Mission Statement:

“To appreciate the considerations of project management in a real organisation where results are not just about creating new knowledge but turning it into profitable products.”

Overall - Learning objectives
To be able to:
1. Describe your research output as a product
2. Identify the type of organisation in which you are conducting your project
3. Position your project within a company’s portfolio
4. Apply innovation management principles
5. Apply project management techniques to development of new products
6. Describe the difference between Sequential and Integrated Product Development (IPD)

Outline for this morning...
Section 1: 09.15 – 09.45
Introduction to Product Development

Section 2: 10.00 – 10.45
Organisation in Product Development

Section 3: 11.00 – 11.45
Product Planning

Round-up: 11.45 – 12.00
A round-up of this morning’s lectures

Lunch: 12.00 – 13.00

This is an experiment!

Let’s work together to find common ground
I’m going to learn as much as you are!

Not all will be applicable to drug development but all will be applicable to medical and pharmaceutical product development.

SECTION 1 (09.15 - 09.45):
Introduction to product development
What affects and product and what does it effect?
1st Section - Learning objectives

To be able to:

1. Explain what is meant by a product and its dependence on context.
2. Explain where product design sits in the product development process.
3. Explain where development decisions and activities may take affect.
4. Formulate your product development success criteria and challenges

A product is something someone provides... ...which creates benefit for both the provider... ...and the user/beneficiary.

What is Product Development?

The general process entails:

- Identify customer needs
- Create product to address needs
- Produce product at low/appropriate cost

Interdisciplinary nature of product development

What is Product Development?

Product development process

Market opportunity → Design process → Product sale and delivery

Where does Product Development Impact?

A. R. Tan, T. C. McAlone, M. Myrup Anderson
Buzz Groups

(3 minutes, in pairs, no writing, just talk!)

Why is the video machine 87% inefficient?

Tim McAloone DTU MAN

Where our Decisions Impact?

MACHINE
Casule-to-grace assessment of environmental impacts

Answer:

Why is the video machine 87% inefficient?

Tim McAloone DTU MAN

When we get it wrong...

Fitness

Tim McAloone DTU MAN

Novo Nordisk

From insulin to diabetes healthcare

In order to make self-injection easier for diabetes patients, Novo Nordisk has developed the injection pens NovoPen and Novolet. The pens are more portable and less conspicuous, and improve the social acceptability (e.g. in public places) of insulin injection for some patients.

[www.novonordisk.com]

Tim McAloone DTU MAN

Toshiba Medical

From radiology systems to management of medical diagnostic systems

Toshiba Medical Systems Europe developed an Asset Management Services program for Europe as addition to its traditional sales of products under the name AMP2HI (Asset Managed Public/Private Healthcare Initiative). AMP2HI concerns the outsourcing of product care within a healthcare institution and contains one or more of the following elements: equipment procurement, replacement, management, maintenance, repair and financing under agreed performance levels, coordination of planning groups and user training, and process analysis and optimization.

[www.toshiba-europe.com/Medical/]

Examples of Product Development Costs

<table>
<thead>
<tr>
<th>Annual production volume</th>
<th>50,000 units</th>
<th>200,000 units</th>
<th>500,000 units</th>
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<tr>
<td>Sales order</td>
<td>500,000</td>
<td>2,000,000</td>
<td>5,000,000</td>
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<tr>
<td>Contract for production</td>
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<td>1,000,000</td>
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<tr>
<td>Contract for development</td>
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<td>800,000</td>
<td>2,000,000</td>
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<tr>
<td>Product development</td>
<td>300,000</td>
<td>1,200,000</td>
<td>3,000,000</td>
</tr>
<tr>
<td>Production development</td>
<td>500,000</td>
<td>2,000,000</td>
<td>5,000,000</td>
</tr>
<tr>
<td>Total cost</td>
<td>1,300,000</td>
<td>5,200,000</td>
<td>13,000,000</td>
</tr>
</tbody>
</table>

Examples: 95% eliminate, 75% reduce, 85% improve.
Establishing your Success Criteria

Challenges of Successful PD

- **Trade-offs**: E.g. Aeroplane engine, weight v cost
- **Dynamics**: Changes in: technology, competitors, customer needs
- **Detailed decisions**: E.g. choice of fasteners, can impact cost of assembly and manufacture, etc.
- **Time pressure**: Deadlines etc.
- **Economics**: Need reasonable return of investment

Characteristics for Successful Product Development

- **Product Quality**: How "good" is the product? Satisfaction of customer needs? Reusability? Price people willing to pay
- **Product Cost**: Cost of manufacture Capital equipment/chairs Production cost
- **Development Time**: How responsive to external forces: competitors, technology development, etc.
- **Development Cost**: Usually a significant fraction of investment required for profitability
- **Development Capability**: Team and firm’s capability to develop future products creating new products more efficiently and economically

Successful product development for "for-profit" organisations

Criteria other than economic success: usability, environment, an exciting product

Summary

- Your decisions in the development of a product may have serious downstream affects.
- You may be scientists or engineers but when hoping to create commercial value you must think like designers and create effective PRODUCTS.

Meeting the learning objectives?

To be able to:

1. Explain what is meant by a product and its dependence on context.
2. Explain where product design sits in the product development process.
3. Explain where development decisions and activities may take affect.
4. Formulate your product development success criteria and challenges.

Exercises (in pairs)

1) Write down what you consider to be the most important evaluation criteria in drug development (see slide 26 for ideas).

1) Write down what you consider to be the most important challenges in drug development (see slide 27 for idea).

Consider asking your project line manager whether s/he would agree. These can be used to evaluate the success of your project work.

Any Questions?

15 min break – back by 10.00