

Technology Marketing
02 marketing for engineers and scientists

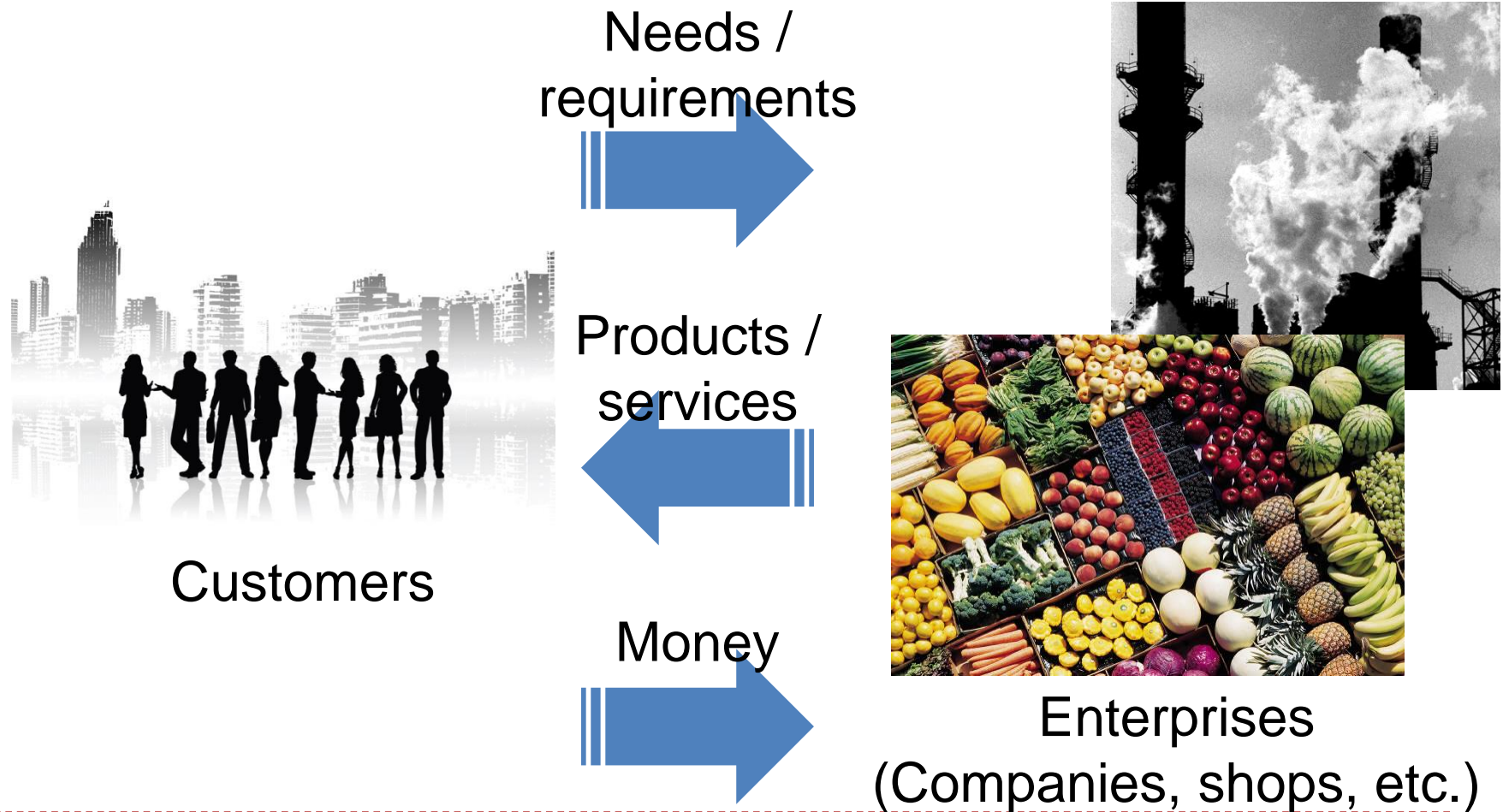


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What is marketing?

- ▶ There are many definitions of marketing:
 - ▶ Marketing is the management process for identifying, anticipating and satisfying customer requirements profitably (The Chartered Institute of Marketing [CIM], 2012)
 - ▶ Marketing is the social process by which individuals and organizations obtain what they need and want through creating and exchanging value with others (Kotler and Armstrong, 2010)

Marketing is communications



Aim of Marketing

- ▶ Peter Drucker said:
 - ▶ The aim of marketing is to know and understand the customer so well the product or service fits him and sells itself
 - ▶ The aim of marketing is to make selling unnecessary
- ▶ These quotes indicate that your customers will buy your products or services normally, if they fit the customers' needs

A thought experiment 1-1

- ▶ Let's suppose that you are an owner of a bicycle store
- ▶ If you try to sell bicycles to people living in a city in a flatland, the bicycles will be sold successfully
- ▶ Will the bicycles sold successfully, if you try to sell them to the other people living in a mountain area?



