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A Micro-Level View on Knowledge Co-Creation Through University-Industry Collaboration in a Multi-National Corporation

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Introduction

The rise in popularity of university and industry collaboration (UIC) has led to some important questions such as *how can we ensure success in transferring knowledge?* (Hanid et al., 2019). Much research focuses on the macro perspective of technology transfer (TT) looking at issues such as the incentives for the varying stakeholders (Lai, 2011), the influence of the university, financial support, knowledge of production and industry clusters with similar objectives (Wynn and Jones, 2019). To improve TT success there is a need for co-production rather than just simple knowledge transfer from university to industry (Rossi et al., 2017). Bjerregaard (2009) identified the need for research into micro strategies when studying UIC collaboration. More recently researchers have recognised that not enough attention has been given to the industrial partner for example in the initiation and collaboration phase (de Wit-de Vries et al., 2019). By using action research it was possible to focus almost exclusively on the industrial partner throughout the collaboration phase.

Where much of the extant TT research focuses on SMEs (Bjerregaard, 2009; Wynn and Jones 2019), this research answers the fundamental question of how is value created, captured, and enhanced for an industrial partner with TT into a multi-national corporation (MNC) at the micro level. The research sought to answer this question in two ways. Firstly, what are the different behaviours and relationships that can be created throughout a TT project both internally in the MNC (subsidiary to corporate) and externally (parties other than those defined in the UIC) and how do they enhance or detract from the value creation at a macro level. Secondly, by assessing if these behaviours are repeated with different people in the company to determine if they are generalisable actions that would likely be found in similar organisations and thus provide a guide to TT implementation in MNCs. The results highlight that value can be created at a subsidiary level and transferred to the corporate level of the business exhibiting a bottom up approach to TT within a MNC. What this shows is that the value created from a 'small partnership', can transcend local application and be shared across the larger corporation enhancing that value even more. By being successful locally at a division level, the study is relevant to SMEs and the feeding into the corporate level and dissemination to other divisions highlights the relevance to MNC as well. When looking at the macro level of TT through UIC, it is possible to see that there are similar problems across multiple business sizes.

Taking a longitudinal Knowledge Transfer Partnership (KTP) using action research of a case study this paper is based on a two-year programme undertaken in partnership with Parker Gas Separation and Filtration Division (Parker GSFE). This paper focuses on how Parker GSFE evaluated their 'value proposition' and the development of a new approach to marketing their products and services based on what their customers perceived as the most important components (Anderson et al., 2006) which matched customer priorities. The process created is the direct result of TT between Northumbria University and Parker GSFE and by looking at this case at a micro level, it is possible to show some of the clear barriers and success factors required to create environments rich for TT. By creating a generalised process not too specific to the individual subsidiary, it can then be shared across the corporation.

The funding and supervision of the research was via a KTP. By using the well-established TT model of a KTP combined with a traditional engineering driven company, this research has taken a micro level approach to investigating the transference of knowledge between academia and industry as well as the value it creates. The paper starts by looking at the literature on both TT in university to industry collaborations as well as the value that it can create in changing culture and process. It also looks at the value creation literature in relation

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3 to the case study project. It then addresses the method used for data collection and goes
4 through the details of the case study and the content created before discussing the key
5 outcomes identified in enabling TT success.
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7 **Literature Review**

