

Bettina Fuhrmann

Introduction to Business and Economics

WU Bachelor Program Business and Economics –
Study Material for the Entrance Exam

Foreword and acknowledgements

This script has been written for students who are interested in the English WU bachelor study programme Business and Economics and want to take the entry exam. The content of this script has been taken from the book *Fuhrmann, Bettina: Introduction to Business and Economics. Verlag Jugend & Volk, Wien, 2019*. It is the aim of this book to explain some basic concepts of business and economics and their interrelationships to those who are interested but have little previous knowledge of business matters and economic issues. As both business studies and economics are comprehensive, multifaceted and interdisciplinary scientific fields, a short introduction can only cover selected topics. Nevertheless, it is the intention of this short introduction to provide a solid basis on which to build more knowledge as well as to spark an enduring interest in business and economics and motivate readers to learn more.

Such a textbook – no matter how many pages it has – always profits from feedback from other business teachers who are experts in their respective fields. I consider myself very lucky to have colleagues who have done so and contributed to the development of the text. Therefore, I would like to thank (in alphabetical order)

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I would also like to thank my family for letting me work on the book not only during countless evenings but also on weekends. As it is my firm belief that economic knowledge is of utmost importance to each and every person regardless of his or her age, gender, or personal background, I dedicate the book to all young learners who should understand – the sooner the better – that they are all an active part of the economy and there is no opting out of economic decisions.

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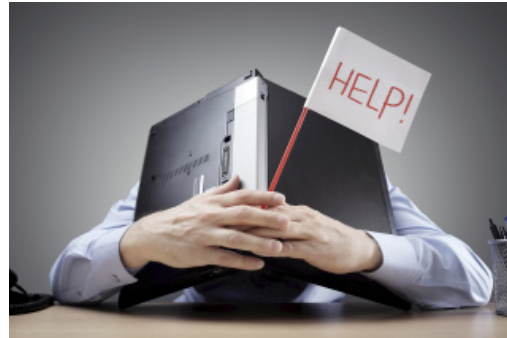
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Contents

1. Introduction to business matters	4
2. Basic economic concepts	7
2.1 Being part of the economy	7
2.2 Scarcity of resources and opportunity cost	7
2.3 Economics is the study of economic decisions	8
2.4 Exchanging goods and services creates a circular flow and division of labour	8
2.5 Different economic systems	10
2.6 Supply and demand: households, businesses and the government meet in the market	11
2.7 Competition in the market	14
3. Focus on different types of businesses	15
3.1 Businesses combine different factors of production	15
3.2 Businesses operate in the primary, secondary and/or tertiary sector	15
3.3 Businesses can be profit-oriented or not-for-profit	16
3.4 Businesses come “in all sizes”: large and small	17
3.5 Businesses may be local, national or international	17
3.6 Businesses operate in an environment – stakeholders are important	18
4. Forms of business ownership and sources of finance	21
4.1 Sole proprietorship / sole traders	22
4.2 Partnership	23
4.3 Corporations	23
4.4 Summary: Overview of forms of business ownership	28
4.5 Overview of sources of finance	29
4.6 The choice of the source of finance	29
5. Marketing	30
5.1 What a product is	31
5.2 Objectives of marketing	31
5.3 Product orientation versus market orientation	32
5.4 The need for more responsibility and sustainability	33
5.5 Market research	33
5.6 Market segmentation and targeting strategies	37
5.7 The marketing mix	39
6. Accounting – keeping record of business transactions	50
6.1 What a balance sheet is	50
6.2 Other components of the financial statement of a business	52
6.3 What can be learnt from reading a balance sheet and an income statement	55
6.4 Use of these accounts – types of accounting	58
6.5 Analysis of financial statements	59
... to be continued in the book	
7. Personnel management – because people matter	
8. Writing a business plan	
9. Case study	

1 Introduction to business matters

Over the past few years Tina has noticed that quite a lot of people buy new computers even though their old ones are still working. At the same time other people are perfectly happy with a used computer as long as it works. They do not need to have the latest model, they are just interested in having access to the Internet and the computer programs that they want to use. What is more, many people need help to get started with their new computer, and some also need help later on with new releases of software, data storage and security issues.



At school and also later during their university studies, Tina and her former classmate Steve specialised in computer science and in business. They have always tried to help their families and friends with any computer issues.



And as more and more friends of their friends as well as neighbours and acquaintances of their families have asked for help, they have considered starting a business that offers a wide range of professional computer services.

A business is an entity that offers goods and/or services to customers. Businesses do not produce primarily for their own needs or work exclusively for their families' and

friends' needs, but for someone else: for their customers. Businesses usually charge a price for their goods and services so that they get something in return. **Exchanging goods and services against money or other means of payment (or exchange) is a main characteristic of the economy.**

Tina and Steve consider the following idea: buying used computers at a low price, checking and repairing them (if necessary), and adjusting/modifying them to the needs and wishes of their customers. By doing so, Tina and Steve are able to offer ready-to-use computers at an affordable price and **create value for their customers.**

They also consider offering additional services such as setting up the computer at the user's home, installing software, connecting the computer to the Internet, explaining how to use the computer etc. Another idea that comes to their minds is offering online help for problems that might occur. Customers facing a problem with their computer would be supported within 24 hours. Tina and Steve are even considering developing tailor-made software for their customers. With so many ideas, Tina and Steve are convinced that they can start a profitable business. That is exactly what they want to do as they need to earn money to make a living.

Alternatively, Tina and Steve could easily find jobs that they are interested in because they both have a profound knowledge of business and computer science. During their studies both of them worked for AT&S, the Austrian company Austria Technologie & Systemtechnik AG, for a couple of months and they liked that very much. AT&S (<https://ats.net/de/>) is a manufacturer of high-end printed circuit boards and of new technologies such as IC substrates, mSAP and advanced packaging. It is located in Styria with some production sites in Asia and ranks among the globally leading companies in that field. In Europe, AT&S is the market leader, with revenue of about €990 million and almost 10,000 employees.

However, at the moment, they both prefer the idea of being self-employed, generating their own ideas, creating something new and being their own bosses. They prefer to become **entrepreneurs** who have developed an idea, solve problems and create value for their customers, take a risk and make sensible economic decisions.

They consider further aspects about founding their business. They are ready to work long hours and invest their savings in the business. They have found a business location that they consider appropriate, where they could rent two rooms in an office building for meeting with customers, working and developing software, storing the computers and other equipment. Additionally, they would need a car or – even better – a small van that they would use for transporting the computers between their customers and their office. Tina’s car, which she does not really use very often, could be used for that purpose, at least for the first few months. Yet, they know from what they have learned during their business studies that there are a few more questions to be considered. The following chapters cover the basic knowledge that is needed for answering these questions.

Important questions to be considered before setting up a business

Questions	covered in chapter
<p>Which people and organisations have an interest in the business and/or are influenced by Tina’s and Steve’s business activity?</p> <p>How does Tina’s and Steve’s business influence the environment and the economy?</p>	<p>Chapter 2</p> <p>Basic economic concepts</p>
<p>What kind of business will Tina’s and Steve’s business be?</p>	<p>Chapter 3</p> <p>Focus on different kinds of businesses</p>
<p>Tina and Steve work as a team, so which legal form should their business have?</p> <p>Do Tina and Steve have enough funds to finance their business? What sources of finance could and should they use?</p> <p>As they will have bills to pay or might have to repay a loan, how can they make sure that they have the funds for that and who will be liable for these payments?</p>	<p>Chapter 4</p> <p>Forms of business ownership and sources of finance</p>

<p>What exactly do their potential customers want and need, and how can these needs be addressed? Will there be (continuous) demand for what they want to offer?</p> <p>How many people could potentially be interested in their offer (market potential), and are there any competitors in the market?</p> <p>How much would people be willing to pay for their products and services and in which way would this price be affected if the market changed?</p> <p>How can a business communicate its offer to its potential customers?</p>	<p>Chapter 5 Marketing</p>
<p>How will Tina and Steve know that their business is thriving? How will they know if their financial situation is solid? How will they know if their business not only generates profit but also turns profits into cash?</p>	<p>Chapter 6 Accounting – keeping record of business transactions</p>
<p>Why are skilled and talented people so important for a business? What are the tasks of personnel management and how can employees be motivated?</p>	<p>Chapter 7 Personnel management – because people matter</p>
<p>What is a business plan and why is it written? What is the structure and the content of a business plan?</p>	<p>Chapter 8 Writing a business plan</p>
<p>Summary and application of the learning content</p>	<p>Chapter 9 Case study</p>

As Tina and Steve are thrilled about their business idea, they cannot wait to find answers to all these questions.

2 Basic economic concepts

Before going into details about what a business is and how it is run, it is necessary to understand the business environment, and the economy that it becomes a part of. It is also important to understand some basic economic concepts that have an influence on the economic decisions not only of businesses but also of individuals, such as what to offer (to sell) and what to purchase, how to manage the available resources and how to finance the expenditures.

2.1 Being part of the economy

By running a business, Tina and Steve are an active part of the economy as entrepreneurs. **Businesses provide goods** like computers **and services** like installing software for people who need these goods and services to satisfy their needs. Their needs might include having a computer as well as getting technical support. Not only individuals, but also businesses have needs: manufacturers of smartphones, tablets and laptops might need the printed circuit boards (PCBs) that are produced by AT&S. In turn, AT&S needs raw materials and a workforce to produce these PCBs. And individuals might also exchange goods and services with each other, like selling a house, an apartment or a used car, or exchanging vegetables or flowers from the garden and getting a bottle of wine in return. **In the economy, people and businesses exchange goods and services to fulfil their needs and wants.**

Therefore, Tina and Steve were part of the economy a long time before starting their business. As individuals, they have been part of private households and have bought goods and services from a wide range of businesses. Like thousands of other households, they need food, a home to live in, medical care, a car and/or other kinds of transportation, they want to do sports or go to the cinema, to a café or a restaurant. Businesses offer the goods and services that people (as part of private households or other businesses) need and/or want.

- **Exchanging would be much easier if all that we want or need is available in abundance, but that is not the case.**
- **Resources are scarce and need to be managed.**
- **This is why we all need to economise. No one is able to opt out of making economic decisions.**

2.2 Scarcity of resources and opportunity cost

Both households and businesses only have limited resources to pursue their goals: businesses have a certain number of machines and tools and a limited amount of material and financial resources to produce their goods and provide their services. Likewise, households only have a certain income that they are able to spend on purchasing goods and services, with maybe a part of that income left for saving. Resources are always scarce, and this scarcity of resources forces businesses as well as individuals to make decisions on how to use those limited resources: what and how to produce, what to buy, how much to spend.

It is a basic economic problem of households, businesses and the government to decide how to use their limited resources and to make choices when allocating these scarce resources between different options. Tina and Steve can either found their own business or they can take jobs at another business and become employed. If they earned 35,000 euros

per year in such a job, this 35,000 euros would be their opportunity cost per person if they decided to set up their own business. If they took these jobs, they would also have opportunity cost: the amount of money that they could have earned with their business. Of course, it would be difficult to tell how much that could have been. **Opportunity cost is the (financial) benefit of the (next best) alternative that is lost or given up in order to choose or achieve something else.**

2.3 Economics as the study of economic decisions

Economics is the study of how individuals (as part of private households) and businesses make decisions to satisfy their needs and wants with limited resources. It comprises a number of scientific fields and branches, two of which are microeconomics and macroeconomics. **Microeconomics** focuses on the behaviour and decisions of individual households and businesses and how they interact. A question in microeconomics could focus on the change in demand of electric cars if buyers of electric cars receive a bonus. In contrast, **macroeconomics** looks at the bigger picture and deals with questions concerning the overall economy (of one country for example) and aggregate quantities. Among other phenomena, it studies economic growth, unemployment, interest rates, price levels and inflation. As a science, economics strives to explain the observed phenomena and also to make predictions, both based on various theories.

2.4 Exchanging creates a circular flow and division of labour

While households mainly offer labour and receive wages, businesses offer goods and services that are bought by households and other businesses and receive money for what they sell (see figure 1). This is how a circular flow of goods, services and money is created. As money is used as a means of exchange that is widely used and accepted, these exchanges can be carried out relatively easily. Without money, people would have to barter, which is much more complicated. If you want to acquire a good from another person, but do not have what this person wants in return, there will be no exchange. Money allows for a

- flexibility of exchange (first function: **medium of exchange**).
It also allows us to express the
- value of things (second function: **unit of account**) and to
- store value over time (third function: **store of value**).

Money fulfils these functions best if its value remains pretty stable over time. However, if there is a **general rise in prices of goods and services**, you can only buy a lower amount of goods and services, which means that the purchasing power of money (i.e. its value) declines.

Price indexes allow us to measure the extent of this general increase in prices, a phenomenon that is also called **inflation**. Low inflation rates can be tolerated. The European Central Bank considers an inflation rate of slightly below 2% per year most beneficial to the economy. But if inflation rates are considerably higher, the purchasing power of money decreases considerably. As the amount of goods and services that can be bought for a certain amount of money continuously decreases, people lose their trust in money and try to get rid of it.

In the circular flow of the economy (see figure 1), public authorities (mainly governments) also play an important role. They levy taxes from households and businesses and use the money to provide goods, transfer payments and subsidies. Such goods as infrastructure (e.g. streets and street lights) and services like national defence and public security (e.g. police) need to be provided by governments and financed by taxation. There is demand for these goods, but private businesses would not want to supply them as “free riders” (people who do not pay for a good or service) cannot be excluded from enjoying them. In many – but not all – countries health care and education are also provided (at least to a large extent) by public authorities.

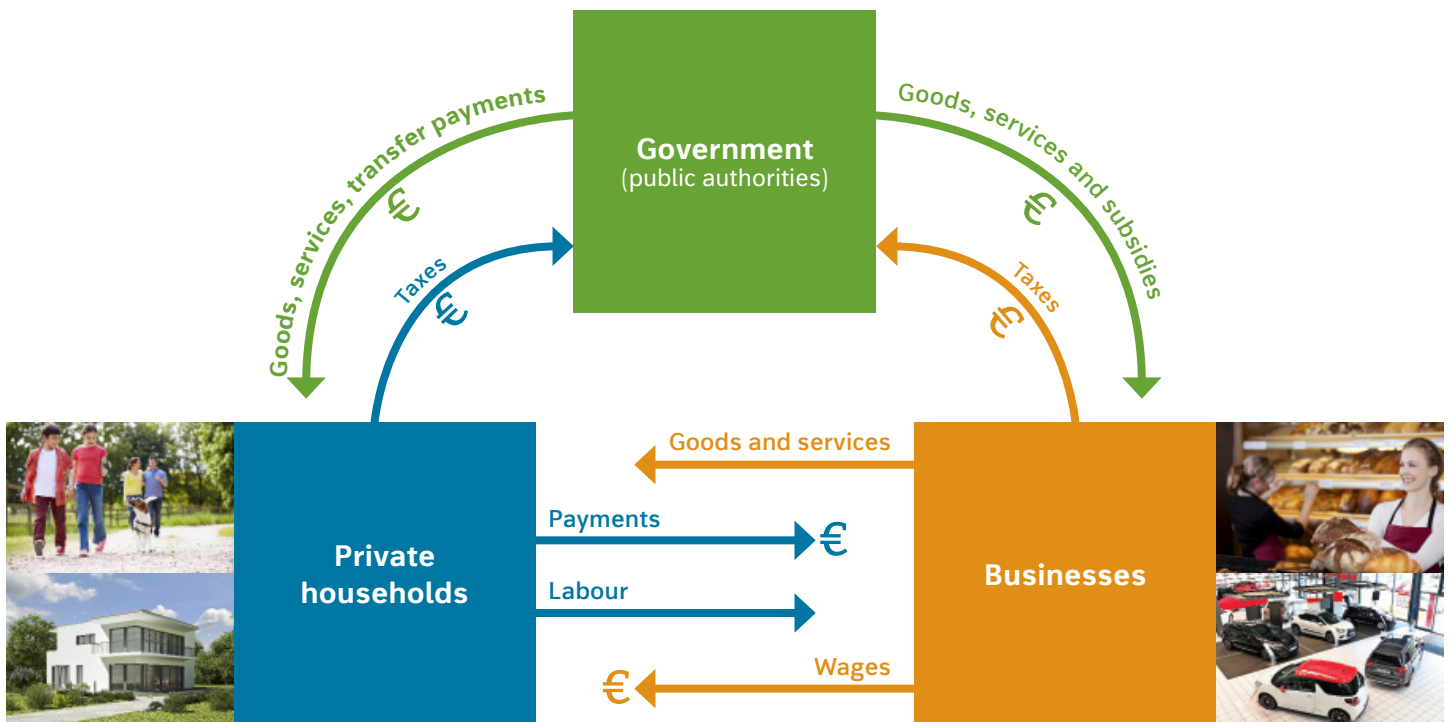


Figure 1. The circular flow of goods, services and money within the economy

Division of labour and specialisation

Without exchange of goods and services, individuals would have to produce everything they need themselves. That would be very difficult, time-consuming and inefficient because they would have to spend time on performing tasks that they lack the skills for. Exchanging goods and services allows for the division of labour and therefore specialisation. Individuals and businesses can concentrate on what they can do best. This explains the wide variety of jobs and of businesses. Using a widely accepted means of exchange like money facilitates the exchanges.

Specialisation can be found on many levels:

- **Within households**, for example where individuals can concentrate on what they can do best or what they like doing (like one individual does the shopping, the other one the cooking).
- The same principle applies to businesses: **within businesses**, some people concentrate on production, others on procurement, some others on sales, on recording all

financial transactions or on managing human resources. Accordingly, these (different) tasks of a business are often summarised in different departments of a business: procurement, production, sales department, marketing, finance and accounting.

