When Helmets are not Enough

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What would you do in the event of an attack by a low cost Chinese manufacturer?

Pactuco is a French plastics mouldings manufacturer. The chapter shows how insurgent Chinese manufacturers have begun to disrupt its core market –forcing it to consider new competitive positions. Pactuco leaders used the DPM tool to idnetify a disruptive response.

The birth of cycle helmet manufacturing in Europe

In 1992 Bell Sports created a company called Euro-Bell. It was the first factory in Europe focused on the manufacture of bicycle helmets. In 1999, Bell Sports decided to relinquish control of manufacturing to focus purely upon its design and sales activities, allowing other plastics moulding firms to tender for their business. Consequently, Euro-Bell became Pactuco International. Thus until 1999, Pactuco in its former guise as Euro-Bell, manufactured helmets exclusively for Bell Sports; since 1999, Bell Sports has remained one of Pactuco's major customers.

Independence from Bell Sports generated new opportunities for Pactuco. However, the senior management team also recognised that these opportunities were accompanied by new threats, especially an over-reliance upon one customer – its former owner. This created the necessity to find new business ventures for their plastics moulding and polystyrene injection capabilities (Figure 1).

It was clear that diversification into new markets was an option for the firm; it owned a wealth of industrial machinery and a wealth of technical experience in the expanded polystyrene process. However, following an analysis of their strengths and weaknesses, the senior management team decided to focus its efforts in areas where they had extensive commercial experience - the manufacture of protective helmets. Quite soon new customers in the protection helmet industry were found (and not just in the bicycle sector).

Figure 1: Expanded polystyrene injection machines

The impact of Chinese insurgents

New customers and less reliance on Bell Sports looked to create a more secure future for Pactuco and its 110 employees. However, the rapid emergence of Chinese manufacturers, into this already competitive worldwide market, generated a huge threat for Pactuco's existence. These competitors, although previously almost non-existent, had begun to offer products of marginally less quality but at significantly less cost.

The management team conducted a review of the product offerings past and present within the protective helmet industry. This study generated two conclusions:

1. Although the industry had moved forward, it had essentially remained the same for several years (Figure 2) and now competitive advantage was firmly focused upon cost reduction.

2. Pactuco was nearing the end of its capacity to compete on price within its core product range. It needed to generate new areas of competitive advantage and saw the rapid introduction of innovation to the top of the management agenda as crucial for the firm's permanence.

GIRO Stelvio (1997) BELL X-Ray (2000) LAZER X3M (2003)

Figure 2: Regular helmets manufactured by Pactuco

The Chinese competition was effectively disrupting the protective helmet industry using a low-end disruptive strategy. Pactuco would never again be able to compete in these lower tiers of the market, purely because of cost structures. The market had shifted, yet the senior management team held the firm belief that their organisation could offer something new to high-end customers in the protective helmet industry (Figure 3). Using an existing relationship with CDN, a new-product-design consultancy, they initiated a new focus on innovation.

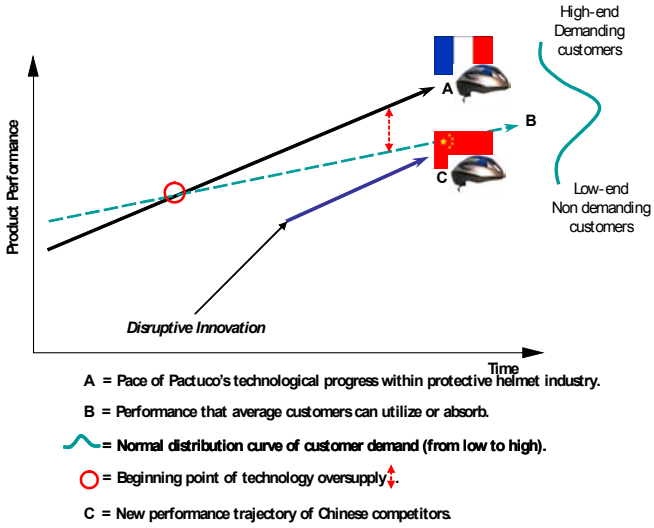

Figure 3: Disruptive Chinese competition and Pactuco's moves to the high-end niches of the protective helmet market.

Idea generation workshops were conducted for the first time; new ideas were put onto the table which ranged from the effortless to the "completely crazy".

