth. While we proposed four types of VPs above, based on various underlying problem components that a company could encounter, a business venture would almost likely be facing various propositions simultaneously. Thus, it becomes an issue when a start-up founding team tries to address and align these diverse stakeholder propositions.

When working with different stakeholders with seemingly contradictory goals, a company needs to create propositions that meet these stakeholders' wants. Our findings are in line with the literature (Tantalo & Priem, 2016) and show that although it is difficult for a firm to simultaneously create value for different stakeholders, including customers, partners, and even employees, it is not impossible. A proposition is considered a statement of value that a company offering provides to various stakeholders. A robust business model provides supportive activities and mechanisms to create, deliver, and capture value as stated in a company's VPs. Our findings show it is useful for a firm

when developing and addressing VPs from different stakeholders to approach this process with a problem-solving approach.

One method to alleviate the balancing of diverse propositions is through collaboration. Extant research in industrial marketing that takes a service-dominant logic perspective proposes that VPs should be co-created with stakeholders such as customers (Payne et al., 2008; Frow et al., 2016). Co-creating VPs is useful because it brings together parties to co-develop relevant propositions through knowledge sharing. Despite co-creation being commonly linked to firm-customer relationships, the process is also useful when working with other stakeholders, such as suppliers, funders, and non-profit organisations (Ballantyne et al., 2011; Frow & Payne, 2011). Although working with stakeholders to co-create propositions means that a firm gains access to stakeholder knowledge, a degree of complexity remains to be addressed by the company, which arises from the market and technical uncertainties it faces. Hence, the alignment strategy needs to focus on supporting knowledge sharing between these different partners during the co-creation process.

This study was limited in scope as we categorised VPs based only on their problem components. We acknowledge that VPs consist of more than mere problems that require solving. Future studies could examine VPs by integrating the problem characteristics we identified with other proposition components. Furthermore, the VP configurations were derived only from an analysis of seven companies in Australia and New Zealand. We minimised this limitation given the scope by choosing companies operating in diverse industries. Future research could explore more widely the management and governance of various types of VPs from companies in other industries. Similarly, further studies could also investigate whether and how VPs change when a company moves through start-up and scaling-up stages.

Conclusion

Our study used a wicked problem perspective to analyse the value outcomes of seven organisations. We argued that addressing various stakeholder expectations when scaling-up requires reframing these expectations. Our analysis, using the dimensions of problem complexity and complicatedness, led us to propose four VPs: easy, complicated, complex, and wicked. Importantly, organisations should acknowledge the need to develop

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

different VPs to meet diverse stakeholder expectations. The seven organisations we examined frequently turned to collaboration with investors and customers to address complex and wicked propositions. Collaboration was found to be beneficial when addressing complex and wicked propositions because it allows organisations to co-learn with stakeholders to facilitate and negotiate the alignment of expectations and scaling-up objectives.

We advise organisations to address straightforward propositions quickly by drawing on their existing knowledge base and expertise. Complicated propositions require organisations to access and recombine their internal multidisciplinary knowledge and expertise. Complex propositions call for single stakeholder collaborative arrangements as the organisation will need to draw on its stakeholder expertise to align expectations with its scaling-up objectives. Finally, wicked propositions warrant multi-stakeholder collaborative efforts to access and learn from stakeholder expertise.

