Towards a Digitally Enabled Knowledge Society

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1

In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge
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Learning Outcomes
After completing this chapter
- You will have gained an understanding of value creation in the digitally enabled knowledge economy,
- You will know challenges and approaches to managing knowledge intensive organisations;
- You will be able to assess the «fitness» of an organisation for knowledge based competition;
- You can run a knowledge café.

1.1 Knowledge: A Resource for Creating Wealth

1.1.1 Knowledge Societies and Economies

«Knowledge» as a resource for creating wealth is gaining increasing importance globally at the level of nations, regions, organizations, teams and individuals. The emerging knowledge societies develop their capabilities to identify, produce, process, transform, disseminate and use information to build and apply knowledge for human development. They require an empowering social vision that encompasses plurality, inclusion, solidarity and participation (UNESCO 2005, p. 27). In knowledge societies, the values and practices of creativity and innovation play a major part for sustaining competitive advantage. Creativity and innovation also lead to promoting new types of collaborative processes (UNESCO 2005 p. 19), which are increasingly digitally enabled.

We have to note, however, that every society has its own knowledge assets developed often over centuries. It is therefore necessary to work towards connecting the forms of knowledge that societies already possess and the new forms of development, acquisition and spread of knowledge valued by the knowledge economy model (UNESCO 2005, p. 17).

Knowledge societies are are dominated by professional experts and their scientific methods. Knowledge economies are marked by the expansion of knowledge-producing or knowledge-disseminating occupations (Burke 2000).

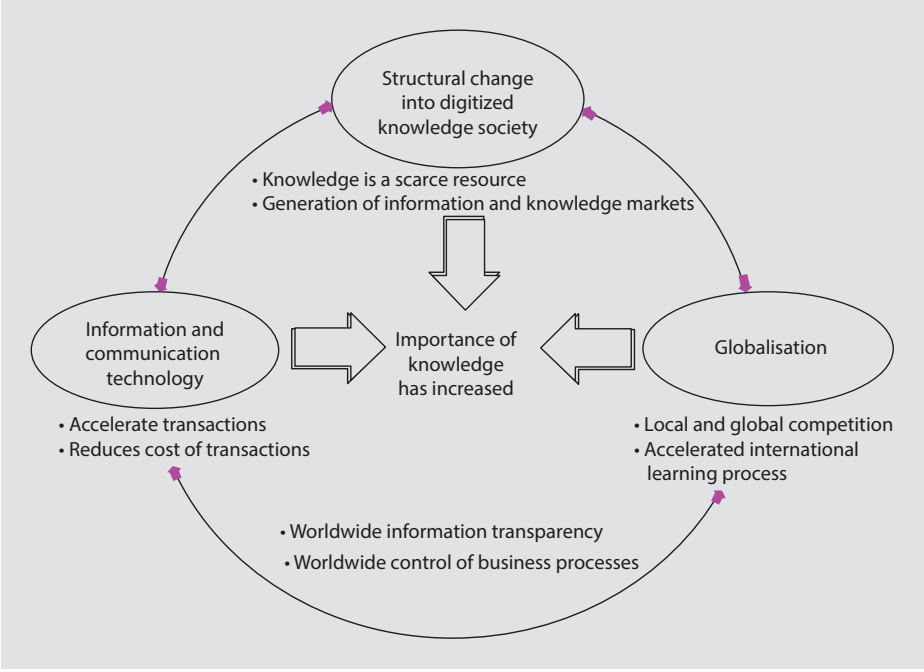
Peter Drucker used the term «knowledge society» already in 1969 in his book «The Age of Discontinuity». In his seminal study «The Production and Distribution of Knowledge in the United States» Fritz Machlup (1962) had focused his research on the patent system, but he came to realize that patents were simply one part of a much bigger

«knowledge economy» which he analysed. In the 1990s detailed studies on the transformation of labour, property and knowledge were conducted (cf. Stehr 1994; Mansell and When 1998; Adolf and Stehr 2017 see also Kornienko 2015).

Three Driving Forces

The increasing importance of knowledge as a resource can be traced back to three interdependent driving forces (◘ Fig. 1.1):

- *Structural change*: Moving from labour and capital-intensive activities to information and knowledge-intensive activities means that the companies increasingly sell information, knowledge or intelligent products and services. Work and capital is replaced by knowledge as a scarce resource. This structural change results in changed forms of organisation and transaction within and among the companies as well as in a changing role of management and employees.
- *Globalisation*: Globalisation of the economy has changed the international division of labour. The countries known as industrial nations are now becoming knowledge nations. International learning processes are picking up pace in such a manner that new competitors are emerging in the world market in a short time span due to fast learning cycles. Digitalization enables the international delivery of services.



◘ **Fig. 1.1** Three driving forces increasing the importance of «knowledge» as a factor of competition

- *Information and Communication Technologies* (*ICT*): ICT enables dealing with big data, connecting easily, collaboration and interaction at low transaction costs and brings about worldwide information transparency. Thus with «*perfect information*» we can come one step closer to ideal competition. This results in fast market changes and a higher innovation rate that is reflected in price reductions, shorter product lifecycles, personalisation of customer requirements and the emergence of new business areas. A new global information market place is established. The digital transformation accelerates structural change and globalisation.

Towards Digitised & Intangible Assets

Currently, we are witnessing a development towards digitised knowledge societies on a global scale. What does this mean? The move towards an increasingly digital world is rapidly changing the ways in which people and organisations create, use & share data, information and knowledge. A common definition of 'digital transformation' is the one coined by Bounfour (2016), namely 'the change associated with the application of digital technology in all aspects of human society'.

Figure 1.2 shows this development in a historic perspective (cf. van Doren 1991; Burke 2000) starting with the «*Age of Reason*» (***Knowledge 1.0***). Even though in ancient times there have been schools of philosophers reflecting about knowledge, at least in Europe, the sixteenth century is considered as the start of a systematic scientific exploration of nature and the development of a more widely accepted scientific method. From about 1700 it became possible to pursue an intellectual career not only as a teacher or writer but also as a salaried member of certain organisations dedicated to the accumulation of knowledge, notably the academies of science (van Doren 1991, p. 27).

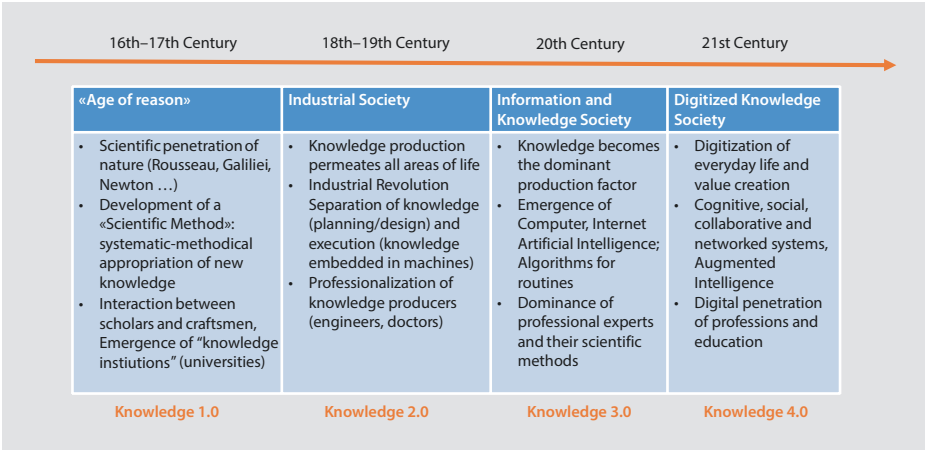


Fig. 1.2 Phases of knowledge production and dissemination

The insights gained in the "Age of Reason" enabled the development of an "*Industrial Society*" (***Knowledge 2.0***) in the eighteenth century. Knowledge was increasingly embedded in machines and production systems. Knowledge creation had been professionalised.