- Specialisation can also be found **between businesses** as every business focuses on a special range of products: some offer all kinds of furniture, others just beds and couches, some others just produce kitchens. These businesses operate on the same level of production. But specialisation can also be based on division of labour between businesses on different levels of production (first level: production of wood and iron, second level: production of boards and nails, third level: production of tables, final level: selling them) or in different sectors of the economy (see chapter 3).
- Specialisation can also be found **on an international level**, as countries differ in climate, natural resources, geographical position and many other characteristics. Due to very different characteristics, countries also differ in their conditions for different industries (industry being a number of businesses that produce or sell the same product) and different business functions. AT&S for example has production sites in Europe as well as in Asia (China, India and South Korea). While production in Europe is highly diversified and relatively low in volume, production in Asia reaches a much higher volume but has a lower product diversity. This kind of division of labour can be explained by differences in terms of know-how of the workforce, labour costs, availability of other resources and the legal framework in different countries.

While division of labour has many advantages, it also has some disadvantages that need to be considered: for very specialised workers, work may become boring over time. Being specialised also means less flexibility as it is hard to develop other skills or develop competencies in other fields. A specialised business may be brilliant in that field, but if – for some reason – that specialisation is not needed anymore, the business is at risk and people could lose their jobs.

2.5 Different economic systems

The role of governments described above is mainly true for the governments in some sort of **market economy**. While in market economies individuals and businesses are – more or less – allowed to make many of their own economic decisions, in **planned economic systems** the governments play a dominant role. They (mainly or partly) decide which goods are produced and which services are offered (at which prices). Furthermore, they (mainly or partly) control the resources and the means of production. People have a limited choice of which job to do and which products to buy.

In most countries of the world, economies can be characterised as some kind of market economy. In some of these countries, the governments play a minor role by only providing the legal framework and not influencing the economy much, so their economic system comes close to what is called a “free market economy”. In many other countries, the government plays a more important role by influencing the economy to a somewhat higher extent, by supporting the poor and protecting the environment for example. These systems are called “social market economies” or “eco-social market economies”.

Over the past decades, a lot of former communist countries that used to have planned economic systems have adopted the main principles of the market economy. Many Central and Eastern European Countries (CEE), China and former Soviet countries are examples of such a transformation.

2.6 Supply and demand: Households, businesses and the government meet in the market

In a market economy, goods and services are offered and sold on/at markets. Buyers and sellers meet to communicate the conditions of exchanging goods and services and thus form a market. A market can be an actual place, like a flower market in the city of Rome or a flea market in a small village, but it can also be a virtual place like a market on the Internet (e.g. eBay, Amazon). Buying and selling take place in shops, but also on the phone. Therefore, there are many different markets, also depending on what is offered: consumer goods markets, labour markets (supply and demand for work), housing markets, money markets, capital markets, commodity markets (supply and demand for raw materials).

2.6.1 The law of supply

Supply (of a certain good or service) is the quantity of that good or service that is available for purchase. Basically, this quantity mainly depends on the businesses' production capacities and the available resources, but also on the price that can be charged for the good or the service. **The higher this price is, the higher the supply will be.** All other things held constant ("ceteris paribus"), this relationship is true for most goods and services in the economy (**law of supply**).

In Tina's and Steve's case, the quantity of hours that they (as well as other providers of similar computer support services) are willing to work depends on the price they can charge and that will be paid. It is tiring work and the providers of this service need to be very skilled. If the price is low, let's say below 30 euros per hour for example, no provider would offer that service. The opportunity cost would be too high: as the providers are very skilled, they could earn more money by doing something else (that is also less tiring), so they would leave this market and offer another kind of service. The higher the price, the higher the number of hours that would be offered. More potential providers would enter the market and would be willing to offer a higher number of hours of their service.

The shape of the supply curve can also be explained by the concept of increasing marginal costs faced by many industries and businesses. Marginal cost is the cost of producing an additional unit of a good or by providing an additional unit of a service. As output increases and exceeds a certain level it will become more and more costly to produce; businesses need to build higher capacities (machinery, personnel) so marginal costs would rise. Only

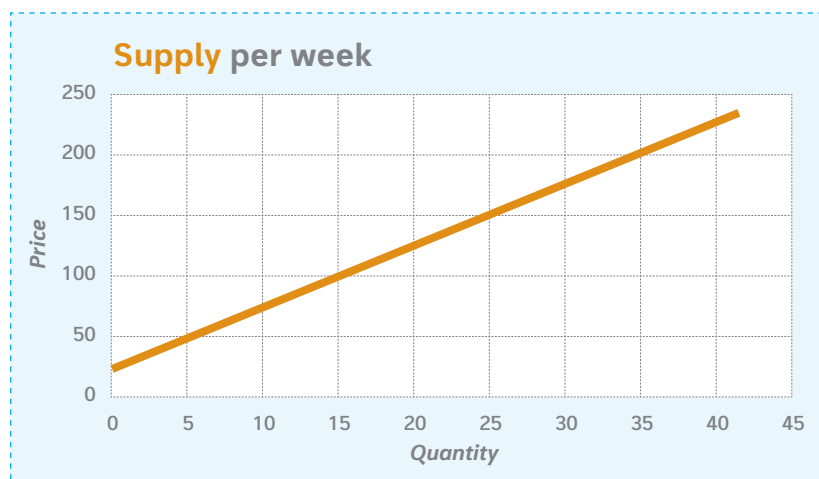


Figure 2. The supply curve (price in euros, quantity in 1,000 hours)

if the price level increases and exceeds (or at least equals) marginal costs would businesses be willing to produce and supply a higher amount.

Figure 2 shows the relationship between prices and supply in the market for computer support services (e.g. within a country).

2.6.2 The law of demand

Demand, on the other hand, is the quantity of a good or service that customers are willing and able to buy. Usually the higher the price is, the lower demand will be. The more Tina and Steve as well as other providers charge for their technical computer support service per hour, the more demand will decrease (because more and more people cannot afford such high prices or are not willing to pay such high prices for that service and will instead look for other ways to get help with their computer problems). People's willingness to pay a certain price is related to the utility or the level of satisfaction the people get from consuming the service. Figure 3 gives you an idea of how many hours of technical support would be demanded in the market, depending on the price.

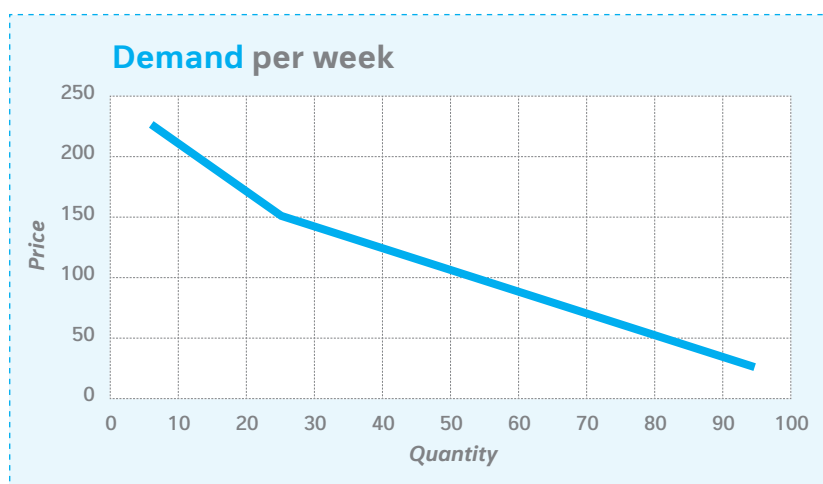


Figure 3. The demand curve (price in euros, quantity in 1,000 hours)

The graph in figure 3 shows that the quantity demanded decreases as the price rises. Accordingly, the quantity demanded (the quantity that people are willing and able to buy) increases as the price falls. Therefore, the quantity demanded is negatively or inversely related to the price. All other things equal (“ceteris paribus”), this relationship can be found with almost all goods and services in the economy, so that it is also called the **law of demand**.

2.6.3 The market equilibrium

If we have a look at both curves, we can see that they intersect at a certain point, at the price of 150 euros. At this point, the quantity of hours that is demanded in the market equals the quantity of hours that is supplied.

Assuming that these curves represent supply and demand in the whole market for computer support services, this price would also be called the **market price** or **equilibrium price** (because supply equals demand). At the price of 150 euros per hour demand and supply balance each other out. As the quantity supplied equals the quantity demanded, there is neither a surplus (higher supply than demand) nor a shortage (higher demand than supply). At a higher price, demand would be lower than supply and vice versa.

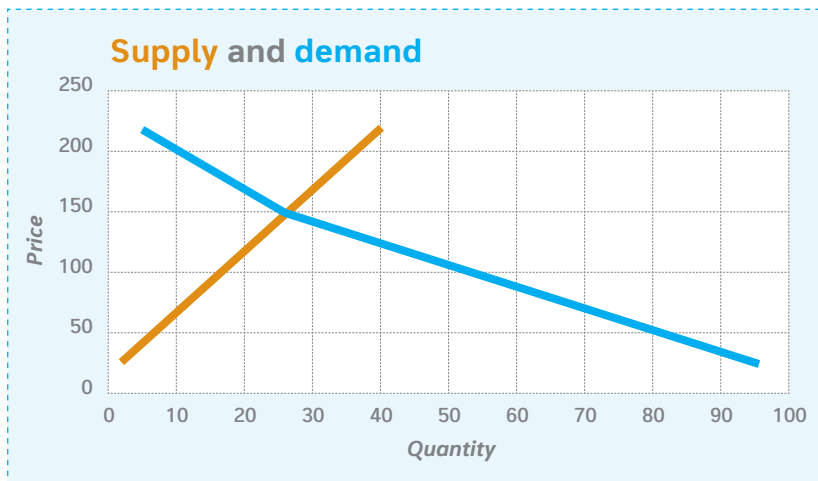


Figure 4. Supply and demand intersect at the market price (price in euros, quantity in 1,000 hours)

In the real world, other factors than price also affect demand and supply.

Demand is also affected by:

- **Changes in income:** If income increases, people can afford more (and more expensive) computer services and – all other things held constant – demand would increase (so the demand curve would shift to the right). Similarly, if income decreased, people would not be able to spend so much money on technical support anymore, and consequently, demand would decrease (and the demand curve would shift to the left).
- **Changes in consumer preferences:** More and more people might want to have additional technical support, so demand would increase. In a different scenario, people could possibly like to have new and faster computers, so demand for used computers would decrease (regardless of the price).
- **Complementary goods:** If an additional service is offered that is related to the computer support service and that people are highly interested in, demand for computer services would be very likely to increase.
- **The availability of substitute goods:** If people found a service that perfectly substitutes computer support services, the demand for computer support service offers would also decrease. This effect will also be discussed in chapter 5, Marketing.

Supply is also affected by:

- **Number of suppliers:** The more profitable a market is considered to be, the more suppliers will enter this market. As the number of suppliers increases, supply will increase (the supply curve would shift to the right), until supply is so high that prices fall again and no more additional suppliers enter the market.
- **Technological changes:** These might enable more people to provide computer services and enter the market.
- **Changes in resource prices:** If the costs for offering the service decreased but prices for the services stayed the same, more providers would be willing to enter the market.
- **Price expectations:** If providers think that prices in the computer market could fall, they will probably think of some other field of business to work in and reduce their supply in their original field of business.

Supply and demand for money

Please note that the laws of supply and demand also help to understand one of the main causes of inflation. If the quantity of money within a country is increased (in order to stimulate the economy), people and businesses are able to buy more and to invest, so demand for goods and services usually rises. If the quantity of available goods and services in this country remains the same and does not increase accordingly, then the prices for goods and services will rise. “Too many dollars chasing too few goods” expresses very well what inflation is about. It is by increasing the price for money, i.e. the interest rates, that inflation can be fought. If it is more expensive to borrow money, people and businesses tend to spend less, demand for goods and services decreases again and so do their prices.

2.7 Competition in the market

The level of competition in a market is mainly influenced by the number of suppliers and the availability of substitute goods. If there is just one supplier, the market situation is called a **monopoly**. Monopolies are rare in a market economy but there might be goods and services that are only provided by one business (like the railway in some countries).

Some businesses might not be the sole suppliers in the whole market, but they might be the only supplier within a certain area, which also makes them a kind of monopolist. The owners of a ski hut might be in a monopoly-like situation if they are the only ones to offer food and beverages on a particular mountain. A theatre bar is in a similar situation. Tina and Steve could find themselves in such a situation if they are the only ones that offer such a service within a radius of 50 km for example.

If there are a few suppliers, the market form is called an **oligopoly**. Each supplier has a relatively large share of the market (e.g. telecom companies, car manufacturers). Competition can be strong, because as soon as one supplier changes the product or the price, its competitors are very likely to react in order to maintain their share of the market. Alternatively, suppliers could try to negotiate their terms of sale in order to prevent such harmful competition. Such agreements – also called a cartel – are usually not considered legal. In general, laws support competition in a market because it is considered beneficial for customers.

Perfect competition can (theoretically) be found in markets with so many suppliers and buyers that no single individual or business can possibly influence the price. Considering perfect competition, in economics we also assume the following (theoretical) prerequisites:

- All market players (buyers and sellers) must have access to all information at all times.
- There must not be any barriers to enter or exit the market.
- There must not be any (personal) preferences – i.e. goods, as mentioned, must be replaceable.

In real life, perfect competition is rarely found but, nevertheless, some markets come close to the concept of perfect competition. These are markets for goods and/or services that are almost identical (regardless of the supplier), e.g. agricultural markets, or that can be standardised. Even if the number of suppliers is not so high, competition can be almost “perfect” if competition among suppliers is especially fierce.

3 Focus on different types of businesses

Private households come in many different forms – large families, singles, couples, with or without children – and so do businesses. The large variety of businesses is due to the fact that they differ in the factors of production that they combine, in the sector(s) they operate in and in size. But they all need to consider their stakeholders around them and the environment.

3.1 Businesses combine different factors of production

As mentioned earlier in the introduction, a business is an entity that offers goods and/or services to customers. In order to do so, it combines different factors of production, the resources used to create goods and services. The most important factors are

- **labour** (all human resources),
- **land** (all natural resources),
- **capital** (resources like machinery, plant, vehicles, financial resources), and
- **entrepreneurship** (which brings land, labour and capital together) as well as
- **knowledge and technology.**

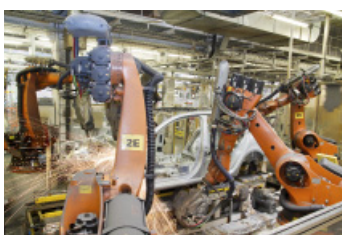
Depending on the factors that are dominant for the production process, a wide range of businesses can be found. Tina and Steve are mainly combining their own knowledge and skills, labour, technology and some capital as well as entrepreneurship. AT&S combines all factors of production. A winemaker with large vineyards combines land, labour, capital and entrepreneurship, but his business might also be dependent on his knowledge, experience and some technology.

3.2 Businesses operate in the primary, secondary and/or tertiary sector

Depending on what a business does, it contributes to one (or more) of three sectors of the economy. The **three-sector model** differentiates between three sectors of activity:

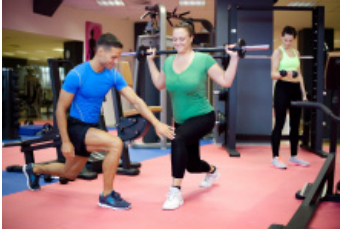


The **primary sector** refers to the extraction of raw materials from the earth. It mainly comprises farming, fishing, mining and forestry. Emerging countries (which are economically less developed) usually depend largely on the primary sector.



Businesses of the **secondary sector** transform raw materials into goods (manufacturing). Such businesses produce cars, ships, machinery, printed circuit boards and IC substrates (like AT&S), computers, clothes etc.





The **tertiary sector** comprises the service industry, like distribution, banking, insurance, coaching etc. Tina and Steve offer services: they trade goods, develop software and provide technical support.



The more the economic development of a country advances, the more important the third sector becomes. In economically highly developed countries, like EU countries with a high **gross domestic product** (GDP) per capita (indicating a high standard of living), the tertiary sector usually accounts for more than 70% of the output of the economy, while the primary sector – as important as it may be for providing food – only accounts for a small percentage of the output of the economy.

Please note that **GDP** is the **total monetary value of final goods and services that are produced within a country's borders** in a certain time period (usually a year). Therefore, it is considered to **measure the overall economic activity** of a country. GDP is also used as an indicator for economic growth: if GDP (adjusted for inflation) increases over time, the economy is growing. However, the use of GDP is not undisputed. Critics say that not all sources of income are taken into account. What is more, GDP does not tell anything about the quality and/or sustainability of growth, nor is it a perfect indicator of economic well-being in a country. For example, GDP would also increase after ecological disasters that require action to rebuild infrastructure and to mitigate the damage. However, GDP is usually correlated to some indicators of well-being like health status and happiness.

3.3 Businesses can be profit-oriented or not-for-profit

Most businesses aim to operate for a longer time period. In order to do so and to thrive over time, most businesses aim to make a profit, i.e. they intend to have higher revenues than costs and expenses. Profits are important to the business itself because they can be reinvested in the business, which enhances the durability and sustainability of the business. Of course, profits are also important to the owners and investors because the profits are their reward for the risk they have taken.

However, there are also businesses (or organisations) that are not-for-profit and mainly aim to cover their costs. Nevertheless, they also need to achieve a certain level of revenues (or in many cases: donations) in order to be able to offer their goods and services. Any profit they make is also beneficial to the organisation, because it can be reinvested and used to enhance the services for customers or to engage in more projects. The Red Cross, the World Wildlife Fund or Greenpeace are examples of such non-profit organisations (NPOs).

3.4 Businesses come “in all sizes”, large and small

There is an enormous variety of businesses: micro, small and medium enterprises (MSME or just SME) as well as large businesses. About 99% of all businesses in the EU are SMEs. The European Commission differentiates between these types of businesses (see <http://ec.europa.eu>) as presented in table 1.

Company category	Staff headcount	Turnover	OR	Balance sheet total
Micro	< 10	≤ €2 m		≤ €2 m
Small	< 50	≤ €10 m		≤ €10 m
Medium-sized	< 250	≤ €50 m		≤ €43 m

Table 1. *Size categories of businesses*

The definition of an SME is important for access to finance and EU support programmes targeted specifically at these enterprises. Tina and Steve have a micro company; even if they hire two assistants, they are still a micro company. AT&S on the other hand, with about 10,000 employees, is a large company.