8 *Technology Transfer and University-Industry Collaborations*

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12 There has been limited research into measuring the functioning of universities in their
13 knowledge transfer role to industry. An exception being a study undertaken into the
14 identification and evaluation of the limitations with existing measures of knowledge transfer
15 with suggestion for enhancement by including a variety of activities and associated impacts
16 (Rossi and Rosli, 2015). A systematic literature review of qualitative case studies that have
17 been utilised in TT research (1996-2015) found the main themes to be TT mechanisms,
18 academic entrepreneurship, commercialization, R&D, firm knowledge transfer and UIC.
19 (Cunningham et al., 2017). UK governments have been encouraging research excellence in
20 universities and effective conversion for economic advantage for many years. However, this
21 was with a policy which did not differentiate between the more and less research intensive
22 institutions. The highly intensive research universities achieve more knowledge transfer
23 whilst the less intensive priorities their regional economy (Hewitt-Dundas, 2012).
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28 UICs are a phenomenon that has become more common over the last decade as these
29 collaborations have become more formalised. The intention of these partnerships is to close
30 the gap between industry and academia (Lai, 2011). One key area in any discussion on UICs
31 is the cost and benefits to the involved party. If the correct incentive is not established for all
32 parties involved, then a partnership will be difficult to establish. If one is established without,
33 the risk of failure is higher due to mismatched motivation. Wynn et al (2019) argue that UICs
34 are key in support of entrepreneurial activity. Santoro and Bierly, (2006) assessed the
35 effectiveness of the facilitators of the transfer. They found university research centres (URCs)
36 needed to safeguard against intellectual property policies from obstructing knowledge
37 transfer.
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41 Collaborations such as KTPs which are well documented (Penfold, 2007; Wynn & Turner,
42 2013; Wiltshier & Edwards, 2014) comprise: the university, company, graduate and
43 government funding; have been around for over 40 years (under different names). Wynn &
44 Turner (2013) argue they are the main mechanism for knowledge transfer providing in excess
45 of £25 million support per year for graduates to work on projects for organisations of all sizes
46 but predominantly SMEs. KTPs are renowned for bringing about change in the organisation
47 “through action-research centred on company processes, systems and markets” (Wynn et al.,
48 2008 p.69). They are a great resource for engendering entrepreneurial activity as the support
49 provided from a knowledge base combine with financial support mitigate some of the risk for
50 a company. Whilst not always providing successful long-term outcomes, they provide the
51 opportunity to share risk across certain projects (Wynn and Jones, 2019). Lai (2011) showed
52 in his study that for universities, “transferor's incentive” and “capability of transferor”
53 contribute to their willingness to participate in TT in an UIC. Within industry, they found that
54 “capability of transferee” and “incentive for establishing technological resources” were key
55 factors in willingness to participate. In situations where sharing risk is key in the desire to
56 identify a partnership, when selecting specifically what UIC's to participate in, expertise of
57 the knowledge base is critical for both sides of the relationship.
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3 While some of the above aspects can be considered barriers and facilitators in UICs, de Wit-
4 de Vries et al's systematic review of the extant literature highlights the most influential
5 barriers as 'knowledge differences and differences in goals resulting from different
6 institutional cultures' (de Wit-de Vries et al, 2019, p.1236) as they lead to ambiguity,
7 difficulties in the industries retention of knowledge and therefore difficulties in application.
8 Some of the key facilitators are reflected in the results of this study in that trust,
9 communication, the use of intermediaries and experience are key to overcoming barriers in
10 TT. The paucity of research at a micro level means that whilst we know these are key
11 facilitators, the detail on application of these factors and to what result is limited. However,
12 research has been undertaken at the micro level into the key performance indicators of UIC in
13 terms of resources invested by the parties, management efficiency/clarity of roles and the
14 volume of innovations/new partnerships resulting from the UIC (Albats et al., 2017).
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18 What is important to note is the need to consider all reasoning's for an UIC from all parties
19 involved. Reflecting on the diverse reasons and micro strategies being executed by an UIC is
20 key to positive results (Bjerregaard, 2009). Communications between parties about goals,
21 expectations, progress and results are vital, especially in long-term strategies for
22 collaboration. Rossi et al (2017) propose that the best way to achieve optimal results for all
23 parties involved is to focus on knowledge co-production rather than just the transferral of
24 knowledge. This research found this to be an accurate way of engaging as the work
25 conducted was guided by the universities expertise but was shaped around the desired culture,
26 product offering and capabilities of the company. Knowledge co-production's "impact (i)
27 strongly depends on sustained knowledge co-producing interactions, (ii) 'ripples out'
28 serendipitously, indirectly benefiting many stakeholders in ways that often cannot be
29 anticipated, and (iii) unfolds and persists over a long period" (Rossi et al, 2017). The ripple
30 out effect can be seen when UIC focused around process implementation is ingrained into a
31 MNC. What is expected to benefit one subsidiary can influence a larger section of the
32 corporation.
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36 'What is value' for both a business and their customers has been a question that has been
37 explored for decades in industrial and B2B, marketing literature as well as more recently
38 looking at what is value for both Industry and Universities when considering collaborations.
39 When it comes to the definition of value for industry, Lindgreen et al (2012) suggest that the
40 debate on value became more dominant in the literature post 2005, due to the attention the
41 topic was given by the journal, Industrial Marketing Management. From here several
42 branches of thought have emerged. Initially, value was focused around the business and the
43 value that can be created for the firm either through value chain, customer firm value or
44 shareholder value (Kaplan and Norton, 2001; Piercy, 1998; Cleland and Bruno, 1997). There
45 was then a focus towards customer-value through products, services and business interaction
46 (Lindgreen and Wynstra, 2005; Ulaga and Eggert, 2006). The literature subsequently saw the
47 emergence of value co-creation focusing on relationships and building value together
48 between a firm and the customer (Vargo and Lusch, 2004). Finally, the creation of value was
49 applied to the selling of products and the literature turned its attention to value-based selling,
50 focusing on how a sales person practice and behaviour relates to value creation (Terho et al.,
51 2012; Töytäri and Rajala, 2015).
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56 As with many areas, when discussing UICs, the relationship between all parties is essential
57 when looking to develop value (Lindgreen et al., 2012; Ulaga and Eggert, 2006). As
58 discussed by Rossi et al (2017), co-creation is a critical component. So when looking at value
59 within UICs, the literature that emerged around value co-creation focusing on relationships
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3 and building value together between a firm and the customer (Vargo and Lusch, 2004) is the
4 most relevant. As with the TT literature, there is a gap when looking to understand how value
5 is created in TT with UICs at a micro level.
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7 8 *Value Proposition* 9

10 The term value proposition has become a mainstream marketing expression, however the true
11 meaning and the benefit created from having strategic value propositions is often lost
12 (Lanning, 2003). Payne and Frow (2014) argue that the lack of specificity and strategic
13 development of a superior value proposition is a major impediment to marketplace success. It
14 is therefore important to understand how a value proposition is defined, discussed and
15 implemented in a business context. Lanning and Michaels' (1988) early definition of a value
16 proposition still holds - a value proposition combines benefit and price to share a promise of
17 value to a customer. Value is therefore a point of differentiation on which to sell into a
18 market. In more recent years, this promise has been expanded to include a greater
19 combination of values including price, quality, performance, selection and convenience
20 (Payne and Frow, 2014). According to Wouters and Kirchberger (2015) "a customer value
21 proposition is a supplier's statement of the value its offering provides to a customer" (p.56).
22 Vargo and Lusch (2004), use the term "value-in-use" where the value is only truly created
23 through the consumption of a purchase. The definition used both in literature and practice is
24 often decided upon based on which approach to value is being considered (Anderson et al.,
25 2006). For this research project, a value proposition is defined as what Anderson et al (2006)
26 describe as a resonating focus approach where by "suppliers base their value propositions on
27 the few elements that matter most to target customers, demonstrate the value of this superior
28 performance, and communicate it in a way that conveys a sophisticated understanding of the
29 customer's business priorities" (p. 93). This definition fits with the initial approach the KTP
30 took to start exploring value propositions.
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35 Our discussion on value recognises the importance of the relationship between customer and
36 company in underpinning the work done to develop value (Lindgreen et al., 2012; Ulaga and
37 Eggert, 2006) and therefore the importance of relationships in developing value propositions.
38 Anderson et al (2006) note that a common mistake in practice is assuming that favourable
39 points of difference must add value to the customer. The benefit of a customer-centric
40 approach utilising current customer relationships is that you can better identify true points of
41 difference that are relevant to the customer and that are generalizable to other customers. The
42 value identified and used for one customer's value proposition can be used to sell further
43 (Anderson et al, 2006). We consider this is the use of strategic value propositions. The most
44 recent literature looks at service-dominant logic (SD-L) (Vargo and Lusch, 2004) which is
45 underpinned by the concept of value propositions and the benefit to customers as being a
46 value co-creator, however, the literature discussing this logic focuses little on value
47 propositions themselves and more on the value creation, stakeholders and the dynamics of
48 SD-L (Payne and Frow, 2014; Kowalkowski, 2011). So despite the existence of extant
49 literature on customer-value, there is still debate on what value propositions are and a lack of
50 understanding on specifically how value propositions are developed.
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55 Value propositions are one of a company's most important organising principles throughout
56 development, marketing and selling (Webster, 2002). It is important for best in class'
57 companies to develop strategic value propositions, however their implementation is a critical
58 area of management practice and an important area requiring research as there is little
59 documented evidence on alternative approaches taken by companies in the development
60

process (Payne and Frow, 2014). In this paper, the actions within the case study help address this gap by describing the transformation of a company from being an engineering led company selling features and benefits to a company that is market led and focuses on strategically selected, customer-centric value propositions.