The twentieth century witnessed the upcoming of an *"Information and Knowledge Society"* (***Knowledge 3.0***) where *i*nformation and knowledge became dominant production factors. In the United States and Europe, already around the year 2000 more than 30% of the economically active population worked in knowledge-intensive and creative professions such as engineering, science, teaching, consulting, banking, management, journalism, medical practice, law and art; in social professions; or in the information and communication sector, to name just a few (Florida 2002). The structural change to an information and knowledge society also involves changes to labour relations where the status of formal and full-time employment is increasingly complemented by free lance work, self-employment and entrepreneurial activity (c.f North and Gueldenberg 2011). This development is discussed in ► Chap. 4.1.

In this economy *intangible investments* in products, development, education and training in software as well in increasing the effectiveness of management processes and information supply turn out to be the decisive indicators for the future performance of the economy. The value of a company is therefore determined increasingly by their "*intellectual capital*" and less on the basis of book value, i.e. the physical assets of a company (cf. Sveiby 1997). Thus since the beginning of the 1980s, we witness see a divergent development of *book value* and *market value* of firms, where some companies are valued on the stock market at ten times or more their actual book value. The term "*intangible assets*" has been coined to explain the difference between both these values. The elements of these intangible assets that are traditionally called "*goodwill*" (while selling the company) include brand names, customer and supplier base, the related market knowledge, the individual competence of the employees as well as the "*collective problem-solving competence*" that is represented by employees, technologies, software, production processes, patents etc (Sveiby 1997). It is therefore not surprising that apart from the software companies, even the branded companies and manufacturers of knowledge-intensive products, such as medication, exhibit a particularly high degree of intangible assets (see ◘ Fig. 1.3).

Knowledge 4.0 refers to a societal stage where applications of digital technologies are pervasive in everyday life, leading to a "digital ubiquity" (Iansiti and Lakhani 2014), and also contribute a significant share to value creation. Researchers find that smart, connected products with their four capabilities of monitoring, control, optimisation and autonomy transform competition in the digitally-enabled knowledge economy (Porter and Heppelmann 2014). Thus, professional expertise is increasingly leveraged or "augmented" Davenport and Kirby (2016) by cognitive and networked systems. For example, McKinsey forecasts a potential economic impact of five to seven trillion US$ through the automation of knowledge work by 2025 (Manyika et al. 2013).

In the "*digitised knowledge society*" (***Knowledge 4.0***), digital transformation strategies take on a different perspective and pursue different goals (North et al. 2018). From a business-centric perspective, they focus on the transformation of products, processes,

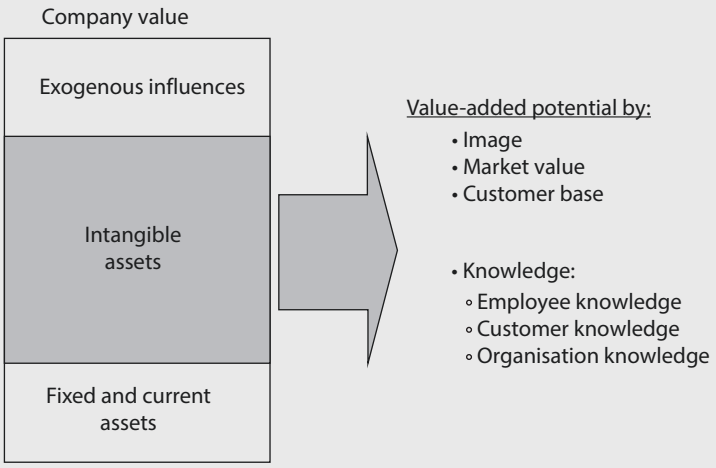


Fig. 1.3 The value of a company is being increasingly determined based on its intangible assets

business models and organisational aspects owing to new technologies such as big data, business analytics, cloud computing, cognitive systems, robots, social software and the Internet of Things. From a human-centred perspective, knowledge management's focus on collections of (documented) knowledge has been extended to comprise connections between people (Kaschig et al. 2016) and to embrace social relations with their corresponding technology support, also called social knowledge environments (Pawlowski et al. 2014).

Researchers have associated the capabilities of big data analytics to a "data capitalism" which is "cashing in on our privacy" (Thornhill 2017). In this view, data has become an important source of monetisation as it enables the analysis of customer preferences and provide user-optimised advertising, products and services, and to further develop them. Algorithms are increasingly pervasive in many fields (Ausiello and Petreschi 2013).

Be it in business or in everyday life, digital transformation strategies have certain elements in common. These elements can be ascribed to four dimensions: *use of technologies*, *changes in value creation*, *structural changes*, and *financial aspects* (cf. Matt et al. 2015). The transformation of analogous assets into electronic representations is associated with new forms of cognition.

1.1.2 International Division of Labour Based on Intangible Assets

The worldwide availability of information as well as the low-cost and efficient facilities of communication has led to an explosive rise in international trade and foreign direct investments through the participation of more and more countries.

In a generation, the proportion of the gross national product of US to world gross product has dropped from approximately 50% to around 20%. New competitors thrust themselves into the world market and learn fast. ACER, for example, the electronic company founded in Taiwan in 1976 with 11 employees, learnt things rapidly through joint ventures and alliances. Today, it is a leading international computer and semiconductor manufacturer.

In the new international division of labour, «selling» information and knowledge packed in products and services has gained more and more importance compared to the mere exploitation of cost differences and pure «*economies of scale*» that characterised the international division of labour in the fourth Kondratiev wave (cf. Huws 2005). In particular, trade in knowledge intensive services and international royalty and licence fee payments (as a measure for selling intellectual property) have grown significantly.[1] India is an important player in global **Knowledge Process Outsourcing (KPO)** including services such as research and information gathering, e.g. intellectual property research for patent applications; business and market research, legal and medical services; training, consultancy, and research and development (Mehrotra 2005; Agarwal and Nisa 2009; Contractor et al. 2010). The digital transformation allows for advanced service outsourcing.

The advanced economies are increasingly turning into «*Knowledge nations*». Their companies have knowledge about the worldwide markets, develop product concepts, organise production processes on an international level as well as control the international logistics of the «*supply chain*». The physical production and to some extent even the development of product components takes place in the new industry nations or emerging markets. We call this the *impresario concept* of international division of work as described in the case study below (North 1997).

The availability of knowledge is also a criterion for decisions pertaining to where business activities are located. This involves not only the creation of local market knowledge but also the availability of corresponding qualified employees and suppliers. Firms aim to research, develop or produce in a place where one can learn the most. It is not difficult to predict that in the future, the use of comparative cost advantage will be of less importance than the use of *comparative knowledge advantage*.

Creation and transfer of knowledge play an important role even in the operative management of international companies. This involves decisions on «which knowledge is created where» and «how can knowledge be transferred efficiently». Multinational companies are turning into worldwide knowledge networks with their customers and suppliers.

