



Developing a product

Heriot Watt University

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Developing a product



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Developing a product – some basic things to consider

- What makes a product commercially viable?
- Understanding the process
- Understanding the costs
- A real life example
- Some final thoughts



What makes a product commercially viable?



Apple Newton, August 1993-1998
Estimated maximum units in use - 200K



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Apple iPhone 4s, October 2011
Pre-orders top 1 million in first 24 hours
First weekend sales top 4 million



What makes a product commercially viable?

M A R K E T D E M A N D

S E L L I N G P R I C E

P R O F I T M A R G I N

U S E R B E N E F I T S

R E L I A B I L I T Y

T E C H N O L O G Y

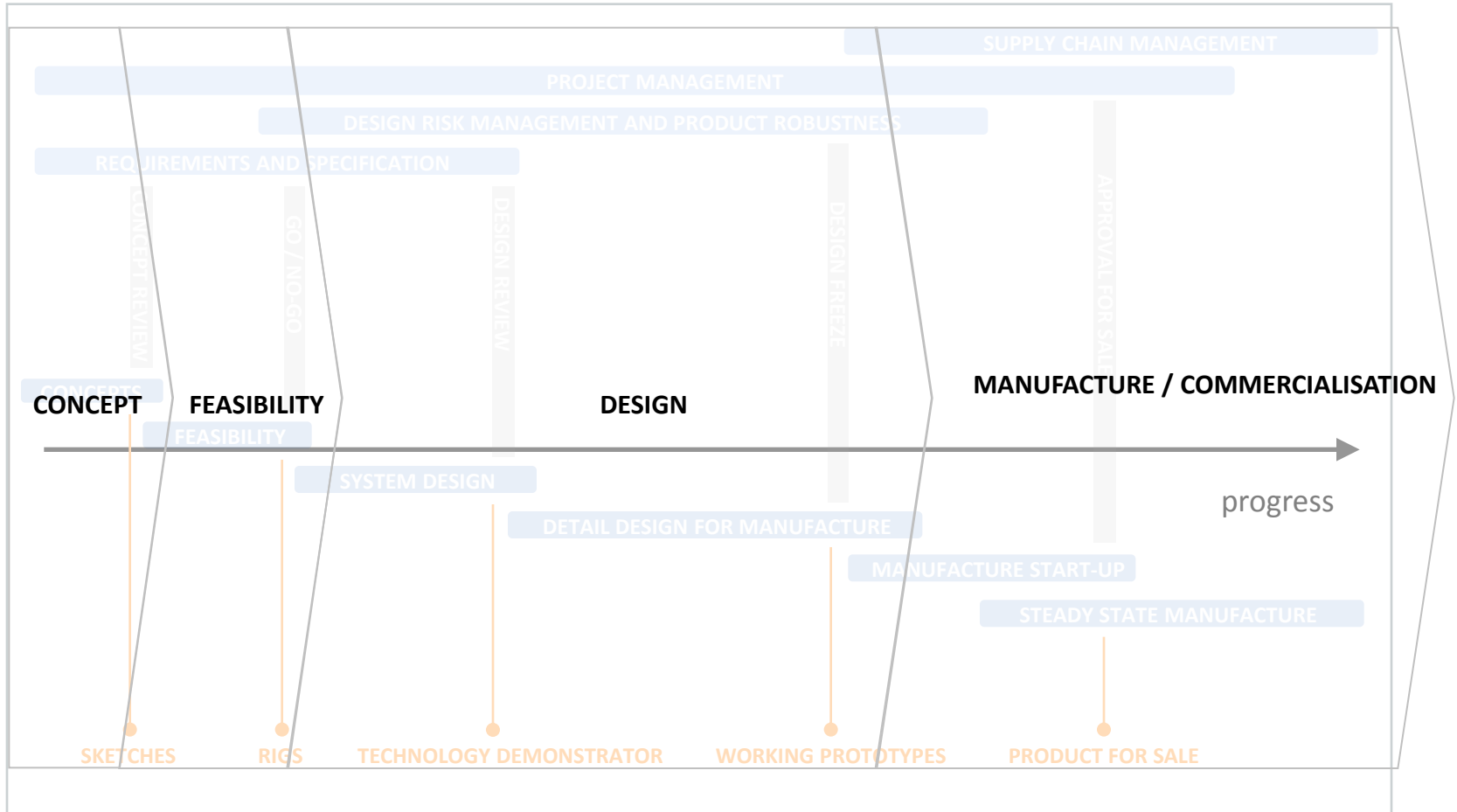
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- Think user benefits rather than product features
- The product obviously has to work and be simple and reliable to use
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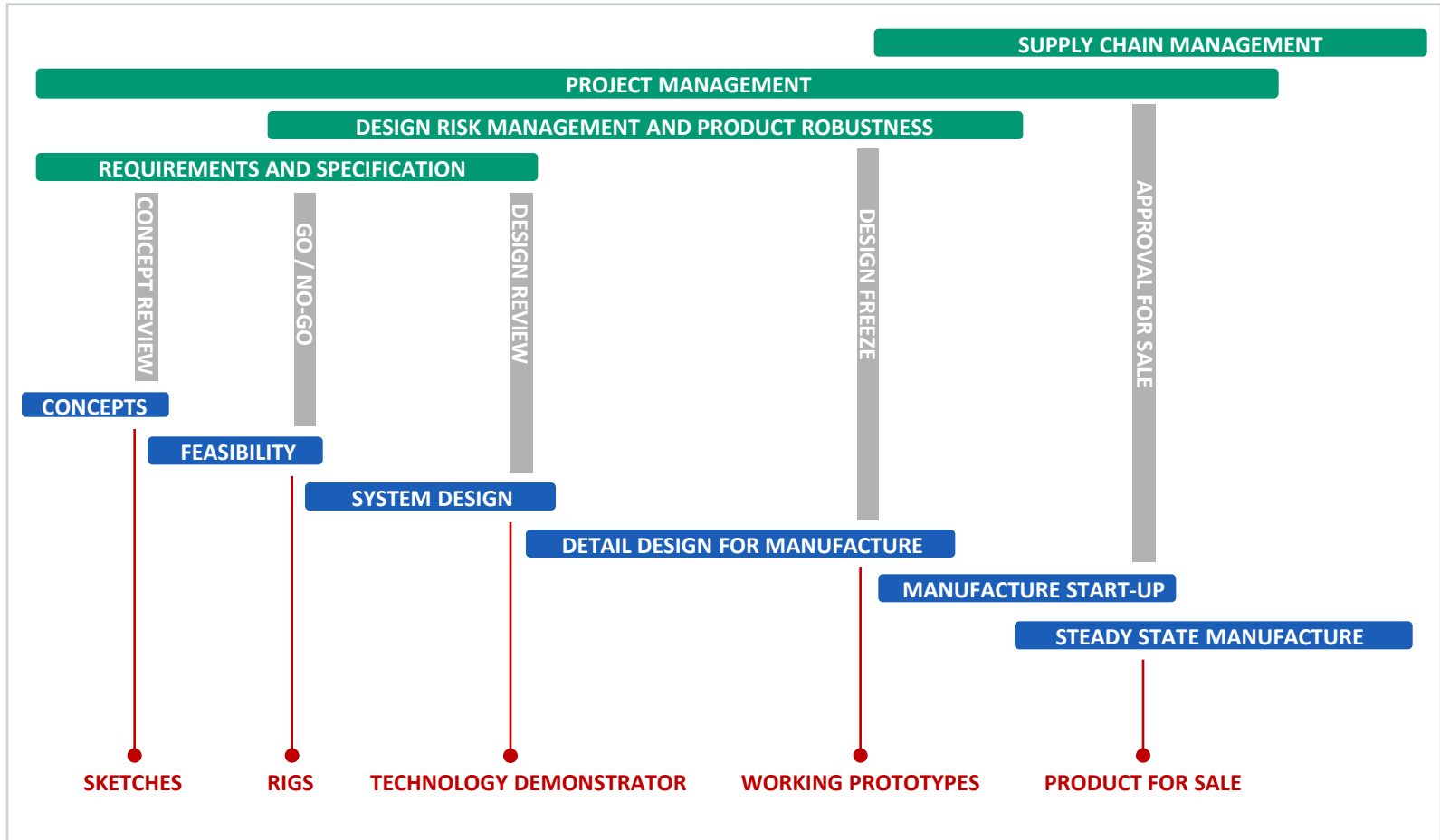


