

# Designing Competitive Service Models

## Veronica Martinez and Trevor Turner

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### Why this paper might be of interest to Alliance Partners:

Many organizations spectacularly fail to design and deliver their current value propositions that underpin their core business models; thus identifying their future value propositions becomes an unimaginable task. We present a case study where we traced the value propositions' shifts of a single firm over 40 years. The firm's strategic decisions, market adaptation and influencing factors triggering the shift to new offerings are discussed. Then, we introduce a value proposition framework for our Alliance partners and organizations to diagnose the design and delivery of service value propositions. This framework could trace the endurance and adaptability of value propositions in the market at a longer term.

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# Service Design and Delivery

## Chapter 3 DESIGNING COMPETITIVE SERVICE MODELS

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This chapter discusses the design of competitive service models through the analysis of companies' value creation. In the study of value creation, the value propositions provide an innovative way to analyse companies' value creation from the customers' perspectives. This chapter is divided into two complementary parts; the first part called "the story" and the second one called "the theory". In the first part, this chapter starts with the illustration of a case study "the ICI Explosives" case. This case shows how the company has transformed its value proposition, business model, service delivery and capabilities and skills from the 1960's to the 1990's. Then in the second part, the theory underpinning the case study is analysed and explained. This second part provides to the reader some model, frameworks and toolkits for the analysis and design of other competitive service models.

### 1. The story:

#### ICI EXPLOSIVES UK<sup>1</sup>

The explosives developed in Europe in the late 19<sup>th</sup> and early 20<sup>th</sup> century by the famous Swede and patron of the world peace prize, Alfred Nobel, were extremely durable and, apart from the introduction of the electric detonator, have remained in use with minor modifications for almost a century (Figure 1a). In the 1970's a new invention started a process of change that has transformed the explosives business from being a supplier of products to a provider of a service. Survival very much depended on the agility of businesses in adapting to the new competitive environment. Manufacturing excellence was not a solution. Innovative thinking was required to sustain the business as changes in technology reduced the complexity that had protected the business from serious competition for over a century.

With the introduction in the 1970's by a small company in the USA that patented a blasting explosives manufacturing process that did not use nitroglycerin, the explosives business was opened to newcomers. All the ingredients used in this new process were non-explosive and could be purchased and transported without a license. The new formulation only became an explosive when the non-explosive ingredients were mixed together into a viscous water-based slurry. This slurry was then made into long sausages (Figure 1b), with plastic skins like salami, on a sausage-making machine for packing and transportation.

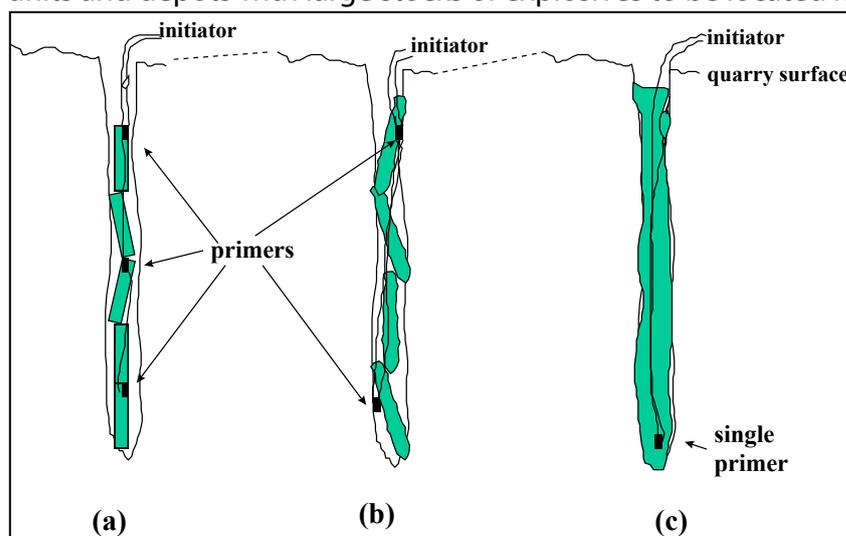
## The Slurry Era

By using ingredients that were non-explosive and could be purchased and transported without a license, the old licensing, transportation and safety procedures became obsolete. This new process of mixing non-explosive ingredients with water, making the slurry, also eliminated the large capital outlay and know-how involved in running a nitroglycerin-based blasting explosives manufacturing plant. The governmental licensing problems were reduced because the non-explosives ingredients did not require licensed stores and could be stored near the manufacturing units. Slurry manufacturing units are less complex and relatively inexpensive to set up. The whole manufacturing process from raw materials to packaged explosives could now take place under the same roof rather than in separate buildings. As a consequence, slurry explosive manufacturing and packaging units could now be sited nearer to large areas of population and did not require the vast areas of land in remote regions normally associated with traditional nitroglycerin-based explosives manufacture. Slurry plants began to appear in all parts of the world in countries not previously involved in explosives manufacture. The response by the major companies in the U.K. was to try to force the new entrants out of the market with a price war. They failed to do so. The newcomers had operating costs that were so low that as the price fell they managed to survive.

The comfortable, relatively stable, days of explosives businesses with large export markets in the nitroglycerin era were over. Traditional explosives businesses had to change the way they operated or become extinct.

## The Emulsion Era

The next technological development had an even greater impact on explosives businesses. Although the slurry explosives were easier to make, they were still sold as packaged explosives and, in order to satisfy customers' demands, required manufacturing units and depots with large stocks of explosives to be located near customers.