A new Innovative Focus

Despite some teething difficulties, the new innovation focus generated a number of rewarding experiences for Pactuco, in particular two are worthy of mention – the rear-vision system and the urban cap.

The helmet with a rear-vision system:

A technical innovation, developed in collaboration with an English partner, led to the creation of the first cycling helmet with a rear-vision system (Figure 4).

Figure 4: A helmet with a rear-vision system
a collaborative development between Pactuco and REEVU Ltd. England

This helmet provides a real security and safety advantage thanks to an optic system which permits the user to directly see hazards approaching from behind. The first year sales were pleasing (about 20,000 units), and Pactuco received excellent feedback following publicity and coverage of the invention on a number of French television shows.

The Urban Cap:

The second helmet, developed with CDN, was based upon a stylistic innovation. Unlike the manufacturers of other clothing worn by cyclists, makers of protective helmets have never attempted to keep-up with or to drive new fashions. The Urban Cap is a helmet for urban cyclists (Figure 5); the aim was to create the first protective helmet that fits with classical clothes and the image of a self aware cyclist.

Figure 5: Innovation on the design with the Urban Cap
(developed in collaboration with CDN - Spain, 2003)

The new innovative focus generated a great deal of ideas that were hoped would contribute to the continuation of Pactuco. Although this was a productive exercise, a lack of experience in the use of innovation processes made it difficult to validate or kill any of the new concepts. Some of the new ideas succeeded and made it to market. Most were found to be technically unfeasible or not

exploitable and killed - sometimes because of a lack of organisational know-how and other times because of a lack of resources.

Pactuco had begun to follow a new path of innovation. However, what became clear was that to survive the threat of the insurgent Chinese manufacturers, Pactuco needed new tools to aid management analysis and to assist in the search for new wealth creating initiatives.

The senior management team did not know if they were pursuing incremental improvements or radical innovations and they were unfamiliar with the concept of disruptive innovation. Furthermore, although stylistic and technical innovations in simple product offerings create new competitive advantage and can boost revenues, they can also be replicated quickly by competitors. This meant that despite Pactuco's advances, it was likely that they could be pushed once again into fighting the battle of price and cost reduction.

CDN, involved in numerous multinational innovation projects, introduced the term Disruptive Innovation to Pactuco's CEO and invited the firm to join the Disrupt-it Consortium. The senior management team felt that this was a logical step and Pactuco joined the consortium in 2001.

The quest had now begun to create long-term competitive advantage using the full range of innovation activity – from sustaining to disruptive. Pactuco's senior management team needed to better understand the new territories and approaches of disruptive innovation and they needed to assess their readiness for pursuing this unknown path. The one thing they had begun to realise was: perhaps helmets were not enough.

Understanding Pactuco's Readiness for Disruption.

The senior management team of Pactuco realised that if their business could integrate knowledge of the term disruptive innovation, they could be in a better position to address their reduced competitive advantage.

A snap-shot of Pactuco's approach to innovation management was generated using a model of how to enable disruptive innovation (Figure 6), which was co-developed by Disrupt-it Team. This snap-shop was used to better understand Pactuco's readiness for fostering and exploiting disruptive opportunities, and in particular it helped to show where management needed to focus their attention.

A summary of this snap-shot is provided below:

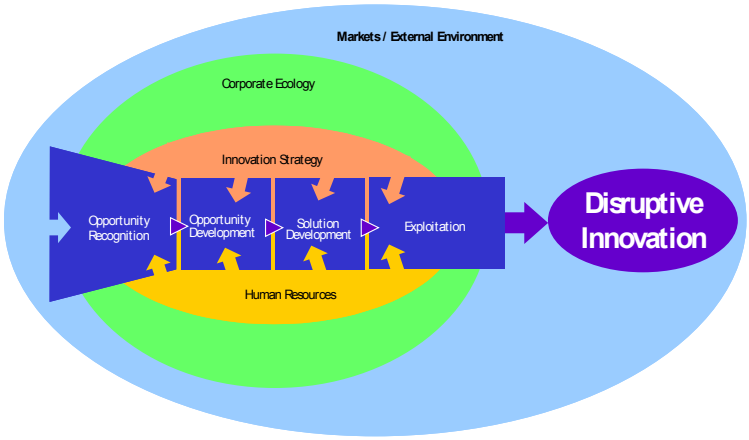

Figure 6: The disruptive innovation conceptual framework (Thomond and Lettice, 2003)

Phase 1: Opportunity Recognition

Pactuco's capability to generate and recognise disruptive opportunities was assessed by considering how they futurise (or think about possible future scenarios), how they reflect on the present and past as a source of ideas, and how they scan or sense the current environment, both external and internal to their organisation.