Understanding the process



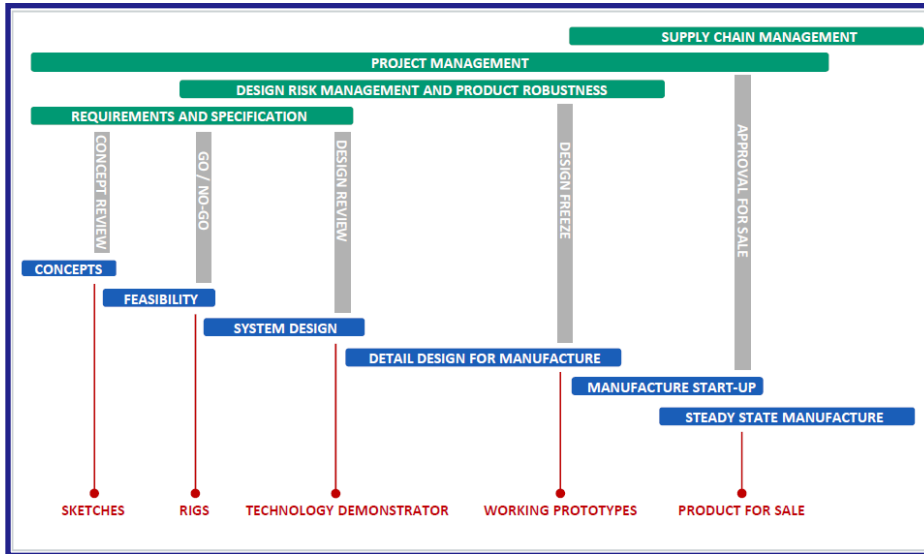


Understanding the process





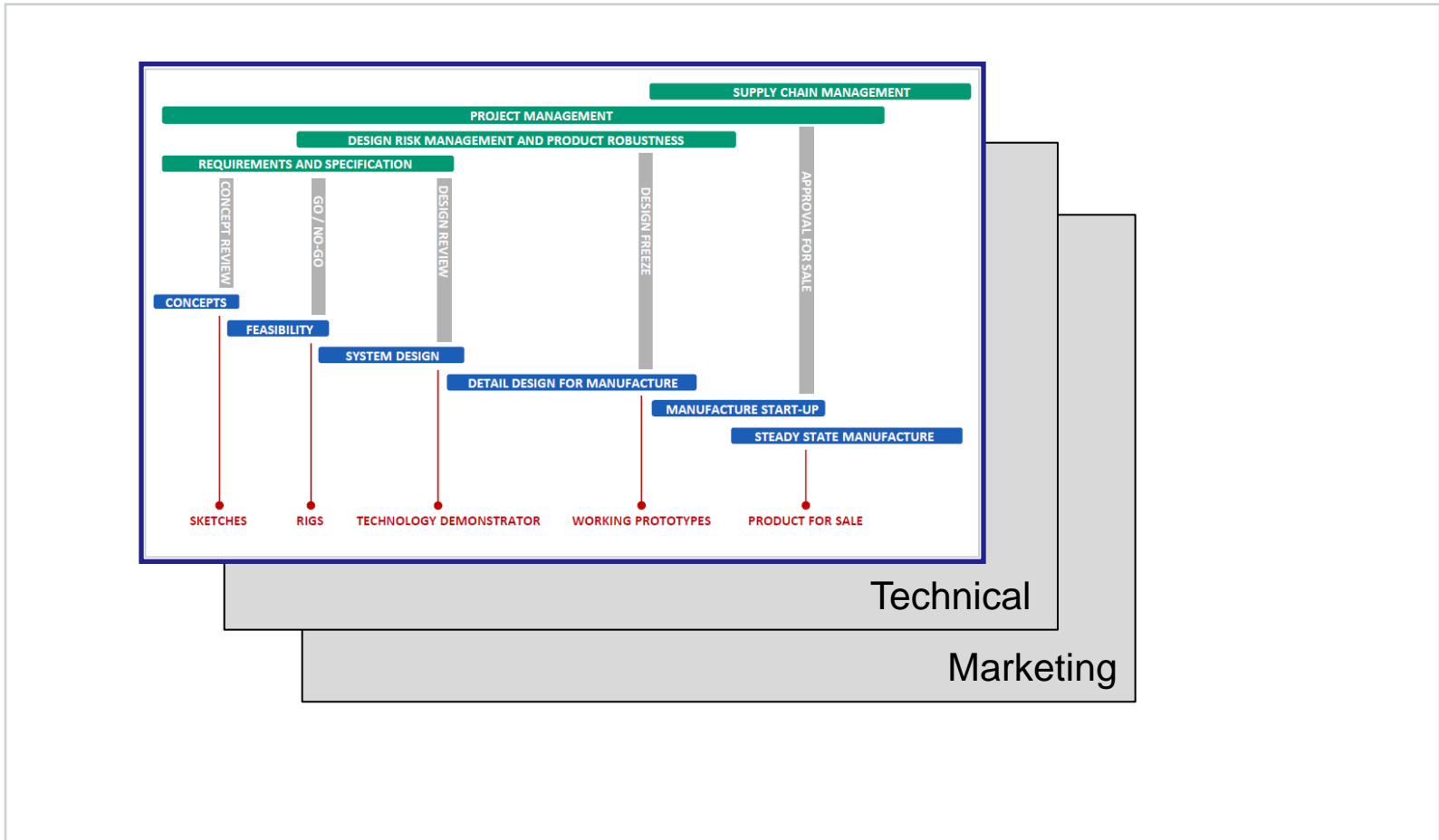