The size of a business is also relevant in terms of legal requirements for their accounting (see chapter 6, Accounting). In many countries, small businesses are allowed to use simpler accounting methods in order to calculate their profits or losses.

3.5 Businesses may be local, national or international

A local (or regional) business operates in a small, limited area. Most customers live very close to the business. They do not serve a national or international market. Tina’s and Steve’s business would be such a local business, at least at the beginning. The most important challenge of (small) local businesses is to have sufficient financial funds and to acquire a substantial number of customers. Many business owners face the difficulties of undercapitalisation: their own funds are limited and it is very hard for them to access additional funding.

A national business serves the home market (the market within a country), but not the international market. An insurance company or a bakery that operates all over Austria, but not abroad, is a national business. Like a local business, it has to choose a suitable location. Additionally, it has to decide how to deliver its goods and services to other places within the country. The supply chain is much longer.

International (or multinational) businesses make and/or sell their goods and services in more than one country. As the home market might be limited and too small for some companies, they strive to serve a larger market. A larger, international market brings along a number of challenges: an even longer supply chain, different legal and economic systems, different cultures and languages, maybe also different currencies. As the number of multinational businesses has increased over time, the world has become globalised and we have experienced globalisation. AT&S is an international business that has production plants in Asian countries as well as in Austria and that sells its goods to other businesses all over the world.

3.6 Businesses operate in an environment – stakeholders are important

There is one thing that all businesses have in common: they are always integrated into an environment in which they operate. Therefore, they deal with many other people and/or businesses and need to consider their interests as well. **Everyone that is (potentially) affected by the activities of a business and/or has an interest in what a business does is a stakeholder.** Due to globalisation, the world has become a smaller place and the number of stakeholders has grown considerably. Furthermore, people are more environmentally conscious and expect businesses to preserve and protect the environment. The most important stakeholders of a business are shown in figure 5.



Figure 5. Stakeholders of a business

The **owners** of a business are stakeholders because they have invested their money in the business and want their investment to pay off. They want to make a profit in order to get something in return for the risk they have taken. They also profit from the increase in value of a business if the business operates successfully on the market. This increase is usually reflected in the price of shares of this business. It can be earned by selling the shares or the whole business (for example, the company Runtastic GmbH was bought by Adidas for 220 million euros). Making a profit may be one, but does not have to be the only goal of the owner(s) of a business. Solving a problem, contributing to a solution to a problem that customers have (such as computer problems), and making a contribution to the welfare of society may also be important. Tina and Steve create value for their customers and they also help preserve the environment by repairing and setting up used computers and – consequently – reducing waste.

Managers (who can, but do not necessarily have to be owners) as well as employees are stakeholders because they depend on the business. Working for the business is their source of income, so job security is important. What is more, many managers and employees identify themselves with their tasks and their contribution to the business. And just as they depend on the business, the business depends on them as well. Only if owners, managers and employees share the values and objectives can a business succeed not only in the short run, but also in the long run. Figure 6 illustrates the interdependencies of employees, managers and the business in the case of AT&S.

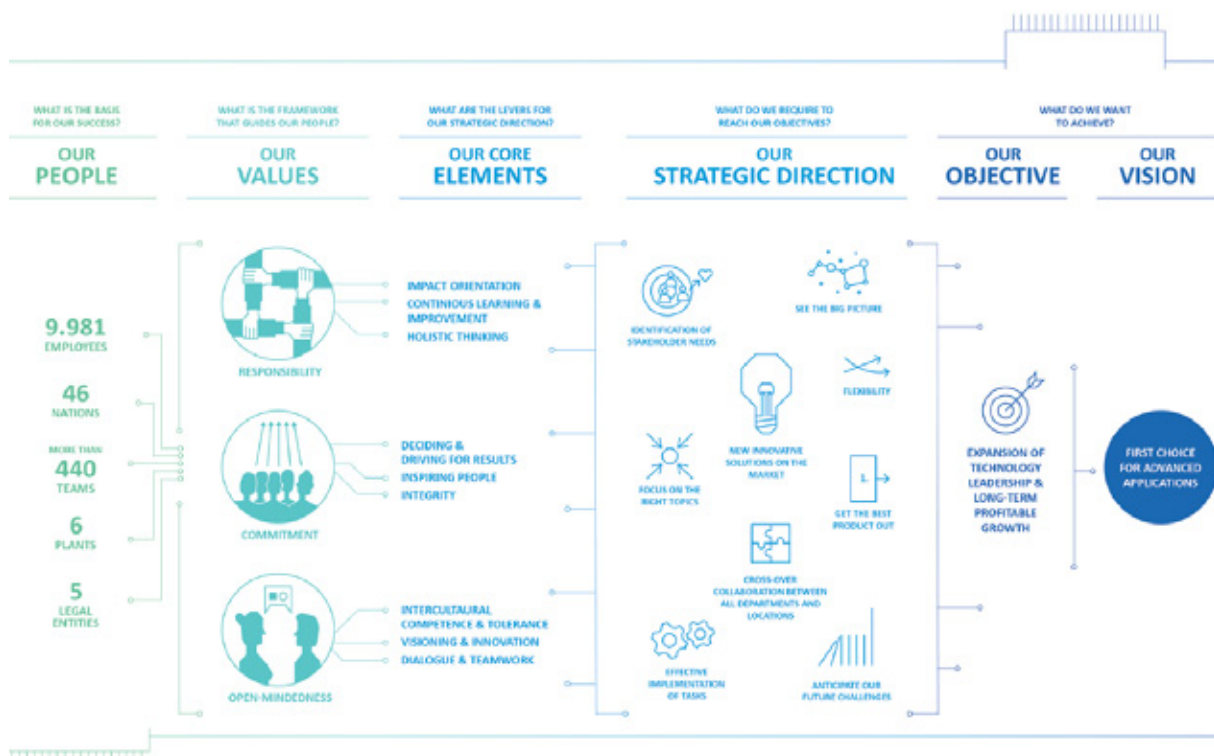


Figure 6. Interdependencies of people, values, objectives and vision (source: AT&S annual report 2017/18)

Suppliers are important to a business and its production. Timely deliveries of good quality and the correct quantity of supplies needed for production are crucial. If a supplier fails, a business cannot produce its goods or services. In return, suppliers expect to get paid and hope for more orders in the future. If a business fails, suppliers may also get into trouble.

A similar mutual dependency exists between a business and its **customers**.

Local, national and international communities as well as the **government** also depend on a business and are affected by its activities.

Focus on different types of businesses

Finally – and most importantly – businesses also need to act responsibly with the environment and the natural resources that they use. It is not sufficient only to claim to be environmentally friendly and to care about the environment (to “green wash” the business activities), but it takes concrete activities and proven results. More and more businesses report their activities on their websites and in their annual reports, as the example of AT&S in figure 7 shows.

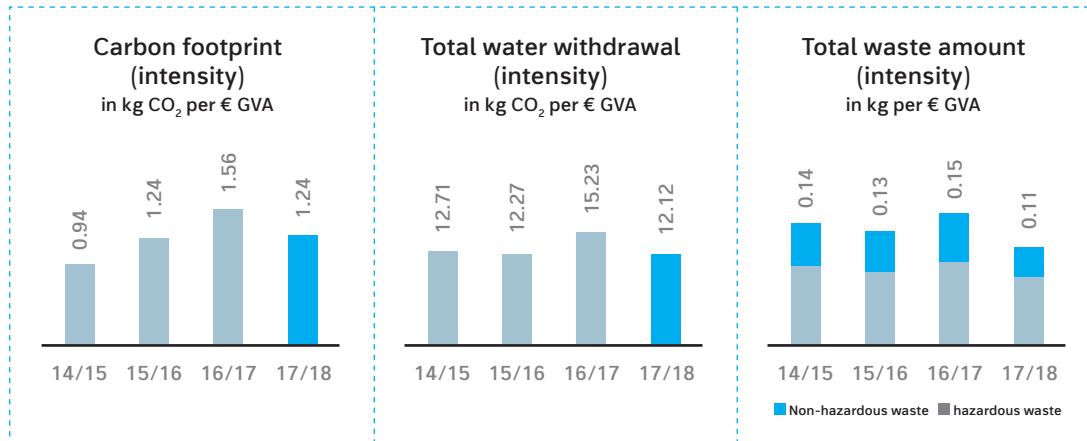


Figure 7. *The impact of AT&S activities on the environment (source: annual report 2017/18)*

There are many factors that influence the success of a business. Considering the stakeholders and their (conflicting) interests is one of these factors. Other important factors include a suitable legal structure and a solid financial structure of the business, awareness of the market and changes in the market, awareness of costs and profitability. The following chapters deal with these topics.

4 Forms of business ownership and sources of finance

As soon as businesses are set up and exchange goods and services with customers, the customers might wonder who – from a legal point of view – they are actually dealing with: the business itself or the people who founded and/or who run it. The answer to this question is of particular interest in the case of closing a contract, investing in the business or legal troubles: who owns the business? Who runs it? Who is the contracting party and who is to be sued in a litigation? Is the business a legal entity of its own or is the business completely identical with the owner(s) of the business? The answer depends on the legal structure that has been chosen for the business, something that has implications for a number of important questions:

- Who owns the business? Is this a single person or more than one? Please note that a business can also be owned by another business.
- Does the owner / do the owners also run the business? Or is (are) there (a) different person(s) who manage(s) the business?
- Who is liable for the debts and obligations of the business? And is this liability limited or unlimited?
- How can financial resources be raised for the business?

These questions are not only important for those who do business with a company. They are also of utmost importance for the founders and owners of a company. Some owners might be interested in running the business themselves and fulfil important **management tasks** such as developing objectives for the business, identifying measures to achieve them, planning and organising business activities as well as monitoring and steering the business. Others just wish to invest their money and own (a part of) the business but want other people to run the business and make the management decisions.

Finance is important because businesses need money for their activities. In the beginning, money is needed to get started, to meet all initial expenditures like buying assets (equipment, machinery, vehicles and inventory for example) and covering the expenses like paying the rent, energy and insurance. Most of these costs occur repeatedly. Depending on their legal structure, some businesses have to meet capital requirements. Later, businesses need money to keep going and – possibly – to expand and grow. Money flowing in from sales can be used for that purpose but will possibly not be sufficient and will not always be available right at the moment and in the amount that is needed for financing all expenditures. Businesses usually need some additional sources of finance. **The legal structure of a business has an impact on its financial options.** Therefore, businesses often change their legal structure in order to gain access to further financial options.

Although the different forms of legal structure as well as their denomination vary among countries, the basic forms of legal structure are quite similar in many countries of the world.

4.1 Sole proprietorship / sole traders

A sole proprietorship is a business that is owned by one person who also manages and runs the business. It is easy to establish – especially for small businesses – because there are no financial requirements to start this kind of business. The business is not a legal entity of its own, so the profits are directly reported on the business owner's personal income tax statement. This means that the owner pays tax on the profits that are earned from the business.

The management of the business largely depends on the sole proprietor. On the one hand, he/she can make all management decisions and does not necessarily have to consider other opinions. On the other, continuity problems may occur if the sole proprietor wants to retire or suffers a (long-term) illness. If the sole proprietor needs support, he/she can hire personnel. However, it will always be his/her task to make the most important management decisions and take all the risk.

Available financial funds for sole proprietors

Financial funds of the business mainly depend on the financial capabilities of the sole proprietor. If he/she lacks financial funds, it will be very difficult to set up the business. Most sole proprietors invest their **own savings** in their business. If they need some extra money, they can try to get it from **investors** and/or from **banks**. The owner's investment and financial funds from other investors and creditors are **external sources of finance**.

Banks and other financial institutions offer different kinds of **credit**, short-term (duration less than a year) as well as long-term. The creditor, e.g. the bank, provides money for a certain time period which needs to be repaid according to the agreement, usually with a rate of return (the interest). Creditors usually ask for assets that can serve as collateral, especially for long-term credit. Especially long-term **bank loans** are often based on land and property as collateral (mortgage).

The most common forms of short-term credit are a **bank overdraft** and **trade credit**. A bank overdraft is a very flexible instrument, because once the bank account has been opened, the sole proprietor can withdraw money from the account when it is needed. Interest is only paid when the account is overdrawn. Trade credit is based on an agreement with the supplier. Usually a business does not have to pay all purchases immediately but is provided a trade credit period. All kinds of credit – short-term as well as long-term – are **liabilities** for the sole proprietor.

The sole proprietor is liable for all debts and obligations so his/her private assets are also at stake if the business fails and debts need to be repaid and/or the private assets served as collateral.

As soon as the business starts operating and generates revenues, **internal sources of finance** can possibly be used. If revenues exceed expenses, the business makes a **profit** that can be **retained and reinvested** in the business (unless the profit is taken by the sole proprietor). Another option is the sale of assets that are not needed anymore. Internal sources of finance are very important to a business because no financial charges (e.g. interest) have to be paid for this sort of funds.

A sole proprietorship is not the appropriate legal structure for Tina and Steve. They want to share the tasks and the risk and have equal rights and responsibilities. Their idea of their own business is best realised as a partnership.

4.2 Partnership

If two or more persons jointly found a business, this business is called a partnership. They need to set up a partnership agreement in order to settle the rights and responsibilities as well as the division of profits and losses. In a general partnership all partners have equal rights, liabilities and responsibilities. They can share the tasks and specialise. In difficult situations they can exchange their ideas and (maybe) make better decisions. In Austria, this form of business ownership is called “*Offene Gesellschaft*”, or “OG” in short. Tina and Steve’s business is located in Austria and they choose to found such an “*Offene Gesellschaft*”, because they intend to be equally involved in the management of the business and share the financial risk. Its firm name is **T&S Computer Services OG**. They will (have to) set up a partnership agreement in which they specify each partner’s percentage of ownership, the division of profit and loss, terms of the partnership, rights and responsibilities, decision making and resolving disputes, and other details of the partnership.

Available financial funds for partnerships

In general, the financial aspects of partnerships are similar to those of sole proprietors. However, two (or more) partners should possibly be able to invest more savings and raise more financial funds than a sole proprietor. It also seems plausible that they can offer more (private) assets as collateral for getting a loan. Each of the partners is solely liable for all debts of the business (unlimited liability).

In a limited partnership there is at least one partner who is not involved in the management of the business and this person’s liability is limited to the amount of money that he or she has contributed to the business. This form of business ownership is called “*Kommanditgesellschaft*”, or “KG” in short, in Austria.

4.3 Corporations

Corporations are businesses that are **legal entities of their own**, which means that they have the same rights and obligations as people: legal persons can – just like natural persons – own land and property, hire people, close contracts, sue and be sued. The people who found the corporation and own a share of the business need not be involved in the management of the business, and the managers need not own a share of the business. Corporations are more difficult to set up, but the shareholders’ liability is usually limited to the amount of money they invested when buying the shares.

4.3.1 Shareholders are not (necessarily) managers of the business

So if shareholders only provide the money for share capital but are neither obliged nor entitled to manage the company, who does? The corporation is managed by the **board of directors**, persons who are elected by the shareholders to make all major business decisions and to represent the shareholders.

The highest-ranking manager of this board is called the Chief Executive Officer (CEO). Other board members are the Chief Financial Officer (CFO), Chief Operating Officer (COO), Chief Information Officer (CIO) or Chief Marketing Officer (CMO). The board of directors of AT&S consists of three persons with different tasks and responsibilities (see below).

a) **Andreas Gerstenmayer is Chairman of the Management Board (CEO) and responsible for**

- Sales/marketing
- Investor Relations/Public Relations/Internal Communication
- Purchasing
- Business Development Strategy
- Compliance

b) **Monika Stoisser-Göhring is Deputy Chairwoman of the Management Board and as SFO responsible for**

- Finance and Accounting
- Controlling
- Human Resources incl. CSR
- Legal & Internal Audit
- IT & Tools

c) **Heinz Moitzi is COO and responsible for:**

- Research & Development (R&D)
- Maintenance
- Production
- Quality Assurance
- Supply and Disposal
- Quality Management
- Business Process Excellence
- Environment & Sustainability
- Safety

Source: AT&S annual report 2017/18. The board of directors of AT&S, p. 11.

4.3.2 Available financial funds for corporations

Corporations usually have more options to raise financial funds than sole proprietors and partnerships. Their financial funds mainly comprise share capital as well as loans and credit.

Share capital

The capital of a corporation is divided into shares, which is why it is called share capital. If share capital equals 1,000,000 euros and is divided by 100,000 shares, each share (also called stock) represents 10 euros or 0.001 per cent of the share capital. Persons who buy shares become shareholders. Shares can be bought either at the time they are initially issued by the corporation or later on from some other shareholder who sells his shares. If all 100,000 shares are actually sold, the corporation gains 1,000,000 euros as share capital. This example shows that huge amounts of money can be raised from the sale of shares. The share capital of AT&S for example equals 141,846,000 euros. **Share capital is usually not redeemed by the company. It is long-term capital or even permanent capital.**

A corporation's stock can but does not have to be listed on a **stock market** or **stock exchange**. A stock exchange is a financial market, regulated by the authorities, where shares and other securities (e.g. bonds) can be easily bought and sold by lots of people and businesses. The corporations that want their shares to be listed have to comply with certain rules and fulfil listing requirements. The shares are introduced on the stock exchange at a certain price (this introduction is also called initial public offering (IPO)) and then the prices are determined by demand and supply. According to the laws of supply and demand, usually the prices go up if demand for shares is high and vice versa. There are a lot of reasons why demand for shares of a corporation can change: rising demand can be due to people's expectations that the business is doing well, that it will make profits in the (near) future,

that it will increase market share and/or successfully introduce a new product. Demand for shares is also influenced by economic indicators like economic growth, interest rates and inflation. Usually there is higher demand for shares when the economy is thriving (because many people have money to invest), with comparatively higher rates of inflation (because share prices would also increase) and comparatively low interest rates (because high interest rates would make other investments more attractive). Please note that an increase in share prices after they have been issued does not have any additional financing effect for the issuing corporation. The beneficiaries of this increase are the shareholders only.