Supportive attributes:

- ❑ All personnel, other than those from the factory floor, were continually looking for new innovative protective helmet design.
- ❑ Clear, yet informal, channels existed for all employees to express new ideas to management, although these were primarily focused upon process improvements.
- ❑ Most employees were very knowledgeable about new products entering the bicycle helmet marketplace.
- ❑ Management teams actively reflected upon past and current experiences to drive process innovations to deliver cash savings.
- ❑ Individuals within the senior management team had reported numerous incidents where they felt that they may have identified potentially disruptive innovations.

Challenges:

- Because Pactuco were producing helmets for distributors and not end-users, the whole business was removed from the end-consumer of their products. They were relying upon cyclists within the firm to act as the voice of the market.
- The nature of Pactuco (as with most SMEs) was one of a "deal maker"; consequently, there were no formal mechanisms for future scenario planning. When future scenarios were considered, the senior management team restricted their view to the familiar world of the helmet industry.
- Scanning the environment for new ideas, both internally and externally, generated mostly incremental improvements of familiar territories.
- The mechanisms used to capture internal ideas from the work force were established for process innovations and some incremental innovation, radical or rule busting ideas had never been requested or captured.

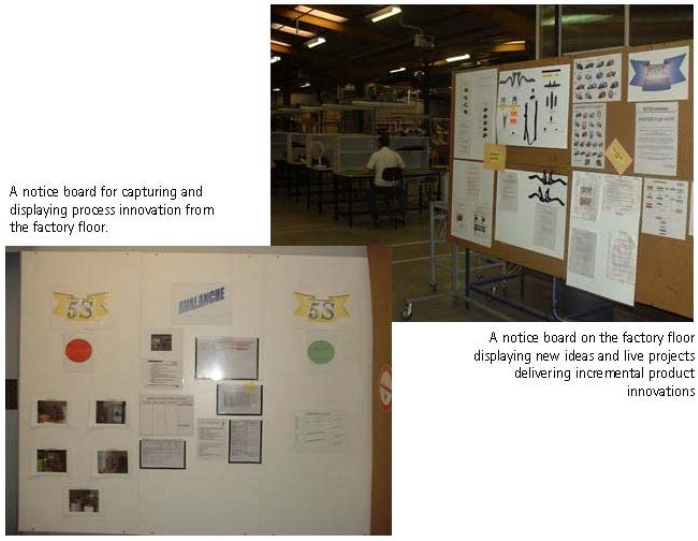

Figure 7: Communication of incremental process and product innovation on the factory floor

- Only the senior management team were involved in scanning the external environment and most of this activity focused upon existing and familiar market places.
- Although there were reports that some managers had identified potentially disruptive opportunities, there was no mechanism that could justify pursuing them. Thus, the CEO took sole responsibility for recognising and generating "out-of-the-box" ideas.

Phase 2: Opportunity Development

The management team's capability to provide Pactuco with a selection of credible business cases that have the potential for delivering a disruptive innovation was assessed. Practices that were considered included:

- the ability to restructure or manipulate the organisation to deliver and commercialise disruptive innovation (e.g. break-out project teams, collaborations, spin-offs etc);

- the adaptability and flexibility of processes to nurture and fund the synchronous development of disruptive and incremental innovation;

- the ability to explore the potential of new target markets identified in the opportunity recognition process.

Supportive attributes:

- Pactuco's senior management team were highly experienced deal makers within the protective helmet industry. This facilitated the rapid construction of quotes, business cases and predictions of supply.
- The team was used to being responsive to highly demanding bicycle helmet customers, who often changed specifications and orders with little notice. This meant that communication of both manufacturing lead-times and risks was fast, honest and accurate.
- The CEO was building a new network of contacts in order to help explore new or unfamiliar markets.