Methodology

A case study approach was adopted for this research, as we conducted an in-depth study on a live problem (Yin 2014); utilising action research. The value of action research in business has long been recognised e.g. Margerison (1978) and has been adopted in many KTPs (Coates and Robinson, 1995; Bell, 1996; Martin, 2008). KTP research has also been seen in terms of action learning; as the associate is involved in individual learning, the company in organisational learning and the university supervisors who are facilitating the transfer of knowledge from academia to industry will learn from the experience to enhance and hone the theory (Pealtie, 1996). The objectives of Parker GSFE's KTP were most appropriately addressed via action research which is "research in action, rather than research about action, participative, concurrent with action [and] a sequence of events and an approach to problem solving" (Coughlan and Coghlan, 2002, p222).

Data Collection

Action research has been described as a series of cycles (Coughlan, 2019; Saunders et al., 2015; Coughlan and Coghlan, 2002) which involves analysis of current situation or the refining of the problem(s), developing actions, implementation and then evaluation of these actions. Table One looks at the cycles and interventions within this case study. The evaluation at the end of each round offers the direction and attention for the next cycle. The action research at Parker GSFE involved their staff and the researchers in the co-generation of knowledge through collaboration (Greenwood and Levin, 1998).

Table 1: Action Research Cycles and Interventions

Limitations

One of the limitations of the study is that action research and case studies are not always repeatable if the same process were to be applied to a different company. This problem is not just limited to the methodology but also to TT in general. The barriers that can be seen in TT partnerships are in some instances going to cause failures in the longevity of knowledge injected into a given company (de Wit-de Vries et al., 2019). Another limitation comes from the potential of researcher bias. Action research calls for the researcher to immerse themselves in the study and to change with the process. While this helps to gather rich data, there is the potential for subjective feelings to influence the case study.

Case Study

Company

Parker Hannifin Corporation is a \$13 Billion company employing over 57000 people in over 50 countries. Parker GSFE owns around \$180M of the business and offers a range of filtration and separation solutions that are designed to meet the needs of global customers through a dedicated focus on key market sectors. Parker Corporate at large operates a top down approach where the TT involves process and metric sharing from corporate down to its subsidiaries (divisions). However, it is not unknown for this to go the other way where a subsidiary has transferred knowledge, in this instance, a process to corporate. When this

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3 occurs it is described as ‘best in practice’ and actively shared with other divisions to replicate.
4 What this successful KTP project achieved was value creation for not just the intended
5 division but also to corporate.
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8 *Case Study Project Details*

9 The Parker GSFE KTP was a project lasting two years that aimed to establish customer-
10 centric innovation processes through the redefinition and development and commercialization
11 of the company’s industrial filtration products as a highly differentiated and global product
12 range. It involved two Associates (an industrial designer and strategic marketing associate)
13 with supervisors from the Northumbria University’s design school and business school. This
14 paper focuses on the marketing aspects of the partnership programme. The Strategic
15 Marketing Associate (SMA) focussed on helping to introduce strategic marketing principles
16 into Parker GSFE through the analysis of current practices and developing appropriate
17 frameworks and metrics to reduce costs and increase returns. The introduction of strategic
18 marketing into Parker GSFE was achieved via a series of projects. As a result of the KTP
19 Parker GSFE has radically changed (in terms of organisation, processes, procedures and
20 culture) to become a market led; rather than an engineering led; company. One of the most
21 successful projects that has resulted in significant changes in the way in which Parker GSFE
22 develops and sells products; involved the development and implementation of strategies
23 based on ‘value proposition’ research (Anderson et al., 2006; Terho et al., 2012).
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27 The process for developing strategic value propositions within Parker GSFE started with
28 research into current practices, followed by an investigation that identified current market
29 approaches that could be adapted to suit the business. The company originally worked
30 towards developing the best engineered products that could be described as superior to
31 competitors and also had basic tools for conducting a value calculation to aide in strategic
32 pricing, whereby someone would add features they thought were beneficial and assign a
33 monetary value. This combined value plus the cost to make was then compared against the
34 next best alternative in the market and priced. The tool, however, is a subjective activity that
35 at this time, Parker GSFE did not analyse the market to truly gauge what features added to the
36 value of the product and which were to be assessed. It was recognized that identifying true
37 customer value was imperative (Lindgreen and Wynstra, 2005) and something that Parker
38 GSFE needed to focus on. An initial recognition of the problem at the time the KTP started,
39 meant a more effective approach started to develop driven by the marketing communications
40 team focusing on targeted value and money saving for a new product launch. This attempt at
41 value propositions highlights cycle one (Saunders et al., 2015). There was little structure to
42 the development process but good results with “The Profitability Generator” campaign.
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47 Parker GSFE had previously used business models by Osterwalder and Pigneur (2010) so for
48 familiarity purposes, their Value Proposition Design (Osterwalder and Pigneur, 2014) model
49 was selected as the basis for a process to integrate into the business. The book draws from the
50 literature on customer-value (Lindgreen and Wynstra, 2005; Ulaga and Eggert, 2006) and
51 transforming observed characteristics of customers into value propositions. Anderson et al
52 (2006) was also selected as an ‘easy to understand’ reference for employees. Using the
53 expertise of the university academics and an external B2B marketing agency, a half day
54 workshop was held with 20 Parker GSFE marketing, engineering, sales and pricing staff. The
55 aim of the workshop was to introduce strategic value propositions for selling rather than
56 relying on technical data as this approach to customer selling is more successful (Töytäri and
57 Rajala, 2015; Payne and Frow, 2014) than selling on features and benefits. The workshop
58 used a combination of theoretical and practical examples and introduced a new development
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3 process that is illustrated in Figure 1, the Targeted Strategic Value Proposition (TSVP)
4 Development Model. The workshop was the first step to then further implement the TSVP
5 Development Model into the company as it involved key decision makers and leaders who
6 brought into the process and championed its roll out to other parts of the business. The
7 introduction and testing of the process within the company accounts for the second cycle.
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10 **Figure 1: Targeted Strategic Value Proposition Development Model**

