

# Finally here: Your personal jetpack\_ a focus on product development and operations

Case duration (Min): **45-60**

Operations Management (OPs)

**New product development****Worldwide****Case summary:**

This case may be used to explore creativity, innovation and the product development process: all activities from the development of new ideas through to decisions about how to commercially produce products from concepts

There is a need for the organization to design the products and services and offerings generally sought after by customers; The collection of people, knowledge, technology, and systems within an organization that has primary responsibility for producing and providing the organization's products or services is referred to as operations. New-product or service development is an essential part of business. A process represents a way of doing something such as designing or producing products and services. Through this case we consider such processes.

**Learning objectives:**

Understand the product development process

**Case problem:**

How to take an idea and develop it through to production - what is needed?

Sporting Goods

## Company

Go Fast Sports & Beverage Co.

<http://www.gofastsports.com/index.html>

In 1996, Troy Widgery started the company "Go Fast Sports" . Go Fast Sports focused on producing a line of t-shirts and accessories, and establishing dealerships around the world. For the next four years, Go Fast concentrated mainly on the skydiving market without expanding the market base. Beginning in 2001, because of demand from consumers, Go Fast began entering into other sports-interest markets. With the continued support of these consumers, and the interest of many athletes, Go Fast wanted to bring something new and exciting to their product line that would be appealing to their extreme-lifestyle enthusiasts, and would reach further into other markets as well. An energy drink seemed to be the perfect fit, and Go Fast wanted to create a product with the best ingredients, taste and performance in the category. Thus Go Fast energy drink was created and Go Fast Sports & Beverage Co. grew. Today, Go Fast remains dedicated to supporting people around the world who have a passion for living life a little on the edge - by creating brand-name apparel and products that speak to their audience's adventurous lifestyle and attitude. In 2003 Troy invited two friends to brainstorm how to build a jet pack from scratch. They formed the company "Jet P.I. LLC" (JetPack International LLC ) to manage the research, development, construction and future flights of what was going to be the "Go Fast Jet Pack." [www.jetpackinternational.com/about.html](http://www.jetpackinternational.com/about.html)

First, if you are taking a taught management course then consult with your tutor and ensure that the case has not been scheduled into a teaching class or tutorial. If it has not:

1. Play/ read the media associated with the case. You may need to access the Internet and enter a URL to locate any video clips.
2. Attempt the Case study questions.

Consider attempting the case study as a group exercise; you could form a study group with fellow students.

3. Check the suggested answers - remember these are suggestions only and there are often many possible answers.

Discuss questions and answers with other students.

4. If you feel your answer(s) were weak then consider reading the relevant suggested readings again (also see the case study suggested references).

## Title/ Media type

## URL/ Media description

Finally here: Your personal jetpack

<http://money.cnn.com/video/?/video/fsb/2007/11/28/fsb.next.little.thing.jet.pack.fsb>

### Film

An entrepreneur has built a personal flying machine he plans on selling to the public...

The "Go Fast Jet Pack" has been the vision of Troy Widgery since his childhood memories of James Bond in "Thunderball." Troy has always had a vision of building a spectacular flying machine – similar to that which James Bond flew on the big screen.

In June 2003 Troy invited two friends, John Hewatt and Dave Butler, to brainstorm on what most people would see as an unobtainable project for the average person – to build a jet pack from scratch. Troy and John formed the company "Jet P.I. LLC" to manage the research, development, construction and future flights of what was going to be the "Go Fast Jet Pack." They decided to dig up decades-old military jet-pack designs and improve upon them with carbon fiber, aluminum alloys, and other weight-saving materials. The goal of "Jet PI" was to build a lighter, faster, more economical and longer-flying jet pack than the original built by Bell Aerosystems in the 1960's, and the successors, which have been based on that model. With incredible passion, determination and an extreme amount of work, combined with modern technologies, materials and engineering, Jet PI is developing the world's most advanced personal flying machines. Nearly three years and a million dollars later, they fine-tuned their creation with the help of a safety rope to stabilize the pilot and hydrogen peroxide fuel (at roughly \$250 a gallon) to power the takeoff. The result: the Go Fast Jet Pack, a 135-pound rocket harness that can lift a pilot 300 feet in the air for 33 seconds, 11.5 seconds longer than the military's version.

Moving on from prototypes, the company has begun the process of commercialising the product. The T-73 JetPack will be sold to qualified individuals that have undergone extensive training. The personal flying aircraft, which runs on Jet-A fuel, is listed at \$200,000 - a new model that'll give you a full 19 minutes of flight time enabling the user to fly over 10 miles at an estimated Speed of over 80 mph.