References

- Alford, J., & Head, B.W. 2017. Wicked and Less Wicked Problems: a typology and a contingency framework. *Policy and Society*, 36(3): 397-413.
DOI: <https://doi.org/10.1080/14494035.2017.1361634>
- Anderson, J.C., Narus, J.A., & Van Rossum, W. 2006. Customer Value Propositions in Business Markets. *Harvard Business Review*, 84(3): 90-99.
DOI: <https://hbr.org/2006/03/customer-value-propositions-in-business-markets>
- Andersson, C., Törnberg, A., & Törnberg, P. 2014. Societal Systems - Complex or Worse? *Futures*, 63: 145-157.
DOI: <https://doi.org/10.1016/j.futures.2014.07.003>
- Bailetti, T., Tanev, S., & Keen, C. 2020. What Makes Value Propositions Distinct and Valuable to New Companies Committed to Scale Rapidly? *Technology Innovation Management Review*, 10(6): 14-27.
DOI: <https://doi.org/10.22215/timreview/1365>
- Ballantyne, D., Frow, P., Varey, R.J., & Payne, A. 2011. Value Propositions as Communication Practice: Taking a wider view. *Industrial Marketing Management*, 40(2): 202-210.
DOI: <https://doi.org/10.1016/j.indmarman.2010.06.032>
- Bohnsack, R., & Pinkse, J. 2017. Value Propositions for Disruptive Technologies: reconfiguration tactics in the case of electric vehicles. *California Management Review*, 59(4): 79-96.
DOI: <https://doi.org/10.1177/0008125617717711>
- Bowen, G.A. 2009. Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9(2): 27-40.
DOI: <https://doi.org/10.3316/qj0902027>
- Chesbrough, H., & Rosenbloom, R.S. 2002. The Role of the Business Model in Capturing Value from Innovation: evidence from Xerox Corporation's technology spin off companies. *Industrial and Corporate Change*, 11(3): 529-555.
DOI: <https://doi.org/10.1093/icc/11.3.529>
- Churchman, C.W. 1967. Guest Editorial: Wicked Problems. *Management Science*, 14(4): B141-B142.
DOI: <https://www.jstor.org/stable/2628678?origin=JSTOR-pdf>
- Dorst, K. 2015. *Frame Innovation: Create New Thinking by Design*. Cambridge, Mass.: MIT Press.
DOI: <https://doi.org/10.7551/mitpress/10096.001.0001>
- Eggert, A., Frow, P., Payne, A., & Steinhoff, L. 2020. Understanding and Managing Customer Value Propositions: Introduction to the special issue. *Industrial Marketing Management*, 87: 242-243.
DOI: <https://doi.org/10.1016/j.indmarman.2020.01.007>