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12 The TSVP Development Model and structure of the workshop was developed into a training
13 toolkit so that new staff were familiar with the process and the TSVP Development Model
14 was refined to become a part of the new product development (NPD) process. During cycle 3,
15 the process was used across several different projects currently in development at Parker
16 GSFE.
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19 The entire development process and model involved 6 stages whereby value is explored from
20 a customer perspective and mapped to what Parker GSFE can offer and is illustrated in
21 Figure 1. Potential value propositions are tested and the most appropriate value propositions
22 strategically selected and implemented into both development and communications
23 processes. The testing aspect of the process is key to building relationships and encouraging
24 co-creation (Lindgreen et al., 2012) and satisfies Anderson et al's (2006) definition on value
25 proposition of focusing on targeted customer issues.
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29 **Findings**

30 The TSVP Development Model was well received and is now being implemented within the
31 company highlighting the successful transfer of knowledge into the company. A
32 communications strategy developed by an external agency and the in-house marketing
33 communications team guided by focused value propositions, and integrating value
34 propositions into the NPD process, has now been integrated into standard work processes at
35 Parker GSFE as well as being shared across multiple divisions within the MNC. In each
36 research cycle, there was an area highlighted as being a critical point that threatened the
37 success of the project. These three major threats were; the lack of education and
38 understanding around the knowledge area that was trying to be enhanced, the lack of
39 acceptance from being taught by fellow colleagues and the threat of people not feeling
40 included and therefore not engaging in the process in the future.
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44 *Lack of Education*

45 The focus of cycle one was to test if a strategic and targeted approach would work within the
46 industry. Targeting a few elements appealing to the target customers was hugely successful,
47 therefore plans were developed to formalise why the approach was used and how to develop
48 value propositions. Changing the literature showed how visually the value proposition within
49 the product family changed. The focused style developed is emulated throughout all the
50 literature for the new products launched by Parker GSFE. There was, however, pushback
51 from staff in several departments who attributed success to a product's many superior
52 offerings. They did not understand that the results of discussions with both customers and
53 sales teams confirmed that a focused selling proposition that highlighted strategic value
54 propositions was a major factor that drove sales. Such an approach delivered a convincing
55 argument for the superiority, which was much stronger than a statement claiming that a
56 product is superior. This highlighted the need for education as the process was introduced.
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60 *Knowledge Experts*

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3 Cycle two formalised the process by further involving customers and educating Parker GSFE
4 staff on the importance of strategic value propositions and why they create success. An
5 interactive workshop yielded positive results and started to change mind sets regarding what
6 value propositions truly are. It became clear that just because a product does something that a
7 competitor's does not, may not make this product more valuable to a customer. Involving
8 University staff and the external communications agency who facilitated the initial workshop
9 meant the activities were perceived as important and provided external credibility. This was
10 especially important to remove any prejudices that internal people involved in the project
11 might have towards each other. Post workshop feedback suggested a change in staff mind set
12 around the definition and use of value propositions. The content of the workshop was
13 developed into a toolkit with outputs from the workshop used as examples. The toolkit is for
14 educational purposes for those not involved in the workshop.
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18 *Inclusion*

19 Cycle three applied the toolkit to (1) a NPD project in its later stages focusing on targeting
20 communications for product launch and (2) a NPD project in its infancy that helped to direct
21 product design and get buy in from target customers. The process including bringing in
22 people from a range of departments to ensure everyone was on board with the decisions
23 made. For project 1 which developed value propositions for marketing communications
24 material; the focus was on total cost of ownership and proven reliability meaning maximum
25 uptime. These were selected because Parker GSFE products are integrated into larger, final
26 products (such as bottling machines) and therefore what the final customers value are aspects
27 that contribute to the better running of the whole product, not necessarily the individual dryer
28 or filter. Using these customer values, a value calculator has been used in the pricing process
29 as well as developing dollar value savings for the average customer to use for value-based
30 selling (Terho et al., 2012). The product was fully launched globally in 2017. Project 2 was
31 trialled with a key account, but the project was put on hold due to restructuring in that
32 accounts business and is scheduled to be restarted in 2020 for a global launch. The second
33 project focused on minimising risk for customers and their consumers, an important feature in
34 the target market. Through focused messaging, even in early stages, Parker GSFE now have
35 buy in from the market leader and are working in partnership to develop a new product that
36 delivers the proposed value proposition of "the quality protector". The TSVP Development
37 Model has now been integrated into the company's standard work operations to ensure that
38 all future NPD are market focused and designed to create desired customer value as well as
39 ensure everyone on the development project are on the same page as to what value the
40 product will give to customers. This was pivotal as decisions made by one department can
41 impact the overall project. For example, if the value to the customer is around reliability and
42 ensuring downstream quality, a decision in supply chain to save cost with a cheaper part
43 could badly impact product reliability and the value proposition. If the value proposition is
44 correct and understood, then the price can be higher to accommodate for the more expensive
45 part if needed.
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51 **Discussion**

52 When transferring knowledge, success needs to be measured by the longevity of the impact.
53 In this instance, by creating a process to implement within the division, the knowledge can
54 stay within the company well after the UIC has ended. Successfully overcoming barriers to
55 TT is key in ensuring longevity as well. The following are some of the micro issues that were
56 specifically encountered in this case study and how addressing them led to the successful co-
57 creation of process and fulfilling the requirement of needing incentive to all parties involved
58 to create successful TT's (Degl'Innocenti et al., 2019).
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When implementing ‘value proposition’ changes and improvements, culture problems were under estimated, which echoes earlier KTP studies (Coates and Robinson, 1995). Webster (2002) claims that value proposition is the most important organising principle for a firm while Kotler and Keller (2008) assert that the creation of value is paramount to the survival of companies in this day and age. While extant literature addresses the importance of value propositions (Lindgreen et al., 2012; Anderson et al., 2006), there is minimal work focussing on the development of value propositions. Payne and Frow, (2014, p.223) stated that “further case study research needs to be undertaken to explore alternative approaches to proposition development. This work should focus on identification of industry best practice”. This research has done just this by using action research to describe how a company has developed strategic value propositions in practice as well as illustrate the development and implementation of a TSVP Development Model. It then has taken this successful process to show how it demonstrates at a micro level the successful transference of technology through creating genuine value within a MNC.