Among the biggest and most well-known stock markets of the world are the New York Stock Exchange (NYSE), Nasdaq Inc. in New York, London Stock Exchange (LSE), Tokyo Stock Exchange, Hong Kong Exchanges and Clearing, and Shanghai Stock Exchange. Apart from the LSE, the most important stock exchanges in Europe are the *Deutsche Börse* in Frankfurt, the NYSE Euronext (Europe), the *SIX Swiss Exchange* (Geneva, Basel and Zurich), *Borsa Italiana* in Milan, and the Spanish Exchange.

There are many reasons why people invest in shares. The most important reasons are:

- The intent to provide money for a business they believe in and want to support financially.
- **Annual income:** The wish to get dividends in return; **dividends** are (part of the) profits of the corporation that are paid to the shareholders. There is no obligation for a corporation to do so, but if no dividends are paid over a longer period of time, the shares might become unattractive for investors and decreasing demand might lead to falling share prices.
- **Capital growth:** The hope that share prices will rise and the shares can be sold at a higher price than they were bought at.
- The wish to go to the annual stockholders' meeting and have the chance to vote and influence some business decisions (because **common stock** includes the right to vote at the stockholders' meeting). Shareholders of **preferred shares** of stock do not have this right but earn a higher dividend.
- That an investment in shares represents an **investment in real values** that will not lose its value so easily even in times of high inflation.

In some English-speaking countries, the **public limited company (PLC)** is one type of such a corporation. The term PLC is more commonly used in the United Kingdom and some Commonwealth countries. In the USA and other countries, you would rather find the denomination "**Inc.**", which stands for "**Incorporated**", or "**Ltd**" for "**Limited**". In German-speaking countries this form of legal structure for a business is called "*Aktiengesellschaft*" (abbreviated AG) as "*Aktien*" means "shares" and "*Gesellschaft*" stands for "corporation". The minimum capital requirement for founding an AG is 70,000 euros, which is the main reason why Tina and Steve do not consider an AG the appropriate legal structure for their business.

Another type of corporation is the **European Company (SE, société européenne)**. It is similar to an "*Aktiengesellschaft*" or PLC governed by Community law directly applicable in all – and only in – member states of the European Union.

AT&S is an "*Aktiengesellschaft*" according to Austrian law, and the shares were initially listed on the Neuer Markt of the Frankfurt Stock Exchange in July 1999. In spring 2008, AT&S decided to switch to the home stock exchange in Vienna. AT&S has been quoted in

the Vienna Stock Exchange's Prime Market segment since 20 May 2008. At the same time, application for delisting from the Frankfurt Stock Exchange and withdrawal of the admission for AT&S shares to be traded on the regulated market (Prime Standard) of the Frankfurt Stock Exchange was filed. The delisting became effective as of Sunday, 14 September 2008. Therefore, the last day on which AT&S shares could be traded on the Frankfurt Stock Exchange was Friday, 12 September 2008. Since Monday, 15 September 2008, AT&S shares have been listed exclusively on the Vienna Stock Exchange (source: <https://ats.net/investors/ats-share/basic-information/>).

According to the annual report that AT&S has to publish in order to provide information about its business activities and financial performance, about one third of the shares are held by two foundations. The rest is free float, which means that these two thirds of shares are actually available on the stock exchange. A number of institutional investors have invested in shares of AT&S, but around one third of the stocks are held by private investors and other shareholders.

SHAREHOLDER STRUCTURE At the time of the publication of this Annual Report 2017/18 in June 2018, AT&S had the following shareholder structure:

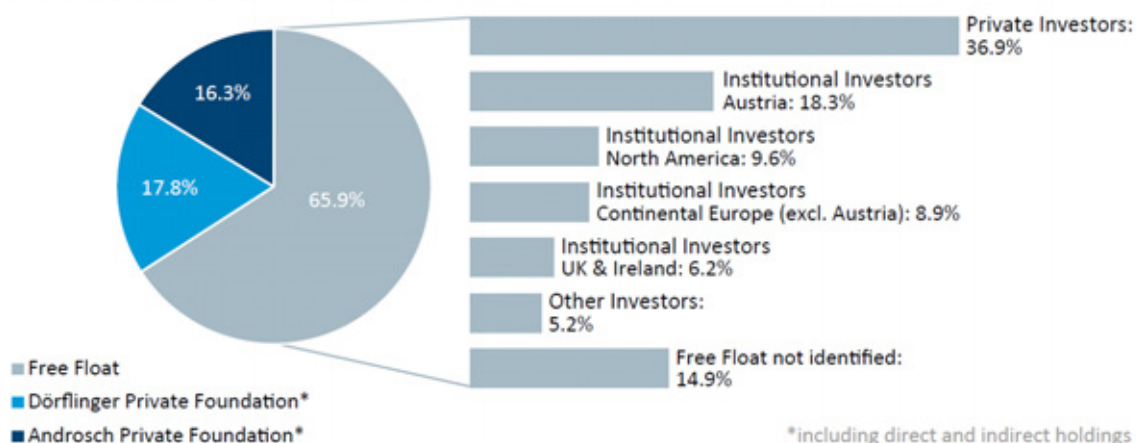


Figure 8. Shareholder structure of AT&S (source: annual report 2017/18)

There are some **key figures** on shares that are of interest for investors:

Share price and its development is one of them, and as can be seen from table 2, the price has risen over the past years, peaking at a price of almost 28 euros in the financial year 2017/18 and falling to 22 euros at the end of that financial year.

Market capitalisation or “market cap” is another metric that is often used – especially by institutional investors – to evaluate a corporation’s size. In order to diversify their risks, investors usually buy shares from a number of companies that differ in various criteria, one of which is company size. Market cap is the total market value of a company’s (outstanding) shares (= shares currently held by all the shareholders multiplied by the current market price). Market cap is not necessarily a meaningful metric for the value of a company because there are many reasons (that are not related to the value of the company) why share price might be particularly high or low.

Dividend yield expresses the dividend in relation to the share price.

Price–earnings ratio (P/E ratio) per share refers to a company’s current share price relative to its earnings per share. A P/E ratio of 15.94 means that an investor can expect to in-

vest almost 16 euros in AT&S in order to receive one euro of AT&S's earnings. This ratio can be used to make comparisons between companies or for one company over time. A low P/E ratio usually indicates either that the shares are currently undervalued or that the company is thriving and earnings are high.

Key stock figures	Unit	2017/18	2016/17	2015/16
Closing price at 31 March	€	22.00	10.29	12.90
High	€	27.95	13.43	16.35
Low	€	9.16	9.07	10.12
Market capitalisation, end of reporting period	€ in millions	854.7	399.8	501.2
Average share turnover per day	€ in thousands	2,079.3	800.8	914.4
Average number of shares traded per day	Shares	111,800	76,200	65,400
Dividend per share ²¹	€	0.36	0.10	0.36
Dividend yield (at the closing price)	%	1.6%	1.0%	2.8%
Earnings per share	€	1.38	(0.59)	1.44
Carrying value per share	€	18.31	13.90	14.64
Price-earnings ratio per share	-	15.94	(17.44)	8.96

²¹ 2017/18: Proposal to the Annual General Meeting on 5 July 2018.

Table 2. Key stock figures for AT&S (source: annual report 2017/18)

Liabilities

Apart from loans and credit that other businesses can also use, big corporations also have the option to issue bonds. **Bonds** can be regarded as a loan between investors as creditors and a corporation. The investors provide the corporation with a certain amount of money for a specific time period, based on an agreement when to repay the debt and how much interest to pay.

Issuing bonds can be more attractive to corporations than borrowing from banks. The interest rate for bonds is often less than the interest rate for a bank loan. Borrowing large sums of money at low interest rates enables corporations to invest in long-term assets like plants, new infrastructure and other large-scale projects.

4.3.3 Private Limited Companies

There are forms of private limited companies in many countries of the world. As a form of corporation, they are legal persons and the owners' liability is limited. However, shares usually are not sold to the general public at the stock exchange but are offered to the other owners of the company. The Limited Liability Company (LLC) in the USA, private company limited by shares in the UK, and the "*Gesellschaft mit beschränkter Haftung*", or GmbH in short, in Austria and Germany are examples of such private limited companies. Tina and Steve could also have founded a GmbH but the minimum capital for such companies is 35,000 euros in Austria. So they preferred to found a partnership, but think that a limited liability company might be an interesting option for the future.

4.4 Summary: Overview of forms of business ownership

Figure 9 summarises the various forms of business ownership. It differentiates between unincorporated and incorporated businesses. While unincorporated businesses are not legal entities of their own, incorporated businesses are legal persons.

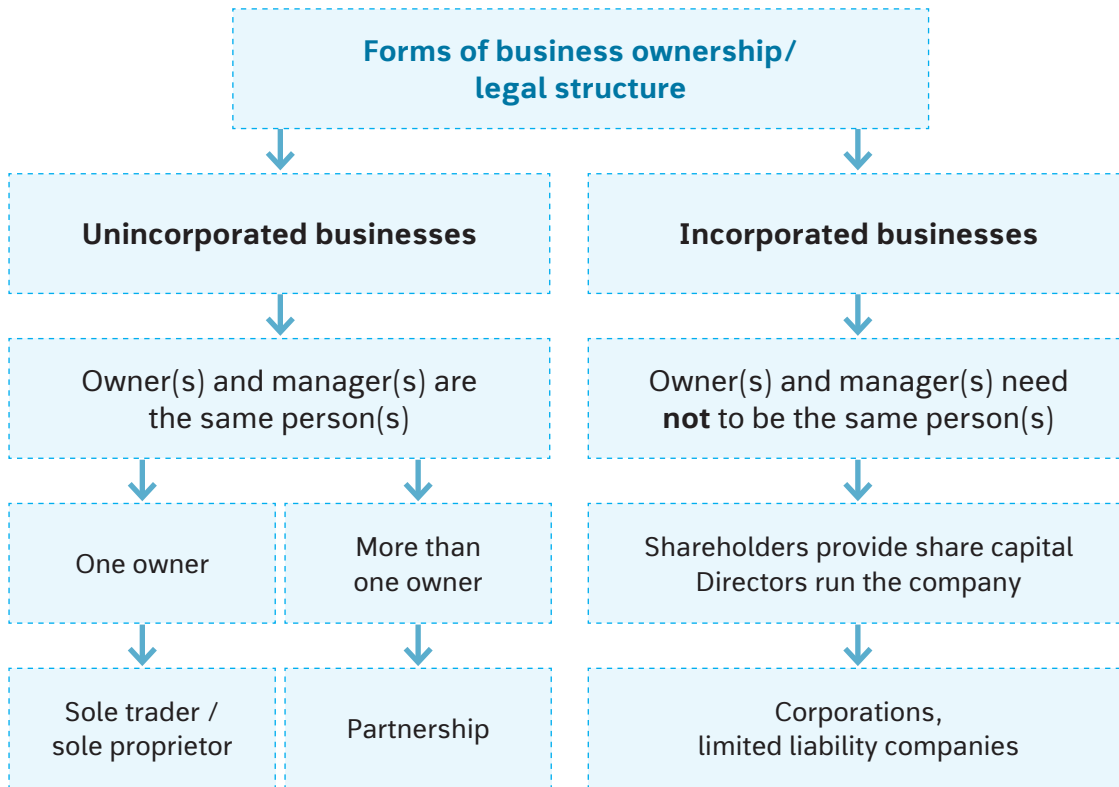


Figure 9. Forms of business ownership

4.5 Overview of sources of finance

Table 3 gives an overview of the most commonly used sources of finance. The balance sheet reveals the sources of finance that a business has used (see chapter 6, Accounting). Large businesses are obliged to draw up such a balance sheet.

Equity finance (internal and external)	Debt finance (external)
Funds provided by investors (external)	Short-term credit: e.g. bank overdraft, trade credit, short-term (bank) loans
Share capital (external)	Long-term credit: e.g. bank loan, loan provided by owners, bonds
Retained earnings (internal)	

Table 3. Sources of finance

4.6 The choice of the source of finance

If a business has several sources of finance available that it can choose from, it will most probably make its decision based on costs, the intended use of the financial funds and its current financial situation:

- Costs comprise interest payments for loans and credit or administration costs for issuing shares or bonds.
- If the financial funds are used for capital expenditures (e.g. for buying assets that will be used over some or even many years), long-term finance is required. Revenue expenditures (e.g. buying material that is used for production) can safely be financed by short-term sources.
- A business that already has a high proportion of loan capital (also called a “high geared” business) might have difficulties obtaining more credit. Lenders might be reluctant to offer more funds, only at a higher price (a higher interest rate) and/or if collateral can be offered. Such a business should rather try to use internal sources of finance and/or find investors or business partners who are willing to provide funds. As loans must be repaid, a high proportion of loan capital can be a burden (risk of insolvency).

5 Marketing

Producing a good or providing a service only makes sense if there are enough people who are interested in the good or service and ask for it. It is not only businesses that seek to make a profit that need sufficient demand for their goods and services. Non-profit organisations can also only exist over a longer period of time if their goods and services meet a demand. Therefore, “having a market” and knowing the market is highly important to all kinds of businesses. Marketing activities intend to achieve this goal. They also intend to tailor the products to customers’ needs and wishes and to continuously improve the product.

Critics say that marketing, especially promotion, influences many people to buy more than they actually need or can afford. By continuously innovating products, businesses contribute to the obsolescence of existing products, which leads to more and more consumption. In some cases, marketing creates desires that people would not otherwise have had.



People who are less critical have a similar understanding of the term “marketing”. They say that a business has “good marketing” if they like the TV adverts or the display of products in a shop. However, marketing is much more than good advertising, although this is the most visible part of marketing. What is marketing all about?

There is no single, universally accepted definition of marketing. According to the American Marketing Association, marketing is “the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large” (www.ama.org). Other definitions have adopted a very similar approach. They describe marketing as an ongoing management process that aims at

- identifying the (potential) customers’ needs and wants,
- developing the product(s) and the product features accordingly and
- communicating the products and their benefits to the (potential) customers
- at a price that consumers are willing to pay and
- made available to them through a distribution network.

Some consider it even more than a management process – in their eyes, it is a **philosophy that is present in the whole business**. Either way, marketing is about **creating value for the customer**. It is based on the analysis of the strengths of a business and its know-how that is put into the development of its products. It also requires a thorough analysis of the market and the wishes and needs of (potential) customers in order to offer products that

solve customers' problems and fulfil their wishes and needs. Benefits for the customer may be the functionalities of the product but also some additional features, the image that it conveys and the joy it gives to its user.

A mobile phone creates value for example, because you can reach your family and friends from wherever you are (so it creates value through functionalities), and you can also receive emails, messages and surf online (additional features). If you buy the latest model of a certain mobile phone with lots of additional functionalities, everyone thinks you are an expert in the field and that makes you happy.

5.1 What a product is

In marketing terminology, a **product is every good and/or service that can be exchanged in order to fulfil the wishes and needs of customers**. Customers can be either other businesses or consumers (private households). Producer products are goods and services that are sold from one business to another (business-to-business, B2B), while consumer products are sold to consumers or private households (business-to-consumer, B2C). If Steve and Tina buy a printer for their office, it is a producer product. If the exact same printer is not used in their office but in their private homes, it is a consumer product. Tina and Steve offer computer support services, mainly to private households (B2C), but also to other businesses (B2B).

5.2 Objectives of marketing

In order to fulfil customers' wishes and needs, a business has to analyse the market(s) it wants to operate in and be clear about its **marketing objectives**. They may include but are not limited to:

- **Customer satisfaction:** If customers are not satisfied with the product, they will not buy it (again). Satisfied customers often become loyal customers who will possibly buy the product again. This is why this objective is interrelated with the other ones.
- **Creating a unique selling proposition (USP):** If a product has a USP, it is or is considered to be – in one way or another – different from other similar products. This is also called product **differentiation** and can be based on a certain characteristic of the product or to the way it is promoted and perceived by customers. Building a brand supports creating a USP. The product is or seems to be “special” or “unique” or “better than the rest”. A business is interested in creating a USP for its product(s) because this helps to attract many loyal customers.
- **Gaining and maintaining market share:** Businesses will be interested in having a certain share of the market – it indicates their relative importance in the market compared to their competitors' positions. It is therefore an indicator of competitiveness.
- **Maintaining or increasing sales:** Sales are important to businesses because they need the revenues to cover the production costs and to make a profit,
- **Profitability:** Usually the higher the sales figures are, the more profit a business will make (with certain limitations). Profits are important because they reimburse the owners for the invested money and they can be retained and reinvested in the business.

5.3 Product orientation versus market orientation

Over the past decades, many businesses have moved from a product-oriented approach towards a market-oriented approach. While a product-oriented business focuses on the product and its specifications first and later thinks about how to sell it, the market-oriented business will first analyse customers' needs and wants and then tailor their products to fulfil these requirements. Both businesses may have some of the marketing objectives mentioned above (they may even be identical), but the product-oriented business mainly relies on the quality of the features of the product to be successful in the market. The market-oriented approach has the advantage of anticipating changing needs and wants and of responding to these market changes earlier than the product-oriented competitors. It largely depends on the product itself and the number of competitors which of the two approaches is more suitable for a business. However, the market and the expectations of customers should not be neglected.