Challenges:

- The organisation lacked experienced in manipulating its processes for the development of new concepts – the whole factory floor was focused upon helmet manufacture. This meant that the senior management team lack confidence when building business cases and quoting for concepts outside their product range.

- The organisations deal-making approach with helmet purchasers, fixed the senior management team into funding mechanisms where concepts had to meet set profit margins or thresholds for revenue size.
- Opportunity selection was driven by gut feel and decisions based upon past experience – these were the mechanisms that had delivered success in the past. However, it was these mechanisms that were allowing Pactuco's options for innovation investment to be dominated by incremental helmet improvements or increased factory line efficiency.

Phase 3: Solution Development

A number of assessments were made when considering Pactuco's capability to develop potentially disruptive solutions. Their ability to select business cases with the potential for delivering disruptive new products or services, their ability to initiate and sustain potentially disruptive new product development projects and how long-term investment decisions are made, were all investigated.

Supportive attributes:

- The development team utilised rapid prototyping methods to attain early feedback from potential customers.
- An open culture on the factory floor supported fast honest communication. This allowed the senior management team to quickly analyse problems and to make rapid impact assessments.
- Where possible development teams had adopted concurrent engineering approaches.

Challenges:

- The firm only utilised one type of project team in the development phase of innovation initiatives (effectively senior management who were not otherwise busy), this led to fixed approaches to innovation.
- There were reports that the "business as usual approach", adopted with all initiatives, had killed potentially disruptive ideas.
- There existed no experience or know-how of the market segmentation strategies that are known to support potentially disruptive innovations.
- Ideas and business cases were selected on a project-by-project basis. This approach had led to:
    - an imbalance between short-term and long-term initiatives,
    - multiple occasions of project gridlock,
    - difficulties delivering innovation activity in line with strategic goals, and
    - unclear assertions of maximum value from investments.

Phase 4: Exploitation

Pactuco's exploitation capabilities were assessed. Consideration was given to the management team's abilities to select pre-commercial products that have the potential for delivering disruptive innovation and the ability to select and develop new marketing and distribution channels. Further consideration was also given to how longer term investment decisions were made in order to achieve commercial success and market disruption.

Supportive attributes:

- Existing rapid learning processes in helmet manufacture meant fast responses to customer demands for incremental changes and quick redistribution of improved products.

Challenges:

- No experience or know-how of establishing new marketing or distribution channels – Pactuco was dependent upon their customers to market and distribute their helmets to the end users.
- Lack of contact with end users reduced the firm's ability to connect with and understand emerging market segments for current or new products.
- Being highly responsive to existing customers entrenched the senior management team in a culture with a low tolerance for mistakes and a compulsion to target large mainstream markets.
- With a focus upon deal-making, there were few cases of strategically selected innovation initiatives. This created an imbalance in new product development and exploitation.

Innovation support

There are four supporting factors to the innovation process, these are innovation strategy, human resource management, organisational ecology and how the organisation interacts with the external environment. These were assessed in the case of Pactuco.

Supportive attributes:

- The senior management team of Pactuco was focused upon quickly responding to and satisfying current customer demands. They saw this as being a true 'value added' that competitors did not offer – responsiveness in early phases of disruption is essential.
- Process innovation was tangibly seen by the employees as a priority within the business, this provided a fertile ground to introduce other types of innovation searches.
- The senior team believed that the whole workforce should be involved in the innovation effort and discussions were taking place to broaden the search for new product ideas in two ways:
- more involvement of the entire workforce in identifying new product opportunities, and
- the pursuit of ideas within other plastics mouldings markets.
- There existed a culture of continuous improvement.

- The organisational ecology supported informal communication channels whereby ideas could be shared quickly throughout the business. The output of these channels was focused upon process improvement because of prevailing selection filters. However, it was felt that if the filters were addressed they could allow new types of ideas to reach the senior management team.
- The interaction with the external environment was improving. The CEO was actively trying to open communication channels with new and varied industrialists in an attempt to open new commercial avenues and new opportunities. This had already successfully generated two radically new types of cycle helmet development as described earlier.