Case Study

Production Impresarios: Orchestrating International Manufacturing Networks

«How to ensure global market presence and minimize own investment?» is the challenge for global companies. One solution is to become a «production impresario» instead of a manufacturer with high vertical integration. A «production impresario» develops the product concept,

1 Compare the annual WTO trade statistics, ► www.wto.org

commissions the product modules to the system suppliers, coordinates parts production and assembly in an international manufacturing network and undertakes the sales and distribution of the products. The power of the production impresario lies in his knowledge of worldwide markets, technology and innovations. In order to organise product development, production and sales, the impresario should be in a position to transfer relevant information along value chains, i.e. he should be capable of controlling the international learning process and offer logistics support. The production impresario concept has taken hold mainly in the global automobile, textile and electronic industry.

Thus, for instance, the multi-domestic concept of a leading truck manufacturer is based on the knowledge that markets, especially in the developing countries, cannot be captured with high-tech vehicles that are produced in high cost countries but are to be sold on a dollar basis. Only those trucks that are adapted to the purchasing power and conditions of use in such countries and that possibly contain many parts from local production are suitable for these growing markets. The basic idea is this: The truck manufacturer breaks away from the risks of investment and in-house production with the purpose of slipping more and more into the role of a know-how supplier, a developer and a worldwide logistics expert. In this way the firm gets rid of the risk and becomes more agile by passing the problems of fixed cost pools to others who are involved in production.

Also Benetton operates as a production impresario. Till 2000 Benetton made part of its production in its own factories and through a wide network of domestic sub-contractors, mainly specialized in sewing. Now Benetton has drastically moved to a new strategy, abandoning Italy and organizing production around a dual supply chain: close locations (East Europe and North Africa) for quick production and far away locations (Asia) for more standardized products. This leads to a redefinition of competences for the Treviso clothing district, where Benetton traditional sub-contractors have been in few years, drastically curtailed. Benetton restructuring marks the transition to a new network of competences between agents in the district. The sales network is organised through a multi-level franchising system. Approximately 70 independent firms work as regional dealers of the group. Over 3000 sales outlets worldwide are operated by independent companies as franchising partners of Benetton. Benetton is responsible worldwide for the marketing and has area representatives. Thus, with relevant sales and market data, it is in a position to grow its low equity quickly by using the franchising concept (Crestanello and Tatara 2009; Fornengo Pent 1992; see also North 1997).

1.1.3 Accelerated Competition: Improving Faster and Becoming Different

Rethinking traditional definitions of economy, wealth creation, business models and organizations and institutional structures has also consequences how firms compete and institutions act in increasingly digitally enabled settings.

While the wish «*to improve faster*» is aimed at increasing efficiency, this only brings about short term relief in keeping a competitive lead. Take an example of a leading electronic company which sees an annual erosion of 15% in the price of its products. Best practice transfer might lead to an increase in productivity, but is not a long lasing remedy. In order to avert such a fall in price, the competition parameters must be changed using innovation of products, processes or business models. Efforts must be taken to bring unique and inimitable products and services to the market.

Thus, knowledge-oriented management not only means «*improving faster*» but also «*becoming different, gradually*».

Different, because it becomes impossible or very difficult to imitate the company that acquires a new configuration of resources as a result of a change in its culture. Gradually, because in most cases this means a change to a new company culture based on innovation which is a result of a highly complex process. Such a change must be initiated, organised and sustained with a lot of patience.

In this respect **innovation c**an be defined as a new configuration of knowledge resulting in new or improved processes, products or business models.

Products can be imitated in the short-term or long-term depending on their complexity. It is very difficult, however, to imitate the capability that is organised and fixed in a company to create, combine, transfer and store knowledge and to generate solutions from the knowledge for the present and future needs of customers. Thus it is a source of long-lasting competitive advantage. Knowledge competition rewards the skill of playing with an infinite number of options in order to find new and better ways of doing things (Romer 1986). For this companies need to develop «dynamic capabilities» (see ► Sect. 2.3).

Why can this new «*knowledge evolution*» not lead to the development of an altogether new quality of competition within and among the companies? We can take the analogous example of the development processes of life, which involves the emergence of higher forms from a constructive interaction of the different primitive forms, through a «Plus Sum Game» wherein the advantage of one form is linked with the simultaneous advantage of the other. Knowledge sharing in and across organisations is such a «Plus Sum Game» in which the sum of what is gained by all players is greater than the combined sum of what the players entered the game with (refer to the discussion of the concept of co-opetition in ► Sect. 3.1).

Another contributing factor to newer forms of interaction and competition is that the classical limits of companies change and even fade away at times, which, for example, applies to the concept of open innovation (Chesbrough et al. 2006).

Companies are increasingly being considered as virtual entities that revise traditional business concepts: from competitive-rivalled to cooperative appreciation of competition, from a mere task based organisation to a process-oriented organisation that is directed towards value creation, from mistrust-based alliance management to trust based alliance management. Everyone in the organisation is involved «in a non-stop process of personal and organisational self-renewal. Everyone is a knowledge worker - that is to say, an entrepreneur» (Nonaka and Takeuchi 1995). Corporate entrepreneurship can therefore be characterised by three dimensions: product innovation, risk-taking propensity and proactiveness in the pursuit of new opportunities (see Barringer and Bluedorn 1999).

Case Study

K&P Engineering: Learning Fast

K&P Engineering carries out structural analysis for complex buildings (for example bridges) at two offices with approximately 30 employees, mostly engineers. Only those engineers who handle projects efficiently and learn quickly from their mistakes as well as those who distinguish themselves as experts in a specific area are successful in this business. The brains of these employees contain highly specialised knowledge about solutions and

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recurring errors in construction. How can this information be stored, made available to all and used for training and continuous improvement of the younger employees?

At K&P, frequently recurring construction errors as well as good solutions are documented using a database structured according to types of buildings. If an employee has to conduct a structural analysis for a new object, he can update himself with the frequently recurring construction defects by referring to the database, detect them quickly, avoid them in his construction work if possible and learn the elements of a «good solution». This generates a commonly accessible collective knowledge of the engineering company.

Though it is easy to use the solution database, it is not always easy to convince the employees to feed their information in the system. They commit errors, since they work under high pressure, and they would not like to be linked with errors by documenting them. Further they possibly feel that the value of their expertise will reduce if others too have access to their experience. Until now, K&P has succeeded in motivating its employees to feed information by communicating with them and convincing them. With an increase in the content of the database, there is an increase in its use by the employees. Thus a culture of learning from errors begins to establish itself.

However, significant implementation problems confront the recognised potential of knowledge management in a company. Despite superior information technology, databases, exchange of experience, work groups, steering committees, etc. many companies succeed partially or fail completely in bringing transparency to the knowledge and in using synergies. Thus they end up «*reinventing the wheel*». In many cases, employees are not aware of the developments taking place in some other area of the same organisation. When working together within a business area is a challenge in itself, it is even more difficult to cooperate across a business segment with the purpose of converting the entire available knowledge quickly and efficiently into solutions for customers' problems.

This could be viewed as a result of misunderstanding the process of knowledge creation. While one view is restricted to information processing, the more successful approach is to view knowledge creation as a process that enables the company to respond quickly to customers, create new markets and rapidly develop new products and services. Information processing only creates formal knowledge in terms of data, codified procedures and principles, and is measured using metrics such as increased efficiency, lower costs and improved return on investments (Nonaka and Takeuchi 1995).