**Figure 1.** Bore holes in a quarry surface with different blasting explosive types (not to scale).



As with the introduction of emulsion explosives in the 80's, the "sausage skin" packaging of the explosives were no longer needed. Moreover, the ingredients were different and much cheaper than the packaged explosives. Emulsion explosives also allowed formulations to be created for use in small diameter, hence cheaper, bore holes. Nitroglycerin explosives were no longer needed for quarrying and nitroglycerin plants were not required.

Initially emulsion explosives were used as packaged explosives in the UK because, except for very large quarrying operations, it was not worthwhile setting up manufacturing units in quarries. The majority of quarries in the UK are small and do not carry out blasting operations every day. However, it was recognized by explosives businesses that the advantages of pumping bulk explosive directly into bore holes were considerable (Figure 1c). It eliminated the packaging and storage activities. Also, if the explosives could be made reliably at the point of use from non-explosive ingredients and then used, the problems of manufacturing and storing large quantities of explosives and the related licensed distance problems would be overcome. Large manufacturing plants and depots would no longer be required.

This led the way in the '90s to the use of mobile manufacturing units that carried the non-explosive ingredients separately and mixed them as they were pumped into bore holes.

First one and then other major manufacturers began to use mobile manufacturing units to deliver and pump blasting explosives directly into customer's bore holes. As the number of mobile manufacturing units increased, the manufacture of packaged explosives within the traditional manufacturing sites declined.

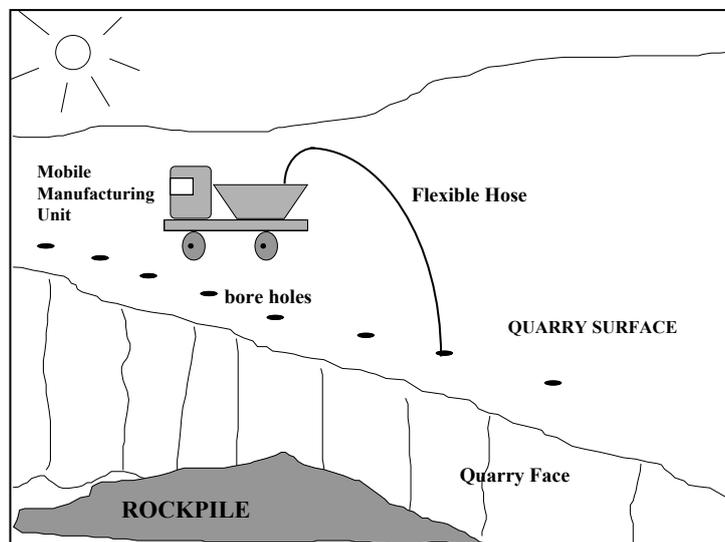
It marked the beginning of the end of the manufacture of packaged explosive.

### **The Blasting Service Era: From Supplying Explosives to Providing Rock on the Ground**

The move from nitroglycerin to slurries and then the introduction of emulsion explosives led to a complete restructuring of the explosives businesses. The core competence of managing complex manufacturing plants was no longer required. New skills and systems had to be developed to respond to customers' demands for lower prices and better service.

This led ICI Explosives, one of the major businesses in the U.K., to consider how profit margins could be maintained by offering the customer a new concept. This concept was to sell "rock on the ground" to the customer rather than explosives. ICI was already employing mining engineers who provided a technical service to mines and quarries on best practice concerning the use of explosives to blast rock safely and economically. These engineers were also used to liaise with customers to develop customer loyalty by advising them on how to satisfy explosives legislation and introduce new blasting techniques to improve yield from the quarries. The quarries purchased explosives and accessories, stored them at the quarry and then used their own personnel to carry out the routine drilling of bore holes, loading of bore holes with explosives, and shot-firing. They called in the mining engineers as advisors if problems such as misfires, fly-rock, or low yield occurred.

Whenever blasting activity in the small UK quarries occurred, about once or perhaps twice a week, a team of people had to be pulled from their normal activities of digging and grading rock to load and fire the blast. Before the introduction of mobile manufacturing units, the explosives and accessories for the blast needed to be ordered and stored in secure, often remote, licensed magazines overnight prior to the day of the blast. Personnel had to be trained to satisfy government legislation for the use and handling of explosives. In the event of weather conditions becoming adverse and the loading not being complete during a day, personnel had to be employed to “guard” the shot overnight to prevent theft of explosives and accessories. The introduction of mobile manufacturing units meant that the storage and loading of blasting explosives on site was no longer required. Personnel from the explosives business traveled with the truck to load the bore holes and worked with the shot-firer and his team until the shot-firer took over to carry out the blast (Figure 2).



**Figure 2.** Mobile Manufacturing Unit operating in a quarry.

The “rock on the ground” concept involved the mining engineers and truck operators taking over the blasting activity from the customer and selling the customer rock of the correct size distribution, in a mound of rock created during the blast of the correct profile and location to be easily dug and hauled by the quarry operator for further processing.

With the introduction of quarry services, all the previous blasting activities were taken out of the quarry manager's hands and placed into the hands of experts who carried out these activities as part of their core competencies. There were enormous benefits for the busy and often harassed quarry manager. The quarry services team turned up on the day of the blast with the explosives mixing unit and accessories, carried out the blast, and left behind a pile of rock for the manager to dig and process.

