

T-Plan: Fast-start Technology Roadmapping

Training - Group Exercise

The bicycle of the future: technology planning in Biko¹

Introduction

Biko, a traditional but well regarded bicycle manufacturer with a strong brand and global manufacturing and distribution networks, has just been taken over by a large sports equipment and clothing manufacturer, Sportco. The new owner has requested a technology roadmap outlining how Biko proposes to develop its market offering over the next 10 years and, if convinced by their business case, is willing to make significant investment. The following information is available to make a first-cut roadmap.

A 'vision' of the bicycle of the future is required (10 year horizon), with a radically new product to be released in 5 years. In the meantime existing products need a facelift and prototypes for the new bicycle range need to be developed.

Market overview

A preliminary market review has highlighted that:

Social and legislative trends could have a significant impact on leisure and transport over the next 10 years. Both young and old are enjoying a significant increase in disposable income and the fashion world emphasises fitness and related accessories. Working hours are reducing and leisure time is more of an issue. The regeneration of many inner cities and the pressure to reduce cars to cut down on pollution, together with increasing fuel tax, have led to an increase in number and quality of cycle paths accessible for commuting and leisure activities. Sport and its promotion is becoming more influential in terms of driving purchases, however competition is fierce with a significant number of low and high quality players entering the market. Electronics and information technology are expected to have an increasing impact on all products, together with a demand for mass customisation.

What the papers say:

- “The UK ‘Tour de France’ in 2002 will no doubt persuade many couch-potatoes to make a visit to their local cycle shop” – *The Evening Standard*
- “Mercedes-Benz leads the field again by launching a new bike range, including a battery powered model – is this too soon for the technology?” – *The Financial Times*

¹ NB. All information and quotes used in this case are fictional and intended for illustration only

- “Labour policy pledge - Integrated transport system by 2005” – *The Guardian*
- “Government hits rural communities by forcing through congestion metering and workplace parking taxes which will becoming binding within 2 years” – *The Daily Mail*
- “Carbon fibre components will move from high tech aircraft and skis to cars and bikes in the next 4 years – today’s advanced materials are tomorrow’s commodities’ says Toray spokesperson” – *Composites Today*
- “Oil companies try to squash emerging high-tech, low-weight battery technology by buying up patents – but research could still reach market within 5 years” – *Environment pressure group pamphlet*
- “VAT set to come off a variety of goods, including alternative energy sources and even consumer items such as bicycles, in 2003” – *The Daily Telegraph*
- “Cisco predicts that web technologies will pervade all consumer goods by 2005 – ‘network your Nikes!’” – *PC World*

SWOT - Product and Technology

Strengths and weaknesses:

- *Product:* Biko is traditionally strong at frame design and logistics, however it recognises that it must make more effort to capitalise on its brand and get to grips with aesthetics, comfort and customisation.
- *Technology:* Biko has a good engineering reputation in gears and brakes but needs to improve understanding of advanced materials, electronics and power assistance options.

Opportunities and threats:

- *Product:* A recent survey of cycle enthusiasts revealed that their two biggest concerns are security and comfort. Also, the possibilities of e-commerce need to be investigated.
- *Technology:* The competition is working on concepts such as the ‘intelligent bike’, ‘puncture proof’ tyres and streamlined hard-case panniers. In addition, electronic ‘add-ons’ are very popular.

Way forward

Using the information above, Biko’s board has identified two possible new areas of interest:

- Option 1: power assisted bikes for commuting
- Option 2: high performance ‘life style’ bikes, such as mountain bikes

Instructions for Biko exercise

1. Divide into groups (about 5 per group is best)
2. Allocate a development option to each group (power assisted or 'life style' bikes)
3. Prepare a roadmap framework using flip chart paper
4. Chart the drivers against time, based on information above, supplemented with other drivers identified by participants
5. What are the critical performance dimensions? (for example, price, weight, aesthetics, intelligence)
 - Brainstorm product performance dimensions using flip charts or directly onto sticky notes. What are the current problems with bikes? Desirable features?
 - Sort dimensions into groups and agree a maximum of 5 performance dimensions / feature concepts to chart, based on importance and interest
 - Flesh out the 10 year vision on the chart at the product level - think about the product brochure of the future
6. Use the time dimension to think about the evolution of bike features and performance
 - Consider the features of prototype, launch and next generation bikes
 - Chart the evolution of the product on the roadmap
7. What technology areas will be crucial for the development of the product in the future?
 - Brainstorm technology solutions using flip charts or directly onto sticky notes
 - Sort the technologies into groups and agree a maximum of 5 technology areas to chart, based on performance and interest
 - Chart the evolution of technology on the roadmap
8. Identify key questions that would need further investigation, for the market, product and technology layers of the roadmap
9. Draw onto the chart the main linkages between technology, product features and drivers
10. Consider other resource implications
 - For example, capital, competences, skills, alliances and knowledge
 - Chart resource requirements and other related issues