The multi-divisional form of organisation found in a number of major enterprises often stands in the way of smooth flow of knowledge across the segments. Hence there is an argument that an efficient creation and transfer of knowledge within the framework of a hierarchical and multi-divisional organisation is difficult (Hedlund 1994). Apart from the organisation structure mentioned above, even the values that are practiced in the organisation can create restrictions, for knowledge is power and is kept under wraps. The «*not invented here*» syndrome hampers the transfer of knowledge. Often, the rewards and appraisal systems that have an individualistic orientation offer very little incentive to create and distribute knowledge (see ◘ Fig. 1.4).

However, there is an increasing awareness that «*Creation and exchange of knowledge is very important for our business and takes us forward*».

This increasing awareness among management and employees is a good starting point for changing-over to a new quality of competition.

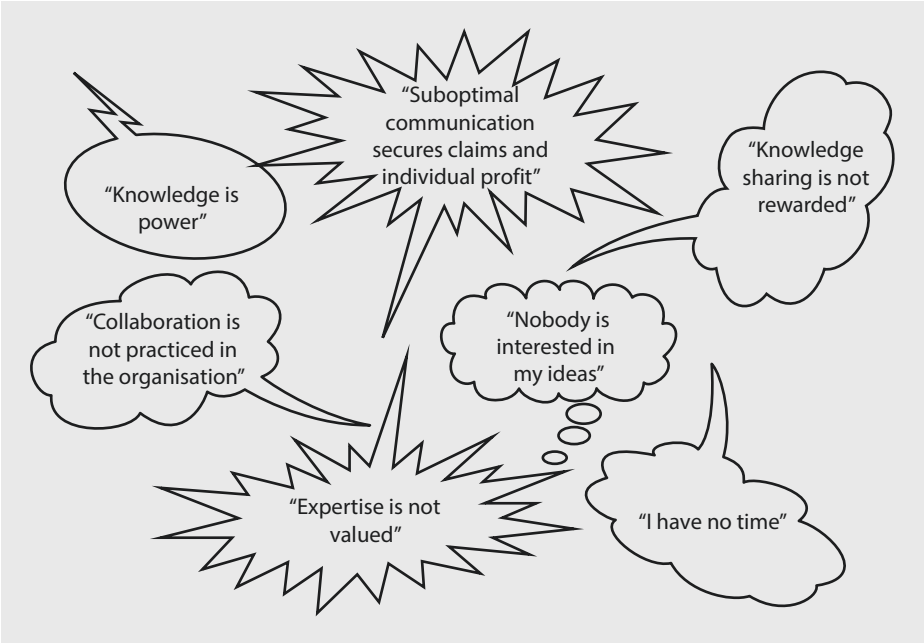

Fig. 1.4 What hampers the creation and transfer of knowledge?

Managers interviewed by us summarised the problems and potential of knowledge management as follows:

If we knew what our company knows, we could fulfil the customer requirements in a better way, offer innovative products earlier, react faster to the market changes and increase our productivity. In short, we could improve at a faster rate.

Some Typical Knowledge Problems in Organisations

- Employees are unable to find critical existing information when required. This results in employees using incomplete information or re-inventing the wheel. Information about a study conducted in a particular area, if found easily, will help reduce the time in initiating a study in another similar area and estimate the effort more realistically. Knowledge is of little value if it cannot be found when needed.
- Lessons are learned but not shared. Knowledge gained through failure is often undervalued. Events that caused a delay in the project completion or those that affected sales adversely are often forgotten. One tends to repeat past mistakes due to a lack of knowledge or the inaccessibility of the lessons learnt from failures.
- Organisations often don't know what they already know. In the knowledge-based economy survival depends on the best possible response to a multitude of challenges primarily using the knowledge gained through past experience. Due to a lack of sharing culture and facilitation, best practices of a group do not get embedded into the organisation's procedures.
- Very often individuals who have valuable information are not tracked in the organisation and this knowledge moves with them with no benefit to the organisation.

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1.1.4 What Is Knowledge Management?

Since the mid-1990s, there has been an intensive academic discourse and practical experimentation regarding models and practices of managing knowledge in organizations. Research focused on "The knowledge-Creating Company" (Nonaka and Takeuchi 1995) and the "New Organizational Wealth" (Sveiby 1997) and "Intellectual Capital" (Stewart 1997). The latter two discussing new ways of measuring and managing knowledge-based resources. Multidisciplinary approaches to managing knowledge emerged in fields such as information and computer science, library science, business administration, psychology, sociology, education, engineering, philosophy and other scientific areas (c.f. Heisig 2015).

Zack et al. (2009) postulate that knowledge management (KM) has progressed from an emerging concept to an increasing common function in business organizations.

The path to an intelligent, knowledge-oriented company initially begins with five basic questions:

1. How important is knowledge as against physical assets for the success of our business?
2. Which strategic goals do we want to support by knowledge management?
3. Which knowledge/competences do we have and which knowledge/competences do we require in the future to ensure long lasting competitiveness?
4. How do we manage the «knowledge» resource in the company?
5. How should we organise and develop our company so that we can cope with present and future knowledge-based competition?

Figure 1.5 shows that by contrasting current and future knowledge organisations can develop answers to the above questions. How to do this based on a systemic understanding of KM will be expanded upon throughout this book.

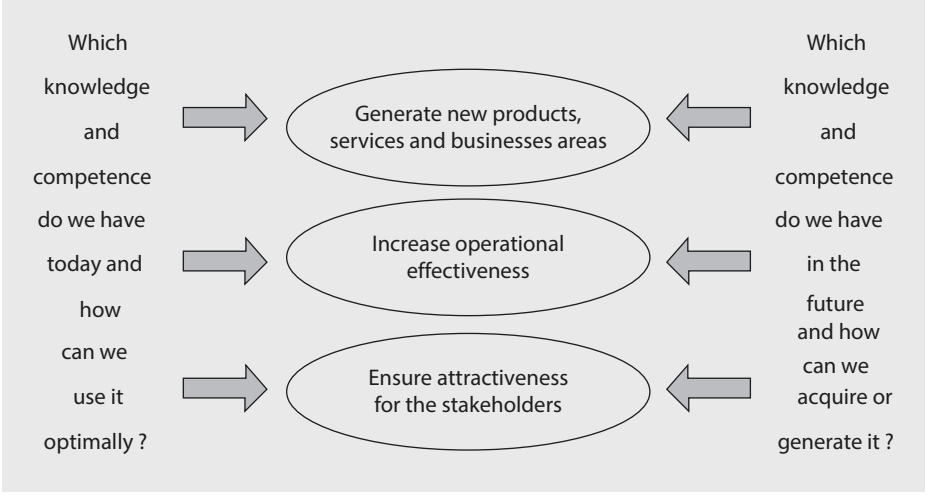

Fig. 1.5 Basic questions for the knowledge management of an organisation

Before we provide our definition of Knowledge Management we would like to make clear what is our understanding of management. The role of management in a learning organisation has been well formulated by Drucker:

Management means:

1. Making people's strengths effective and their weaknesses irrelevant
2. Enhancing the ability of people to contribute,
3. Integrating people in a common venture by thinking through, setting and exemplifying the organisational objectives, values and goals
4. Enabling the enterprise and its members to grow and develop through training, developing and teaching
5. Ensuring everyone knows what needs to be accomplished, what they can expect of you, and what is expected of them. Management allows us to coordinate hundreds or thousands of people with different skills and knowledge to achieve common goals.