The explosives business had transformed itself from making and selling explosives to providing quarry services. These services could be in the form of a contract to provide an agreed tonnage of rock over an agreed time scale. The services could be blasting only or could include drill and blast or even rock face profiling, blast design and layout, as well as

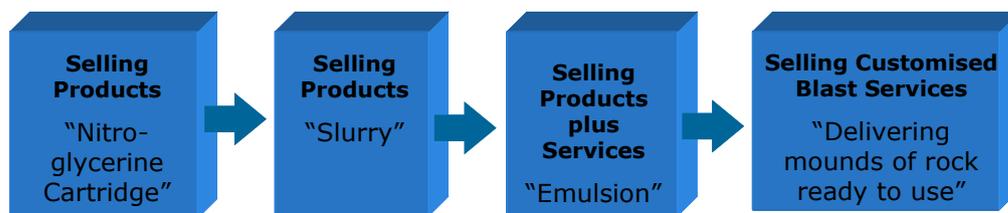
drill and blast. As long as the quarry management were getting value for money from this service, then the explosives business could run the blasting side within the customers premises and by so doing protect their profit margins.

This change in emphasis from manufacturing and selling a product to providing a service required considerably fewer people and facilities. Large numbers of people who made explosives had to be re-deployed to other activities both inside and outside the organizations. Large manufacturing operations and depots were no longer needed and had to be closed down or reduced in size.

ICI Explosives had a policy of no enforced redundancy for its employees. This meant that the manufacturing personnel needed to acquire new skills to become service providers inside customer’s premises. Quite a different skill set was required, such as training people who had been “blue-collar” factory workers to drive heavy goods vehicles or to man the mobile manufacturing and shot-firing units to carry out blasting operations. All personnel involved with customers needed customer care training because they now had direct contact on a daily basis with quarry managers and other quarry employees.

A resettlement team based in the Human Resource function was set up to facilitate the transfer of manufacturing personnel to the new jobs in Quarry Services. All manufacturing and depot personnel were given the opportunity to apply for the new jobs and a very systematic approach was used in the selection process. The resettlement team broke the new jobs down into eight elements and identified competencies required to carry out these elements. Applicants were interviewed and tested to determine whether they had or could develop these competencies. Personality profiling and critical thinking tests were used. About 60 people were selected to transfer to the new jobs from manufacturing sites and depots from around the country. Some elements of the jobs required the applicants to obtain certificates before they could take up the positions. In particular HGV (Heavy Goods Vehicle) driving certificates were required as also were shot firing certificates. Successful applicants were given assistance in obtaining these certificates, required by law, before starting their jobs. Assistance with relocation was provided.

In a relatively short period of time, ICI’s explosives had moved from being manufacturing experts to service providers. Technological and other changes in the marketplace had determined the new activities within their business. For companies in this arena, competitive excellence—and even survival—meant following a train of development similar to that becoming more and more common in many industry sectors.



**Figure 3.** The Changing Explosives Business

ICI’s competitive criteria had changed from product functional excellence and on-time delivery performance to customer service excellence.

## 2. The theory:

### VALUE PROPOSITION

The introduction of the concept of value propositions also called value delivery systems by Bower and Garda, in 1985, changed the way many practitioners and scholars analyse the value creation of organisations. Their concept highlights that companies need to change their traditional view of value from the functional view of activities to an externally oriented view, as **a form of value delivery**. This can only be achieved by looking at the business from customers' perspective. The 'value proposition' is defined as

*... 'the implicit promise a company makes to its customers to deliver a particular combination of values.'*(Treacy and Wiersema, 1993, 1996)

The customers' perspective brings an external dimension to the value propositions, which makes organisations aware of continuous changes in the business environment. The perception of value could change due to five main factors. First, customers are becoming more sophisticated and demanding; second, co-production is increasing innovation; third, competitors are raising expectations, fourth, increased of customers' businesses understanding and fifth, new technology allows new forms of customer contact (Huff, et al 2008). As Ramirez (1999) highlights, the external customers' perspective brings a dynamic element that distinguishes the value propositions from other business frameworks.

In ICI explosives there are three main value divers of change. First the technological innovation around the explosives' production; e.g. the transformation for the 70's to the 80's and from the 80's to the 90's. Second, the application of customers' understanding and knowledge from the technical support team. Finally, the marketing analysis of different configurations of product-service offers.

Payne and Holt (2001) argue that to revitalise the stakeholders' value, organisations should follow the theory of the creative destruction from Joseph Shumpeter. ICI explosives creatively destroyed its manufacturing propositions to become a total service provider. Its value proposition was re-invented three times in a thirty years window. Kim and Mauborge's (1999) and Woodruff's (1997) rationale also suggests that since value is in a permanent status of change, organisations should continuously re-invent their propositions of value to customers because they are the main source of competitive advantage.

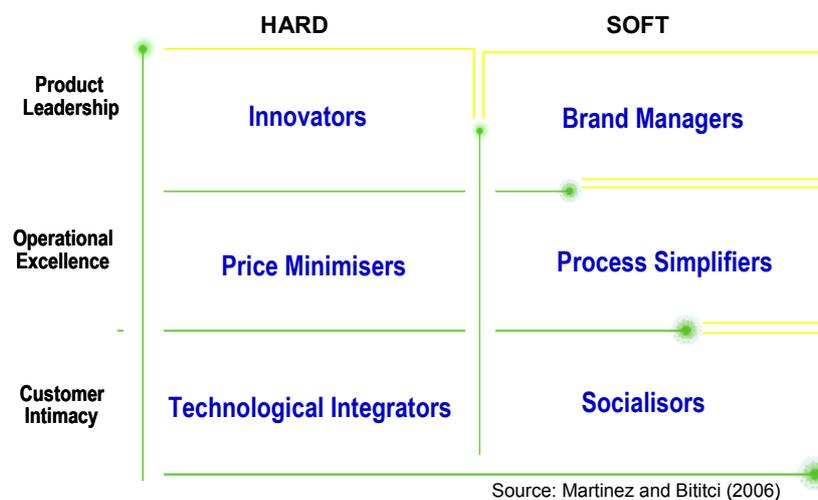
The value propositions place emphasis on the creation of mutual value; this is what some marketing authors called co-creation (Vargo and Lusch, 2004). It can be achieved as a consequence of a reciprocal relationship between organisations and stakeholders in a network (Bower and Garda, 1985; Normand and Ramirez, 1993).