Understanding the process



Technical

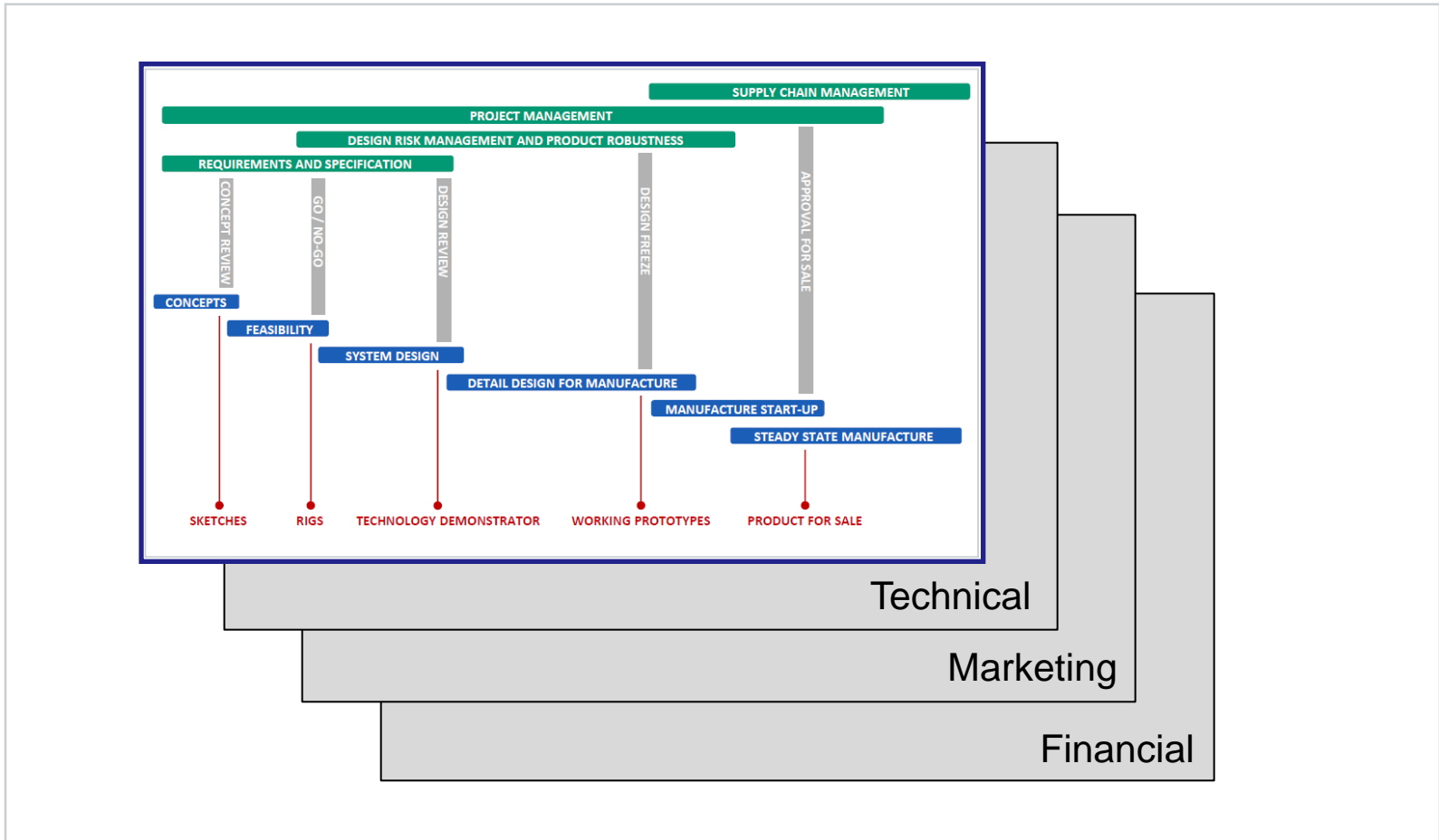


Understanding the process