Based on this understanding we define KM as follows (a search of the literature reveals a huge number of KM definitions which contain similar elements[2]):

Definition

Knowledge management enables individuals, teams and entire organisations as well as networks, regions and nations to collectively and systematically create, share and apply knowledge to achieve their strategic and operational objectives. Knowledge management contributes to increase the efficiency and effectiveness of operations on the one hand and to change the quality of competition (innovation) on the other by developing a learning organisation.

Role of Knowledge Management in "VUCA" Environments

In the past, organisations primarily engaged in knowledge management (KM) practices that focused on managing current knowledge and past experiences with a strong emphasis on documentation (Pawlowsky et al. 2011, Bolisani and Handzic 2015). Today, a hypercompetitive "VUCA" environment (volatile, uncertain, complex, ambiguous), changed communication behaviours and the evolution towards knowledge work 4.0 set the scene for managing knowledge within and across organisations in the digitised society.[3]

In analogy to the concept of "ambidexterity" (Tushman and O'Reilly 1996), KM has to support a number of conflicting knowledge activities such as "exploitation" and "exploration" or "sharing" and "protection" at the same time in such VUCA settings. In the light of the ensuing conflict between stability and flexibility, KM stabilises the organisation's capabilities in a mode of protection and exploitation on the one hand and concurrently supports dynamic capabilities in a mode of exploration and sharing to enhance

2 A review of concepts of knowledge and knowledge management can be found at Anand and Singh (2011).

3 The following text is adapted from North et al. (2018)

agility and renewal. An organisation's ability to manage such seemingly contradictory processes and practices increasingly gains importance with digital transformation. Let us look in more detail into these two functions of KM.

Operational KM as stabiliser

Also in the future, operational KM will continue to aim at making the right knowledge available at the right time and place to support the employees of an organisation, plus the relevant stakeholders in the organisation's environment for day-to-day operations. The means and ways of how to achieve this ambitious objective, however, will change under a KM 4.0 perspective. Organisations can engage in the following activities to stabilise the portfolio of competencies in an organisation:

1. **Facilitate ubiquitous and curated knowledge flows:** Quick, easy and ubiquitous access to the knowledge base of the organisation and across organisations gains importance and can be characterised by decentralized, and increasingly peer-networked repositories augmented by rapidly evolving machine intelligence. Murray and Wheaton (2016) argue that there is a need for "knowledge curation" as even advanced technologies such as machine-readable ontologies have not yet come close to being able to extract deep meaning or accurately organize content into proper contextual categories. Curation establishes, maintains and adds value to repositories of knowledge and helps to keep them relevant and up-to-date. In practice, curation could mean that an expert compiles a selection of links and shares them, adding a clear explanation of the selection criteria used to compile the list as well as brief introductions explaining why each link is relevant. However, the decisions necessary in such a process might also be augmented by machine intelligence, by a team or crowd who are engaged in the domain that is curated by the expert.
2. **Enable collaboration:** The emphasis of KM has shifted from the support for collecting to connecting knowledge activities (Kaschig et al. 2016) that help to make collaboration work. Connecting knowledge activities are viewed comprehensively to comprise connections between people, that is joint knowledge creation, sharing and acquisition, and connections of knowledge both in an abstract and a manifest form - the integration of knowledge from diverse sources be it people, documents or algorithms. KM needs to help people to develop the competencies needed for work 4.0, amongst which competencies for technology-mediated collaboration and collaboration with machines as "team mates" stand out.
3. **Monitor and control augmented learning and decision-making**: As organisations increasingly develop and deploy algorithms to automate routine knowledge tasks and decisions plus provide decision support in known situations, such automated knowledge behaviour needs to be monitored and controlled to be not only efficient, but also compliant with an organisation's internal and external regulatory system. The corresponding experiences made need to be systematically reflected and interpreted in this respect, KM will have to ensure transparency of cognitive technologies, so that users will always be aware of how cognitive systems "think" and act. A particular challenge here is to identify and leverage the tacit knowledge of subject matter experts or communities and to provide the means for humans to keep up to date with the exponential growth of opportunities created by self-learning systems.

Strategic KM as Catalyst

In an increasingly turbulent and complex environment, it is the responsibility of KM to critically examine knowledge and competencies of the organisation, a network or business ecosystem and identify its "blind spots". Here, KM takes on the role of an innovator and "irritates the system" by questioning past learning, established behaviours and practices. KM must succeed in supporting the development of "dynamic capabilities" of organisations to reconfigure, realign and integrate core competencies with the help of external resources. Organisations can engage in the following activities to productively foster the growth of capabilities for improved organisational performance under shifting environmental conditions:

1. **Identify critical knowledge:** KM needs to provide deep insight into the critical knowledge assets required to embark on the learning journey involved in the activities to pursue future organisational goals. Therefore, KM also questions current core competencies, intellectual property rights, market and industry comprehension, and customer understanding and expectations (MacMillan et al. 2017). KM should identify the pockets and islands of knowledge creation within and beyond the organisational boundaries that can be connected to acquire new core competencies that can be appropriated by the organisation. Hence, organisations need to integrate isolated knowledge on and views of the environment to make sense of information as a basis for seizing new opportunities and transforming the organisation. Strategic knowledge mapping helps to uncover and take an integral view on critical knowledge assets, providing the context for discovering the most promising digitalization strategies (MacMillan et al. 2017).
2. **Facilitate sensemaking and shared understanding** as a basis to act: describe sensemaking as a way of understanding connections between people, places and events that occur now or occurred in the past, in order to anticipate future trajectories and act accordingly. The ability to frame (set in context) and reframe problems and observations is particularly important when big data analytics seem to provide answers without adequate context knowledge (Madsbjerg 2017). Deep insights and shared understandings emerge through multiple discourses of people. The underlying mechanisms of meaning making can be seen as the essence of collaboration and highlight that negotiation processes are interactive, reciprocal and that meaning resides in the social realm and can be manifest in socio-technical systems. Sensemaking is a shared and communal activity that produces knowledge appropriate for action, but biased heavily based on the individuals doing the sensemaking – that is, each group of people who have the various sensemaking conversations will "talk into existence" a very different set of situations, organisations, and environments (Weick et al. 2005). In this view sensemaking is a process that is highly collaborative, effective for organisational growth and planning in both the short and long-term, and highly dependent on interpretation.

   The increasing complexity of work tasks intensifies the demand for collaboration, which in turn requires KM to support the creation of shared understanding among work groups (Bittner and Leimeister 2014). On the organisational level, shared understanding among organisations that collaborate in business ecosystems is vital for efficient knowledge creation in such ecosystems. Researchers found that

at the beginning of business ecosystem formation, organisations need to share their capabilities, expertise, and knowledge and in particular make the tacit knowledge explicit in order to boost integration.

3. **Encourage renewal, agile learning and reflection:** To ensure renewal in an ever changing and often disruptive environment, firms have to learn how to systematically develop new business models and non-profit organisations need to be capable of redesigning their missions in an accelerated manner (cf. Kotter 2014). KM can play a key role in these above described issues related to render organisations more dynamic in the future. In an environment that is characterised by unpredictability and various unanticipated crises, KM must support quick problem-solving, encourage constant experimenting, foster collaborative learning and facilitate professional reflection to learn from mistakes. For example, KM can be responsible for developing a "next practices" process in an organisation. Future developments in a business or technology area, or in a business model can be explored in cross-departmental workshops which include a range of stakeholders such as customers and the scientific community.
4. **Build platforms for engagement:** In an era of information overload, human attention is a scarce resource. In order to attract heterogeneous and unexpected knowledge it is of strategic importance to build platforms that engage members in and beyond the organisational boundaries. Ghazawneh and Henfridsson (2010) point to the importance of governing third-party development through specific knowledge which they call "platform boundary resources". These include the design of technical boundary resources such as software development kits and application programming interfaces and social boundary resources such as incentives, intellectual property rights, and control systems. KM's role is to build platforms that attract engagement of a wider community for the strategic development of organisational competencies, products and services.

