

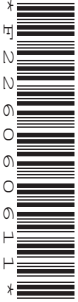
**ADVANCED GCE**  
**APPLIED BUSINESS**  
Strategic Decision-Making

**F248/CS**

**PRE-RELEASE CASE STUDY**

To be opened on receipt

**JUNE 2011**



**INSTRUCTIONS TO TEACHERS**

- This case study **must** be opened and given to candidates on receipt.

**INFORMATION FOR CANDIDATES**

- You **must** make yourself familiar with the case study before you sit the examination.
- You **must not** take notes into the examination.
- A clean copy of the case study will be given to you with the question paper.
- This document consists of **8** pages. Any blank pages are indicated.

# Crumbling margins

## The background

In 2003 the European Union made it illegal for member countries to send old car tyres to landfill sites. In 2006 EU legislation concerning the waste management of used tyres was tightened further. Being a member state, the UK was forced to comply. The UK Environment Agency put in place a wide range of measures to inform UK industry about the changes in legislation and to encourage compliance. 5

In practice, the problem of how to dispose of the end-of-life tyres still remained. In search of the answer, the UK government put in place financial initiatives to encourage the development of tyre recycling systems. In 2007, with government support, *Tysu Ltd* was set up.

## The business

*Tysu Ltd*, situated on the outskirts of an affluent village near the Port of Dover, manufactures a safety surface for children's playgrounds from recycled tyres. *Tysu Ltd's* safety surface, frequently described as 'spongy tarmac' because of its high rubber content, is a soft cushioned surface for playareas which substantially reduces the risk of injury to children who fall. Available in a wide range of colours, *Tysu Ltd's* safety surface can transform a dull concrete playground into a safe and colourful place for children to play. With careful design and the addition of shapes, games and graphics, *Tysu Ltd's* safety surface can even make the humble playground a fun learning environment and an educational tool. 10 15

*Tysu Ltd* does not offer a recreational design service. The directors do not see enough profit in the labour-intensive, time-consuming activities of planning and design. Instead, *Tysu Ltd* concentrates solely on the manufacture of the safety surface for supply to third parties.

The majority of *Tysu Ltd's* customers are landscape architects who specialise in the design and installation of play facilities. From the outset, *Tysu Ltd* adopted an aggressive marketing policy, driven by its aim to maximise profit. In 2009, no longer content to restrict its target market to playground designers, *Tysu Ltd* began to pursue leads across the entire sports and recreation industry. Two years on, offering a range of safety surfaces for various applications under the brand name 'Safersurface', it has met with considerable success. In addition to playgrounds, 'Safersurface' is now supplied for use in leisure centres, sports halls, swimming pools and theme parks throughout the whole of the UK. 20 25

## The process

The main raw material for the range of safety surfaces which *Tysu Ltd* produces is the humble worn-out car tyre. Obtaining supplies has not been a problem, garages are only too happy to have their used tyre disposal problems solved and be paid £1 per tyre into the bargain! 30

Every day, Monday to Friday, truckloads of tyres arrive at the processing plant. The tyres are weighed and manually sorted. Production staff load the heavy tyres one by one into the processor. The processor gradually turns the old tyres into small rubber granules called tyre crumb. Depending on which variant of 'Safersurface' is being made, the correct type of polyurethane bonding agent and colourant are added by hand. (The weight of the load is used to calculate the quantity of additives needed.) Finally, the aggregate is blended in a mixing drum and stored in industrial-sized conical tanks until required. 35

'Safersurface' is delivered at the precise time and date specified by the customer. Deliveries are made in 'wet pour' trucks (similar to cement mixing lorries). Once on site, a catalyst is added to the aggregate before it is poured, allowing the mixture to set in less than an hour. This is particularly important in bad weather or when several different colours are needed to create the design. 40

## The problems

The rapid growth pursued by *Tysu Ltd* has brought some problems to the company. The extra business meant more trucks going to and from the processing plant. The narrow roads in the area are easily blocked and the main trunk roads are becoming congested. Whereas, at its start-up, *Tysu Ltd* had enjoyed environmental pressure groups campaigning in its favour, now protest groups are demanding that the company relocates. Locals complain that the local roads are no longer safe for their children to cross and the village is no longer a quiet place to live. 45