Challenges:

- The senior management team of Pactuco were quite rightly proud of their history. Pride is a great motivator, however, they had allowed their business to become defined by their product and not their competencies. This created a number of challenges, including:
  - The majority of resources for innovation were focused upon their mainstream protection helmet markets – reducing the support for exploring new markets.
  - Distribution channels were inflexible.
- The short term deal-making model that most small organisations have to adopt had generated a number of challenges, including
  - There was inflexibility in approaches to develop or pursue out-of-the-box ideas, thus there was no "call to arms". This had created an over reliance upon incremental improvements to maintain competitive advantage.
- Only the senior management team understood that innovation was a broader activity than incremental improvement in current systems and products. But because of past successes even they were reluctant to embrace new types of innovation in their innovation strategy.
- There was no training given on the topic of innovation.
- The internal physical environment of the organisation was dominated by memorabilia from past successes and a history of bicycle helmet manufacturing (Figure 8). This made it difficult to consider exploits into new or unfamiliar plastics mouldings markets.

Figure 8: Pactuco presents and preserves its protective helmet history.

- There had been little experience within the senior management team of delivering radical or disruptive innovations.
- Despite the CEO actively opening new communication channels with new and varied industrialists, prevailing project selection mechanisms maintained that Pactuco focused upon bicycle helmet development. Furthermore, no-one else in the business was involved in developing links with unfamiliar external partners.

Implementing the Disrupt-It toolkit - Opening manager's minds to pursue disruption.

The conversations, interviews and debates that generated the analysis above, allowed the senior management team of Pactuco to better understand their readiness to pursue disruptive innovations. Shortly after, the CEO and his quality manager announced that to begin the pursuit of disruptive innovation they must initially achieve two objectives:

1. Firstly, they wanted the whole senior management team to better understand the difference between disruptive innovation and sustaining innovation.
2. Secondly, they wanted to better understand how and why their prevailing vision of innovation was impacting the selection, funding, initiation and exploitation of innovation projects.

It was decided to conduct a management intervention which involved implementing a Disruptive Innovation Knowledge Safari in conjunction with the Disruptive Portfolio Management Solution; Cranfield University's Pete Thomond was invited to facilitate the process.

Disruptive Innovation Knowledge Safari

Most of Pactuco's senior management team took part in a disruptive innovation knowledge safari (e.g. Figure 9, note the knowledge posters on the wall). This facilitated two major improvements in understanding:

Figure 9: Pactuco's CEO and Quality Manager

1. A broader understanding of innovation:

It allowed the team to better understand the difference between sustaining and disruptive innovations. This broadened their understanding by illustrating the activities that must be pursued on the innovation agenda of today's management practitioners.

2. A new and improved understanding of the current competitive situation:

It facilitated a better understanding of Pactuco's current competitive situation by reframing two concerns in a new way:

- Firstly, the disruptive and potentially devastating threat of the insurgent Chinese competition could be mapped onto the knowledge posters. This enabled the team to understand the situation from the new perspective of disruptive innovation.

- Secondly, the strategy of pursuing high-end customers in the helmet industry could also be mapped onto the knowledge posters. This helped the team to understand, from a new perspective, that the benefits of a high-end approach may be constrained, as there will eventually be a limit to the quality that can be absorbed by end-users.

Disruptive Portfolio Management (DPM):

The senior management team had two primary objectives for the DPM process:

1. To see if the DPM methodology will give a coherent vision of the management of Pactuco's innovation activity, including:
   - ❑ current live projects
   - ❑ potential projects
   - ❑ previously abandoned projects

2. To understand where the business is today, in order to try to improve project selection and the allocation of limited resources for tomorrow.

Consequently, the firm's top priority live projects, a selection of recently killed initiatives and a selection of the teams favourite new ideas, were analysed by the senior management team using the 'project dimensions raking checklists' described in chapter [INSERT DPM chapter no.]. Once this was process complete each of the initiatives - old, current and new – were mapped onto four portfolio management views (Figure 10, note the portfolio maps on the walls in the background). These were then used to facilitate discussion to satisfy the objectives stated above.

Figure 10: Pactuco's Quality Manager, Fred, discussing with Pete the four portfolio maps on the walls of the meeting room.