Treacy and Wiersema (1996) proposed three generic value propositions where organisations operate. They are: **Operational excellence** which proposes standard products to their customers, at the best price with least inconvenience. These organisations offer the best price for their products within their competitors' radius.

**Product leaders** propose new technologies and product designs to their customers at the right time. They offer the leading technologies and products; price is not a priority issue for their customers. **Customer intimacy** which operates with limited number of customers and offers the best total solution. These companies focus on delivering the best customised product, technology and/or service.

## The value matrix

Despite the clarity and functionality of Treacy and Wiersema's value propositions, they are insufficient to understand how tangible and intangible value is created in organisations. The value matrix suggests that there is an additional dimension of value creation called the 'hard and soft value dimension' (Martinez and Bititci, 1996). Organisations that operate in the 'hard value dimension' place strong focus on the delivery of tangible elements of the offering. For example, the delivery of value through new technology embedded in the product or a customised solution based-product. Conversely, organisations that operate in the 'soft value dimension' place strong focus on the delivery of intangible elements of the offerings such as, building trust, status or creating an inimitable experience for the customer on the consumption of the offering. The value matrix takes a customer delivery approach to analyse companies' value creation processes. It has six value propositions. Innovators, price minimiser and technological integrators focus on the hard value creation; meanwhile, brand managers, process simplifiers and socialisors focus on the soft value creation.



**Figure 4.** The value matrix 

**Innovators** continuously provide innovative technologies, embedded on product-service offerings. These organisations offer the state of the art in product-service design to their customers and customers keep coming back for the upgraded offerings. **Price minimisers** propose good quality, reliable products and services at sensible prices to their customers. They strengthen the efficiency their production process to drive operational costs down. **Technological Integrators** propose continuous total solutions. First, they understand the customers' businesses and needs, then they tailor product-service offerings for carefully selected customers.



**Brand Managers** focus on the brand image, quality and style of the product-service offering. They strive on the creation of a distinctive pre-, during and post- customer experiences. These organisations propose and deliver status, lifestyle and superiority feelings such as, feeding ego though the acquisition of the product-service offerings.

**Process Simplifiers** provide easy availability and convenience to the product-service offering; by making customers’ life uncomplicated and warranting hassle free experiences. They build streamlined processes in a novel and profitable way.

**Socialisors** propose flexible and reliable services on the basis of long-term relationships with customers. These organisations focus on their efforts on the service delivery, building trust and inter-personal relationships with customers.

Table 1 explain the value propositions from the customer and from the company perspectives. These value positions are used at the business unit level when organisations have more than two strategic businesses in different market segments or at the company level when the business has a single strategic direction for a single market.

**Table 1.** Value propositions- What the customers get? & What the companies need to do?



Value Proposition	Customers get	Company needs to do	
		Strategic Objectives	Operational Objectives
<b>Innovators</b>	New innovative designs, products never seen before.	Provide breakthrough through generations of continuous new designs, new features within technological basis.	Long-term vision, robust R&D and product development, capacity to innovate within short product lifecycles.
<b>Brand Managers</b>	Status from the product, they get lifestyle, a feeling of superiority.	Expand the market reinforcing the solid brand image of the product and the company.	Superb brand recognition. Focus market sector. Superior control over the product styles, quality and promotion.
<b>Price Minimisers</b>	Ordinary, reliable products and services at lowest price possible. They get security on the product.	Production growth reaching high quality levels in the most cost-effective way and waste free.	Strong order fulfilment sustained by efficient and effective production processes within tight quality processes controls.
<b>Process Simplifiers</b>	Convenience and availability of the products. Hazard free experience.	Building streamlined processes to make life simple and uncomplicated for customers in a novel and profitable way.	Strong availability. Superb order fulfilment–distribution by conventional and un-conventional resources (networking, IT, etc.).
<b>Technological Integrators</b>	Tailored products and services. They buy total solutions.	Tailor specific and continuous solutions for carefully selected customers on the basis of permanent relationships.	Strong relationship with customer. Knowledge of customers’ businesses, products and operations. Capacity to configure any specific need. Able to adopt the customer’s strategy.
<b>Socialisors</b>	flexible services and inter-personal relationship because they trust in the company.	Build confidence and trustiness on the customers.	Sensitive fulfilment of customers’ needs supported by careful deliver, reliability, and honesty. Excellent personal service.

Source: Martinez (2003)



## Transformations path of the ICI explosive business: in search of new value propositions

Ever since the explosives became a profitable business until the late 1960's, ICI Explosives capitalised on the exploitation of the nitro-glycerine embodied on the **classical nitro-glycerine explosives cartridges**. ICI explosive's products were considered the best in the market; in this way ICI Explosive reached position itself as "*innovator*". The creation of value was reduced to the economical transaction products [explosives] for money. This initial value propositions was purely based on the tangible attributes of the products. The success of this early business model was protected by highly complex, specialised, risky and expensive operational processes. These processes included manufacturing, storage, transportation and delivery. They provided a natural barrier that protected the business from competitors and new entrants.