Case Study

The Rise of the Knowledge Market

Today, we witness the emergence of online knowledge marketplaces where you can sell your personal knowledge. You can see its roots in the crowd sourced Question & Answer trend that spawned sites like Quora, Aardvark, Stockoverflow or ► Ask.com and where you can get your questions answered for free.

The Swedish start-up ► www.Mancx.com is proving the success of their concept of an online knowledge market to exchange personal information for money. Mancx is a fully transactional knowledge market with global paying/payout capabilities. For information buyers, Mancx is the place to go to for answers to business questions they face on a daily basis. For information sellers, Mancx offers a way to capitalise on accumulated knowledge and to build their personal brand profile as sources of valuable information. Mancx provides a secure environment and anonymity to negotiate and broker a deal of knowledge selling, taking a 20% commission on every concluded transaction.

This is the same philosophy that ► www.Acabiz.com has regarding information. Acabiz is an Italian company funded by private investors and the finance arm of Lombardy's governmental body. Acabiz came up with the idea of a knowledge marketplace out of a desire to create a platform for academics to connect with businesses, governments and NGOs. It thus provides a direct link between the final consumer and supplier of specialised knowledge and cuts out middlemen or consultants.

«Accessing niche or specialized knowledge is mission-critical for any successful and targeted business activity today,» said Guido Uglietti, the founding partner of Acabiz. «Everyone recognizes the importance of academia to business knowledge transfers, but has been no global platform tool to facilitate and promote knowledge transfer in any simple and scalable way.»

Acabiz created a platform for academics, who they call knowledge holders, to connect with businesses, known as knowledge hunters, who are interested in their specific research expertise or knowledge. The Acabiz platform allows businesses to easily and directly tap into the knowledge network of thousands of academics worldwide who all have highly specialised knowledge in fields such as architecture, engineering, law, medicine, science, financial, economics and other areas.

Source: Adapted from: Jeniffer Hicks: The Rise of the Knowledge Market. ► http://www.forbes.com/sites/jenniferhicks/2011/06/27/the-rise-of-the-knowledge-market/.

1.2 How Organisations Learn

Competing in an ever changing environment requires organisations to learn. How does this happen? The following subchapter is adapted from Brenda Barker Scott's excellent literature review on organisational learning.[4]

■ What Is Learning?

The question of whether learning is a cognitive process as well as a behavioural process has practical and theoretical implications.

Theorists adhering to a **purely cognitive perspective** view learning as the development of new insights through the revision of assumptions, causal maps or interpretive schemas. An organisation has learned «if any of its units acquires knowledge that it recognizes as potentially useful to the organization».

Theorists favouring **a dual cognitive–behavioural approach** suggest that while cognitive development is necessary, action is also required for full and complete learning. Here learning is said to occur as new insights, assumptions, and causal maps lead to new behaviour or conversely, new behaviour leads to new insights. Pointing to the intimate relationship that learning has with action, Argyris (1999) suggests: «An organization may be said to learn to the extent that it identifies and corrects errors».

Organisational knowledge (OK) theorists have also noted the behavioural–cognitive distinction, but from the point of view of the product of learning; either the development of *know what* or *know how*.

4 The full text with all sources can be found under: ► http://irc.queensu.ca/gallery/1/dps-organizational-learning-a-literature-review.pdf

1

Central to the cognition-behaviour question is the notion that learning is a function of conscious thought. Potential learning, however, is blocked when members lack the appropriate cognitive apparatus for noticing or experiencing a «learning need» and for **sensemaking**. Sensemaking has also been linked to the levels of cognitive development, whereby routine learning is associated with **single loop** learning, and **double loop** learning with deeper cognitive adjustment. Those exploring the interplay between cognition and action have delved into how action springs from, or leads to, deeper cognition through reflective processes such as action learning and after action review. Since **knowing is highly situational**, its lessons cannot be easily codified and transferred in protocols and training manuals. Rather, practitioner-developed knowing must be absorbed through interaction via improvisation, apprenticeship, conversation, and storytelling.

■ Can Organisations Learn?

While some academics maintain that organisational learning is simply the sum of what individuals in organisations learn, others contend that organisational learning is a reflection of the collective ideas, activities, processes, systems, and structures of the organisation. Nonaka (1991), describes a **company as a living organism** with a collective sense of identity and a fundamental purpose, which in turn influences each member's commitment to learning and sharing knowledge.

Independent of the benefits to individual learning, social interaction, and common experiences also play an important role in the development and transfer of group knowledge.

Those exploring group level learning have identified how social processes enable the exchange, synthesis, and broadening of individual member knowledge into the synergistic *knowing* that resides amongst the group. Here academics have studied the many processes and conditions associated with productive learning interactions via conversation and interaction principles, and common working-in-learning experiences.

To this end practical theorists have developed social technologies like café conversations, whole systems change processes, and theory (Scharmer 2007) to offer philosophical, procedural, and logistical tenants for the facilitation, focus, pacing and flow of productive learning experiences amongst and between groups and communities.

The Fifth Discipline – Learning organisations are organisations …

- where people continually expand their capacity to create the things they truly desire,
- where new and expansive patterns of thinking are nurtured,
- where collective aspiration is set free, and where people are continually learning to see the whole together.

The elements:

1. Personal mastery
2. Mental models
3. Building shared vision
4. Team learning
5. Systems thinking

Source: Senge (1990).

■ Organisational Features That Promote Learning

Others, primarily those working from the *organisations can learn perspective*, suggest that an organisation's ability to learn is dependent on a host of organisational features. In answer to the call for adaptable and responsive organisations, ones in which learning is the norm, not the exception, scholars have identified a number of pertinent features including a firm's learning intent, strategies supporting innovation or capability development, enlightened leadership and distributed authority, norms and belief systems supporting learning, the use of whole systems planning and decision making forums, processes and tools that permit the flow or transfer of knowledge between individuals and groups, and support and legitimacy of practitioner oriented learning.

An organisation's ability to exploit new knowledge has been attributed to how well it is able to act on new insights (flexibility and speed), how extensively it is able to spread new insights to other parts of the organisation (breath), and the degree to which it embeds the learning in organisational features such as norms, protocols, products, processes and structures (depth).

Alternatively, describing **organisations as interpretive systems**, noted theorists Richard Daft and Karl Weick (1984) have attributed interpretive schemas to organisations that, in turn, influence how organisational decision-makers notice, attend to, and interpret the signals in their environments. In turn, different interpretations lead to different organisational responses, which ultimately shape strategy, norms, form and protocols for learning.

Daft and Weick's (1984) account of discovering versus enacting organisations, provides a useful lens through which to explore how different interpretive schemas influence the nature and type of organisational learning. In a *discovering organisation* managers assume that the environment is predictable and analysable. Following this, managers attempt to adapt and learn by setting predictable performance goals for continuous improvement efforts. Conversely, managers in an *enacting organisation* assume that the environment is unpredictable and malleable, and therefore innovate and learn through trial and error experimentation. Here managers understand that as they learn and apply their learnings, they in turn co–create or enact an enriched environment. The world transforms as they transform.