Most significant was the understanding that change was needed to be successful, however there was a lack of enthusiasm to make change happen outside of the marketing department and senior management. This demonstrated a need for education that not only explains why change is necessary but also addresses the misunderstanding of what value propositions are. Staff believed that they already presented information by using strategic value propositions. However, often all product features and benefits were listed as a value proposition, rather than the most important elements for target customers (Anderson et al., 2006) as a result of an underlying engineering led culture. Being the incumbent leaders of the market, for many years was a belief that the engineering expertise and superior quality would sell products themselves because ‘why wouldn’t everyone want the best’? As Parker GSFE moves towards being a market led company and becoming more customer-centric, it is evident that many products do not meet target market needs and often through over specification, price themselves out of the market. By bringing knowledge experts both in the form of the university as part of the UIC and also another external communications expert, it was easier to teach and educate as we removed an internal barrier from personal conflicts.

With market intelligence increasingly being brought into NPD projects, historical work became an issue. “We tried that 10 years ago and it didn’t work” being a common mind set. In order to overcome these barriers, it is important to show how the market has changed and an improved understanding of customer wants and needs. By testing value propositions and discovering value in the early stages of NPD and communications efforts it was easier to move past these internal barriers and successfully take advantage of market opportunities. This ‘been there before’ mind-set was a repeated concern when working on project 2. The successful selling of the product concept to a major customer through strategic value proposition removed this internal barrier.

Building upon Payne and Frow (2014), who highlighted case studies of the development of superior value propositions, we have further explored how an enterprise formally develops and uses value propositions, an important area of management practice. The process developed was adapted from of Osterwalder and Pigneur’s (2014) *Value Proposition Design* and therefore it is a process that can be adapted to different companies based on their specific needs. The TSVP Development Model takes the key-aspects of the book and condenses them to be a more usable and expedited approach within a larger business. The focus on firstly the customer and then company value offerings shows the customer-centric nature of the process

and is an output that is being shared across several of Parker's European based subsidiaries. Knowledge for making connections between what a customer values and what a company is capable of is typically dispersed across different departments within an organisation (Wouters and Kirchberger, 2015). The multi departmental approach of our process helps to counter this problem and ensure that all relevant knowledge is integrated into the value development.

In the first cycle and the diagnosing and planning stages of the second cycle (Saunders et al, 2015), an approach was taken to aid the business in understanding why, how and when value propositions should be used. The 'when' focused on the communications process and was linked to the customer journey (Norton and Pine II, 2013). The value proposition development process identifies what a customer values and is looking for in a product or service (Lindgreen et al., 2012), the output of this is then communicated effectively at various stages. As discussed, a big problem came from the lack of knowledge as to what a value proposition was and also when to use different information during the buyer's journey. Once again, proper education was a key aspect in overcoming negativity towards change within the business environment and in introducing a new process. Creating a clear visual for people to reference helped in the education process. The alignment of what information should be communicated and at what part of the customer journey is exhibited in Figure 2. These funnels show that value propositions are incredibly important to gaining awareness and interest from the customer. The right value proposition will help them continue down the funnel until purchase. Parker's Gas Filtration and Separation Marketing Manager commented after the workshop that "the understanding and implementation of focused and meaningful value propositions is key to the future of the business and how we sell. This value proposition process will be very useful for Parker".

Figure 2: Customer Journey and Market Communications Funnels

When looking at the managerial implications, there were three critical points that can be taken away from this research and applied to any company looking to use UIC for TT and value co-creation. Education, external knowledge experts and business wide inclusion were highlighted in the findings as being potentially critical turning points in the project. As discussed already there are a lot of behaviour and relationship issues built into companies that can be areas of contention when trying to get people to change how they work. As evidenced in this case study, it is possible to overcome these barriers by considering these factors prior to commencing the project and having a plan to overcome them. The following framework (Figure 3) can be used by companies as a reference when transferring new knowledge, specifically when it comes to processes. By creating a robust process through the UIC and identifying the key barriers to implementation, the process was easily able to be shared throughout the Parker corporation. Building an implementation strategy into UIC planning is a great way to empower the decision-making process by removing risk for all parties involved.

Figure 3: Knowledge Transfer Implementation Guide

An additional element to UIC's is that there can be the involvement of other bodies such as government, that provide funding. This was the case for this research. Successful UIC's further encourage investment in such programmes which has greater societal benefits. Not only can we see greater leaps in industry through better, more specific knowledge being transferred from the university, the industry knowledge fed into universities helps to guide research and teachings so that the next generation of industry is better educated. This research

helps to guide the macro implementation of UIC's when addressing process implementation which if readily applied can produce successes and continue to encourage future investment.

Conclusions

KTP's are a well-versed example of UIC's and as evidenced in the literature have a range of impacts for industry, universities and external collaborators as well as economic and academic impact (Penfold, 2007, Wynn & Turner, 2013, Wiltshier & Edwards, 2014). Hewitt-Dundas (2012) highlighted that highly intensive research universities achieve more knowledge transfer whereas less intensive research universities are more likely to focus on their regional economic impact. What this research has highlighted is that both are possible under the right circumstances. By focussing on a local division, there was strong benefit to the local economy through project success but also by keeping the process open and generalisable, subsidiary to MNC knowledge transfer was possible driving a more academic driven approach to value proposition development in an entrepreneurial company. Notably, this was driven through strong managerial buy-in from the programme leader. There was a clear intent to imbed change in strategy and process which was similarly seen in the successful partnership described by Penfold (2017) where they were able to establish recognition of the value of design to overall commercial success.

Rossi et al's (2007) call for co-production over knowledge transfer ties in nicely with the value creation literature that also highlights co-production as a key for success (Vargo and Lusch, 2004). De Wit-de Vries et al (2019) call for the attention to the industrial partner in the collaboration phase which when considered in partner with industry desires for shared risk (Wynn and Jones, 2019) is evidenced in this research. It does so by creating success using multiple intermediaries including the university and an external agency to establish expertise and drive for behaviour change.

It is clear from this case study that the first step to a successful TT in an UIC is to identify what the internal barriers are in relation to the gap the UIC is trying to fill. Based on seeing behaviours repeated from different people involved in the process, it is possible to surmise that these responses to being asked to change practices would be comparable in similar organisations. Firstly, education as to why is the most important part of any implementation process. If a person doesn't understand why change is happening, they are more likely to resist it, increasing the chance of the TT failing within a company. Secondly, are there key people within the business that could be a potential hindrance? A positive way identified to overcome this was to utilise external knowledge experts when possible. Having the University knowledge experts as part of the creation and introduction process was useful to persuade the 'negative' employees that the changes were important. The approach removed some of the bias that can be created from relationships and history between internal personnel. The final key feature is active involvement of people from across the business, not just those directly involved in daily workings of the UIC. Widespread adoption and awareness within the company is important to create longevity in process implementation as well as in ensuring the value propositions created for each product were embodied in all areas of development and production.