### *The first change trigger*

The first trigger was initiated by an external force, a competitor called "Ireko". Ireko changed the nature of the explosives with the **introduction of a new product innovation, the "viscous water-based slurry"** made from non-explosives ingredients. The new non-explosive ingredients of the product minimised the production, transportation and inventory risks. The reduction of risks drove operations, insurance and licensing costs down. In the same way, the expensive manufacturing and technical facilities were not longer required. Therefore, the competitive advantage relied on the operational excellence of the processes. This is how ICI explosive competed as "*price minimiser*".

This new value proposition of the 1970's still heavily relied on the tangible product "slurry" as main source of value creation. New comers and competitors started operating at very low costs that drove the explosives' prices down and originated a price war among competitors. ICI explosives managed to survive, however its large, stable international market was completely destroyed. Value was created through the physical proximity to customers by setting up hundreds of depots with large stocks of explosives.

### *The second change trigger*

The second trigger of change was advocated **to innovative product delivery, the "emulsion-based explosive"** also called the "sausage skin". Emulsion explosives were cheaper and more effective than slurry. For large quarries, the emulsion could be offered as free of package by pumping bulk of emulsion explosive into the bore holes. For small quarries, the emulsions could be offered as sausages. Emulsion could be used in slender holes, thus reducing mining operating costs, and eliminating packaging and storage costs. ICI explosives' value proposition adopted "*process simplifier*" as a way to facilitate the use and performance of the explosives to customers.

This new value proposition of the 1980's made the large manufacturing plants and depots unnecessary and eliminated the storage and package activities. Despite the tremendous effort to increase the service delivery, this value proposition was still based on product delivery with few elements of service delivery.

*The third change trigger*

The third trigger of change was led by **the technical marketing, mining service and quarry service teams**. In the 90's the company changed its value proposition from selling pure products to sell blasting services to **selling a total solution "the rock in the ground"**. The mobile units were operated by a wide range of explosive experts. This new value proposition "*technological integrators*" required less people, manufacturing technology and facilities; conversely it required more experts in mining, chemistry, geology and quarry. The new service value proposition required the acquisition of new skills such as customer care training.

The ICI Explosives' transformation's path from the 1960's to the 1990's is summarised in Table 2. It highlights the evolution of value propositions, value drivers, key capabilities, service delivery and drivers of change. **Table 2.** The ICI Explosives transformation's path

	 <b>Nitro-glycerine Cartridges</b> .... 1960's	 <b>Slurry</b> 1970's	 <b>Emulsion</b> 1980's	 <b>Blasting Service</b> 1990's
<b>Offerings</b>	<b>Nitro-glycerine Cartridges</b> .... 1960's	<b>Slurry</b> 1970's	<b>Emulsion</b> 1980's	<b>Blasting Service</b> 1990's
<b>Value proposition</b>	<b>Innovator:</b> product excellence	<b>Price Minimiser:</b> manufacturing excellence	<b>Process Simplifier:</b> Product delivery	<b>Technological Integrator:</b> In-situ total service solution
<b>Value driver</b>	<b>Product novelty:</b> Exploitation of the nitro-glycerine technology	<b>Manufacturing process</b> New production process: mixing non-explosives with water	<b>Effective product &amp; its delivery:</b> Direct pumping bulk explosive into holes	<b>Completed tailored &amp; sustainable services solutions</b> Value-in-use: tailored service by the mobile units' experts. Killed package & storage Ardeer operating service business
<b>Key capabilities</b>	Leadership in blasting practices-quarrying and mining highly specialised & unique Factory operations	Operational excellence. Depots with large storage to satisfy demands located near to customers. Lean production supported by MRP II, ISO 9000	Effective product. Formulation created for smaller diameters of holes therefore cheap ingredients.	More effective blasts. New service skills: simulation and risk analysis, scenario planning ERP, rock laser profile, rock size distribution, blasting services & customer care training.
<b>Value Offerings</b>	'Product excellence'- expensive and highly specialised products plus mining guidance	'Commoditized products'- cheaper products Improve safety	'Blast effectiveness' Customers did not need to manage their own explosive storage magazines	Tailored solutions leading into 2-3 yrs partnerships with customers. Customers' hassle free security legislation and operation costs
<b>Barriers to entry</b>	High. Remote and expensive manuf. Facilities of nitro-glycerine. Highly skilled chemical	Low. Manuf plants not longer required, set up locations were established near	Medium technology barrier. If blast was not completed fast enough and rain-water was filtered in the hole, it	Highly specialised and multi-disciplinary technology coordinated to provide individual,