Independent of how a firm defines it features, it is widely appreciated that these contextual factors shape individual and group learning.

In an exploratory study Chawla and Joshi (2011) looked at the impact of knowledge management on learning organisation (LO) practices in India, and based on a small sample of firms they concluded that IT-firms and IT-enabled services score highest on most of the LO dimensions. The testing of their hypothesis revealed that most of the KM dimensions had a positive impact on LO. The type of industry, however, did not have any statistical differential impact on the dimensions of LO in most cases.

1.3 The Knowledge Firm: A Quick Assessment

A knowledge-based firm is characterised by its ability to learn and thus generate relevant knowledge to derive business success from this resource. The economic success of such firms is attributed to their knowledge related capabilities, which vary according to

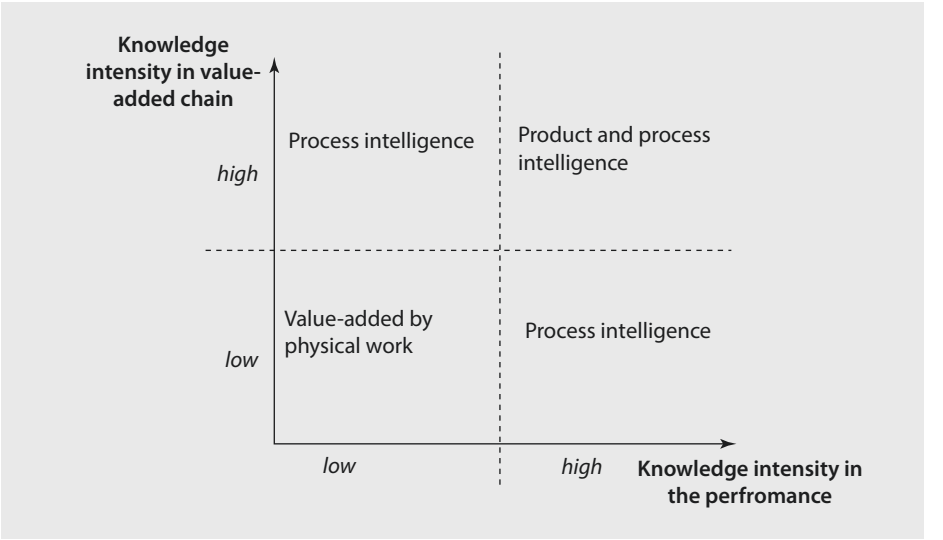

Fig. 1.6 The knowledge intensity matrix (Source: Adapted from Porter and Millar 1985)

the type of business. A specific category are knowledge intensive firms or organisations,[5] such as auditing firms, consultancies, engineering firms, research labs, schools or universities which sell «packed knowledge» of highly qualified experts or organise learning processes. For a franchise company like McDonalds, the creation and transfer of knowledge means efficiently training employees with few qualifications to reach a competence level necessary for expanding the standardised and replicable processes and standardised operations of preparing a «BigMac®» worldwide. Indian IT biggies Infosys Technologies and Wipro have successfully incubated «learning services» and are selling these to global customers struggling with technological and process changes in their companies as well as demographic shifts in the workforce. While Infosys integrated the service in its Enterprise Solutions Group in 2010, Wipro leveraged its capability in the learning space to extend it as a service to customers in terms of managing learning content, learning delivery, and hosting and managing learning platforms (Das 2010).

▪ Dimensions of Knowledge Intensity

Until now, we have been talking about the «knowledge-based firm» or about «knowledge-intensive firms» without explaining what knowledge intensity means. Knowledge intensity has two dimensions – *knowledge intensity of the process* and *knowledge intensity of the product/service*. We have distinguished four fields in the knowledge intensity portfolio (see Fig. 1.6):

- *Product intelligence*: Products and services vary in the degree of knowledge embedded in them. An indicator for «product intelligence» is the research and development (R&D) effort as a percentage of total cost or sales. Product intelligence is high in the case of software products, machine tools that identify their own errors, pharmaceutical products, etc.

5 ► http://www.som.cranfield.ac.uk/som/dinamic-content/media/ISRC/What%20really%20is%20a%20KIF.pdf

- *Process intelligence*: Refers to the complexity of processes and the knowledge embedded in them. The amount of R&D investments in process development and improvement as well as the qualification level of people employed in production are indicators for process intelligence. High process intelligence can be found in «*Mass customisation*» (Pine 1993) wherein custom-made products are produced with over millions of variations. The resulting products, such as a bicycle or a tailor-made suit, are not particularly intelligent in themselves, but the intelligence lies in the conceptualisation and execution of the process. Increasingly sophiscticated algorithms govern processes, for example in the financial industry («FinTechs»).
- *Product and process intelligence* combines both the described phenomenon. A practical example is a firm that manufactures high-precision balances in a customer-oriented production.
- *Value added by physical work*: Low knowledge intensity in the value added chain and in the performance is evident while selling physical work (even boxing brings money!).

Definition

A good overall **indicator of knowledge intensity** is the added value of a product/process. This reflects the value generated by transforming an input (raw materials, components, information) into an output valued by a customer. The more specialised and unique knowledge is embedded in the transformation process the higher the value added (see Porter and Millar 1985).

What Makes a Knowledge Firm?

What are the characteristics of a company that converts knowledge into sustainable competitive advantage? Knowledge oriented companies can be distinguished by a number of the features that are described here briefly. At the end of this chapter, the reader has the option to assess whether his company is a «*company insensitive to knowledge*» or a «*knowledge-oriented company*». This short analysis enables the raising of awareness about the subject and to take initial steps toward creating a knowledge firm. However, this does not mean that every company has to turn itself into a knowledge company, for a company that is insensitive to knowledge can also be successful (but for how long?).

We recommend the reader to look at the short analysis at the end of this chapter. The following text explains the individual sections of the subsequent analysis.

Companies will specifically develop into a knowledge firm when customer requirements are highly differentiated and demand *custom-made products*. Knowledge firms will counter a fall in the price for standard or «me-too» products and services by offering complex integrated solutions. This, for instance, applies to the supplier industry for the offer of modules and systems as opposed to production of individual parts or components. Even in a consultancy, the deployment of standard products is valued less by clients than turn-key projects or complete solution packages which demand significantly more knowledge and are therefore pay better. Markets with a high speed of innovation and short product life-cycles require speedy creation and transfer of knowledge.

A knowledge firm offers solutions for customer problems, which are less intensive in terms of labour and capital and are more and more knowledge-intensive. It is difficult to imitate and substitute them, since they draw on complex knowledge and skills. Even the ability to imitate efficiently under the «*We are unbeatable at imitation*» motto can be a successful business strategy.

Case Study

Mumbai's Dabbawalas – «A Model of Managerial and Organizational Simplicity»

The case of Mumbai's Dabbawalas demonstrates how a simple business idea which offers solutions to customer problems can become a successful business model which is difficult to imitate when executed with discipline and dedication.

It has gained recognition world over for its service and operation and in the words of Prof. C. K. Prahlad, is «*A model of managerial and organizational simplicity*».

«Dabbawalas», is a group of people in Mumbai, India, whose job is to carry and deliver home-made food in lunch boxes to office workers. «Dabba» means lunch box or tiffin. Daily, on the streets of Mumbai, 5000 *dabbawalas* routinely deliver home cooked lunches in tiffin carriers to 200,000 working people all over the city.