Whilst the extent to which the results can be extrapolated are limited, there is recognised good practice in terms of validity and reliability of case study research (Beverland and Lindgreen, 2010). The lack of detail in the TSVP Development Model makes it easier to be applied to different industries as necessary. This meant that it was easily shared across the MNC helping to ensure the success of TT within a MNC environment. Also, that the key

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3 barriers identified came from interactions with multiple persons, suggests that they would be
4 common barriers in other companies making the Knowledge Transfer Implementation Guide
5 a handy model for leaders to reference when planning in knowledge transfer activities. Micro
6 level academic entrepreneurship provides a good theme to further research case studies
7 looking at the micro level of UIC's. It is important to compare commonalities in both barriers
8 faced and methods to overcome them and would be valuable to explore further if the success
9 factors in this case study can be noted as present or missing from other successful or failed
10 UIC's. Another area of research highlighted from this case study that deserves further
11 attention is the role of programme leadership in ensuring success as without the buy in from
12 senior management, it is not clear whether this specific case study would have been as
13 successful as it was without the support it had.
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References

- Albats, E., Fiegenbaum, I. and Cunningham, J.A. (2017), "A micro level study of university industry collaborative lifecycle key performance indicators", *The Journal of Technology Transfer*, Vol. 43 No. 2, pp. 389-431
- Anderson, J.C., Narus, J.A. and van Rossum, W. (2006), "Customer value propositions in business markets", *Harvard Business Review*, March, pp. 90-99.
- Bell, J. (1996), "Improving export marketing intelligence and planning with the aid of a teaching company scheme", *Marketing Intelligence and Planning*, Vol. 14 No. 5, pp. 31-38
- Beverland, M. and Lindgreen, A. (2010) "What makes a good case study? A positivist review of qualitative case research published in *Industrial Marketing Management*, 1971–2006", *Industrial Marketing Management*, Vol 39, pp. 56–63
- Bjerregaard, T. (2009). "Universities-industry collaboration strategies: a micro-level perspective", *European Journal of Innovation Management*.
- Cleland, A.S. and Bruno, A.V. (1997), "Building customer and shareholder value", *Strategy and Leadership*, Vol. 25 No. 3, pp. 97-102.
- Coates, N. and Robinson, H. (1995), "Making industrial new product development market led", *Marketing Intelligence and Planning*, Vol. 13 No. 6, pp. 12-15.
- Coghlan, D. (2019), *Doing Action Research in Your Own Organization 5th Edition*, SAGE Publications Ltd.
- Coughlan, P. and Coghlan, D. (2002), "Action research for operations management", *International Journal of Operations and Production Management*, Vol. 22 No. 2, pp. 220-240.
- Cunningham, J.A., Menter, M. and Young, C. (2017), "A review of qualitative case methods trends and themes used in technology transfer research", *Journal of Technology Transfer*, Vol 42, pp. 923–956.
- Degl'Innocenti, M., Matousek, R. and Tzeremes, N.G. (2019), "The interconnections of academic research and universities "third mission": Evidence from the UK", *Research Policy*, Vol. 48 No. 9, pp. 103793.
- Greenwood, D.J. and Levin, M. (1998), "Action Research, Science, and the Co-optation of Social Research", *Studies in Cultures, Organizations and Societies*, Vol. 4, No. 2, pp. 237-261
- Hanid, M., Mohamed, O., Othman, M., Danuri, M.S.M., Ye, K.M. and Berawi, M.A. (2019), "Critical success factors (CSFs) in university-industry collaboration (UIC) projects in research universities", *International Journal of Technology*, Vol. 10 No. 4, pp. 667-676.

- 1
2
3 Hewitt-Dundas, N. (2012), "Research intensity and knowledge transfer activity in UK
4 universities," *Research policy*, Vol. 41 No. 2, pp. 262-275.
5
6 Kaplan, R. and Norton, D. (2001), "Transforming the balanced scorecard from performance
7 measurement to strategic management: part 1", *Accounting Horizons*, Vol. 15 No. 1, pp. 87-
8 105.
9
10
11 Kotler P. and Keller, K.L. (2008), *Marketing Management 13th International Edition*,
12 Prentice Hall, London.
13
14 Kowalkowski, C. (2011), "Dynamics of value propositions: insights from service-dominant
15 logic", *European Journal of Marketing*, Vol. 45, No.1/2, pp. 277-294.
16
17
18 Lai, W.H. (2011). "Willingness-to-engage in technology transfer in industry–university
19 collaborations", *Journal of Business Research*, Vol. 64 No. 11, pp. 1218-1223.
20
21
22 Lanning, M. and Michaels, E. (1988), "A business is a value delivery system", *McKinsey*
23 *Staff Paper*, No. 41, July.
24
25 Lanning, M. (2003), "An introduction to the market-focused philosophy, framework and
26 methodology called delivering profitable value", available
27 at: www.exubrio.com/services/white_papers/DPVIntro-eXubrio.pdfm (accessed January
28 2017).
29
30
31 Lindgreen, A., and Wynstra, F. (2005), "Value in business markets: What do we know?
32 Where are we going?", *Industrial marketing management*, Vol. 37 No. 4, pp. 732-748.
33
34
35 Lindgreen, A., Hingley, M.K., Grant, D.B. and Morgan, R.E. (2012), "Value in business and
36 industrial marketing: Past present and future", *Industrial Marketing Management*, Vol 41, pp.
37 207-214.
38
39 Margerison, C. (1978), "Action research and action learning in management education",
40 *Journal of European Industrial Training*, Vol. 2 No. 6, pp. 23.
41
42
43 Martin, K. (2008), "Early challenges of implementing an e-commerce system in a medical
44 supply company: A case experience from a knowledge transfer partnership (KTP)",
45 *International journal of information management*, Vol. 28, No. 1, pp. 68-75.
46
47
48 Norton, D.W. and Pine II, B.J. (2013), "Using the customer journey to road test and refine the
49 business model", *Strategy and Leadership*, Vol. 41 No. 2, pp. 12-17
50
51
52 Osterwalder, A., and Pigneur, Y. (2010), *Business model generation: a handbook for*
53 *visionaries, game changers, and challengers*. John Wiley and Sons.
54
55
56 Payne, A. and Frow, P. (2014), "Developing superior value propositions: a strategic
57 marketing imperative", *Journal of Service Management*, Vol. 25 No. 2, pp. 213-227.
58
59
60 Pealtie, K. (1996), "Action Learning: The Teaching Company Scheme", *Management*
Learning, Vol. 27 No. 1, pp. 87-112.