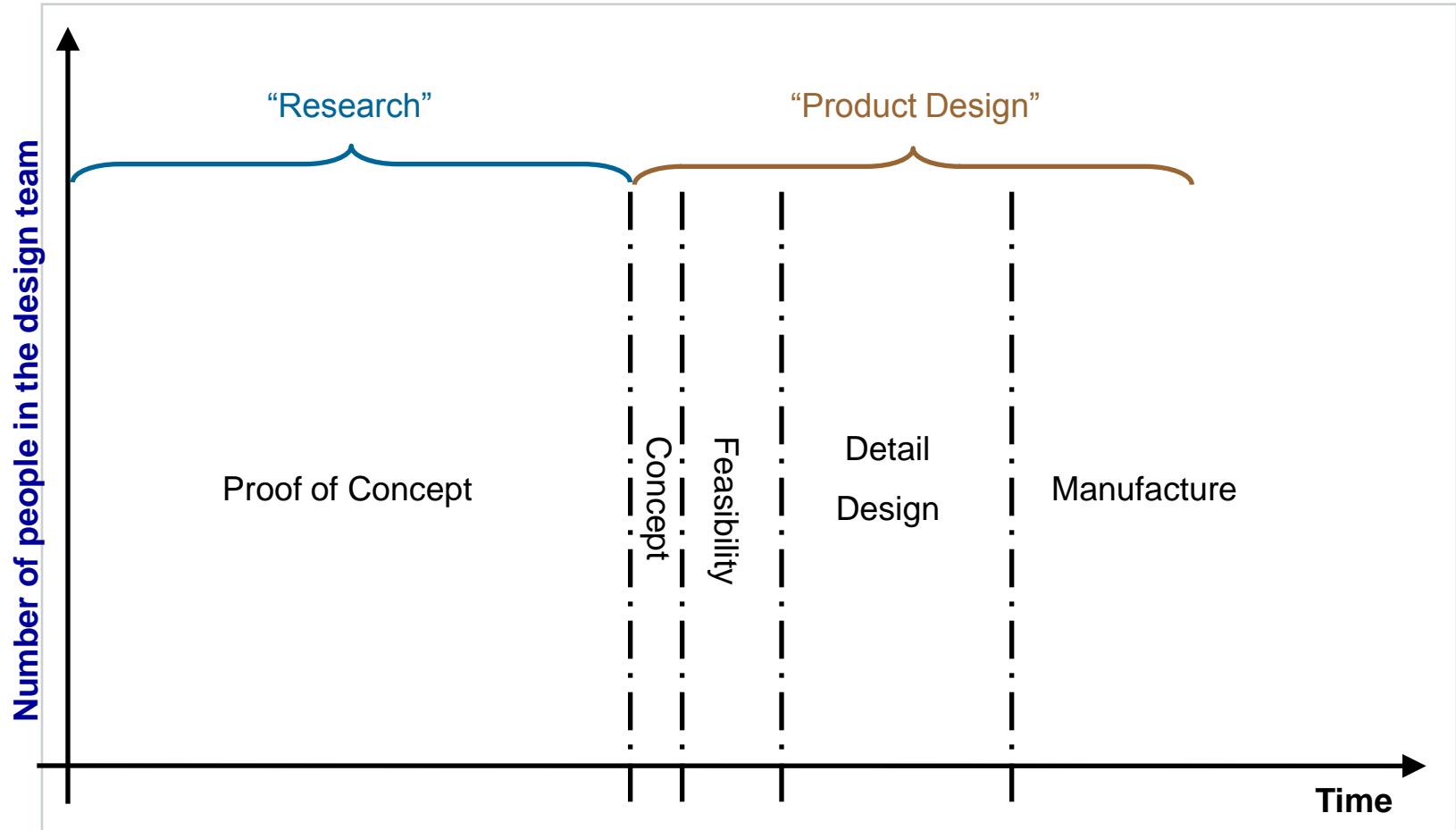


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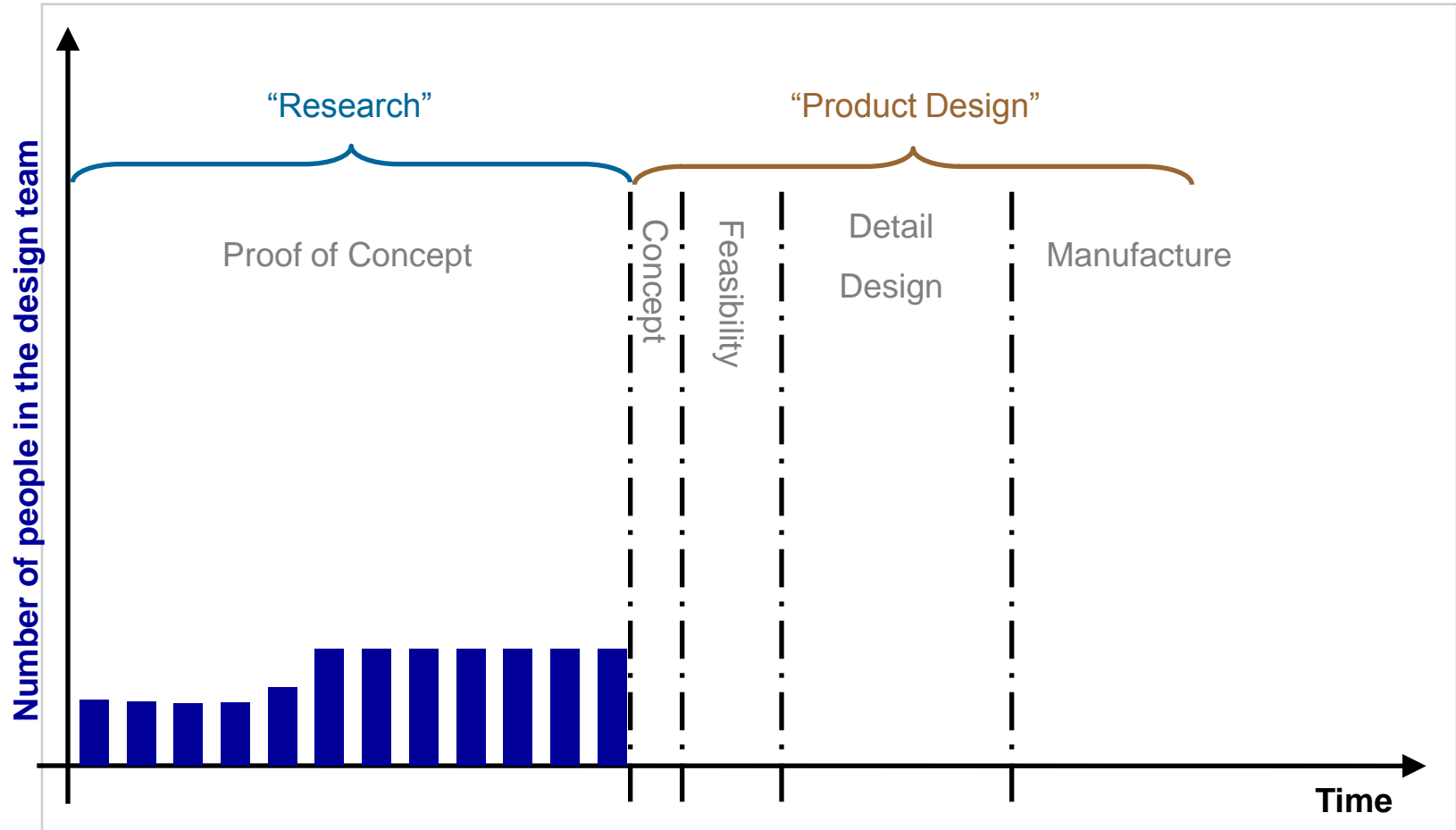