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

- Eggert, A., Ulaga, W., Frow, P., & Payne, A. 2018. Conceptualizing and Communicating Value in Business Markets: From value in exchange to value in use. *Industrial Marketing Management*, 69: 80-90. DOI: <https://doi.org/10.1016/j.indmarman.2018.01.018>
- Frow, P., McColl-Kennedy, J.R., & Payne, A. 2016. Co-Creation Practices: Their role in shaping a health care ecosystem. *Industrial Marketing Management*, 56: 24-39. DOI: <https://doi.org/10.1016/j.indmarman.2016.03.007>
- Frow, P., Nenonen, S., Payne, A., & Storbacka, K. 2015. Managing Co-Creation Design: A strategic approach to innovation. *British Journal of Management*, 26(3): 463-483. DOI: <https://doi.org/10.1111/1467-8551.12087>
- Frow, P., & Payne, A. 2011. A Stakeholder Perspective of the Value Proposition Concept. *European Journal of Marketing*, 45(1/2): 223-240. DOI: <https://doi.org/10.1108/03090561111095676>
- Gladwin, T.N., Kennelly, J.J., & Krause, T.S. 1995. Shifting Paradigms for Sustainable Development: Implications for management theory and research. *Academy of Management Review*, 20(4): 874-907. DOI: <https://doi.org/10.5465/amr.1995.9512280024>
- Hart, S.L. 1995. A Natural-Resource-Based View of the Firm. *Academy of Management Review*, 20(4): 986-1014. DOI: <https://doi.org/10.5465/amr.1995.9512280033>
- Hsieh, H.F., & Shannon, S.E. 2005. Three Approaches to Qualitative Content Analysis. *Qualitative Health Research*, 15(9): 1277-1288. DOI: <https://doi.org/10.1177/1049732305276687>
- Johnson, M.W., Christensen, C.M., & Kagermann, H. 2008. Reinventing Your Business Model. *Harvard Business Review*, 86(12): 50-59. DOI: <https://hbr.org/2008/12/reinventing-your-business-model>
- Kiel, D., Müller, J.M., Arnold, C., & Voigt, K.I. 2017. Sustainable Industrial Value Creation: benefits and challenges of industry 4.0. *International Journal of Innovation Management*, 21(08): 1740015. DOI: <https://doi.org/10.1142/s1363919617400151>
- Kinni, T. 2017. The Critical Difference Between Complex and Complicated. *MIT Sloan Management Review*. DOI: <https://sloanreview.mit.edu/article/the-critical-difference-between-complex-and-complicated/>
- Lanning, M.J. 2020. Try Taking your Value Proposition Seriously - Why delivering winning value propositions should be but usually is not the core strategy for B2B (and other businesses). *Industrial Marketing Management*, 87: 306-308. DOI: <https://doi.org/10.1016/j.indmarman.2019.10.011>
- Liu, J., Mooney, H., Hull, V., Davis, S. J., Gaskell, J., Hertel, T., Lubchenco, J., Seto, K. C., Gleick, P., Kremen, C., & Li, S. 2015. Systems Integration For Global Sustainability. *Science*, 347(6225): 1258832. DOI: <https://doi.org/10.1126/science.1258832>
- Loureiro, S.M.C., Romero, J., & Bilro, R.G. 2020. Stakeholder Engagement In Co-Creation Processes For Innovation: A systematic literature review and case study. *Journal of Business Research*, 119: 388-409. DOI: <https://doi.org/10.1016/j.jbusres.2019.09.038>
- Lyles, M.A. 2014. Organizational Learning, Knowledge Creation, Problem Formulation And Innovation In Messy Problems. *European Management Journal*, 32(1): 132-136. DOI: <https://doi.org/10.1016/j.emj.2013.05.003>
- Manson, S.M. 2001. Simplifying Complexity: a review of complexity theory. *Geoforum*, 32(3): 405-414. DOI: [https://doi.org/10.1016/s0016-7185\(00\)00035-x](https://doi.org/10.1016/s0016-7185(00)00035-x)
- Mayer, K.J., & Sparrowe, R.T. 2013. Integrating Theories In AMJ Articles. *Academy of Management Journal*, 56(4): 917-922. DOI: <https://doi.org/10.5465/amj.2013.4004>
- Miles, M.B., Huberman, A.M., & Saldaña, J. 2014. Qualitative Data Analysis: A Methods Sourcebook (3rd ed.). Thousand Oaks, California: SAGE Publications Inc. DOI: <https://doi.org/10.1080/10572252.2015.975966>
- Miller, D., & Friesen, P.H. 1984. A Longitudinal Study of the Corporate Life Cycle. *Management Science*, 30(10): 1161-1183. DOI: <https://doi.org/10.1287/mnsc.30.10.1161>
- Moore, G. 1990. Structural Determinants of Men's and Women's Personal Networks. *American Sociological Review*, 55(5): 726-735. DOI: <https://doi.org/10.2307/2095868>
- Newell, A., & Simon, H.A. 1972. *Human Problem Solving*. Englewood Cliffs, N.J.: Prentice Hall. DOI: <https://doi.org/10.1080/00140137308928443>
- Patton, M.Q. 2015. *Qualitative Research and Evaluation Methods: Integrating theory and practice* (4th ed.). Los Angeles, California: SAGE Publications Inc. DOI: <https://doi.org/10.1177/1098214016689486>
- Payne, A., & Frow, P. 2014. Deconstructing the Value Proposition of an Innovation Exemplar. *European Journal of Marketing*, 48(1/2): 237-270. DOI: <https://doi.org/10.1108/ejm-09-2011-0504>
- Payne, A., Frow, P., & Eggert, A. 2017. The Customer Value Proposition: Evolution, development, and application in marketing. *Journal of the Academy of Marketing Science*, 45(4): 467-489. DOI: <https://doi.org/10.1007/s11747-017-0523-z>
- Payne, A.F., Storbacka, K., & Frow, P. 2008. Managing the Co-Creation of Value. *Journal of the Academy of Marketing Science*, 36(1): 83-96. DOI: <https://doi.org/10.1007/s11747-007-0070-0>
- Priem, R.L., Wenzel, M., & Koch, J. 2018. Demand-Side Strategy and Business Models: Putting value creation for consumers center stage. *Long Range Planning*, 51(1): 22-31. DOI: <https://doi.org/10.1016/j.lrp.2017.07.007>