- 1
2
3 Penfold, G. (2007), "Diversification, Design, Strategic Planning and New Product
4 Development: A Jewellery Industry Knowledge Transfer Partnership", *The Design Journal*,
5 Vol. 10 No. 1, pp. 3-11.
6
7
8 Piercy, N.F. (1998), "Marketing implementation: the implications of marketing paradigm
9 weakness for the strategy execution process", *Journal of the Academy of Marketing Science*,
10 Vol. 26 No. 3, pp. 222-236.
11
12 Rossi, F., Rosli, A. and Yip, N. (2017). "Academic engagement as knowledge co-production
13 and implications for impact: Evidence from Knowledge Transfer Partnerships", *Journal of*
14 *Business Research*, Vol. 80, pp. 1-9.
15
16
17 Rossi, F. and Rosli, A. (2015), "Indicators of university–industry knowledge transfer
18 performance and their implications for universities: evidence from the United Kingdom",
19 *Studies in Higher Education*, Vol. 40 No.10, pp. 1970-1991.
20
21
22 Santoro, M.D. and Bierly, P.E. (2006), "Facilitators of knowledge transfer in university-
23 industry collaborations: A knowledge-based perspective", *IEEE Transactions on Engineering*
24 *management*, Vol. 53 No. 4, pp. 495-507
25
26
27 Saunders, M.N.K., Lewis, P. and Thornhill, A. (2015), *Research Methods for Business*
28 *Students 7th Edition*, Pearson, England.
29
30 Terho, H., Haas, A., Eggert, A. and Ulaga, W. (2012). "It's almost like taking the sales out of
31 selling – towards a conceptualisation of value-based selling in business markets", *Industrial*
32 *Marketing Management*, Vol. 41, pp. 174-185.
33
34
35 Töytäri, P. and Rajala, R. (2015), "Value-based selling: An organisational capability
36 perspective", *Industrial Marketing Management*, Vol. 45, pp. 101-112.
37
38
39 Ulaga, W. and Eggert, A. (2006), "Value-based differentiation in business relationships:
40 Gaining and sustaining key supplier status", *Journal of Marketing*, Vol 70 No. 1, pp.119-136.
41
42
43 Vargo, S. and Lusch, R. (2004), "Evolving to a new dominant logic for marketing", *Journal*
44 *of Marketing*, vol., 68, No. 1, pp. 1-17.
45
46
47 Webster, F.E. (2002), *Market-Driven Management: How to Define, Develop and Deliver*
48 *Customer Value 2nd Ed*, John Wiley and Sons, Hoboken, NJ.
49
50
51 de Wit-de Vries, E., Dolfsma, W.A., van der Windt, H.J. and Gerkema, M.P. (2019),
52 "Knowledge transfer in university–industry research partnerships: a review", *Journal of*
53 *Technology Transfer*, Vol. 44 No. 4, pp. 1236-1255.
54
55
56 Wiltshier, P. and Edwards, M. (2014), "Managing knowledge transfer partnership for a rural
57 community: The outcomes at Wirksworth, UK", *Kybernetes: The International Journal of*
58 *Systems & Cybernetics*, Vol. 43 No. 3-4, pp. 629-651.
59
60
61 Wouters, M. and Kirchberger, M. (2015), "Customer value propositions as
62 interorganisational management account to support customer collaboration", *Industrial*
63 *Marketing Management*, Vol 46, pp. 54-67.

1
2
3
4 Wynn, M. and Jones, P. (2019), "Context and entrepreneurship in Knowledge Transfer
5 Partnerships with small business enterprises", *The International Journal of Entrepreneurship*
6 *and Innovation*, Vol. 20 No. 1, pp. 8–20.
7

8
9 Wynn, M.G., Jones, P., Roberts, C.R. and Little, E. (2008), "Innovation in the construction
10 and property management industries", *Property Management*, Vol. 26 No. 1, pp. 66-78.
11

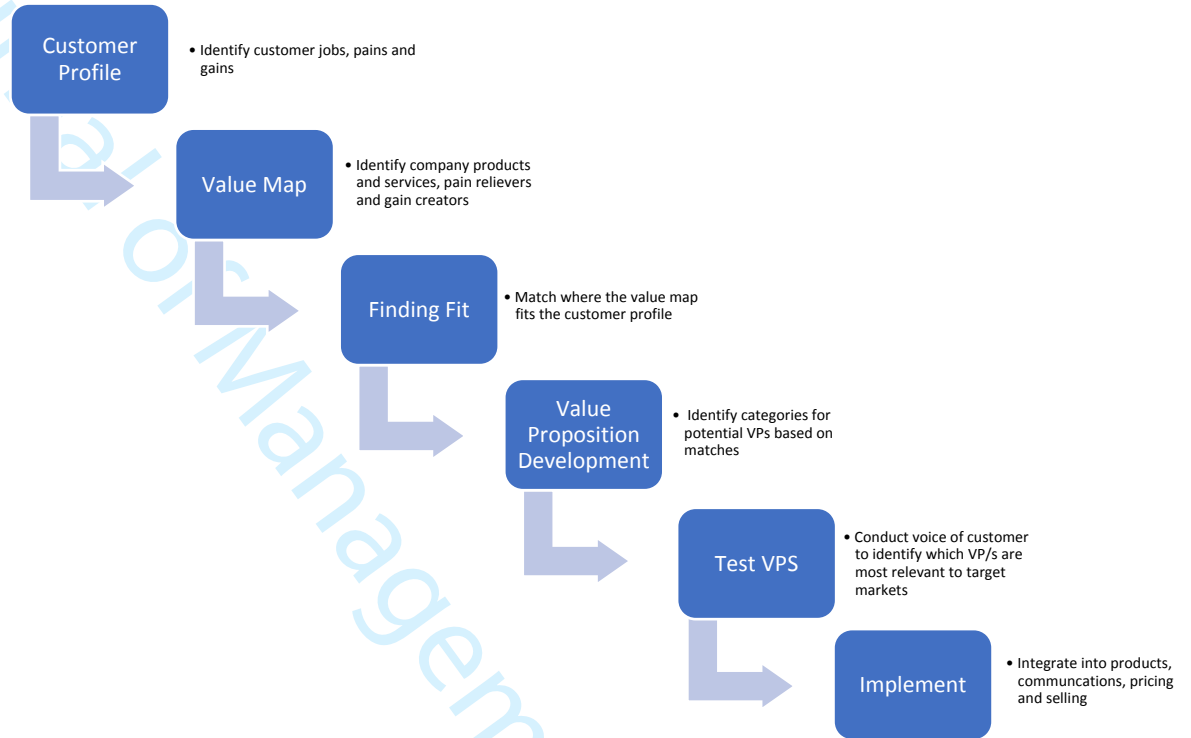
12 Wynn, M. G. and Turner, P. (2013), "Effecting successful knowledge transfer: lessons from
13 the UK Knowledge Transfer Partnership scheme", *International Journal of Management in*
14 *Education*, Vol. 7 No. 3, pp. 293-312.
15