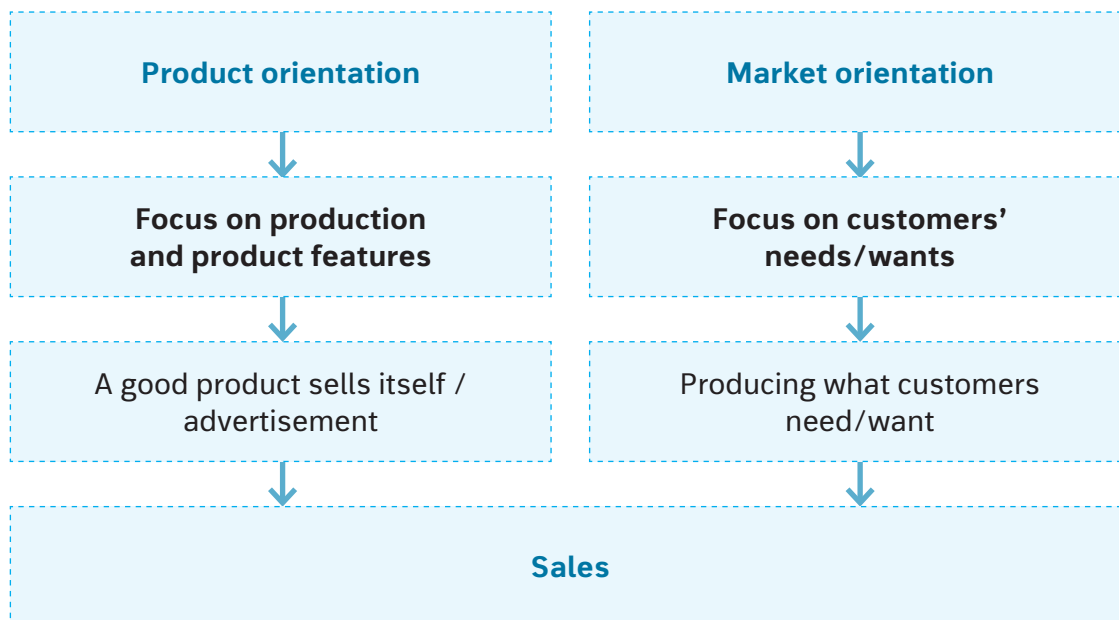


Figure 10. *Product orientation versus market orientation*

Customer relationship management (CRM) aims at creating a long-term relationship with customers. Their data is kept to mail or email them newsletters, coupons and product information so that they will come back and buy again. Using personal data has become a very important topic and the sensitive use of personal data is indispensable. However, by using personal accounts and loyalty cards, customers often give up their anonymity willingly in order to receive discounts and use other special offers. So many businesses collect data on their customers and their buying behaviours and can tailor their offers to their customers' personal preferences.

5.4 The need for more responsibility and sustainability

It is often claimed that businesses not only focus on what customers need or want, but that they also create wishes and needs by continuously developing new products and advertising them, sometimes even in unethical ways. The fact is that many people spend more money than they can afford to or at least more than they initially intended to spend. They buy things that they do not really need and will not use (or just for a very short period of time). Therefore, it seems desirable that both businesses and consumers become more aware of the importance of sustainable production and consumption and realise the potential risks of consuming too much. Both businesses and consumers need to act in a more responsible and sustainable way. Tina and Steve hope to contribute to sustainability with their business. Computers should be used longer and not immediately replaced if a problem occurs, but repaired and reused. There are similar tendencies in the market for clothes. More and more people no longer want to buy cheap clothes that are thrown away after a few months. They prefer high-quality clothes that they can give to their friends and might get some other good clothes in return. Renting high-quality clothes is another trend. Instead of buying (cheap) clothes for a particular event you rent clothes of higher quality and return them afterwards.

5.5 Market research

Market research provides information about existing and prospective customers of a business, the (potential) buyers of its product(s), about the competition, and the industry in general. This information, the research data, can be based on two sources.

5.5.1 Primary sources

Primary information is gained by conducting an empirical study or having data collected by a market research institute. This study can be tailored to the needs and interests of the business. A business might be interested to know who their customers are, which products they buy, what they think about these products, if they also buy similar products of other businesses. Steve and Tina for example would love to know more about their prospective customers: which computers do they need/want? How much are they willing to pay for laptops? How much and which kind of support do they need? And do men and women, older and younger users differ in their answers to these questions?

But conducting a study can be very costly: administering hundreds or thousands of questionnaires, conducting personal or telephone interviews, setting up an online survey, analysing and interpreting the data costs a lot. Especially small businesses often cannot afford this sort of market research.

5.5.2 Secondary sources

Secondary information is based on existing research that has already been done by somebody else (and maybe for some other purpose). Government agencies, trade and/or industry associations or other businesses often conduct research that is available free of charge and might also serve the purpose of learning more about the market. However, in most cases, the information will be very general and not tailored to the specific interests of a business.

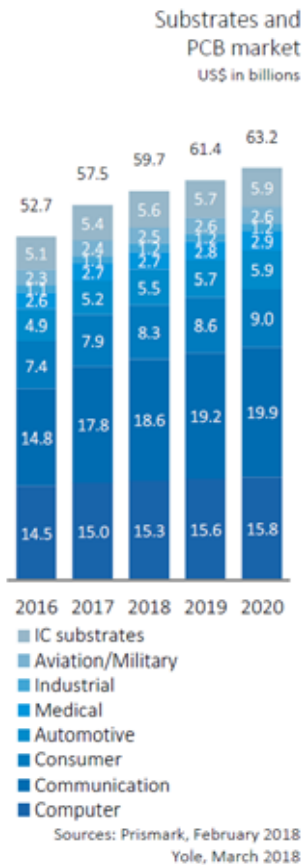
5.5.3 Customer analysis

Customer analysis will often be an important element of market research activities. In order to learn more about (potential) customers, a business will try to learn more about:

- **Who** its current and potential customers are: If they are consumers, the business operates in a business-to-consumer market (B2C), otherwise in a business-to-business market (B2B). Also, the buyer and the user of a product might not be the same persons. Some people might influence the buying decisions (e.g. children), although the purchase is made by someone else (the parents, grandparents etc.).
- **What** the customers do with the products: The more a business knows about the preferred use of a product, the more it can develop and improve it according to customers' needs.
- **Where** the customers buy the products: This piece of information helps identify the preferred channels of distribution. An analysis can also show weaknesses in the distribution channels and encourage the use of alternative channels.
- **When** the customers buy the products: This can be helpful to identify seasonal fluctuations and accordingly plan ahead the production and consider price differentiation over the year.
- **Why** customers choose a product or why they prefer another product: Learning more about motives and preferences is important for product development and for enhancing market share.

5.5.4 Market measures

Market research can also focus on measuring the market. **Market size** (or **market volume**) is the total sales of a product of all the businesses in the market. Market size can be expressed as a value (e.g. in euros) or as a quantity (number of pieces sold). AT&S, for example, is interested in the electronics market, especially in the market for substrates and PCBs. It is relevant for AT&S to see how these markets develop in order to evaluate its own position in the market and the potential development in the years to come. That is why at AT&S they have researched and collected data on these markets, as can be read in the annual report.

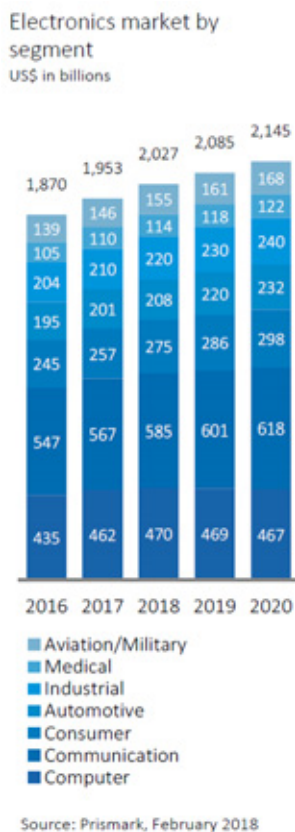


In the AT&S annual report 2017/18, it reads as follows:

According to current forecasts, the printed circuit board and substrate market is expected to increase from USD 57.5 billion in 2017 to USD 59.7 billion in 2018 (+3.8%). By 2020, further annual growth of just under 3% is expected (sources: Prismark, February 2018; Yole, March 2018).

The computer, communication and consumer segments ('CCC') still account for a 70% share of the market. Key applications in these areas are smartphones, PCs and tablets, and servers. New applications such as wearables (smartwatches, smartglasses, etc.), 'Internet of Things (IoT)' devices or devices requiring high computing power for artificial intelligence offer excellent growth opportunities in the long term and are not limited to CCC applications. The automotive, aviation, industrial and medical segments ('AIM') correspond to roughly 20% of the total market and consist of a wide variety of applications; in addition to infotainment, applications for autonomous driving also promise attractive growth opportunities in this area. IC substrates account for the remaining approx. 10% of the market.

Source: AT&S annual report 2017/18, p. 79.



The global market for printed circuit boards and substrates is part of the entire electronics market, which comprises all electronic devices and electronic systems produced. The 25 largest electronics producers include manufacturers of end devices and electronic system suppliers from all relevant market segments (communication, consumer, computer, automotive, industrial and medical). Overall, the global electronics market is expected to reach a volume of approximately USD 2,027 billion in 2018, with annual growth rates of roughly 2.9% between 2018 and 2020 (Source: Prismark, February 2018). The strongest growth is forecast for the segments automotive, at 5.5%, industrial, at 4.4%, consumer, at 4.1% and communication, at 2.8%. In contrast, the computer segment is expected to decline slightly (-0.3%).

Source: AT&S annual report 2017/18, p. 79.

Figure 11 and Figure 12. Market measures in the AT&S annual report 2017/18

Market share refers to the proportion (percentage) of a certain market that is held by a business or its products or brands. It is calculated by dividing the sales of a business by the amount of total sales in the market.

Absolute market share =
sales volume of one business (or one brand) / market volume

Example: if the sales volume of one business is 150,000 euros and the whole market volume is 1,000,000 euros, the absolute market share of the business will be 15%.

Absolute market share is important information for the business itself, but also for (potential) investors. However, this figure does not tell a lot about the other competitors in the market. Relative market share shows how a business (or one of its brands) is doing in terms of its largest competitor. This figure adds context to calculating the market share:

Relative market share =
market share of a business (or a brand) / largest competitor's market share

Example continued: if the largest competitor has a market share of 30%, then the relative market share will be $15/30 = 0.5$

	Volume	Potential
All businesses in the market	<p>Market Volume Sales volume of all firms in the market</p>	<p>Market Potential Market volume + Potential customers</p>
One business	<p>Sales Volume Sales volume of one firm</p>	<p>Sales Potential Sales volume + Gains from competitors + Share in the increase of market potential</p>

Figure 13. Market and sales volume versus market and sales potential

Based on the assumptions that there are potential customers in the market that could be won, the market potential exceeds market volume, and the sales potential of a business exceeds its current sales volume.

5.6 Market segmentation and targeting strategies

Market research may reveal that some characteristics (like age, gender, education level, income level, behavioural patterns, interests etc.) may be relevant for describing the (potential) customers of a business. Steve and Tina have thought about such characteristics and identified the following ones:

- **Geographic:** The Austrian city where their business is based and the surrounding area.
- **Demographic:** Adult men and women, all ages, employed and retired as well as self-employed.
- **Psychographic:** People who want to get a laptop, but are not willing to pay the full price for a new one; people who care about the environment and are happy to use something second-hand; people who want assistance with getting their laptop started etc.
- **Buying behaviour:** People who buy a laptop for occasional use (not heavy users) etc.

These characteristics can possibly be used to differentiate between relatively homogeneous subgroups of customers (market segmentation). Segmentation makes sense for a business if the segments are measurable (size, purchasing power etc.) and profitable, accessible by communication and distribution channels, and durable (not changing too quickly). If such segments can be found, the business selects the segment(s) that it wants to target with its products (targeting). The next step is to position the products so that it becomes clear which product meets the demands of the targeted subgroups. Positioning is the process by which marketers try to create an image or identity in the minds of their target market(s).

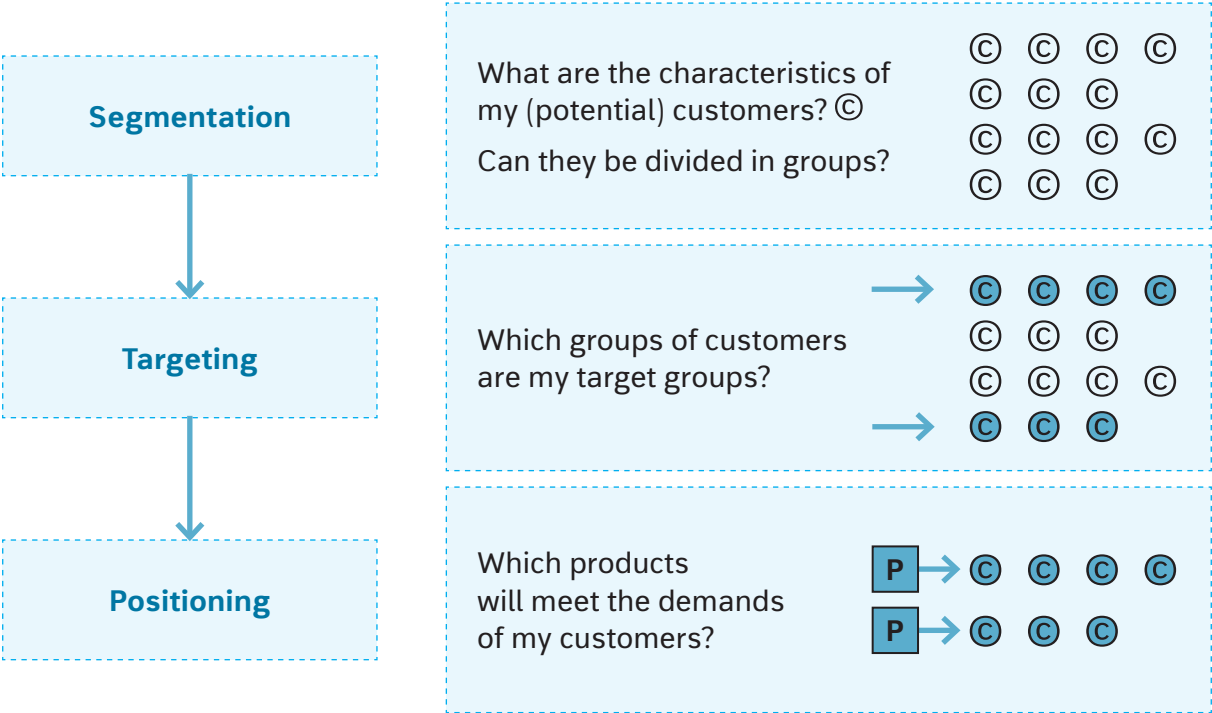


Figure 14. Market segmentation, targeting and positioning

Mass marketing, segment marketing and niche marketing

A business applies **mass marketing** if it ignores the different segments of a market and offers the same product to all customers. The product is promoted to all segments of a market in almost the same way. Mass marketing is often applied for products like pens and pencils, soaps, personal hygiene products and detergents because they are used by so many people regardless of their personal characteristics. Mass marketing allows a business to produce a relatively large number of the same product and sell it to a relatively large market. On the one hand, this enables the business to gain economies of scale: if a large number of identical products is produced, some costs will not increase accordingly (in a directly proportional way) but can be divided by a larger number of products. This results in reduced costs per unit due to an increased total output of a product. On the other hand, mass marketing is also inflexible and makes it more difficult to react to particular changes in some target markets.

Segment marketing means offering different products to one or more segments (**some segmentation**). Businesses focus their (limited) resources on offering products that are tailored to the needs and wants of their customers in the segments that they know best (strategic fit).

Niche marketing, however, focuses on particular segments of a market. Different products are offered to subgroups within segments (**more segmentation**). Many small businesses rather employ niche marketing because they would not be able to produce the quantity of products for a mass market. Some businesses just target selected segments of a market because they have specialised in a certain field. If they are good at it, they can be market leaders regardless of their size.

Tina and Steve have chosen niche marketing. They are a small business and they focus on the special needs of customers, not the mass market. They target individual persons, sole proprietors and small offices / home offices (that is their segment) with limited funds for their computer equipment, no need to have the latest computer model or release of a program and a high need of technical support (that is their niche within the segment).

Targeting is the first step towards an effective marketing strategy. It is based on the process of evaluating each segment's attractiveness and selecting one or more segments to enter. Therefore, a target market, a segment, is a group of people or businesses towards whom a business markets its goods, services or ideas with a strategy designed to satisfy their specific needs and preferences. In order to do so, it takes a good marketing mix as a second step to serve the target market.

5.7 The marketing mix

A marketing mix is a harmonised blend of several marketing tools that best meets the needs and wants of the customers of the targeted market. It consists of the four elements product, price, place and promotion – the four Ps – that each comprise several tools. It is the basic idea of the marketing mix to provide a good at an affordable price at a convenient place and communicate a certain message in order to promote the sale of the product.

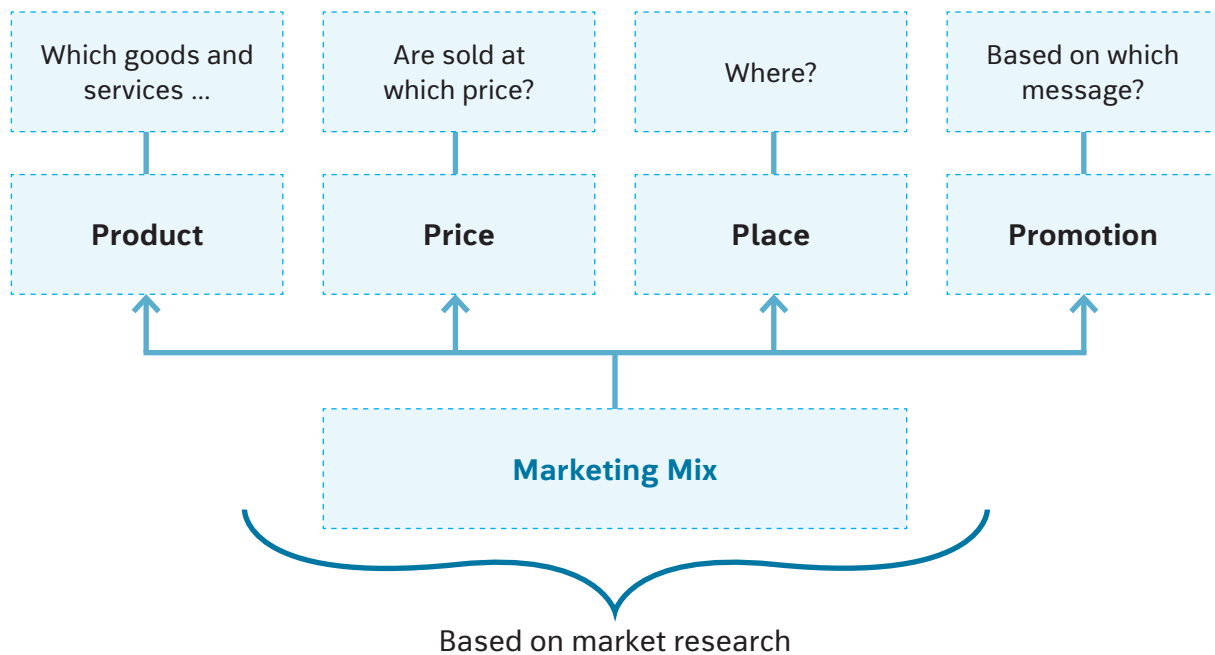


Figure 15. *The four elements of the marketing mix*

5.7.1 Product

The first P, “Product”, refers to all goods and services that are offered by a business. This “P” is always at the heart of marketing and the most important decision of a business. Most businesses offer not just one product, but a range of products. Products that are very similar (like several slightly different laptop computers) represent a product line. A business can produce just one product line (just laptop computers) or different product lines (laptop computers, monitors, printers, storage media, and so on).