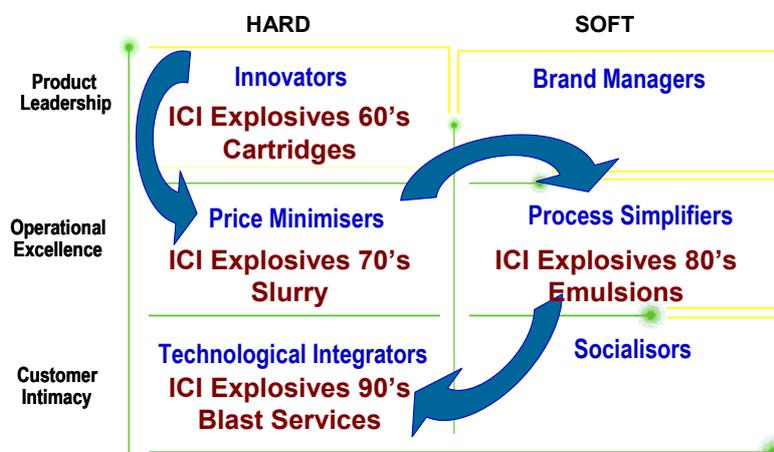
<b>Risks</b>	engineers Manufacturing, transportation & storage of raw materials (nitro-glycerine) and cartridges	quarries Price war competition. Finished products transport	led to inefficient blast. Raw material were easily stolen for other purposes	tailoring services Operations risks are reduced. Build strong and long term customers' relationships
<b>Operations' processes</b>	Line- long & ineffective supply chain. High volume & stock	Line- short supply chain	Line	Project
<b>Service delivered</b>	Mining engineers mainly sell the product.	Mining engineers assist customers to use the product.	Professional mining engineers directly fill emulsion into the holes to facilitate the blast.	Complete in-situ tailored services. Designing team: simulating, Mining team: methods to distribute the blasting effectively.
<b>Offerings</b>	<b>Nitro-glycerine Cartridges</b> .... 1960's	<b>Slurry</b> 1970's	<b>Emulsion</b> 1980's	<b>Blasting Service</b> 1990's
<b>Customization</b>	Mining engineers to help with the use of the product	Mining engineers converted the nitro-glycerine customers to slurry customers	-	Blast service customisation to fit with customers needs
<b>Major challenge</b>	Improve the nitro-glycerine use	Slurry too cheap and very few law restriction to produce it	Rain-water trapped into holes with explosives, lead to inefficient blasts	Updated and coordinated experts' skills
<b>Operating costs</b>	High capital costs Insurances of depots production, transport & handing Government Licensing	Very Low Transport, Depots near to key customers	Low Manufacturing, depots and packaging activities were eliminated. Emulsion delivery	Low- led good revenues Mobile units: investment and maintenance Customer care training Units experts training: mining engineers, truck operators, and quarry service team
<b>Prices</b>	High	Very Low	Low	High. Payment based on rock weight per blast
<b>Market</b>	Global distribution	Europe and Mainly UK	UK	Europe and Mainly UK
<b>Competition</b>	Close to inexistent in Europe	High. It took over local UK distribution (Slurry plants arose in all parts of the world)	Medium	Low
<b>Driver of change</b>	<b>'Ireko' Competitor invented the new "viscous water-based slurry" from non-explosive ingredients. Expensive chemical plants not required. Skills sets in operations had changed.</b>	<b>Solution to technology problem "emulsion explosive". Now, rain-water don't longer affect the effectiveness of blasts. "integrated P-S".</b> <b>Terrorism steeling material</b>	<b>Technology was easier for different people to do it and better customer understanding total service-rock in the ground</b>	

## Mapping the Value propositions into the Value Matrix

Over time, ICI Explosives has demonstrated a continuous trend towards servitization. ICI Explosives have moved away from being an innovative product-centric manufacturer “Innovators” to become a total service provider “Technological Integrator”. ICI Explosives has not been the only one adopting a servitized strategy, however it was a pioneer in this type of transformation. Fifty-eight percent of US manufacturers operate a combined service-manufacturing model, and this approach is growing across other Western nations (Neely, 2007). This servitization growth is driven by the increasing global competition and commoditisation in product markets (Martinez, Neely, Ren and Smart, 2008).

Servitization is occurring across many industry sectors and has implications across all organisational functions (Gebauer, Fleisch and Friedli, 2005). The value creation analysis of servitized organisation has been shifted- from looking at the business from the suppliers’ perspectives to customers’ perspectives (Treacy and Wierseman, 1993). This new view is highly focused on the offerings’ utilisation (Gummesson, 1995).

The analysis of the ICI Explosives’ value propositions shows a servitization journey moving from being “innovators” to “price minimisers”, from “price minimisers” to “process simplifiers” and from “process simplifiers” to “technological integrators”. Figure 5 shows the servitization journey mapped into the value matrix.



**Figure 5.** The ICI Explosives servitization journey mapped in the Value Matrix

### *From Innovators to Price Minimisers*

In the early 1960's, the proposition of value of ICI Explosives, “innovators”, focused on the novelty of the tangible attributes of the product through the exploration of the nitro-glycerine. The entire operations, including manufacturing, logistics and procurement, revolved around the exploitation of this nitro-glycerine.

In the 1970's, the ICI Explosives’ value proposition moved to “price minimiser”, but this time it focused on the tangible attributes of the product and price reduction. This innovation was externally pushed by the introduction of a new production process based on non-explosive ingredients. This innovation secured the reduction of cost,

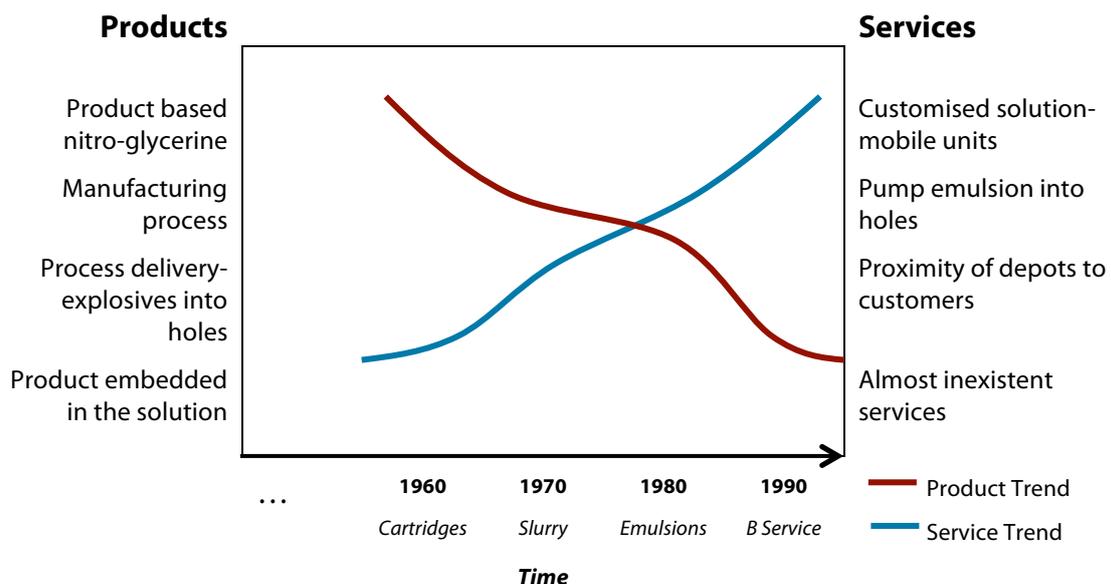
particularly storage, transport and materials handling and increased the market competition. However this business model was not sustainable in the longer term.