A thought experiment 1-2

- ▶ Very likely “Not”
- ▶ Because:
 - ▶ It is very hard for the people to ride on bicycles in the mountains
 - ▶ Their houses may be far away from each other. Cars or motorcycles are preferable rather than bicycles
- ▶ This thought experiment tells the importance of matching products with requirements

To be successful

- ▶ To be successful you must understand:
 - ▶ What are the requirements (needs and wants) of people?
 - ▶ How will the people use your products or services?
 - ▶ How much will the people pay?
- ▶ If you are an engineer or scientist, you must understand additionally:
 - ▶ How do you apply your technology to create products and services effectively and economically?

Products/services are solutions

- ▶ Marketing is communications between customers and enterprises
 - ▶ Customers tell needs and wants
 - ▶ Enterprises give products and services
- ▶ To create products and services is to solve the customers' problem
 - ▶ When customers cannot solve their problems by themselves, they tell needs and wants to enterprises to solve their problems
 - ▶ Enterprises solve the customer's problem by providing products or services

A customer buys a copy machine because he needs copies, not because he wants a copy machine

- ▶ Customers make purchase to solve problems.
- ▶ A good salesperson first seeks to understand the true nature and extent of a customer's problem, and only then offers a solution.
- ▶ Often, the solution is very different from the one the customer assumed.
- ▶ A good salesperson will never talk a customer out of making a wrong purchase, because in the long run the customer will respect the salesperson's honesty and may become a repeat customer

Source: Michael W Preis with Matthew Frederick, "101 Things I Learned in Business School"

To change mindsets of engineers

- ▶ There is no such things in the real world as a purely technical problem
- ▶ There is, in fact, a ‘business problem’ that has technology as part of the total solution
- ▶ The technologist who fails to take into account the broader context will not come up with the most elegant, cost-effective solution (Tony Curtis, 2008, p.4)

Peter Drucker, again

- ▶ “The enterprise has two – and only these two – basic functions: **marketing** and **innovation**. Marketing and innovation produce results; all the rest are ‘costs’.”

P. Drucker: Management, New York: Harper & Row, 1974, p.61

Engineering and Marketing

- ▶ The essence of engineering is innovation
- ▶ Engineering creates the products and process that drive the growth of a company
- ▶ Marketing is the process of creating a customer
- ▶ To create a customer, marketers must understand the capabilities of the product and understand the customer's mind

Stan Haavik: “Marketing for Engineers”, IEEE, 1996

Engineers vs. Marketers

Engineer's focus	Marketer's focus
<ul style="list-style-type: none">• Building things that can be seen• Physics, chemistry, and math• The raw material of the engineer is technology	<ul style="list-style-type: none">• Assembling and evaluating all the available information to get as close as possible to meet the customers needs• Psychology, economics, and business• The raw material of the marketer is customer thoughts and perceptions