The workforce is not happy either. The ever increasing orders mean an ever increasing workload. Every day it seems the production staff have more and more heavy, tiring work to do. Being paid barely more than the minimum wage, they feel overworked and underpaid. To make matters worse, the situation is not being managed effectively and working practices are becoming chaotic. A recent accident, causing injury to one of the workers from poorly stacked tyres, has not improved the mood. The employees have threatened, on numerous occasions, to take industrial action if things are not changed. However, management always replied that it had orders to fulfil and profit targets to meet and “if they did not like it, they should leave”. The workers have, so far, stopped short of taking industrial action, fearing that they might end up losing their jobs. The managing director is known to be ruthless when it comes to maximising profit, and finding another job in the area would not be easy, especially as most of the workers are unskilled. Nevertheless, *Tysu Ltd* did not get off unscathed, the industrial unrest led to lower staff morale, decreased motivation and the withdrawal of goodwill. 50 55 60

Furthermore, at the most recent shareholders’ meeting, the directors were forced to report that increasing levels of competition in the safety surface industry were beginning to challenge *Tysu Ltd’s* previously competitive price for ‘Safersurface’ of £180 per tonne. In addition, the Department for Environment, Food and Rural Affairs has recently agreed funding for several new recycling companies in the area. The government’s tyre recycling initiatives, from which the company had greatly benefited at start-up, now looked set to increase *Tysu Ltd’s* production costs. Whilst supplies of used tyres would remain virtually unlimited nationally, the increased demand for worn tyres in the area would push up the local price. *Tysu Ltd* must now expect to pay more than the current £1 per tyre, or face sourcing the tyres from further afield. Profit margins are under threat. 65 70

The shareholders did not like what they heard. They did not want to have to settle for lower returns in future years. The shareholders wanted the directors to implement aggressive expansion plans immediately. “Investment returns must remain high,” they insisted, “*Tysu* must continue to grow.” Hasty decisions, especially in the current economic conditions would be foolish, warned the directors. Whatever the strategy, contingency planning would have to be made a priority. The directors agreed to give the matter some serious thought and come up with three options for consideration at the next shareholders’ meeting. 75

## The options

### Option 1 – Target Europe

*Tysu Ltd* would, for the first time, market ‘Safersurface’ overseas. It would increase sales levels by sourcing customers from Western Europe. The marketing literature would need to be translated into at least four different languages and the pricing would need to be done in euros. To cover the large geographical area, two multi-lingual sales representatives would need to be appointed. Being based abroad, they would act as agents for *Tysu Ltd* and communicate with head office using laptops and mobile phones issued to them by the company. 80

Back in the UK, the factory would need to be busy day and night in order to produce enough ‘Safersurface’ for such a large market. The processing plant would need to operate 24 hours a day, 7 days a week. Production staff would be required to work day, late or night shifts on a rota. More mixer trucks would need to be leased and, because of the distances involved, two drivers, rather than one, would be required to accompany every truck to its delivery site. The drivers would be away from their families at least overnight, and possibly for several days at a time, and subsistence arrangements would need to be made. 85 90

At an estimated cost of £300 000 this option could be funded from *Tysu Ltd's* reserves. Convinced that there would be a ready market for 'Safersurface' in Western Europe, the directors estimated the payback period for this option to be no longer than two years.

### Option 2 – India's roads

In addition to producing 'Safersurface' for the sports and recreation market in the UK, *Tysu Ltd* would produce 'raw' tyre crumb to supply to the road building industry. (Highway builders use tyre crumb as an additive in road surfacing in order to reduce traffic noise and increase traction.) In particular, it would take advantage of the massive road building scheme planned for India. 95

The directors had a tender agreed in principle to supply 20 000 tonnes of tyre crumb per annum to the National Highways Authority of India. Requiring an output level five times that of the factory in the UK, this would be a huge undertaking. A massive, largely-automated tyre crumb processing plant, reliant on flow production methods, would be built in India. Operated by local workers, the factory would produce tyre crumb around the clock. 100

At an estimated cost of £1 200 000 such an expensive project would need to be equity funded through the involvement of a venture capitalist. The directors, emphasising the high earning potential of this option, estimated the payback period to be just over three years. 105

### Option 3 – Artificial grass

*Tysu Ltd* would concentrate entirely on the sports and recreation market and add a new product to its range – artificial grass. Artificial grass is the surface of choice for all-weather football pitches and tennis courts, and is becoming increasingly popular as an alternative to natural grass in exhibition halls and apartment complexes. Many of *Tysu Ltd's* customers who purchase from its 'Safersurface' range also require artificial grass. By adding artificial grass to its product range, *Tysu Ltd* would become a 'one stop shop' for many of these customers, thus increasing sales even amongst its current customer base. 110