Framing Multi-Stakeholder Value Propositions: A wicked problem lens

Yat Ming Ooi and Kenneth Husted

- Reymen, I., Berends, H., Oudehand, R., & Stultiëns, R. 2017. Decision Making For Business Model Development: A process study of effectuation and causation in new technology-based ventures. *R&D Management*, 47(4): 595-606.
DOI: <https://doi.org/10.1111/radm.12249>
- Saldaña, J. 2013. *The Coding Manual for Qualitative Researchers* (2nd ed.). Thousand Oaks, California: SAGE Publications, Inc.
- Scherer, A.G., Palazzo, G., & Seidl, D. 2013. Managing Legitimacy in Complex and Heterogeneous Environments: sustainable development in a globalized world. *Journal of Management Studies*, 50(2): 259-284.
DOI: <https://doi.org/10.1111/joms.12014>
- Shepherd, D.A., & Sutcliffe, K.M. 2011. Inductive Top-Down Theorizing: A source of new theories of organization. *Academy of Management Review*, 36(2): 361-380.
DOI: <https://doi.org/10.5465/amr.2011.59330952>
- Simon, H.A. 1962. The Architecture of Complexity. *Proceedings of the American Philosophical Society*, 106(6): 467-482.
DOI: <http://links.jstor.org/sici?sici=0003-049X%2819621212%29106%3A6%3C467%3ATAOC%3E2.0.CO%3B2-1>
- Snowden, D.J., & Boone, M.E. 2007. A Leader's Framework for Decision Making. *Harvard Business Review*, 85(11): 68-76.
DOI: <https://hbr.org/2007/11/a-leaders-framework-for-decision-making>
- Spieth, P., Schneckenberg, D., & Ricart, J.E. 2014. Business Model Innovation - State of the Art and Future Challenges for the Field. *R&D Management*, 44(3): 237-247.
DOI: <https://doi.org/10.1111/radm.12071>
- Stacey, R.D. 1995. The Science of Complexity: An alternative perspective for strategic change processes. *Strategic Management Journal*, 16(6): 477-495.
DOI: <https://doi.org/10.1002/smj.4250160606>
- Tantalo, C., & Priem, R.L. 2016. Value Creation Through Stakeholder Synergy. *Strategic Management Journal*, 37(2): 314-329.
DOI: <https://doi.org/10.1002/smj.2337>
- Teece, D.J. 2010. Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2-3): 172-194.
DOI: <https://doi.org/10.1016/j.lrp.2009.07.003>

About the Authors

Yat Ming Ooi is a Research Fellow at the Department of Management and International Business, University of Auckland Business School. He holds a PhD in Management from the University of Auckland, New Zealand. His research focuses on collaborative forms of innovation activities, digital transformation, problem-solving in grand challenge initiatives, technology commercialisation, and the economic impact of stagnation on developing countries' entrepreneurial activities. Yat Ming has published articles in *Research-Technology Management*, *University of Auckland Business Review*, and *Kindai Management Review*. He is also an editorial review board member for the *Technology Innovation Management Review*.

Kenneth Husted is a Professor of Innovation and Research Management, and Head of the Department of Management and International Business, University of Auckland Business School. He holds a PhD from Copenhagen Business School, Denmark. His research covers innovation and research management, knowledge management, management of R&D and research commercialisation. He has published articles in reputable journals, including the *Journal of Management Studies*, *Organizational Dynamics*, *California Management Review*, *Technovation*, *R&D Management*, *Journal of Knowledge Management*, and *Creativity and Innovation Management*. He is also regional editor for the *Journal of Knowledge Management* and associate editor for the *Technology Innovation Management Review*.

Citation: Ooi, Y.M. & Husted, K. 2021. Framing Multi-Stakeholder Value Propositions: A wicked problem lens. *Technology Innovation Management Review*, 11(4): 26-37.
<http://doi.org/10.22215/timreview/1434>

Keywords: Wicked problem, value proposition, complexity, complicatedness, stakeholders, scaling-up