There were ten main findings for the Pactuco team:

Finding 1: ***There is a need to move beyond 'gut feel':***

The recognition that good analysis and knowledge about disruptive strategies is better then purely gut feel, proved to be vital: "Our decisions have been mainly based on 'feelings', this is not good enough anymore... we need tools like this [the DPM] to help us break from our traditional view of innovation and to assess ideas and options more thoroughly." (CEO). "… we learnt that we can assess and manage innovation using precise mechanisms and methodologies. This showed us that it was possible to better control cost and time in innovation projects" (Quality Manager)

Finding 2: **Prevailing mental models constrain innovation:**

"The DPM has given us our first holistic and coherent view of our innovation activity. This has shown us how our view of innovation and our business has biased project selection decisions (Figure 11) and not allowed us to go for DI. (CEO)

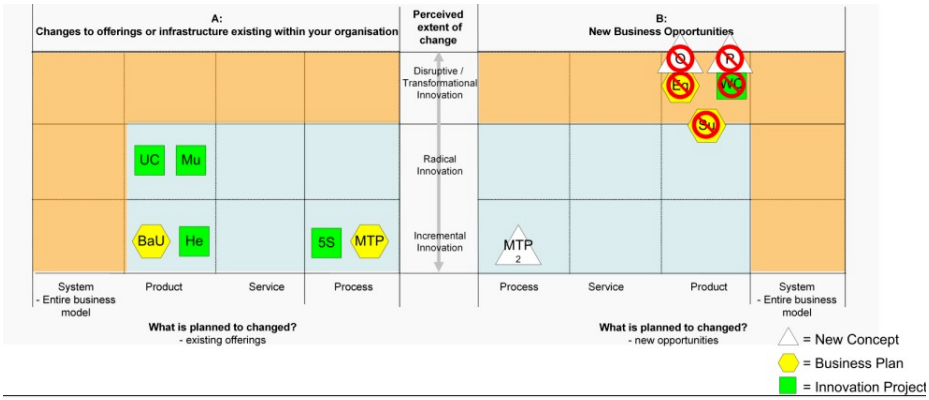

Figure 11: Pactuco's former constricted view of innovation
(look how it killed a number of initiatives that could have delivered radical and disruptive innovations in unfamiliar markets)

Finding 3: **Management teams need broad innovation horizons:**

The holistic view of innovation activity showed how some projects that had been killed could have offered more potential than their selected alternatives. The narrow view of innovation that prevailed had not allowed radical, potentially disruptive or new market innovations to be nurtured

Finding 4: **Project-by-project selection and assessment does not deliver the best results:**

The holistic view of innovation activity showed how projects had been killed because of project gridlock, unbalanced project selection (e.g. short vs. long term) and a lack of actualised commitment towards vocalised strategic goals. This had led to the realisation that perhaps the organisation had not maximised value from its innovation investment because of project-by-project selection and a narrow view of innovation.

Finding 5: **Helmets are not enough – when better, faster, cheaper is not the solution:**

A better understanding of their competitive situation led the senior management team to recognise that a pure focus on a 'more of the same strategy' will never deliver survival in the helmet industry. Investments into making better, faster, cheaper protective helmets will not sustain Pactuco's future.

Finding 6: **Portfolio maps can generate consensus across the management team - this facilitates improved communication:**

"It helped to create consensus across our management team around both our priorities and our understanding of innovation." (Quality Manager). This improved dialogue and communication and was significantly enabled with the use of holistic graphical representations, delivered by the portfolio maps. Furthermore, more directed, open discussion prevented one person, one group or one project from dominating the resource allocation process. "Never before have we had such a focused meeting about innovation; what we've achieved in a couple of days could not have been achieved in a couple of weeks without this help" (Sales Manager).

Finding 7: **Portfolio maps can be used to illustrate current strategic progress and can be used to define new strategic futures:**

The process illustrated that the senior management team's current resource allocation activities did not match their intended or vocalised strategy of being more innovative. This realisation was a powerful and emotional driver for change. The graphical maps were then used to generate potential strategic futures, in the form of target investment areas. The positioning of new concepts upon the maps also helped the management team to see where they should focus their attention (e.g. allocating resources, financial or human, for technical or commercial activities)

Finding 8: **Senior management can use portfolio maps as a communication tool, for both internal and external stakeholders, of current activities and future intent:**

Whilst pointing to a project upon one of the maps the CEO said "I'm really surprised that this project has ended up here, we [Pactuco and the other collaborating organisation] really though that this initiative was going to deliver great results, now I'm not sure what to do with it… I'm going to take this poster to him [the collaborator] and tell him we need to be clearer on the feasibility".