### NOTES:

## Case study questions...

Action	Pre/During/After class
<p><b>1</b> <b>PRODUCT DEVELOPMENT PROCESS</b></p> <p>In order to reach a final design of a product or service, the design activity must pass through several stages. With reference to the "jet pack" and the product development process and theories discuss this stages associated with product development.</p> <p>Where did Troy Widgery get his idea for the product? What are the other common sources of new ideas?</p> <p>Is it feasible to develop a commercial jet pack? What are the technical, economic, legal, and operational challenges to overcome?</p> <p>will customers want the product - the jet pack? What are the risks Widgery's company may have considered?</p> <p>Consider the prototypes - how have they evolved? How have preliminary designs been improved upon?</p>	During
<p><b>2</b> <b>'DITCH THE CAR AND FLY TO WORK WITH A JET-PACK'</b> <b>FEASIBILITY: THE BUSINESS CASE</b></p> <p>Imagine you are an investor, recently approached by Widgery - assess the costs and benefits of the product. What are the questions that need to be answered at this stage? Would you invest in this venture/ project? Be prepared to defend your answer.</p>	During
<p><b>3</b> <b>PRODUCTION DECISIONS</b></p> <p>In the final phases of a product development effort (Commercial preparation phase) the organization invests heavily in the operations and supply chain resources (infrastructure) needed to support the new product or service. The final phase of a product development effort is termed the launch phase. For physical products, this usually means "filling up" the supply chain with products. For services, it can mean making the service broadly available to the target market-place. Identify and discuss the relevant PRODUCTION DECISIONS that the company would be likely to encounter as they offer and roll out the T-73</p>	During

# Answers...

## NEW PRODUCT DEVELOPMENT

The process a product goes through before introduction, involving seven phases: idea generation, screening ideas, concept testing, business analysis, product development, test marketing and commercialisation

## PRODUCT DESIGN

The characteristics or features of a product or service that determine its ability to meet the needs of the user.

## PRODUCT DEVELOPMENT

Product development is where organisations deliver modified or new products to existing markets.

## PRODUCT DEVELOPMENT – PROCESS

The phase in which the organisation determines if it is technically and financially feasible to produce a new product

## PRODUCT DEVELOPMENT – STRATEGY

A strategy of increasing sales by improving present products or developing new products for current markets

## PRODUCT DEVELOPMENT PROCESS

The overall process of strategy, organization, concept generation, product and marketing plan creation and evaluation, and commercialization of a new product.

## PRODUCTION

Activities involved in creating a product

## INNOVATION

the introduction by an enterprise of an entirely new product, service or productive process not previously used by anybody else

## Question/ Answer

### 1 Product development process

In order to reach a final design of a product or service, the design activity must pass through several stages. With reference to the "jet pack" and the product development process and theories discuss this stages associated with product development.

Where did Troy Widgery get his idea for the product? What are the other common sources of new ideas?

Is it feasible to develop a commercial jet pack? What are the technical, economic, legal, and operational challenges to overcome?

will customers want the product - the jet pack? What are the risks Widgery's company may have considered?

Consider the prototypes - how have they evolved? How have preliminary designs been improved upon?

Whilst there are many ways to describe the product development process, the first phase of a product development effort is typically termed the concept development phase. Here a company identifies ideas for new or revised products and services. Ideas for new products or services can come from many different sources inside and outside the organisation. New ideas may come from customers, competitors, front office staff or the research and development department. Not all concerns will be developed into products and services. The second (screening and planning) phase of a product development effort begins to address the feasibility of a product or service. Organisations will assess the ability of an operation to produce a product or service (feasibility), the acceptability of the product or service (will customers want it?) and the associated risks. Having created a feasible, acceptable and viable product or service concept, the next stage is to create a preliminary design. The company invests heavily in the development effort and builds and evaluates prototypes (Design and development phase). Preliminary designs are evaluated and improved upon. In the fourth phase of a product development effort (Commercial preparation phase) the organization invests heavily in the operations and supply chain resources (infrastructure) needed to support the new product or service. The final phase of a product development effort is termed the launch phase. For physical products, this usually means "filling up" the supply chain with products. For services, it can mean making the service broadly available to the target market-place.

### 2 'Ditch the car and fly to work with a jet-pack'

Imagine you are an investor, recently approached by Widgery - assess the costs and benefits of the product. What are the questions that need to be answered at this stage? Would you invest in this venture/ project? Be prepared to defend your answer.

The business case answers questions like:

Why are we doing this project?

What is the project about?

What is our solution to the business problem?

How does this solution address the key business issues?

How much will it cost?

How long will it take?

Will we suffer a productivity loss during the transition?

How will the business benefit?

What is the return on investment and pay back period?

What are the risks of doing the project?