Brands are created to support product differentiation. A brand consists of a name or a (few) word(s) and/or a symbol and/or a sign. It distinguishes a product or the business from other products and businesses and is intended to build a USP and brand recognition as well as brand loyalty. Some brands are well known all around the world and look the same wherever you find them: the same colour, the same font etc.

Brands also serve as a guarantee of stable quality and of a certain level of quality that is maintained all over the world. Brands can render trust and safety of choice for a customer. For many people it is reassuring to find some brands that they are familiar with when they are travelling in foreign countries and feeling uncomfortable or homesick.

The product mix

According to the product-mix strategy of a business it can specialise in one sort of product (by offering just one product line) or diversify its production (by offering different product lines, increasing product mix width) or even both.

As consumers' needs and wants change over time, products need to be altered from time to time. Minor changes (like different packaging, colours, etc.) are called a **relaunch**. If a relaunch is not enough to keep customers satisfied, then major changes are necessary or the product has to be eliminated from the product line altogether. Businesses can either add new products to an existing product line (which is a line extension, like producing more flavours of ice cream) or they can add a new product line (which is a mix extension, like yogurts in addition to ice cream). Products can also be altered over time (creating a new range of ice cream products instead of the existing one) or eliminated from the product range of a company if a relaunch does not seem promising.

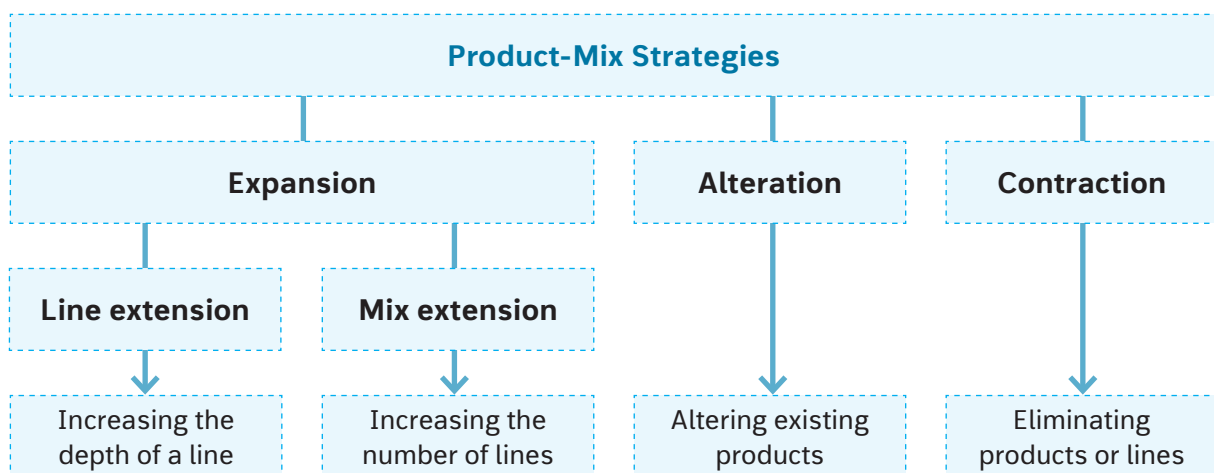


Figure 16. Product-mix strategies

Tina and Steve also offer more than one product. They effectively have three different “products” in their portfolio:

- Used computers and computer equipment that is in good condition and ready to use.
- Services relating to the computer, online help, technical support.
- Development of software that is needed.

While they target both consumers and businesses with the first two “products”, the third one is more relevant for businesses that might need some software that is tailored to their needs and not yet available.

Other businesses like AT&S mainly target other businesses that need the AT&S products for their own production (like Apple for example, which needs AT&S components for producing mobile phones). Depending on the application intended by the customer, AT&S has developed three different business units with a different range of products:

Segments	Mobile Devices & Substrates	Automotive, Industrial, Medical	Others
	<ul style="list-style-type: none"> Segment revenue: € 738.9 million* Share of Group revenue: approx. 65% EBITDA: € 179.0 million EBITDA margin: 24.2% <p>Characteristics High-end technology driver, volatility due to seasonal fluctuations, short product cycles of roughly 12-15 months for high-end printed circuit boards</p> <p>Product portfolio IC substrates – HDI any-layer PCBs and HDI PCBs with or without mSAP layers – multilayer PCBs – flexible and rigid-flex PCBs</p>	<ul style="list-style-type: none"> Segment revenue: € 364.9 million* Share of Group revenue: approx. 35% EBITDA: € 46.8 million EBITDA margin: 12.8% <p>Characteristics Stable development due to longer product cycle of up to seven years</p> <p>Product portfolio HDI microvia PCBs – multilayer PCBs – double-sided PCBs – IMS PCBs – flexible PCBs – semiflexible PCBs – rigid-flex PCBs – flexible PCBs on aluminium – 2.5D technology platform</p>	<ul style="list-style-type: none"> Segment revenue: € 8.1 million* Share of Group revenue: < 1% <p>Characteristics Includes the Advanced Packaging business unit and Group activities</p> <p>Product portfolio Embedded component packaging</p>

Figure 17. Business units of AT&S (source: annual report 2017/18).
Please note: the term EBITDA will be explained in chapter 6, Accounting

The first business unit produces components that are used for manufacturing mobile phones, tablets, laptops and digital cameras. The second one focuses on components that are needed for the production of driver assistance systems in cars, for control systems in all kinds of machines and for diagnostic medical instruments. The third one specialises in the production of memory cards and power modules in phones. Though these products may seem similar at first glance – especially to those who have little technical knowledge – they differ in their characteristics, e.g. their product cycles, and in the way they satisfy different customer needs and wants – they address different segments.

The product life cycle and the Boston Consulting Group matrix

The product life cycle represents a **theoretical model of several stages over the life span of a product** that differ in sales volume and in profit.

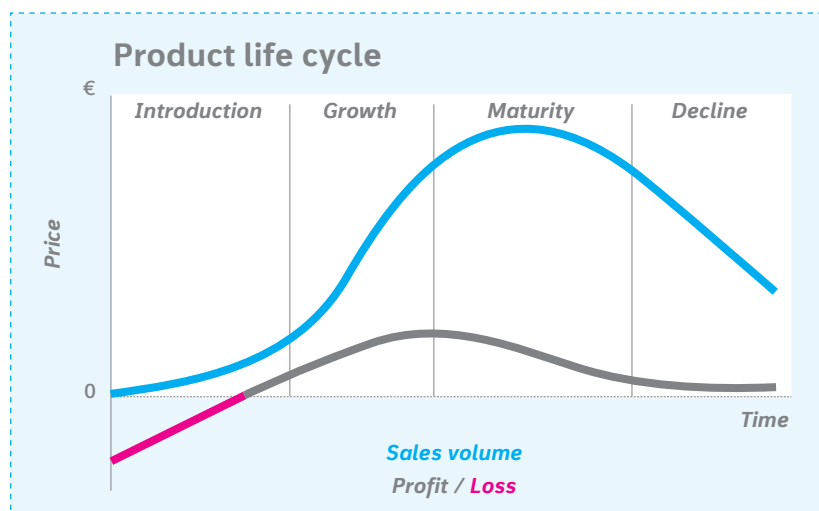


Figure 18. The product life cycle

Before a product is introduced to the market, there are no sales, so no money is flowing into the business. However, there are costs from product development, so the introduction phase starts with a loss. After the product launch, the product begins to sell. But costs might still be higher than sales because the business needs to spend a lot on promoting the product (advertisements, sales events) and introductory prices might be low to attract customers. In this phase, the product can be a so-called “question mark”. According to the Boston Consulting Group matrix, a product with low relative market share in a market that is rapidly growing is a “question mark” (see figure 19). Towards the end of the introduction phase, revenues exceed costs and a (small) profit is made.

During the growth period, sales increase more rapidly than costs (average costs might even fall due to increased output and economies of scale). As market share increases in a market that is still growing, the product may become a “star”. Stars are very valuable to businesses because of their strong market position. In order to maintain this position, businesses need to invest money in promotion and in production facilities. Usually, the business finally makes a profit in the growth stage that peaks in the maturity stage.

As soon as the market is not growing that fast anymore, but market share is still high, the product becomes a “cash cow”. Businesses usually do not invest so much money anymore because market growth has become low. So revenues are (still) high but expenses decrease.

However, profits will – sooner or later – tend to fall again due to increased competition, which often causes lower prices and higher costs (for promoting the product). The product more and more becomes a “poor dog” as it nears the decline stage. Sales fall (sometimes even rapidly) and so do profits. Market growth is low and market share might also be relatively low.

The product life cycle varies enormously in duration across product categories. The maturity stage can take months or years – some products like detergents, toothpaste or perfumes seem to have an indefinite maturity phase. Other products (“fads”) have a very short life cycle and have to be withdrawn after less than a year.

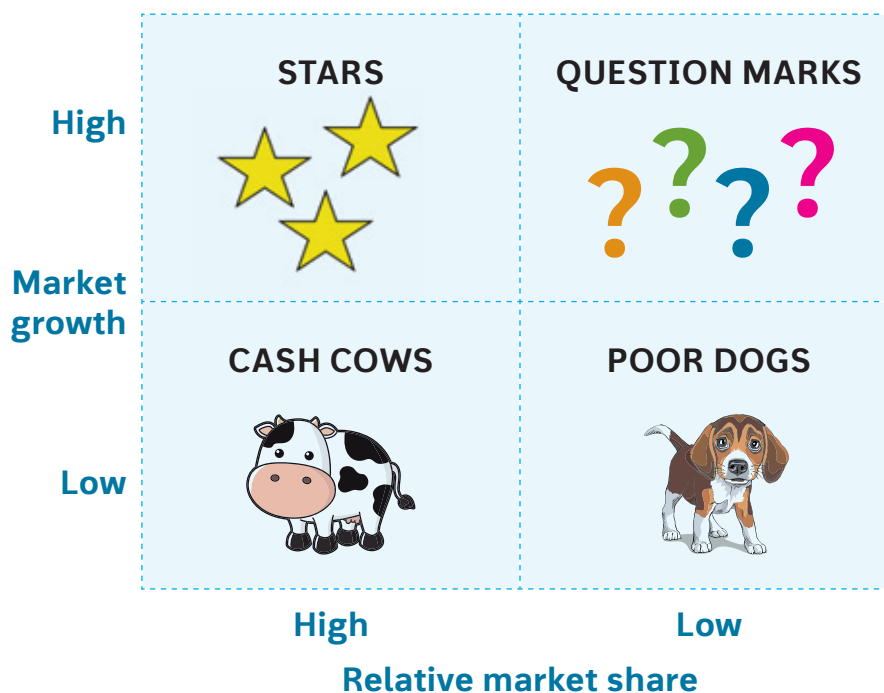


Figure 19. The Boston Consulting Group matrix

The product portfolio of a business should be balanced – a blend of stars, cash cows, question marks and not too many poor dogs. Revenues from the cash cows can be used to support the stars (because they are the future cash cows) and invest in question marks that the business believes in. Table 4 summarises the product life cycle characteristics and the strategies that can be adopted in the different stages of the product life cycle.

	Introduction	Growth	Maturity	Decline
Strategy	Market development	Market penetration	Defensive positioning	Efficiency or exit
Customers	Innovators/early adopters	Mass market	Mass market	Loyal customers
Sales	Low level, then rising	Rapid growth	At a peak, slow growth	Declining
Profit	None (loss)	Strong, then peak	Declining	Low/none

Table 4. Product life cycle characteristics

In order to prevent sales from declining, a business may decide to use a strategy to extend the life cycle of a product (an “extension strategy”). Changing the product mix and entering new markets are the most important extension strategies, as can be seen in Ansoff’s product–market matrix.

Ansoff’s product–market matrix as a development tool

The Ansoff Matrix, also known as the product–market matrix or the **product/market expansion grid**, is a development tool for businesses. In order to develop and grow in the long term, they need to continuously rethink their strategies and be ready to change, even in times when the business is going well. They need to consider alternative ways to reach new customers by further developing their products and creating new ones.

	Existing market	New market
Existing product	Market penetration	Market development
New product	Product development	Diversification

Figure 20. The Ansoff Matrix

Market penetration, in the upper left quadrant in figure 20, is the safest of the four options. Adopting this strategy, a business focuses on expanding sales of the existing product(s), e.g. ice cream, in the existing market. This can be achieved by improving the product (e.g. enhancing the flavour), by promoting it in new ways (e.g. new TV adverts), by using additional distribution channels or by increasing sales personnel. This is a low-risk strategy, because the business knows the product and the market.

Product development, in the lower left quadrant, is slightly riskier, because the business needs to introduce a new product into the existing market (a new flavour of ice cream or other products like cookies and chocolate). This will only make sense if a problem has been identified that cannot be solved with the existing product(s).

With market development, in the upper right quadrant, an existing product is put into an entirely new market. Businesses identify new target groups that might also find the product useful. Maybe a new use for the product can be found or some additional features or benefits can be added.

Diversification, in the lower right quadrant, is the riskiest of the four options. Not only is the product new but so is the market – two unknown variables at once. However, diversification can also be adopted in order to reduce risk in the long run. With more than just one product line that targets more than one segment of the market, a business can make sure that even if one product line suffers losses the other one(s) might still be profitable.

5.7.2 Price

The second P, “Price”, is also crucial and difficult to determine. Once a price has been set, it is very hard to change the pricing strategy because that would confuse customers. The lowest possible price is not always the safest choice to appeal to customers. The main influencing factors are:

- **Costs**, because costs need to be covered and – possibly – some profit gained. The approach of setting a price on the basis of cost is called cost-based pricing.
- The prices charged by the **competition** (because if the product is not superior or different to similar products of the competitors it will be impossible to explain a higher price).
- **Demand**, because it is also important to consider how much customers are willing to pay. If demand is high, a higher price can be set.

Cost-based pricing

In the long run, all businesses need to cover their total cost if they want to survive. Total costs comprise fixed costs and variable costs. Variable costs increase directly as output rises (the more computers sold and the more technical problems of clients solved the higher the variable costs are). Fixed costs are independent of the output, like the rent or insurance for the office. As soon as revenues exceed total cost, the business “breaks even”. The output that needs to be sold in order to “break even” is also called the “break-even point”.

Figure 21 shows this concept with a simplified example. Let’s assume Tina and Steve offered just one product (e.g. a certain type of laptop with certain specifications) that causes variable costs of 480 euros and can be sold for 720 euros. Fixed costs amount to 130,000 euros (independent of the output that is produced). Figure 21 shows fixed costs, variable costs, total costs and revenues for different levels of output of that laptop.

Fixed costs are a straight horizontal line. In the short run, they remain the same regardless of the output. Of course, fixed costs could increase by a certain amount (“stepped fixed cost”) at a certain level of output because more office space, more equipment and/or more staff for administration are required. Variable costs increase directly as output rises. Total costs equal variable costs plus fixed costs. The point where the revenue line and the total cost line intersect is called the **break-even point**. It indicates the level of output a business needs to produce and sell to break even, i.e. to start making profits.

- Selling price €720 – variable cost €480 = €240 that contribute to covering fixed costs. This is why the difference between selling price and variable cost per item is also called contribution.
- The contribution of €240/item will contribute to the total fixed costs of the business (€130,000) and the profit.
- Fixed costs of €130,000 / €240 contribution per item = 541.67 items that it takes to cover the fixed costs.
- Starting with the 542nd item sold, the business will make a profit. Below that level, the business will make a loss.

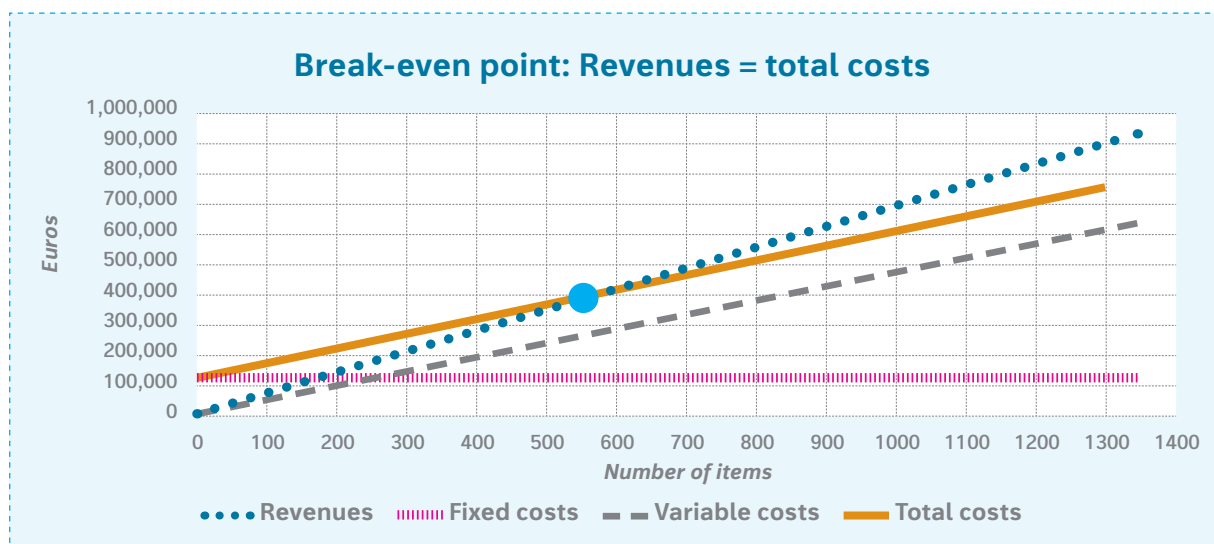


Figure 21. Break-even point

Of course, the break-even point can be reached more easily by increasing prices and/or by reducing variable costs.