It was soon realised that the portfolio maps were highly effective communication tools; they could be used by management to communicate current situations, to cross analyse decisions and also to create a 'call to arms' for more innovative initiatives – the communication of future intent. "I'm going to take this map to the logistics guys and ask why we didn't investigate this project further… it looks to me that it was killed because they were thinking we had to use our normal distribution people… I wonder if they've done this before?" (Quality Manager).

Finding 9: Holistic views of the innovation playing field help to justify the allocation of resources to potentially disruptive initiatives:

Importantly, the combination of the above findings meant that the portfolio maps seemed to offer the management of Pactuco a new and vital tool. It was agreed that the maps could be used to not only to graphically communicate the allocation of resources to disruptive innovation but also to justify this decision to both internal and external stakeholders.

Finding 10: It is easier to pursue disruptive innovation whilst your organisation is growing; embracing disruptive strategies when times are hard is an incredibly challenging feat:

Perhaps the hardest fact for the senior management team to embrace was the rule that when trying to exploit a potentially disruptive innovation, organisations should be "patient for growth whilst being impatient for profitability" (Christensen, 1997).

During a period of growth, managers can protect potentially disruptive innovations from the pressures of growth targets and stakeholders' demands. This gives the venture the space and time that it needs to be nurtured from a niche market into a disruptive position. However, the Pactuco management team found that during their period of organisational decline, they could not shield their new initiatives from their demands and pressures for a stop to the decline.

The DPM process encouraged discussion on this matter by highlighting how Pactuco had also failed to exploit or pursue potentially disruptive innovations because the initially small niche markets of potentially disruptive innovations could not immediately deliver their demands for growth. For this reason, the senior management team concluded that it must pursue a careful balance between delivering sustaining innovation and enabling disruptive innovation. It was hoped that the diminishing returns, of incremental improvements to current offerings, could be abated, whilst knowledge about disruptive innovation could be adopted and exploited for future success.

Conclusions.

The task of trying to define what a Disruptive Innovation is helped Pactuco to kick-start a refocus of its innovation effort. The intervention of the DPM process opened the senior management teams minds to areas of the innovation playing field that they did not know existed. The tool improved the management team's ability to focus upon the projects most likely to deliver success. And for the first time, they were given the ability to think about and to discuss innovation in a holistic manner. The management team has enjoyed its early ventures into new arenas and in new relationships. Collaborating with new people from different origins, whether it is occupations or countries, has been an enriching human experience and potentially the source of disruptive innovation.

10 Top Tips

1. It is a lot easier to invest in disruptive innovation during periods of growth, when ideas and new concepts can be shielded from revenue targets.
2. When developing potentially disruptive concepts, allow your development teams to deliver a product or service, which targets a niche market of low-end or non-consumers. This way the pressure to disrupt quickly is abated and your organisation can focus upon being impatient for profitability yet patient for growth.
3. Train all your senior managers on the varying approaches to innovation – from sustaining to disruptive – this always throws up interesting ideas, that have been previously ignored and open their minds for future possibilities
4. If you've only delivered incremental innovation in the past, get ready to abandon your project selection methods. Portfolio approaches, that integrate knowledge on disruptive innovation, can be used to deliver a significantly improved project selection approach.
5. Ensure your organisation has a holistic view of the innovation playing field and ensure that senior management know how the firm is currently performing in this arena.
6. Make sure that the senior management team are prepared to ring fence resources for potentially disruptive innovation. Sign these off as untouchable to any and all other projects.
7. Only if a strategic commitment exists to support disruptive innovation, will the firm enable and capitalise upon the phenomenon - portfolio maps can be used to assess how current activity aligns to strategic goals.

8. Only if a strategic commitment exists to support disruptive innovation, will the firm enable and capitalise upon the phenomenon - portfolio maps can be used to generate new strategic goals that include support for disruptive innovation.
9. Ensure that the workforce is proud of its history but not tied to it; a “we are our product” culture prohibits the organisation from pursuing new product avenues.
10. Ensure that the workforce is proud of its history but not tied to it; core competencies soon become core rigidities in the face of disruptive innovations. Get ready to celebrate your organisations competencies and get ready to both learn and unlearn for the future.