What are the risks of not doing the project?

How will we measure success?

What alternatives do we have?

### 3 PRODUCTION DECISIONS

In the final phases of a product development effort (Commercial preparation phase) the organization invests heavily in the operations and supply chain resources (infrastructure) needed to support the new product or service. The final phase of a product development effort is termed the launch phase. For physical products, this usually means "filling up" the supply chain with products. For services, it can mean making the service broadly available to the target market-place. Identify and discuss the relevant PRODUCTION DECISIONS that the company would be likely to encounter as they offer and roll out the T-73

Operations managers must make important decisions concerning processes for producing goods and services selected for launch. They must select and improve processes and related technologies. Process selection decisions tend to be strategic in nature, requiring a long-term perspective and cross-functional coordination. Various process selection decisions are encountered. Consideration may be given, in particular, to two types of process – product flow and by type of customer order (e.g. make-to-order or make-to-stock). Organisations may have to do produce very high volumes of products or services or very low volumes; consequently there are different processes to support different requirements. A manufacturing plant may be designed with a large area for mass production to make their high-volume best selling products but in another part of the plant may have an area set to one side for the production of wider variety products in smaller volumes. Ultimately, the objective of the production process is to create goods and services that meet customer requirements. The needs of customers will be met if a business can produce the correct number of products, in the shortest possible time, to the best quality and at low cost.

Some operations can predict demand with more certainty than others. Consequently, within business we may observe a variety of responses to demand. Certain organisations will only buy-in resources and produce their goods and services following the receipt and order from a customer. This approach has been labeled resource-to-order. In such cases, the organisation is unlikely to maintain an inventory of raw materials. Other organisations, facing less uncertainty in demand, may maintain stocks of raw materials but will only produce products upon receipt of a customer order, i.e. they create or make-to-order. Finally, organisations that face least uncertainty may produce products before orders are received. Some operations (called make-to-stock operations) produced their product and services in advance of any demand – see previous section. Organisations with operations of this type will require make-to-stock planning and control. The organisational approach to planning and control will impact upon responsiveness and the length of time customers wait to receive their product. The waiting time will be influenced by the length of time it takes the organisation to obtain the resources, produce and deliver the product or service (throughput time). Clearly, the make-to-stock approach indicates a greater degree of speculation i.e. risk-taking.

How much product is needed, where and when? Capacity planning and control is the task of setting the affective capacity of the operation so it can respond to the demands placed upon it. Long-term capacity strategies will consider transforming assets such as buildings, large machinery and staffing levels whereas other capacity strategies may be determined within the constraints of the physical capacity limits set by the operations long-term capacity strategy. Operations managers may also make decisions to adjust capacity in the medium and short-term. Capacity strategies have an impact on cost. Capacity levels in excess of demand could mean under utilisation of capacity and therefore high unit cost. If demand is higher than capacity then revenue may be lost. Building up inventories may diminish working capital, hiring temporary staff may impact upon the quality of goods produced and as we have mentioned previously, speed, dependability and flexibility may be affected.

**SOURCING STRATEGIES** - Should we make or buy the raw materials and inputs? High-level, often strategic decisions regarding which products or services will be provided internally and which will be provided by external supply chain partners are referred to as Sourcing (make-or-buy) decisions. Insourcing concerns the use of resources within the organization to provide products or services as opposed to outsourcing where supply chain partners provide products or services. Such decisions are not without consequences. Insourcing provides for greater control and opportunity for scale advantages but may require high levels of investment and a loss of access to superior products. Outsourcing may enhance flexibility, improve cash flow and allow access to state-of-the-art products and services but creates communication and coordination challenges, reduces control and introduces the possibility of selecting an ineffective bad supplier. Several sourcing strategies are recognised. In single sourcing, a single supplier is relied upon as opposed to a sourcing strategy in which the buying organization shares its business across multiple suppliers. A sourcing strategy in which the company uses a single supplier for a certain part or service in one part of the business and another supplier with the same capabilities for a similar part in another area of the business is known as Cross sourcing. Each supplier is then awarded new business based on its performance, creating an incentive for both to improve. Finally, a sourcing strategy in which two suppliers are used for the same purchased product or service is termed dual sourcing. Purchasing concerns the activities associated with identifying needs, locating and selecting suppliers, negotiating terms, and following up to ensure supplier performance.

## Case study references

Cole, G A. and Kelly, P P. (2011) 'Management Theory and Practice', Ed. 7. Cengage EMEA.

Kelly, P P. (2009) 'International Business and Management', Cengage Learning EMEA.

Muhlbacher, H., Leih, H. and Dahringer, L. (2006) 'International Marketing', Ed. 3. Thomson Learning EMEA.