Understanding the costs



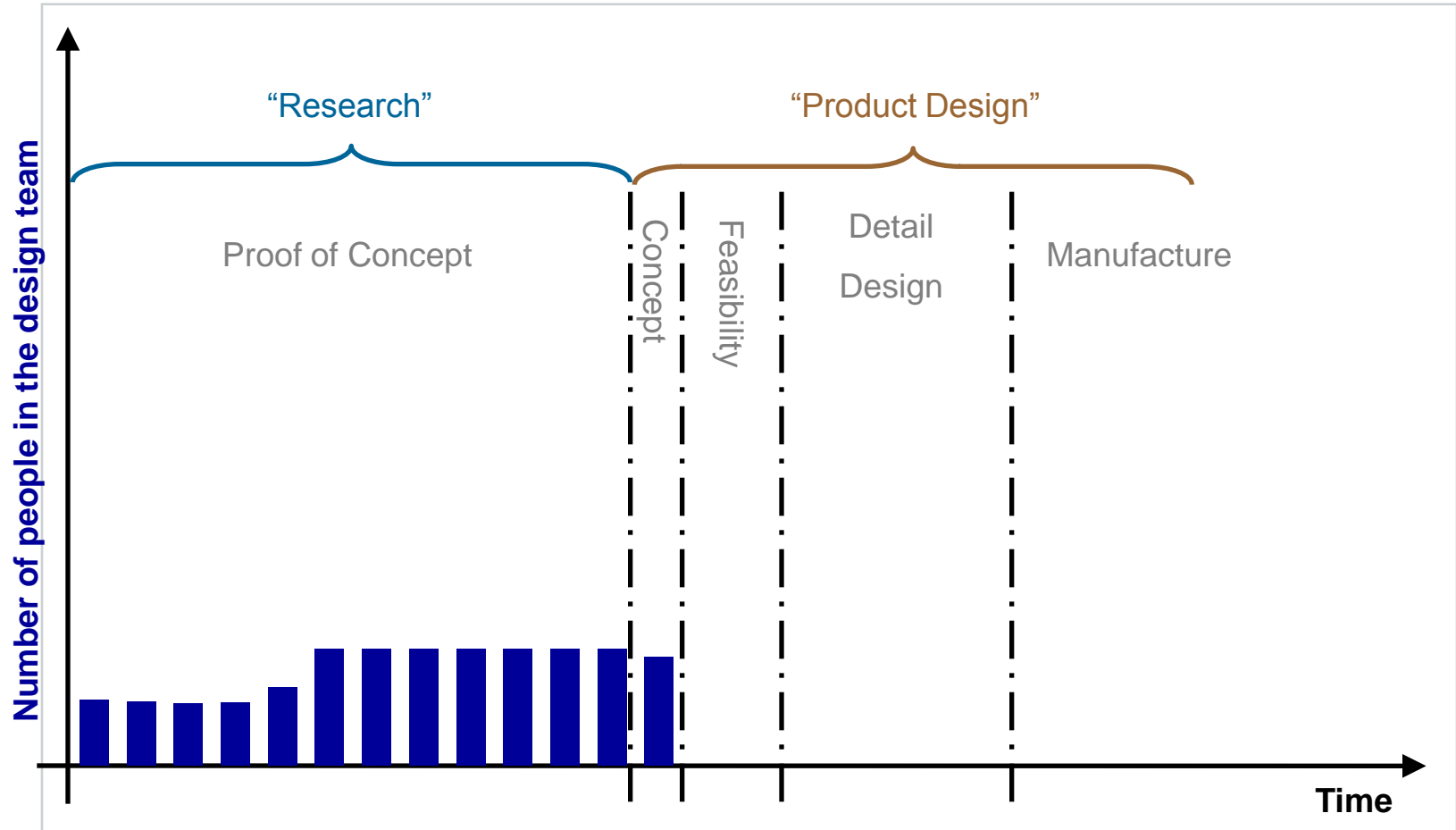


Understanding the costs



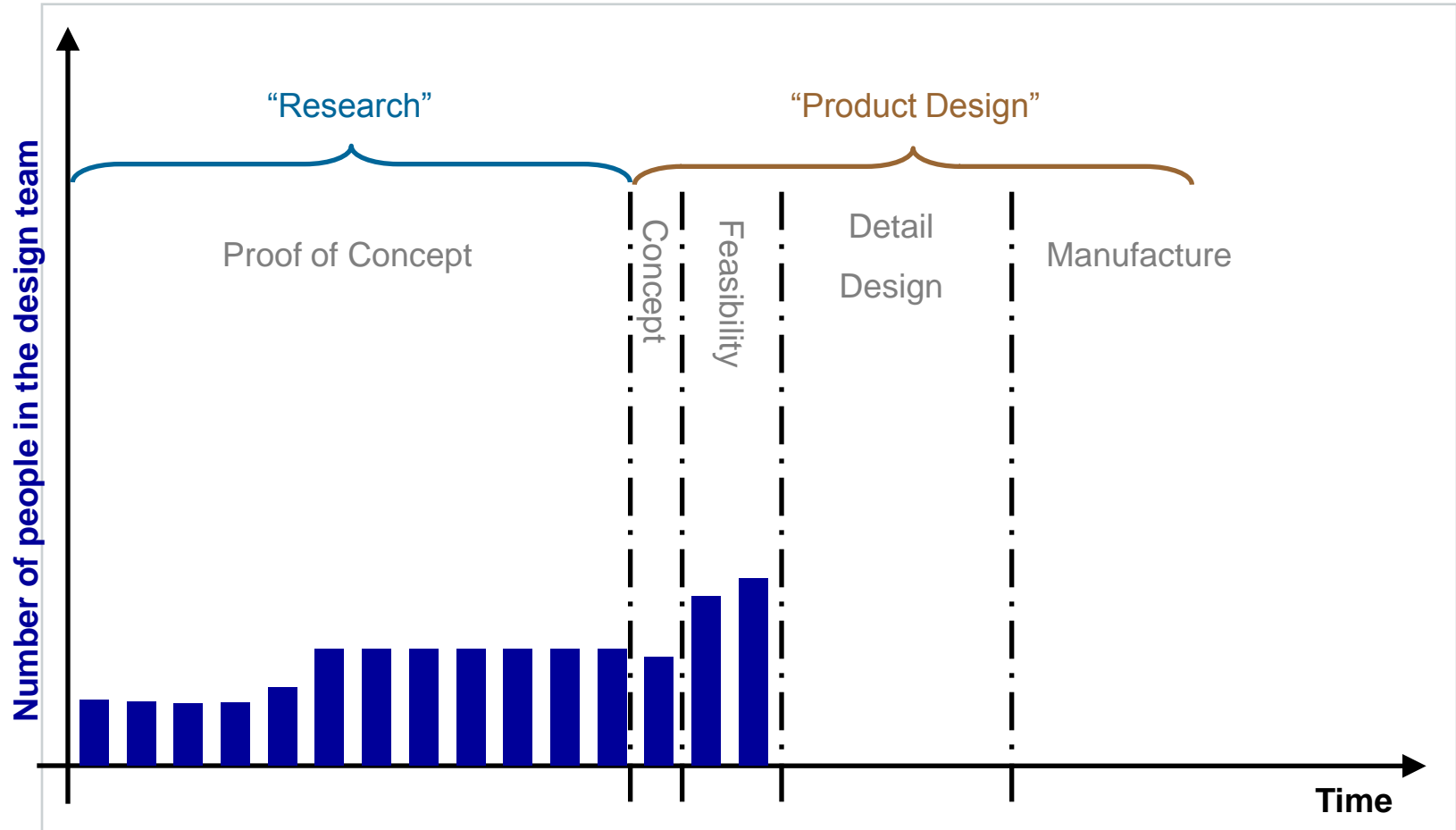