*From Price Minimisers to Process Simplifiers*

In the 1980's, ICI Explosives was urged by its extensive competition to offer a new value proposition. Therefore, the new ICI Explosives' value proposition "process simplifiers" focused on the delivery of the product "slurry". The new process implementation eliminated manufacturing, depots and packing. The mining service provided an efficient delivery and performance of the explosives. Customers were focused on planning the quarries rather than focusing on drilling and loading the explosives. This model was not economically sustainable; the key competitive advantages of this model drove revenues down.

*From Process Simplifiers to Technological Integrators*

Toward the 1990's, ICI explosives gauged a new window of opportunities to reduce competition and increase partnerships with key customers. Its new propositions focused on the delivery of customised solutions following "technological integrator" value proposition. This new service approach fundamentally changed the company's operations, customers' approach and competencies. Its major investment resided on the development of blasting experts and mobile units to deliver the service. This value proposition positioned again the company in a profitable and unique market niche.



**Figure 6.** ICI Explosives' products and services transformation over time

Over 40 years, the qualitative analysis of the ICI Explosives' product-service offerings shows a continuous decrease of tangible products and an increase of services on the value propositions offered to customers. Professor Michael Cusumano, from the Massachusetts Institute of Technology, identified similar patterns in the US information telecommunications' industry (Cusumano, 2004, 2008). The ICI Explosives' analysis illustrated in Figure 6, confirms the consistent trend toward the servitization of the company.

Nowadays, the ICI Explosives "technological integrator" value proposition created in the 1990's is still a very profitable business model. It has been tried to be replicated by



competitors but they found it difficult to replicate in particular the quarry services. Although, the ICI Group decided to divest from the explosives business because of the Oklahoma bombing experience, this business model and value proposition model was sold to Orica. Currently Orica is in business in a profitable and competitive position.

## VALUE-IN-USE

ICI Explosives has been one of the few multinationals that recognised the need to understand that *“What customers value from the use of the product-service offerings”*. It was then when it re-designed a new proposition of value to the customers. The revised foundational premises of service-dominant logic from Vargo (2008:213) highlight that service is the fundamental basis of exchange. In the exchange, the customer is always a co-creator of value. While value is created in the customer space, organisations cannot deliver value, but only offer *“value propositions”*. Hence in designing a new value proposition it is an imperative to assess the value-in-use that the customer gets out of the offering’s consumption.

The *“technological integrator”* value proposition of ICI Explosives proved to be the most profitable and difficult model to replicate by competition. It embraced the tailored service approach to the key customers’ needs.

Servitized organisations appear to be divided into two distinct groups: those that thrive under a servitization model with service margins up to eight times those in product sales, and those who are struggling to break even because they are unable to convince customers to pay for their services (Reinartz and Ulaga 2008).

## Understanding customer value-in-use

Value has several meanings in the management literature. Frequently, customer value is defined from the supplier’s perspective. For example, the customer value concept defines value as the economic worth to a firm of a customer, while the value-added concept allows sellers to think of bundles of attributes and seller-controlled variables (Woodruff and Flint 2006). Vargo and Lusch (2004) have inspired much recent discussion on this topic, proposing in particular an emphasis on value-in-use, but they neither define this term nor develop an argument as to how it can be created. Building on Vargo and Lusch (2004), Woodruff (1997) and Woodruff and Flint (2007), *Value-in-use* is defined as *a customer’s functional outcome, purpose or objective that is directly served through the product/service consumption*.

Macdonald, Martinez and Wilson (2009) propose that value-in-use may provide a missing link in assessing the customer perception of value in product-service offerings. A value-in-use perspective may be superior to the prevailing *embedded value* perspective which it is defined as: *the presence of product / service attributes, and performances against those attributes, for which the customer is prepared to pay* (Vargo and Lusch 2004). Vargo and Lusch (2006) highlight that *there is no value until an offering is used*.

A company has control over the design of attributes of its products or services; however, *“value is not created in a factory or in the back office of a service firm”*

(Gronroos,2000, p140). Value cannot be embedded in goods created by the supplier; instead, goods are distribution mechanisms for value creation (Vargo and Lusch, 2006). The customer uses the supplier's product-services offerings as a means of satisfying their ends and the value is created/co-created and emerges as the consumer uses the offering.

Indeed the evidence from the operations and marketing literatures show that existing customer insight measures do not accurately predict customer satisfaction or firm performance. They suggest that better understanding of the co-creation of value-in-use that gets closer to the customer, may be appropriate. Research in this gap is currently carried out by Cranfield University; it aims to shed some light in the understanding of value-in-use, as a media to redesign innovative and successful value propositions to customers.