16
17 Yin, R.K. (2014), *Case Study Research: Design and Method (5th Edition)*, Sage, London.
18
19
20
21
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Table 1: Action Research Cycles and Interventions

CYCLE	DESCRIPTION	INTERVENTION	REVIEW
Cycle One - Reviewing	A deep dive into current state of the value proposition development process	Brainstorm with key company to highlight areas they think could improve and with university for applicable new methods to adopt	Confirmed within business need for new approach
Cycle Two – Creating	Taking into consideration how the company operates, use university knowledge to propose a value proposition creation methodology	Test the new method with a Parker GSFE project and see if results align with strategy	Test with customers to see if generates correct customer-centric value propositions for products
Cycle Three – Implementation	Document and teach process within the business to ensure use on all projects	Implementation of new process that can be followed by anyone in the business	Test group to use process independently, review after 6 months if process still being used

Figure 1: Targeted Strategic Value Proposition Development Model



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CUSTOMER JOURNEY AND THE CORRECT MARKETING MESSAGES

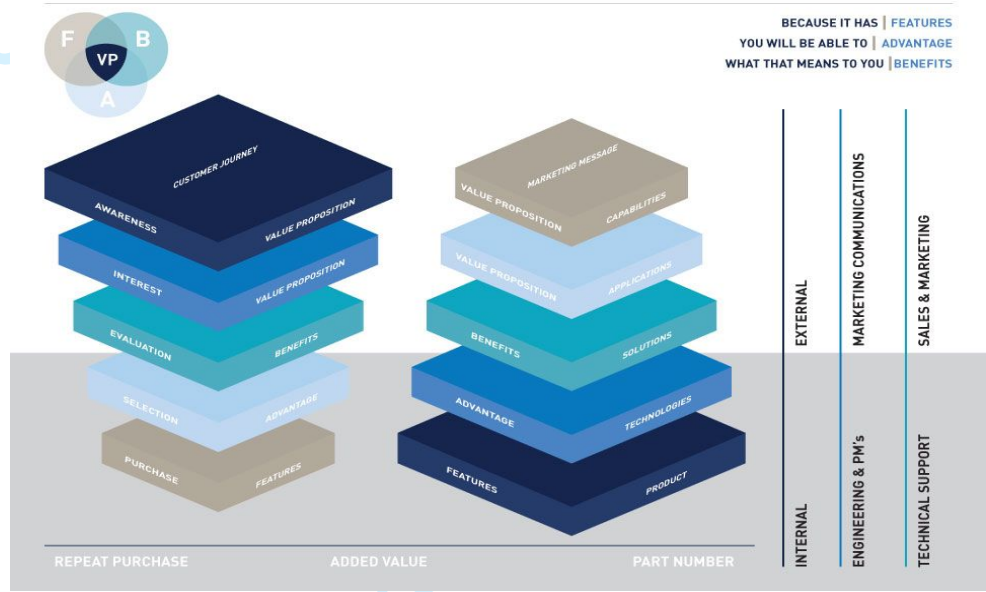


Figure 2: Customer Journey and Market Communications Funnels

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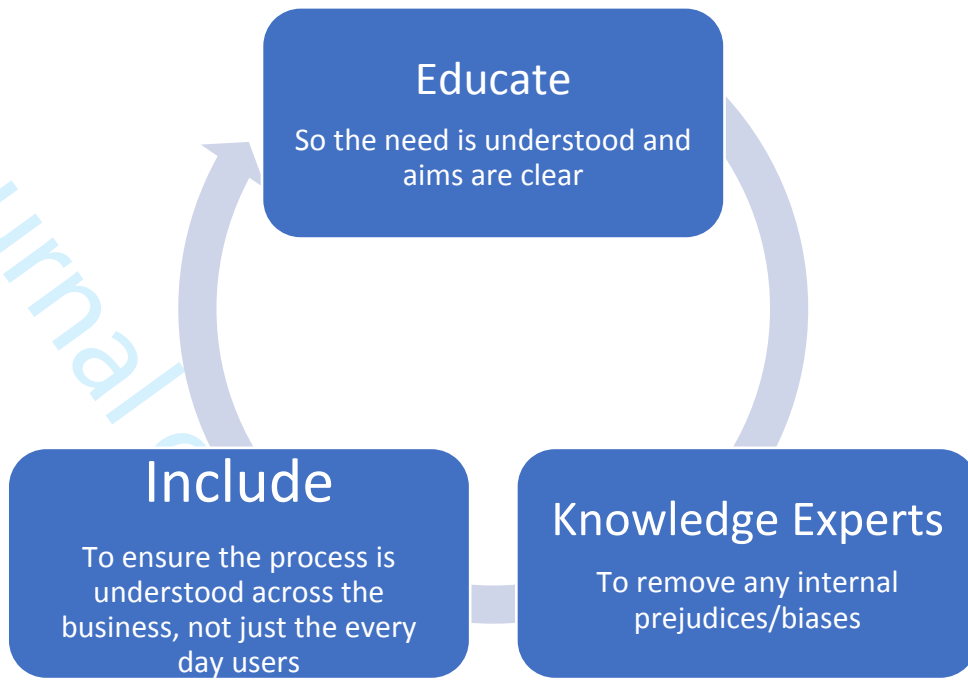


Figure 3: Knowledge Transfer Implementation Guide