Artificial grass is manufactured in a similar way to making a carpet. A rubber base is spiked with strands of nylon using a tufting machine and the base sealed with a bonding agent. A tufting machine would need to be purchased and the current factory extended to accommodate the new production line. In addition, two vans would need to be leased to deliver the rolls of artificial grass to customers. Extra staff would need to be recruited to work alongside those on the 'Safersurface' production line. The plant would continue to operate on a Monday to Friday basis and shift work would not be required. 115

At an estimated cost of £500 000 *Tysu Ltd* would fund this option using its entire reserves of £400 000 and by taking out a variable rate, two-year bank loan of £100 000. The payback period for this option was estimated to be approximately two and a half years. 120

## Appendix 1

### End-of-life tyres

Given the massive growth in car sales throughout the world, the question of what to do with the increasing volumes of end-of-life tyres has become ever more prominent. Regulatory efforts have been directed at minimising the disposal of scrap tyres: the European Union, for example, recently prohibited the landfilling of whole used tyres – a move which will push an additional 750 000 tonnes of scrap tyres onto the market each year. The ban is to be extended to shredded tyres in due course. Some EU member countries already claim to have achieved a 100% recovery and recycling rates for their used tyres. Progress in this area has been marked: some 28% of the used tyres generated by the EU's established 15 member states were recycled in 2003 compared to 6% in 1994. Over the same period, the share of used tyres going for energy recovery jumped from 11% to 30%. Most of these gains were at the expense of the landfilling option.

The development of tyre recycling systems depends on finding viable markets for the recovered products. Rubber powders and granules are used in surfacing children's playgrounds and artificial sports pitches; other applications include the manufacture of mats and tiles. Powdered secondary rubber is also showing promise as an additive in road surfacing where its elasticity and noise-reduction effect has positive benefits.

## Appendix 2

### The tyre crumb recycling process

The tyre crumb recycling process turns old tyres into high quality renewable resources. Here is how they do it:

#### The weigh up

Trucks arrive at the tyre crumb plant with a full load of all kinds of rubber tyres. The trucks are then weighed on large industrial scales to ascertain the exact weight of each load.

#### Getting sorted

The tyres are then sorted and organised, depending on their type, size and make up.

#### The break down

Once sorted, the tyres are cut up into small pieces by heavy machinery. The tyres then travel into a main system where their components – synthetic fibre, steel and rubber – are separated.

#### Tyre crumb

The rubber component is then further broken down or 'crumbed' into the specific granule sizes that include 0–1 mm, 1–3 mm and 8–15 mm.

The end. No, a new beginning.

### **Appendix 3**

#### **Wet pour safety surfacing**

A wet pour safety surface is a continuous bonded rubber surface. It is durable, soft cushioned and porous, so that puddles do not form on the surface. Suitable for all installations where a safety surface is required, it can be laid around playground equipment and over most existing surfaces.

It can help to avoid or substantially reduce the risk of injury to children who fall in playgrounds, and it is also a versatile surface which can be used in lots of other areas such as sports and leisure facilities, theme parks, golf walkways, pathways and around swimming pools.

### **Appendix 4**

#### **Manufacturing meltdown**

A leaked memo from a senior civil servant has predicted a “manufacturing meltdown” if the UK government does not embrace the euro, the European single currency.

Unless and until business is able to plan on the basis of stable exchange rates, this problem will persist. There will be more casualties, and jobs and manufacturing capacity will be lost.

### **Appendix 5**

#### **India to build greatest number of highways in the world**

The Minister for Road Transport and Highways for India, speaking at India’s first Road Infrastructure Summit, invited European investors to invest in the road and highways sector in India. He stated that India, as a nation, is determined to build a comprehensive high quality infrastructure in the country. The next decade would belong to the infrastructure sector, as the last decade had been the decade of IT.

Stressing strong fundamentals of the Indian economy, he said India is a safe destination for investment, even in the times of recession. Emphasising the potential of road development in India, he said, traffic is increasing rapidly at the rate of 7 to 10% per annum in the country and so is the number of automobiles. On automobile growth in the country, he said that Indian companies are launching new models, while automobile companies around the world are facing difficulties. To cater for these increasing numbers, he said, more roads would be required.

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