The success of the current ICI Explosives' value proposition "technological integrator" resides on the analysis and understanding of the value-in-use. This value-in-use analysis came unconsciously when the mining, technical and marketing teams started discussing the real value that the customers appreciate out of their jobs. The teams concluded that customer value some aspects of the product a:

**Table 3.** Customer value-in-use and ICI Explosives response

<b>Customers Value-in-use</b>	<b>ICI Explosives full fill the customers' value with</b>	
Analysis of blasts lay out	Simulation of blasts	Engineering team
Explosives effectiveness	Customised formula	Eng and mining teams
	Particles size analysis	Mining team
Free explosive licence	ICI took the ownership of the explosive product, processes and licences	Marketing team
Explosives risk adverse	Explosives' transport and material handling and storage	Engineering and mining teams
Hassle free contracts: renews and reviews	Created partnerships through long term contracts	Marketing team
Drill hole process	Subcontracted the drilling	This was supervised by the mining team

By identifying the sort of attributes and performance the customers value from the offering, ICI Explosives was able to customise a solution. Then the solution was tested with other customers. In this way, the company managed to create the mobile units complemented with the analysis of the particle size ground, simulation of the blast and quarry analysis. By providing a service, ICI absorbed ownership of the technology, material and skills.

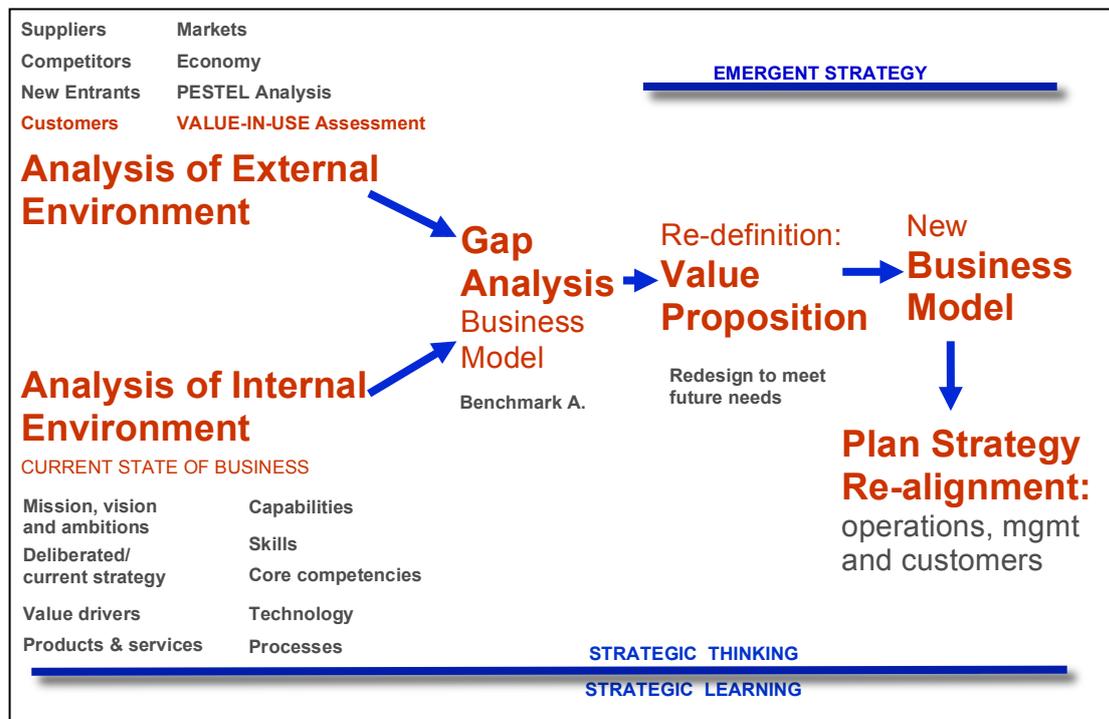
This change was partially pushed by the customer’s desire to compete in economies of scales in an Australian site; where the transport of the slurry was highly ineffective to cope with the daily blasting demands.

## THE STRATEGIC VALUE CREATION ROAD MAP

This chapter demonstrates the importance of the definition of the value proposition as mean to establish a sustainable and profitable business model. The strategic value creation road map (Figure 7) highlights the series of analyses that need to be carried out to understand the company’s competitive position and realise offerings that suits better the customers value-in-use.

The strategic value creating road map starts with an analysis of the external environment, including a stakeholder analysis and the crucial customers’ “value-in-use” analysis. Once the customer value-in-use and the external environment are understood, the analysis of the internal environment is carried out. This includes the analysis of the current state of the business including the business objectives, ambitions, capabilities, skills, technology (R&D) and competitive processes.

The internal and external analyses are compared and contrast. The resulting analysis points out the gaps on the current business model, and potential new ways to do business. The current business proposition and potential new opportunities to deliver value are mapped in the value matrix. In the value matrix, the transformation from one value proposition to other are mapped and analysed. The result of this analysis will point out a new business model. The operationalisation of the new business model comes to live when the current resources, capabilities and skills are re-aligned with the new value proposition in a form of a new business model.



**Figure 7.** The strategic value creation road map 

## Conclusions

This chapter discusses how organisations could compete as a service through the re-direction of the value propositions. The chapter demonstrates through the illustration of the ICI Explosives case that this could only be achieved by understanding the customers' value and transformation paths that organisations could take towards a servitized journey. The first part of this chapter the "ICI Explosives" case shows how the company has transformed its value proposition, business model, service delivery, capabilities and operating models from the 1960's to the 1990's. The second part of the chapter provides some model, frameworks and toolkits for the analysis and design of other competitive service models. An innovative and crucial element in this analysis is "the customer value-in-use analysis". The better understanding companies have on the value their product/services provide to the customers, the better the operating business model it could be.

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