Variable cost plus pricing / distribution pricing

In order to calculate prices, a markup is added to the variable cost of producing a good (or service). If Tina and Steve choose to add a 50% markup and the variable cost of one laptop that they have just repaired and set up is 480 euros, then the selling price for one laptop would be $480 + 240 = 720$ euros (excl. VAT).

Let's assume one customer offered to buy ten such laptops but was only willing to pay 6,000 euros for the ten laptops (excl. VAT). Should they refuse that offer? They would not earn the 50% markup, but they would be able to cover their variable costs (€4,800) and earn a contribution towards the fixed costs. Only if they are sure of selling the laptops to some-

one else for a higher price should they decline the offer. In fact, the variable costs of producing a good represent the absolute lower limit for the price of this good. As soon as the price exceeds the variable costs, this “excess” contributes to covering the fixed costs. Therefore, this amount is also called “contribution”.

So if variable costs for one of these laptops were 480 euros and the price was 600 euros (excl. VAT), then 120 euros would contribute to covering the fixed costs and making a profit. In competitive markets that require businesses to consider the pricing policies of their competitors, businesses usually employ distribution pricing when setting prices for new products or for contract bidding: they add a certain markup to *variable* costs.

Price elasticity of demand

Before changing prices it makes sense to consider how customers might react to an increased or decreased price. A price adjustment will not affect demand uniformly for all types of products. How demand is affected depends on the **price elasticity of demand**. Demand is “elastic” if the change in demand (in per cent) exceeds the price adjustment (in per cent). Let’s assume that lowering the price for used laptop computers from 500 to 400 euros (which is a price reduction of 20%) causes an increase in demand from 70 to 100 pieces (an increase in the quantity demanded of 43%). People who were thinking about buying a laptop computer now decide to buy one. And even people who already have a desktop computer purchase a laptop computer as a second option. Demand is elastic and price adjustments may make sense because the quantity demanded increases by 43% (and – depending on the costs – profits might also rise).

Figure 22 shows an example of the effects of a price reduction on the quantity demanded and on revenues:

- Price reduction of €100/initial price €500 = **20% price reduction**.
- Increase in demand of 30 units/initial demand 70 units = **43% increase in quantity demanded**.
- The **ratio $+43/-20 = -2.15$ is the price elasticity of demand** as measured from the initial point on the demand curve.
The demand for laptops is elastic (the **ratio 2.15 is greater than 1**), because the change in demand (+43%) exceeds the price adjustment (–20%).
- Increase in revenues of €5,000/initial revenues €35,000 = **14.3% increase in revenues**.

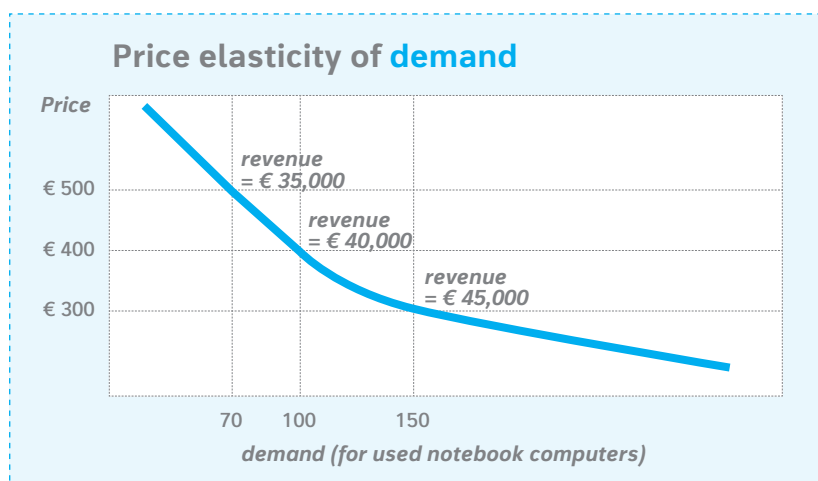


Figure 22. Price elasticity of demand: example of elastic demand

For other products, the situation might be different. Let's assume Steve and Tina have developed a computer program that optimises data storage and Internet security. If they sold a licence for that software for 60 euros they would be able to sell 90 licences per month. A €10 price reduction (-17%) would only increase the quantity of sold licences by 11% (and revenues would actually decrease), so a price reduction might not make much sense. Inelastic demand is often found with products that people need anyway and buy more or less regardless of the price. Salt, fuel or medicine are classic examples of such products.

Let's have a closer look at the example in figure 23:

- Price reduction €10; €60 initial price = **17% price reduction.**
- Increase in quantity demanded of 10; initial quantity demanded 90 = **11% increase in demand.**
- In this case, **the price elasticity of demand** (again, as measured from the initial point on the demand curve) **amounts to $+11 / -17 = -0.65$** . The demand is inelastic (the **ratio 0.65 is less than 1**) because the change in demand (+11%) is lower than the price adjustment (17%).
- **Revenues decrease by 400 euros.**

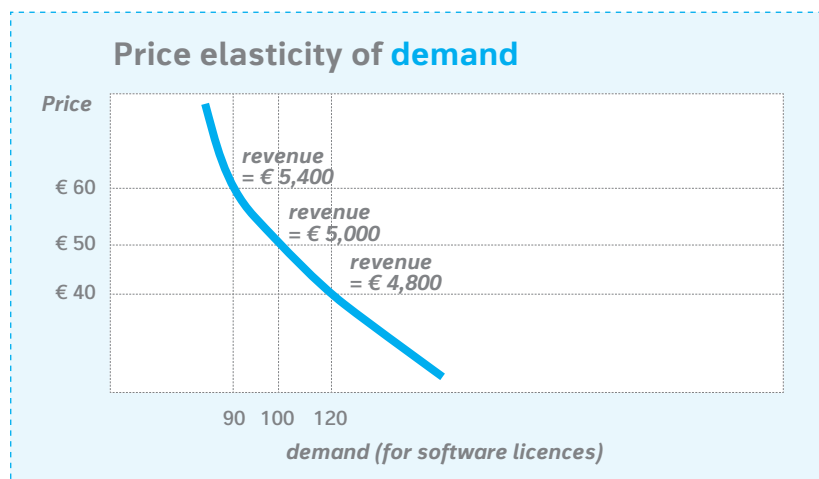


Figure 23. Price elasticity of demand: example of inelastic demand

Elasticity of demand does not only depend on prices and price change. Demand is more inelastic if a product cannot be easily substituted by other products. It is also important to note that elasticity in the short run (up to one year) might differ from elasticity in the long run. In the long run, demand for some products may be elastic (even if it is not in the short run) because it takes people some time to change their habits and find substitutes for products that have become more expensive (e.g. taking the train instead of driving by car in times of high fuel prices). At the same time, the opposite may be true for other products that are durable and can be stocked so people would quickly buy them when prices have dropped.

5.7.3 Place

The third P, “Place” or distribution, is sometimes underestimated. But a product can also fail in the market because it is not available where customers need it or are looking for it. Therefore, place is just as important as the other Ps in the marketing mix. Depending on the product, businesses use one or more different distribution channels like

- using distributors, wholesalers (who buy and resell to businesses) and/or retailers (who buy and resell to consumers),
- agents or brokers (especially in B2B markets),
- online selling on the Internet,
- telemarketing,
- vending machines, kiosks etc.

Distribution partners support the manufacturer in bridging the gap from the factory to the (final) consumer. They not only take care of logistics tasks but also inform consumers about the products and support advertising activities. Just think of a business that produces energy drinks (or any other beverages). This business would not be able to sell all its output directly to consumers, but needs distribution partners to sell the product all over the country or even in multiple countries (all over the world).

5.7.4 Promotion

The fourth P, “Promotion”, refers to all activities of a business that aim to inform (potential) customers as well as the general public about the business, its product(s) and the benefits of the product(s). These activities comprise

- **advertising** on TV and on the radio, on the Internet, on social media and in newspapers and magazines, on billboards, on buses and trains,
- **direct mailing**,
- **personal selling** (employing salespeople to communicate with customers and serving them well),
- **sales promotions**,
- **sponsorship** of events, of people and/or organisations and
- all kinds of **public relations** activities. These aim to create a favourable image of the business among the public and develop a positive relationship to all stakeholders of the business.

5.7.5 Mixing the four Ps for a harmonised blend

Tina and Steve have also thought about their marketing mix. These are their considerations:

Product	Steve and Tina are convinced that their products will meet demand on the market. Over the past years they have helped many friends and family members and they know that there are many more people who need support when buying, installing and maintaining a computer or a network. On the one hand they would try to buy used computers that are in good condition at a relatively low price and then sell them in an even better condition to people who do not necessarily want to have a brand new computer but who are happy to have a ready-to-use computer and always have support available. On the other hand they would also develop software that is tailored to the needs of their customers and support them when using it.
Price	It is clear that used computers must be less expensive than new ones. So the price for a used laptop computer must be considerably lower than the price for a similar new laptop computer at any other computer store. So Tina and Steve need to watch that market very closely and try to find low-priced computers in order to beat the competition and cover their costs.
Place	<p>They cannot run a computer store where customers can choose from dozens of different models of computer. They are also not interested in having lots of computers in stock. Computer technology becomes obsolete very quickly and they also do not have a lot of space, so they decide to keep their stock relatively low and to resell as quickly as possible. This can be achieved by delivering the computers to their customers' homes. Additionally, they would offer current deals on their website.</p> <p>Please note: in this context, "stock" is a synonym for "inventory". As you have seen in chapter 4, stock can also be used as a synonym of "share".</p>
Promotion	People need to be aware of the product(s) and learn more about what is offered. Tina and Steve do not have a huge budget, but they can afford to set up a website, to put ads into local newspapers, they can be found on social networks and they use leaflets and hope for word-of-mouth advertising through customers who were satisfied with their service to work well for them.

6 Accounting – keeping record of business transactions

During their first year in business, Tina and Steve buy and sell a lot of computers, they support their customers by solving their computer problems, and they hire two assistants who deal with the customers and other stakeholders, take care of the company's website and do all the paperwork and the bookkeeping. This means that a lot of business transactions like purchases, sales, borrowing and lending money etc. take place and businesses need to **keep accurate records of these business transactions**. Bookkeepers are responsible for recording these transactions that are always **verified by a document** (e.g. an invoice or a receipt). The aim of recording all transactions is to generate information on the financial status of the business. Statements that provide this information are called **accounts**.

6.1 What a balance sheet is

Tina and Steve have started their business, using computers that they already had as well as a new one. They have also purchased some equipment and office furniture and use Tina's car to drive to their customers. Computers, office equipment and cars – these things are all **assets**, “things” that the business owns and that are used for the business. Tina and Steve make a list with all the assets of their business and their values in euros (on the left side of the list) and compare it with the amount of money that had to be borrowed from the bank (on the right side of the list) to pay for some of their purchases:

Assets	euros		euros
Office equipment including computers	25,000		
Car	8,000		
Inventory: computers in stock to be sold again	12,500	Bank loan	25,000
Cash and bank deposit	3,500		
	49,000		

Please note that there are two types of computers in the list: computers that are used in the office and are not for sale, and other computers that were bought to be resold (inventory). This difference is important because they are different types of assets.

Only part of the assets was financed by using money from the bank loan. This is due to the fact that Tina uses her own car exclusively for the company and Steve uses computers that he already owned. They also had some money of their own which they used for setting up the business. Therefore, the total amount of the bank loan (which is a **liability**, i.e. money that is owed to someone else) is lower than the total amount of the assets. The difference between these two positions is the amount that Tina and Steve were able to finance themselves; it is called **owner's equity**. It is the proportion of the assets that was NOT financed by debt. If we add this position to Tina's and Steve's list, their list becomes a **balance sheet**:

Assets (euros)		Liabilities and equity (euros)	
Office equipment including computers	25,000	Owner's equity (capital)	24,000
Car	8,000		
Inventory	12,500	Bank loan (liabilities)	25,000
Cash and bank deposit	3,500		
	49,000		49,000

A balance sheet comprises a company's assets and reveals how they were financed. The amount of assets equals the amount of liabilities plus owner's equity:

$$\text{assets} = \text{liabilities} + \text{owner's equity}$$

This must be an equation because

- all assets were funded either through equity or liabilities,
- all funds are somehow bound or invested in the business (even money held as cash or in a bank account was either funded through equity or liabilities and is bound in the specific form it is currently held) and
- any increase in assets must be financed by an increase in either liabilities or equity (capital).

Please note that if Tina and Steve buy computer software and pay cash, the total amount of the assets remains the same (one asset – software – increases, but another one – cash – decreases by the exact same amount, so it is just an “asset swap”). But if they buy the software on credit, then the amount of assets increases and liabilities also increase by the exact same amount. Accordingly, the balance sheet total increases.

Assets are usually listed in the balance sheet in a certain order. They comprise fixed assets (or non-current assets) that normally have a lifespan of more than one year and are intended to be used in the company for a longer time period than one year. Usually they cannot be turned into cash so easily. Current assets have higher liquidity. They are usually not used longer than a year because they are used up, spent in production or sold.

Examples of fixed assets / non-current assets are property, plant, premises, buildings, machinery and all kind of equipment like office equipment, e.g. computers that are used in the office. Also financial assets – if meant to be kept longer than a year – can be fixed or non-current assets.

Examples of current assets are inventory (merchandise that has not been sold yet, like computers in stock), accounts receivables / debtors (money that is owed to the business, also called trade receivables), cash.

There are also intangible assets like trademarks, patents and copyrights. Although they cannot be seen or touched they are also of value for the business like tangible assets are. Tina and Steve do not have any intangible assets (yet), but the AT&S balance sheet (see below) contains intangible assets of almost 76 million euros, mainly acquired patents, trademarks and licenses.

Liabilities are debts and obligations that are owed to other persons, businesses or banks and need to be repaid at a certain point in time and/or over a certain period of time. These funds are usually provided by banks or suppliers. Money owed to suppliers is also called trade credit or trade payables. Current liabilities are debts or obligations that are due within one year. Accordingly, non-current liabilities have a duration of more than one year.

Equity / owner's equity is the difference of assets and liabilities. It is an indicator of the wealth of the company. A high equity ratio (= equity / total capital) indicates that the respective portion of assets was financed by the company's own resources (for example with funds provided by the owners or shareholders of the company). It is important for a business to have sufficient equity because: 1) equity usually does not have to be repaid, 2) it helps a business to be relatively independent from its creditors and 3) if the company has a loss and there is a higher amount of equity, the company will not be over-indebted.

Determining the value of assets is an important but also tricky task. While it might not be difficult to determine the exact amount of a bank loan, it is more difficult to tell what a building is worth many years after it was built. Businesses usually want to present themselves in the best way possible when setting up their balance sheet. However, they need to stick to the legal rules and regulations that aim to ensure that information given in balance sheets can be trusted.

6.2 Other components of the financial statement of a business

The balance sheet is not the only component of the financial statement of a business. The financial statement of the business aims to show the performance of the business over a certain period of time, but the balance sheet only shows the assets, liabilities and equity at a certain point in time. It does not contain information on total sales (turnover), nor does it reveal the cost of producing the goods and services or other expenses. Therefore, the financial statement consists of the balance sheet, the income statement (profit and loss account) and the cash flow statement, which gives an insight into the inflow and outflow of cash.

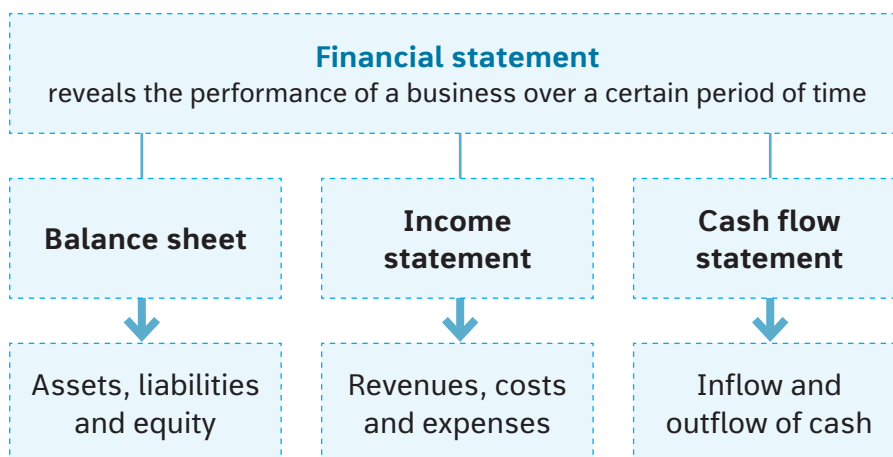


Figure 24. The main components of a financial statement of a business

6.2.1 Profit and loss account

The profit and loss account is needed to determine whether a business has made a profit or a loss over a certain period of time. While the balance sheet contains the assets, liabilities and equity as of a certain day, all the revenues, costs and expenses that occur during a time period (e.g. a year) are summarised in the profit and loss account, which is also called income statement.

Revenues are the income (usually cash or accounts receivable) that is generated from selling goods or services to customers. **Costs** consist of resources that are consumed in order to produce the goods or provide the services.

If the revenues exceed the costs and expenses, the company has a profit. If the company's costs and expenses are higher than the revenue, it suffers a loss. Let's assume that the 2018 income statement of **T&S Computer Services OG** contains

- sales revenue of €400,000 and
- costs and expenses (like material, wages, rent, energy, depreciation*) and other expenses) of €310,000, then the difference would be a profit of €90,000.