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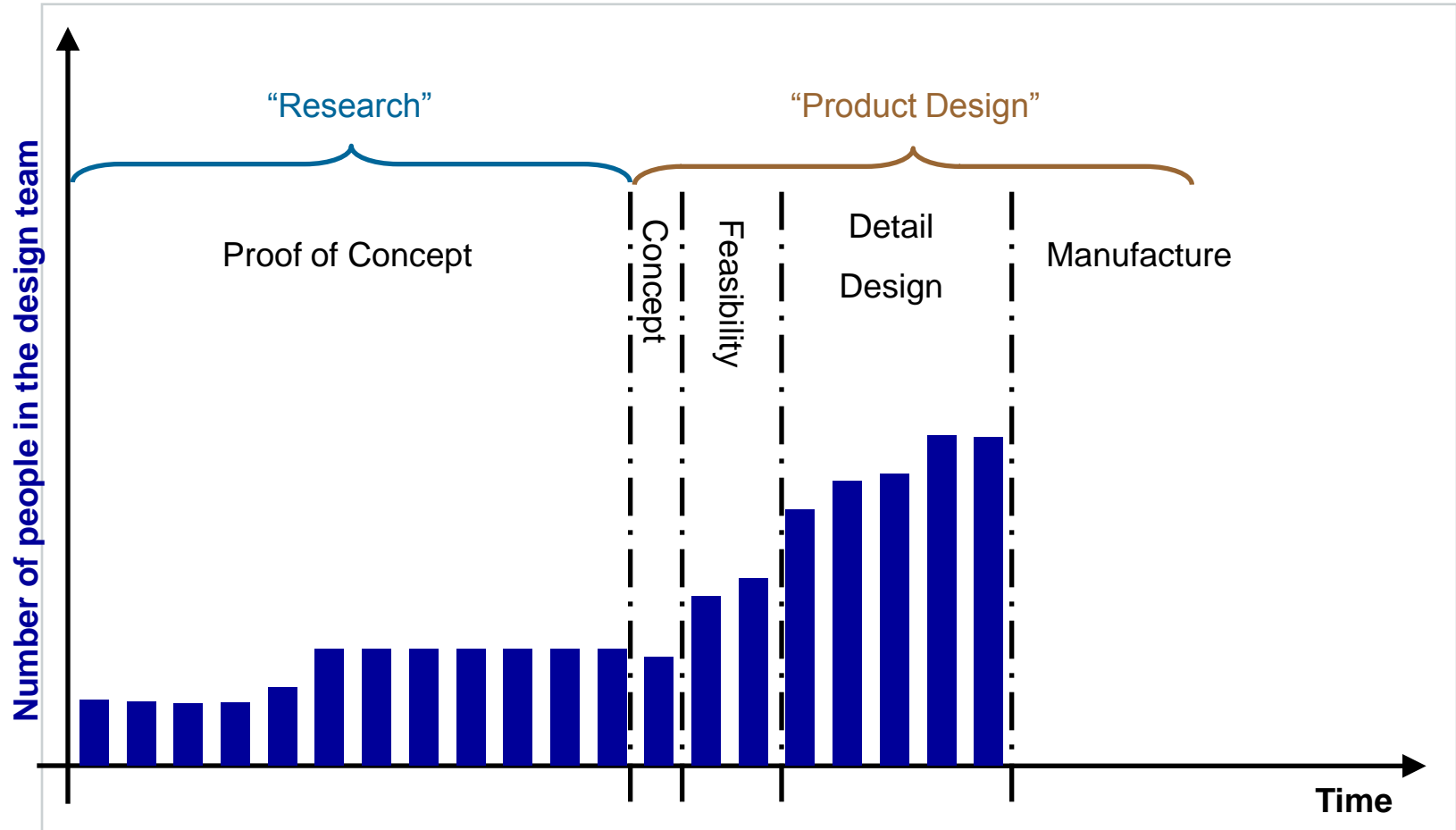


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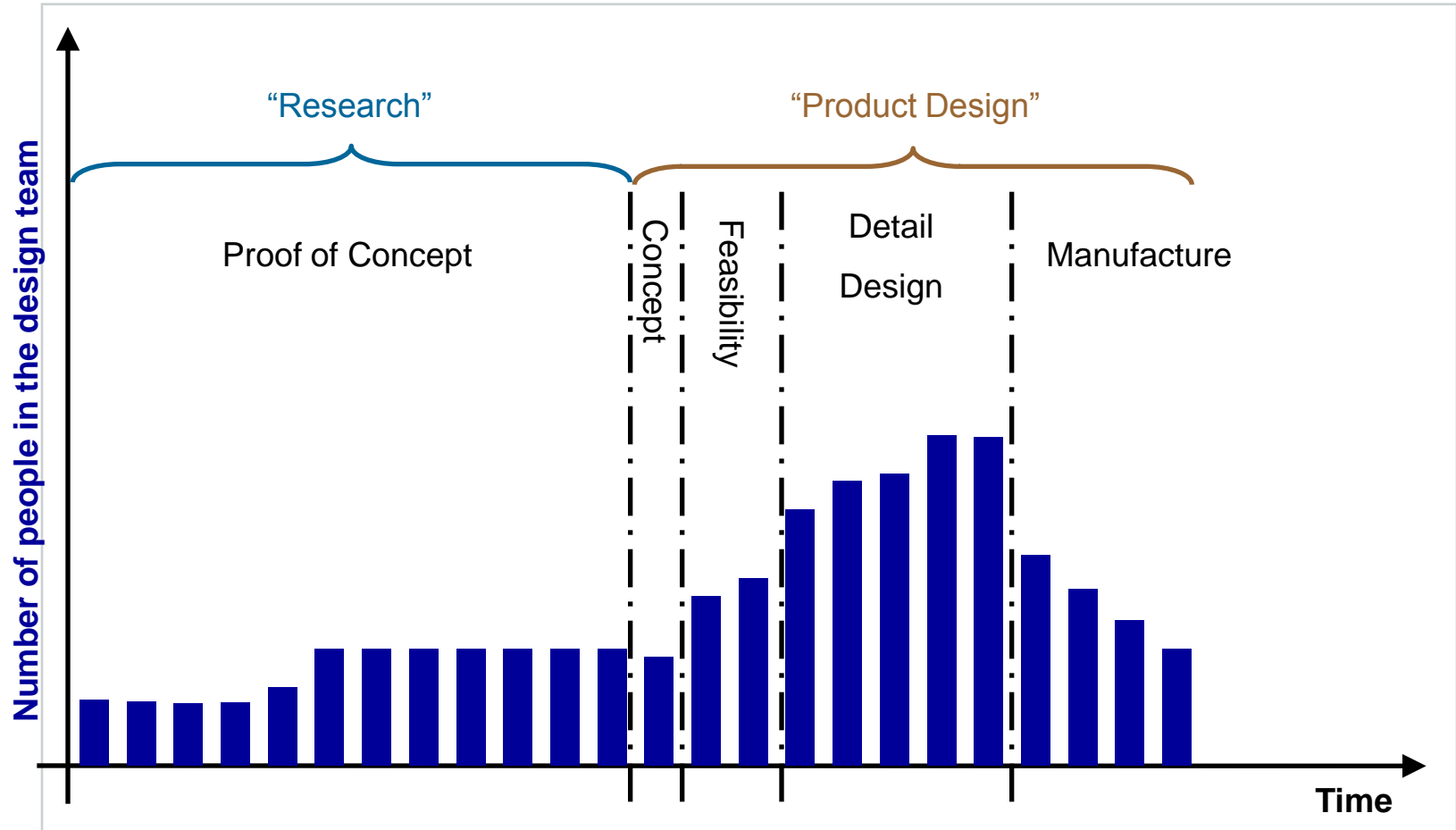