Engineers/researchers and Business people

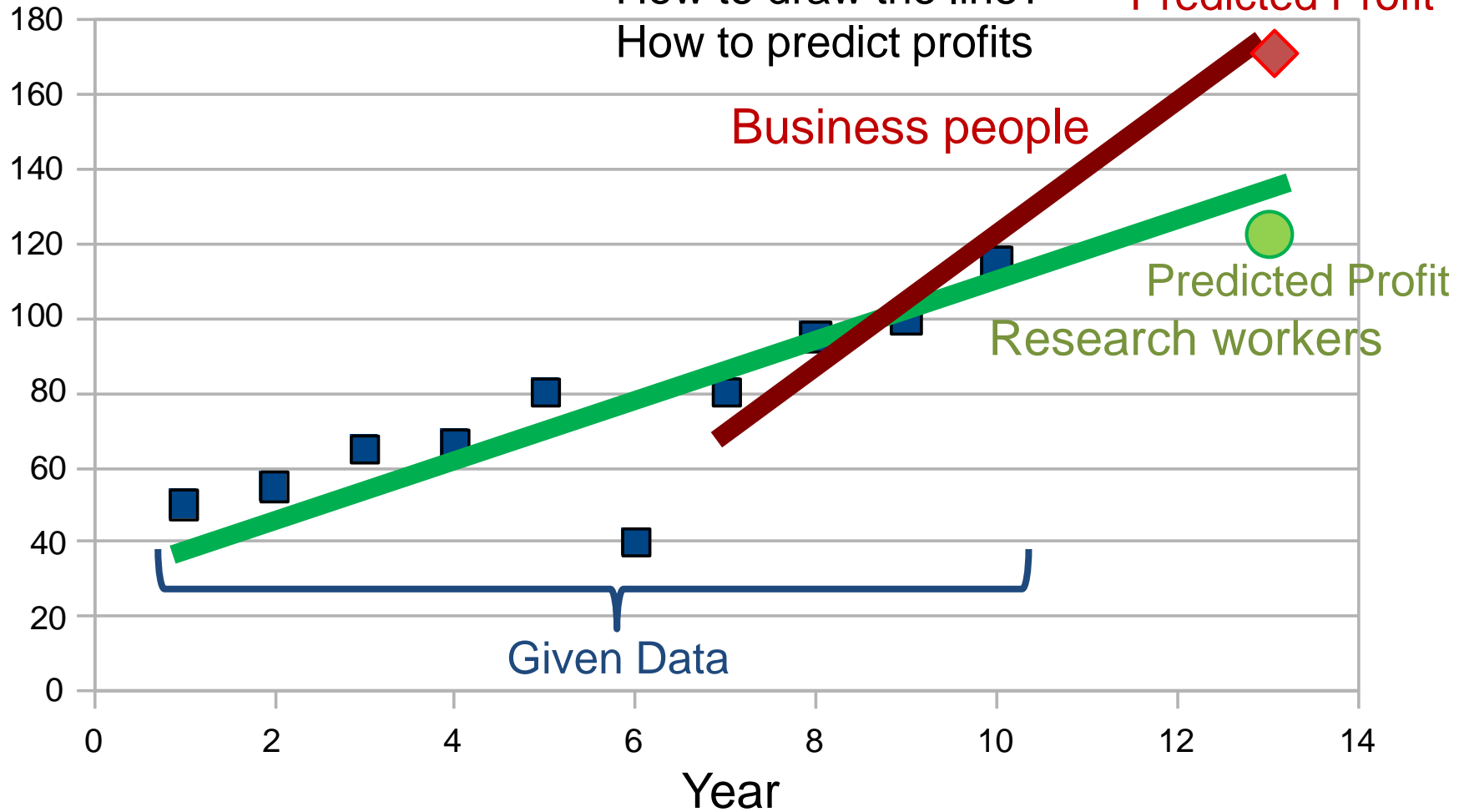
- Engineers' / researchers' motivation
 - Every research worker hopes that his work will be applied to products / services
 - He want to be recognized as a great research worker in his professional territory / academic society
- Business people's motivation
 - Money
 - Power and position
 - Fame (His mark on his company)

Behavior

- Business people
 - Think large, act with boldness
 - “He who dares wins”
 - Great business people show their vision
- Engineers / researchers
 - Maintain the reliability
 - Research workers don't show their vision
 - Because they don't want to lose their trust and give new ideas to their rivals

Attitudes toward data and prediction

Profit [million dollars]



A thought experiment 2-1

- ▶ Let's suppose that you are an architect and asked to design a new school building
- ▶ What should you think about?
 - ▶ Architectural style?
 - ▶ Structure?
 - ▶ Building material?
 - ▶ Concrete? Wood? Bamboo?

A thought experiment 2-2

- ▶ No!
- ▶ You should think about the followings before you think the technological things:
 - ▶ Purpose
 - ▶ An university? An elementary school?
 - ▶ Where?
 - ▶ The center of a city? A rural area?
 - ▶ Tropical zone? Cold zone?
 - ▶ How many people use?
 - ▶ What kind of education is provided?

Before starting ...

- ▶ Before starting to plan and create your products / services, you should do the following things:
 - ▶ To know your customers
 - ▶ To know what is your customers' problem
 - ▶ To know what your customers want or need
 - ▶ To know your business environment
 - ▶ To know your ability

Marketing flow

Customer

- Who is your Customers
- Customers' problem
- Customers' needs

Business Environment

- Society, technology, economy, education
- Competition
- Stakeholders

Your Ability/Resource

- Technology, design
- Sales force
- Appeal power

Company's Mission, Vision, etc.

Strategic Planning

Analyses

Decision Making

- Strategic scope
- Strategic goals
- Key success factors

Marketing Planning / Product Design

- Product
 - R&D, Design, Prototyping, Manufacturing
- Price
- Place
- Promotion

Product / service launch

Feedback / control

Go back to the upstream

Literature

1. Tony Curtis: Marketing for engineers, scientists and technologists, Wiley, 2008
2. F. Peter Boer: The valuation of technology business and financial issues in R&D