***) Depreciation**

Fixed assets are used again and again over a longer period of time. Tina's car for example will be used for at least five more years. Steve's new computer will be used for three years. During that time, the **value of these assets decreases**; it is "used up". Recognising this effect is called depreciation. Without depreciation, the values of assets that are shown in the accounts would be inaccurate. The value of the assets in the balance sheet would be overstated and the financial information given would be flawed.

Steve paid 2,100 euros for his computer and will use it for around three years (so three years is the "expected useful life" of the computer). Therefore, depreciation equals 700 euros per year (using the straight line method to calculate depreciation). After the first year, the book value of this computer will be 1,400 euros (2,100 – 700) in the balance sheet, 700 euros after the second year and 0 euros after the third year.

AT&S describes its depreciation method in the annual report: "From the time of their availability for use, the assets are depreciated on a straight line basis over their expected useful lives. (...) Land is not subject to depreciation. Scheduled depreciation is based on the following useful lives: plants and buildings 10-50 years, machinery and technical equipment 4-15 years, tools, fixtures, furniture and office equipment 3-15 years."

As depreciation represents an asset's loss in value, it is recognised as an expense included in the income statement that reduces the (gross) profit, just like other expenses (wages for administration, staff, rent, energy, insurance) do. The main difference to other expenses like energy, heating or wages is the fact that depreciation does not cause an actual payment.

Profits and losses cannot only be seen in the income statement

At the end of 2018, Tina and Steve draw up another balance sheet to see how their assets and capital structure have changed over the first year of business. Due to depreciation, the loss of value of their fixed assets, their initial office equipment and the car have a lower value than one year before. As they have bought some more office equipment over the year, the position has risen to 42,000 euros. Their inventory has increased, but they try to keep

their inventory low because computers need a lot of space and lose their value very quickly. Some customers still owe them money (accounts receivables), just like they have not paid all their dues yet (trade credit or accounts payables). They were able to repay part of their bank loan.

Assets (euros)		Liabilities and equity (euros)	
Office equipment including computers	42,000	Owner's equity	114,000
Van	40,000		
Car	6,000		
Computers in stock to be sold again	18,000	Bank loan	12,500
Receivables	12,500	Trade credit / payables	15,000
Cash and bank deposit	23,000		
	141,500		141,500

Equity has increased significantly, due to the profit that they made. To learn more about the performance of a business (profit or loss), you can either look at the income statement or at the development of (owner's) equity. It is important to note that any profit increases and any loss decreases equity.

6.2.2 Cash flow statement

A cash flow statement is another component of the financial statement of a business. It reveals the **flows of cash into and out of the business** during the year. This is important information because cash is needed for the operating activities of the business and for investing. But please note that a positive cash flow is not identical with a profit.

At the beginning of 2018, Tina and Steve had 3,500 euros held in cash positions (including cash in bank deposits) and at the end of 2014, they had 23,000 euros in cash. This development results in a total cash flow of 19,500 euros (23,000 – 3,500). This means that at the end of the year, there is more cash available, so cash must have flowed into the business. To learn more about a cash flow's origin, a cash flow statement is prepared that differentiates between **changes in cash positions in**

- **operations** (these are the core activities of a business, e.g. manufacturing PCBs),
- **investments** and
- **financing activities.**

Cash flow from operations shows how well a business generates cash with its core business. Therefore, it is the most important part of the cash flow statement. This figure should be positive, showing that the business is doing well. If a customer pays a receivable for example, the payment represents cash from operations. Buying raw material or reducing trade credit are activities recorded as cash flow from operations.

Cash flow from investments shows how cash is spent for long-term investments (e.g. the purchase of a plant or office equipment) or generated by the sale of such assets. A negative

figure does not necessarily indicate a problem. It rather indicates that the business has invested in some assets. Inflows of cash from investments could only come from the sale of assets or some investments held.

Financing activities refer to cash that is flowing in from investors or creditors and flowing out for paying interest, dividends or repaying debt. At the bottom of the cash flow statement the net change in cash and equivalents can be found. If this figure is positive, then the business has had a positive cash flow that can be used for further activities like making investments, expanding the business or for repaying debt.

The cash flow statement of AT&S shows an (overall) positive picture; cash flow has increased over the past year. Cash flow from operating activities has been positive and a bit higher in 2017/18 than in 2016/17. Due to investments, cash flow from investing activities was negative in both years but – at least partly – counterbalanced by cash flow from financing activities and from operating activities. All in all, cash flow is 67.2 million euros (270.7 – 203.5) for 2017/18.

Cash flow statement (short version)

€ in millions	2017/18	2016/17	Change in %
Cash flow from operating activities before changes in working capital	192.1	90.5	>100%
Cash flow from operating activities	143.2	136.4	5.0%
Cash flow from investing activities	(193.4)	(161.2)	(20.0%)
Operating free cash flow	1.5	(104.3)	>100%
Free cash flow	(50.2)	(24.7)	(>100%)
Cash flow from financing activities	135.6	54.9	>100%
Change in cash and cash equivalents	85.4	30.1	>100%
Currency effects on cash and cash equivalents	(18.1)	1.5	(>100%)
Cash and cash equivalents at end of the year	270.7	203.5	33.0%

Table 5. Example of a cash flow statement (source: AT&S annual report 2017/18)

Please note: not all components of this cash flow statement have been explained in the text.

6.3 What can be learnt from reading a balance sheet and an income statement

Balance sheets and income statements should always be read with some caution. A lot depends on the valuation of assets and businesses are not completely free to determine the values of their assets. Depreciation also decreases the value of assets in the balance sheet that might actually have a higher value.

Nevertheless, a lot can be learnt by taking a closer look at the balance sheet and the income statement of a business. It is of particular interest to see how some positions have developed over time as well as in comparison to other competitors in the market. This allows us to answer questions like:

Question 1: Which assets does the business have – is there a higher percentage of current or non-current assets and is this typical of that type of business?

Question 2: How has equity developed and how have the assets been financed? Is there a higher percentage of long-term or short-term liabilities?

Question 3: Is there a balance between non-current assets and long-term financial resources?

Question 4: How have revenues developed over the past year? Have they increased – and if yes, to what extent? Have the costs, especially costs of sale, developed accordingly?

Question 5: How have profits (or losses) developed?

The first three questions can be answered by analysing the balance sheet, for example the AT&S balance sheet as of 31 March 2018. Questions 4 and 5 require a look at the statement of profit and loss.

AT&S balance sheet / Statement of financial position

€ in thousands	31 March 2018	31 March 2017
ASSETS		
Property, plant and equipment	766,378	833,095
Intangible assets	75,856	91,655
Financial assets	284	173
Other assets	101,749	104,440
Non-current assets	944,267	1,029,363
Inventories	136,097	108,844
Trade and other receivables	119,711	86,342
Financial assets	59,635	8,660
Cash and cash equivalents	270,729	203,485
Current assets	586,172	407,331
Total assets	1,530,439	1,436,694
EQUITY		
Share capital	141,846	141,846
Reserves and other equity	200,392	81,729
Retained earnings	369,153	316,519
Total equity	711,391	540,094
LIABILITIES		
Non-current financial liabilities	458,359	519,830
Provisions and other non-current liabilities	56,917	50,019
Non-current liabilities	515,276	569,849
Trade and other payables	199,880	230,845
Other current liabilities and provisions	103,892	95,906
Current liabilities	303,772	326,751
Total liabilities	819,048	896,600
Total equity and liabilities	1,530,439	1,436,694

Source: AT&S annual report 2017/18

Answer to question 1: The percentage of non-current assets is 61.7% of total assets, most of them being property, plant and equipment. This seems to be typical of a manufacturing business that needs production plants and a lot of equipment and machinery. Cash and cash equivalents account for almost half of the current assets (46.2%), whereas inventories have a significantly lower level (23.2% of current assets). The cash position is also a lot higher than trade payables, so the business would be able to pay all the bills if it were necessary.

Answer to question 2: The total equity has increased by 171,297,000 euros. In 2018, it reached 46.8 per cent of total equity and liabilities (equity ratio). So almost half of the assets were financed by equity.

Answer to question 3: Yes, there is, because non-current assets account for around 944,267,000 euros and there is equity of approximately 711,391,000 euros and non-current liabilities (therefore, long-term) of around 458,359,000 euros. This is important because long-term assets should be financed with long-term financial resources.

Questions 4 and 5 require a look at the statement of profit and loss.

AT&S statement of profit and loss

€ in thousands	2017/18	2016/17
Revenue	991,843	814,906
Cost of sales	(829,539)	(760,172)
Gross profit	162,304	54,734
Distribution costs	(32,606)	(29,392)
General and admin. costs	(39,480)	(28,283)
Other operating result	68	9,590
Operating result (earnings before interest and taxes (EBIT))	90,286	6,649
Finance income	3,348	2,646
Finance costs	(18,123)	(20,145)
Finance costs – net	(14,775)	(17,499)
Profit / (loss) before tax	75,511	(10,850)
Income taxes	(18,992)	(12,047)
Profit / (loss) for the year	56,519	(22,897)

Source: AT&S annual report 2017/18

Please note:

Cost of sales (COS) (or cost of goods sold (COGS)) are the costs that are directly tied to the production of the products like the cost of labour (that is directly linked to production), materials and manufacturing overhead. For example, the COGS for a manufacturer of PCBs includes the material costs for the elements that are used for making PCBs and the labour costs for putting the PCBs together. Administration costs, the cost of shipping the PCBs to customers or the cost of sales personnel is NOT included in COGS.

Gross profit reveals the earnings of a business after deducting the direct costs of producing the goods (without operating expenses). Therefore, it focuses on the financial performance of revenue from production only. There is another metric that allows us to analyse operating performance while including operating expenses: **earnings before interest, taxes, depreciation and amortisation (EBITDA)**. By deducting depreciation and amortisation, the next metric for earnings of a business is gained: **earnings before interest and taxes (EBIT)**.

In accounting, **expenditures and expenses are not the same**. While expenditures are payments that are either made to purchase (non-current as well as current) assets, expenses are costs that have expired or were “used up” in order to produce the goods or provide the services that were sold. For example, COGS are considered to be expenses, and so are other expenses such as salaries, marketing costs, interest, insurance, rent, and so on.

***Answer to question 4:** Revenues have increased by about 176,937,000 euros, which is an increase of 21.7% compared to revenues of the financial year 2016/17. Most interestingly, the cost of sales has only increased by around 9.1% ($69,367 / 760,172 * 100$).*

***Answer to question 5:** Gross profit has significantly increased (actually, it has more than tripled). The operating result has improved even more; it has reached almost 14 times the amount of the previous financial year.*

6.4 Use of these accounts – types of accounting

These accounts are needed for a number of stakeholders who are interested in the financial situation of a business. Some of them are internal users like the owners of the business, the managers and the employees. They are all interested to learn if the business is thriving. Managers need to make decisions based on financial information (like “Do we need to cut costs in marketing?”) and owners will want to know if their investment is worth the risk (like “How much profit do I get in return for investing and risking my money?”). There are also external users of financial information like tax authorities, suppliers, competitors, investors and the media.

For some companies it is mandatory to have their accounts checked for authenticity by an independent firm of accountants, an auditing company. This task is called **auditing**. The result of the auditing process can be read in the annual report.

Managerial accounting focuses on providing information for the management of the business. Based on the data gained from managerial accounting, managers are able to make decisions like where to cut costs and how to calculate prices. Of course, managers are also interested in financial accounting, something that is also of interest for decision makers outside a business like tax authorities or banks. Information gained from financial accounting like the balance sheet and the income statement can be found in the annual reports for example. Many large businesses also publish selected information on their financials on their websites.

6.5 Analysis of financial statements

The information given in the balance sheet and in the income statement can be used to **calculate figures and ratios** in order to learn more, e.g. about the

- **liquidity** (or the solvency) of a business,
- **profitability**, which refers to the relationship of profit to the capital employed or to the turnover,
- **financial efficiency**, which deals with the question how effectively a business has employed its resources and
- **financial structure**, which can be evaluated on the basis of equity ratio (equity in per cent of total assets) and debt ratio (total debt in per cent of total assets).

Please note: Since these figures and ratios can vary a lot from one industry to another, some comparisons would not be very meaningful. Comparisons are meaningful for different businesses within the same industry or sector or for one single business over time (comparisons of several different financial years).

There might also be different ways to calculate some of these ratios, so it is always important to know how ratios were calculated if you want to make comparisons.

6.5.1 Liquidity

The term liquidity refers to the ability of a business to pay its bills and repay its debts on time. One approach to evaluate liquidity is to calculate the working capital of a business. Working capital (or circulating capital) indicates whether or not a business is able to pay its day-to-day bills such as electricity, rent and wages and buy components for its production. Therefore, the focus is on short-term assets and liabilities.

Working capital = current assets – current liabilities

The calculation of working capital is based on the idea that current assets of a business are relatively liquid (meaning that they can be easily turned into cash). Current assets comprise cash itself, inventory and accounts receivable. If all the current assets are turned into cash to repay current liabilities, working capital is the amount that is left over after all current debts have been paid.

Working capital for AT&S in the financial year 2017/18:

586,172 – 303,772 = 282,400 (thousand euros)

Working capital should be positive, meaning that current assets should be higher than current liabilities. If they are not, this would indicate that part of the non-current assets was financed by short-term liabilities, which might cause problems when these liabilities need to be repaid. A low level of working capital might also indicate that there is not enough cash or the business has borrowed too much through trade credit. Businesses that need a lot of inventory (like retailers) are likely to have higher levels of working capital than businesses that provide services (like a hairdresser or a business coach).

A high level of inventory can be important to a business in order to satisfy customers' needs very quickly, but keeping inventories also has downsides for the business. First of all, it takes space, but it is also risky. Unused inventory ties up money in a business; it might become obsolete and lose its value.

Working capital problems and cash flow problems are interlinked but not identical. Cash flow problems can be mitigated by borrowing money using a short-term bank loan or using overdraft facilities and trade credit. Although this brings cash into the business, it will increase current liabilities and reduce working capital. The most effective way to improve both working capital and cash flow is to increase equity or borrow more long-term credit.

Working capital can also be calculated as a ratio:

$$\text{Working capital ratio / current ratio} = \text{Current assets} / \text{current liabilities}$$

As current assets should exceed current liabilities, this ratio should be greater than 1, ideally even between 1.5 and 2.

$$\text{Working capital ratio for AT\&S} = 586,172 / 303,772 = 1.9$$

It can be argued that inventories should not be taken into consideration for this calculation. There are many reasons why inventories could possibly not be turned into cash. This is why a modified calculation, the so-called acid test ratio, does not consider inventories and allows a stricter evaluation of liquidity.

$$\text{Acid test ratio} = (\text{current assets} - \text{inventory}) / \text{current liabilities}$$

$$\text{Acid test ratio for AT\&S} = (586,172 - 136,097) / 303,772 = 1.5$$

So the result of the acid test ratio for AT&S is still greater than 1, which indicates a sufficient level of liquidity.

6.5.2 Profitability

If revenues exceed costs, the business makes a profit. This does not necessarily mean that the business is sufficiently profitable because the amount of profit might be minuscule in relation to the money that has been invested (and the risk that has been taken). Hence, profitability refers to a business's profit in relation to an indicator of the size of the business (total assets or total average assets, total equity, turnover).

■ Return on equity

$$\text{ROE} = \text{profit before tax and interest (EBIT)} / \text{equity}$$

$$\text{AT\&S: } 90,286 / 711,391 = 12.7\%$$

Another ratio that is often calculated is return on capital employed (ROCE). Capital employed is usually the sum of equity and non-current liabilities (or simply assets minus current liabilities). Instead of capital employed at the end of the financial year, the *average* capital employed can be used (e.g. by summing up capital employed at the beginning and at the end of the financial year and dividing by 2).

■ Return on capital employed

$$\text{ROCE} = \text{profit before tax and interest (EBIT)} / \text{capital employed}$$

AT&S:

total capital employed = assets (1,530,439) – current liabilities (303,772) = 1,226,667

ROCE = 90,286 / 1,226,667 = 7.3%

or with average capital employed: (1,226,667 + 1,109,943) / 2 = 1,168,305

ROCE = 90,286 / 1,168,305 = 7.7%

The ROCE figures are important for comparisons between different businesses in the same industry or sector as well as for the evaluation of profitability of one business over time. Investors usually prefer investments with a comparatively high ROCE (although the decision to invest may also depend on other criteria) and will have a close look at the development of ROCE over time.

6.5.3 Financial efficiency

Financial efficiency refers to the question how efficiently a business has employed its resources. Two of the ratios that can be calculated to evaluate financial efficiency are asset turnover and inventory (stock) turnover. Asset turnover aims to indicate how much turnover was generated by every euro invested in total average assets or – alternatively – in net assets (net assets being assets minus long-term liabilities):

- Asset turnover = turnover / average assets

$$\text{average assets} = (\text{assets at the beginning of the year} + \text{assets at the end of the year}) / 2$$

AT&S: average assets = (1,530,439 + 1,436,694) / 2 = 1,483,566.5

asset turnover = 991,843 / 1,483,566.5 = **0.67**

or

$$\text{asset turnover} = \text{turnover} / \text{average net assets}$$

AT&S: net assets 2018 = 1,530,439 – 515,276 = 1,015,163

net assets 2017 = 1,436,694 – 569,849 = 866,845

average net assets = (1,015,163 + 866,845) / 2 = 941,004

asset turnover = 991,843 / 941,004 = **1.05**

So approximately one euro of turnover was generated by each euro invested in net assets.

■ Inventory turnover or stock turnover

$$\text{Inventory turnover or stock turnover} = \text{cost of sales} / (\text{average}) \text{ inventory} \\ = x \text{ times per year}$$

Inventory turnover is a ratio that shows how many times a business has sold or used up and replaced inventory. High inventory turnover is important because it indicates that goods sell well and do not remain in stock for a long time. So money spent on inventories is not tied up for a long time but quickly generates sales.

$$\text{AT\&S: stock turnover} = 829,539 / 122,470.5 (\text{average inventory}) = 6.8 \text{ times per year}$$

So inventory is sold or used up almost seven times per year, which means that inventory is completely renewed every 54 days.

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