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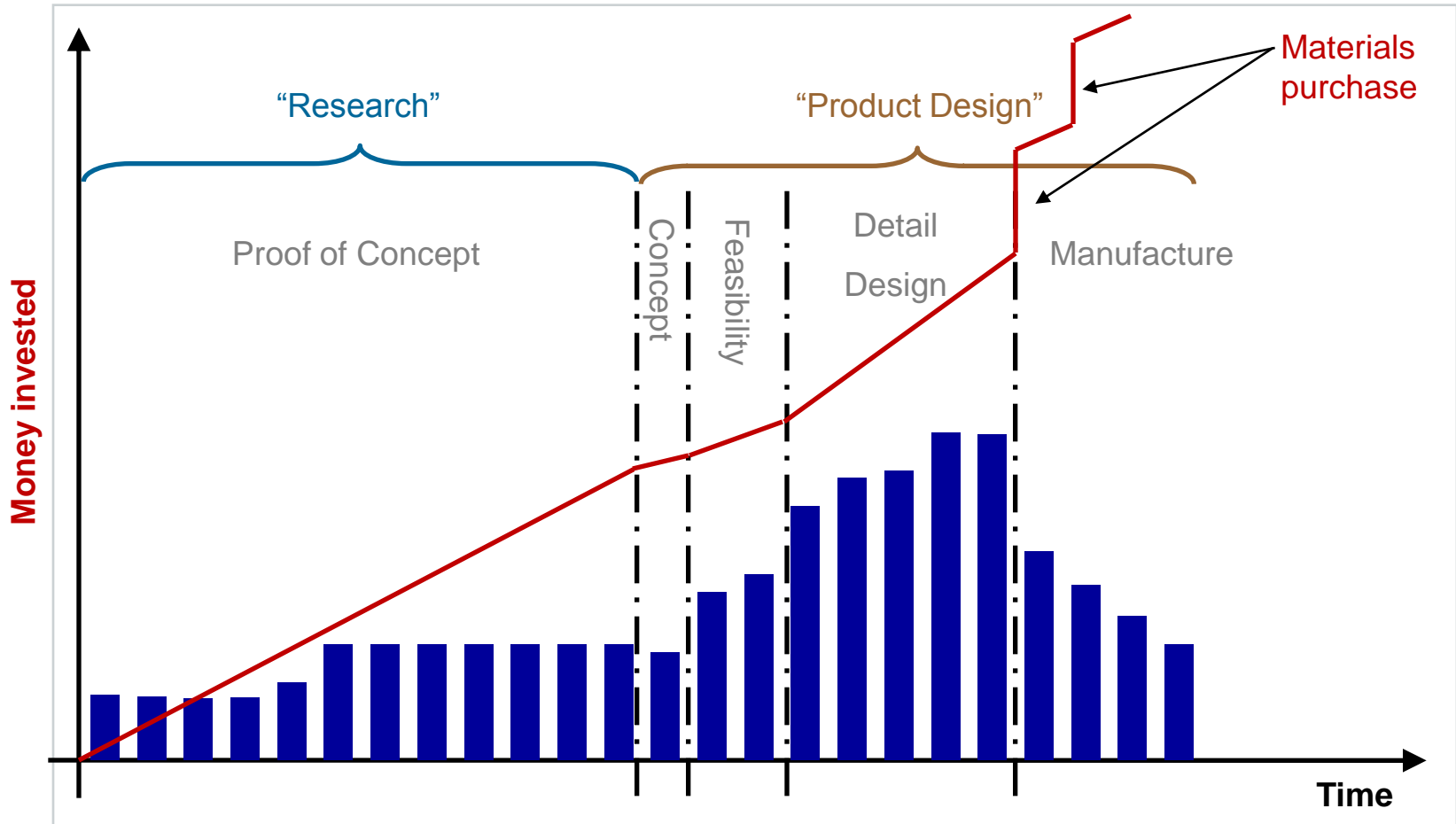


Understanding the costs





Understanding the costs





Case study, enlightened breast awareness

Breastlight is a new health and wellbeing product for women. It helps women notice changes in their breasts over time.

The product works by shining a bright red light through the breast tissue.



breastlight™
enlightened breast awareness



The light passes through the breast tissue and reveals dark areas where blood is present.

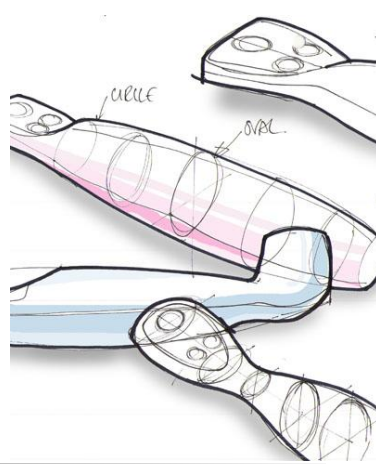
It is therefore quite normal to see a pattern of veins, but if there is a dark cluster this is a potential abnormality that should be checked out.

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Breastlight stage 1, Concept

WHAT DOES THE PRODUCT LOOK LIKE AT THIS STAGE?



WHO INFLUENCES THE DESIGN?

Inventors
End users
Sales / marketing
Product design team

MAIN ACTIVITIES

Explore and develop the product concept
Refine the business concept
Define the business model
Plan the organisation – in-house vs outsourced

PROJECT MANAGEMENT TOOL

Concept selection matrix
Shortlist promising concepts
Define selection criteria
Rank each concept against each criteria



Breastlight Stage 2, Feasibility

WHAT DOES THE PRODUCT LOOK LIKE AT THIS STAGE?



WHO INFLUENCES THE DESIGN?

Market research team
End users
Product design team
Regulatory advice

MAIN ACTIVITIES

Stress-test the business model
Market and user research
Risk assessments – product, safety and market
Proof of principle demonstrations
Engineering models and prototypes

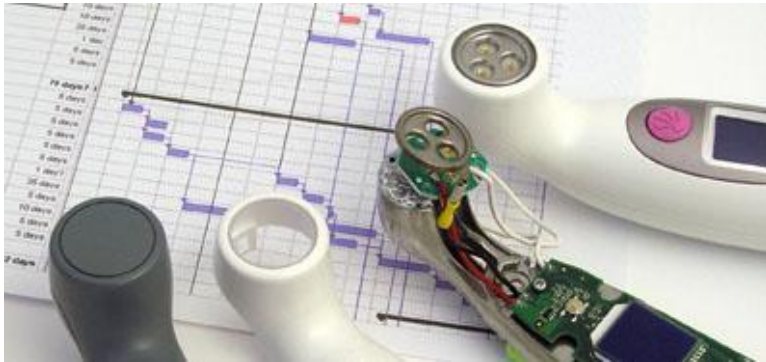
PROJECT MANAGEMENT TOOL

Functional review
Assess the product in “functional blocks”
Structured risk assessment of failure modes
Focus on interfaces between functions



Breastlight Stage 3, Design

WHAT DOES THE PRODUCT LOOK LIKE AT THIS STAGE?



MAIN ACTIVITIES

Design and development engineering:
Electronic, mechanical, aesthetic, user-
interface, software, optical, thermal
analysis, etc.
Make or buy decisions
Design verification testing
Engineering pilot

WHO INFLUENCES THE DESIGN?

Product design team
End users
Marketing
Regulatory
Key suppliers

PROJECT MANAGEMENT TOOL

Bill of materials database
Components, materials, suppliers,
manufacturers, costs, price breaks, minimum
orders, equivalents, issue levels, etc.
A special-purpose database is more flexible
than Excel spreadsheets



Breastlight Stage 4, Manufacturing / Commercialisation

WHAT DOES THE PRODUCT LOOK LIKE AT THIS STAGE?



WHO INFLUENCES THE DESIGN?

Supply chain
Product design team
Packaging and instructions design team
Manufacturing team
Sales / marketing

MAIN ACTIVITIES

In-house or sub-contract decisions
Manufacturing pilot
Manufacturing inception and scalability
Web sales, distribution, high street retail

PROJECT MANAGEMENT TOOL

Supply chain risk assessment
Always have a plan B
Include RoHS compliance checks



Breastlight, the ongoing story

- Soft launch in Q3 2008 to health professionals and WI
- Launch announcement in Q4 2008
 - John Swinney / Scotland Today
 - London press launch
 - ITV1, This Morning, Dr Chris Steele
- 1,000 web sales in Q4 2008
- First retail sales Q2 2009, full launch in mass retail for mid 2009 in UK and Canada
- Sold through Boots in the UK High street October 2009 onwards
- Total of 20K units sold across 11 different countries by Q2 2010
- Cloned by a Chinese company and sold as Breastangel
- Hit cash crises mid 2010, sold to Huddersfield based Zulfkar Akram owner of Ultralife Healthcare, currently being successfully marketed in India and Pakistan





Some final thoughts

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Its not always about the technology



Some final thoughts

MARKET DEMAND
SELLING PRICE
PROFIT MARGIN
USER BENEFITS
RELIABILITY
TECHNOLOGY

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Its important to know where you are in the process

The diagram illustrates a project lifecycle with the following stages and management layers:

- Management Layers (top):** SUPPLY CHAIN MANAGEMENT, PROJECT MANAGEMENT, DESIGN RISK MANAGEMENT AND PRODUCT ROBUSTNESS.
- Process Stages (middle):** CONCEPTS, FEASIBILITY, SYSTEM DESIGN, DETAIL DESIGN FOR MANUFACTURE, MANUFACTURE START-UP, STEADY STATE MANUFACTURE.
- Key Milestones (bottom):** SKETCHES, RIGS, TECHNOLOGY DEMONSTRATOR, WORKING PROTOTYPES, PRODUCT FOR SALE.
- Vertical Milestones (left to right):** CONCEPT REVIEW, DESIGN / DD, DESIGN REVIEW, DESIGN RELEASE, APPROVAL FOR SALE.



Some final thoughts

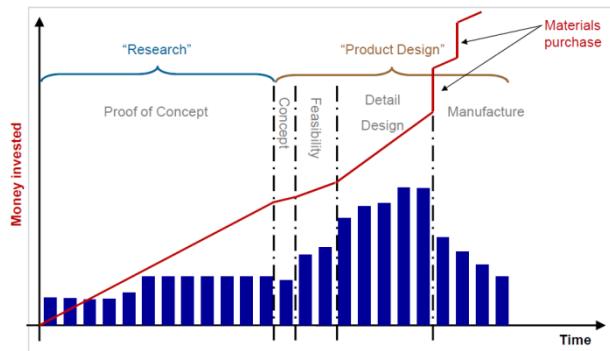
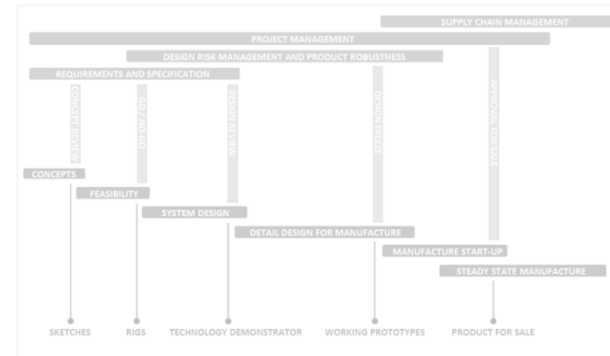
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Its important to understand the costs



Questions?

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