They have been in the business for over 100 years and in 1998, Forbes Global magazine conducted an analysis and gave them a Six Sigma rating for efficiency. In the same year two Dutch filmmakers, Jascha De Wilde and Chris Relleke, made a documentary called «Dabbawalas, Mumbai's unique lunch service».

The system the ***dabbawalas*** have developed over the years revolves around strong teamwork and strict time-management. At 9 a.m. every morning, home-made meals are picked up in special boxes, which are loaded onto trolleys and pushed to a railway station. They then make their way by train to an unloading station. The boxes are rearranged so that those going to similar destinations, indicated by a system of coloured lettering, end up on the same trolley. A simple colour coding system doubles as an ID system for the destination and recipient. The meals are then delivered – 99.9999% of the time to the right address. **The organisation relies entirely on human endeavour in the form of links in the extensive delivery chain with no technology**. The success of the system thus depends on teamwork, an attitude of **competitive collaboration** and excellent time management. Synergy and cooperation is very high, as all of them come from a single sect from remote villages around Mumbai.[6]

The ability to combine the knowledge of different business fields in order to innovate is gaining importance, and the same applies to the speed of generating new business fields and developing products more effectively than the competitors.

The investors in the knowledge firms are interested in a long-lasting increase in a company's value, especially those dealing in intangible goods.

Traditional companies often treat knowledge as a commodity, like information, that can be divided and stored («*frozen food*»). But knowledge firms are aware that the cre-

6 Varma, Shailena; The Amazing story of Mumbai Dabbawalas ► http://toostep.com/insight/the-amazing-story-of-mumbai-dabbawalas

ation and transfer of knowledge is an individual and collective learning process that cannot be dominated and controlled completely. Employees of such a company can discern correctly that we learn fast from other companies, we transfer knowledge effectively within the company and to/from our customers, suppliers, alliance partners and competitors.

The knowledge firm is mainly characterised by values, processes and structures, the organisational «ecology», that allows the «*plant knowledge*» to grow and prosper in a company. In this regard, we can also speak of a «*knowledge ecology*». Basic values practiced by such an organisation are trust, openness to new concepts and authenticity.

The term authenticity indicates that the employees are supported in the use of unconventional solutions, enjoy freedom in their demeanour and in organising their work and are allowed to be their own self. In knowledge firms good ideas get implemented notwithstanding who moots them.

For instance, highly-paid software specialists who often live in unconventional office environments and can afford their «*ticks*» because they are creative and encourage liberties through their creativity. Google is a good example of a firm that has understood how to nourish creativity and commitment.[7]

The corporate vision and mission emphasises the importance of knowledge for the success of business. Leadership and incentives must be organised in such a way that they reward both individual performance and the contribution to overall success of the company. This gives rise to an interest in generating good performance not only for one's own unit but also to help other units, customers and suppliers to improve.

While there are no key performance indicators (KPI) for the creation and transfer of knowledge in the traditional company, the knowledge firm measures both based on the business goals. Creation of knowledge does not make any sense if it is isolated from these goals. Such indicators are an integral part of the reporting system showing how knowledge is converted into the success of the business. Non-financial indicators that refer to customers, employees and processes gain importance over traditional financial indicators.

In a knowledge firm, a significant change as opposed to the traditional hierarchical companies is that the position of the management and experts is valued equally. In a traditional company, one requires responsibility for a certain number of employees or the responsibility for a certain budget in order to scale a position of a department manager or chief department manager. But in a knowledge firm one achieves his position in the company by the knowledge that one has, the knowledge that one gives to the others, the ability to coach other employees, the ability to learn new things and to demonstrate expertise. The person who is in the position of an expert must continuously develop himself.

Knowledge firms develop «*knowledge markets*» wherein demand and supply are decisive for the creation and exchange of knowledge. A knowledge company achieves

7 Regarding inspiring office environments see ► http://www.youtube.com/watch?v=TaGO7XIP2EU

transparency about «who knows what» within and outside the company and knowledge transfer and development are based on common interests. Best practices and expertise are emphasised in the company thus offering a permanent stimulus for implementing good practices. Knowledge companies have overcome the «knowledge is power» syndrome; now «knowledge-sharing is power».

Various agents, processes and media support the operative tasks in our vision of a knowledge firm. In such a firm, knowledge transfer processes are defined as well as the structure of developing new business fields, products and processes. A top-ranked coach promotes knowledge creation and transfer as «*Customer Focus Coordinator*» or «*Director of Knowledge Management*». However, these coaches do not manage knowledge the way one manages financial resources. Instead, they ensure that the «*knowledge ecology*» is right and the rules of the knowledge markets are followed. They promote the growth of employees in this new type of company.

Strategically important knowledge of an organisation is bundled in competence networks that are also responsible for the distribution and protection of this knowledge. Employees exchange knowledge in «*communities of practice*». In a knowledge firm, a number of cooperative projects promote teamwork across the functions and business areas in a «boundaryless behaviour».

A knowledge firm practices intensive benchmarking both internally as well as externally. It finds out best practices, distributes them, enquires wholeheartedly whether such practices can be used in the individual units and if not, looks for the reasons. A number of problem-solving groups yield all the available information of their employees. The «*not invented here*» syndrome is replaced by «*implement good ideas from wherever they come*».

Training and competence development are a high priority. Individual and collective learning processes are based on demand and joint learning happens in teams close to work situations and business units. Employees are no longer «*sent*» for training. Instead, they themselves control their own learning process actively.

While informal contacts are not appreciated in the traditional hierarchical company – «*you'd rather not talk to our colleagues in Delhi because they could snatch away our business*» – team work and informal contacts are promoted in the knowledge firm by means of knowledge fairs, knowledge brokering, attractive canteens, lounges, coffee corners and other options of informal meetings. But not all options for electronic communication are implemented in order to enable colleagues to get to know each other through personal meetings. In such a company, the office layout and the overall structure of the workplace and social spaces support interaction amongst the employees.

Information and communication technology is an important component of a knowledge firm. It connects all the employees of the organisation as well as relevant customers, suppliers and other external know-how experts. Electronic media is used intensively for discussing and transferring knowledge. The databases and other information sources are available for an updated, complete and integrated access to relevant information which is beyond the limits of functional and business units. Such databases

and sources build the collective memory of the organisation. The media is user-friendly, easy to learn, adaptable to an individual's method of working and allows easy contributions (e.g. wikis, blogs).

The well-informed reader will argue that such a company described above does not exist in reality or that this utopia will also not find any practical application in the future. This argument can be countered because there are already many companies that closely match the criteria mentioned here, thus drawing us close to this vision. One such successful company is General Electric which has already gone far ahead in its «reinventions» towards a knowledge oriented company and is mentioned a number of times in this book. Phonak (Switzerland) and Oticon (Denmark), both manufacturers of hearing systems, exhibit many of the characteristics of a knowledge firm mentioned here. The list continues with Buckman Laboratories and Sequent Computers in the USA, KaO in Japan, Semco in Brazil, the MLP financial services in Germany, Infosys, Wipro, Tata Steel, Eureka Forbes, and Tata Chemicals in India, etc.

For the employees and management, a change towards a knowledge firm means a change in the working method and roles as they were described by the leading representatives of organisational learning (Argyris and Schön 1978; Senge 1990; Flood 2009). Employees of this new corporate context must be able to «to learn learning». Apart from their field-specific competence, they must have the basic ability to deal with new information and communication technologies to procure information as early as possible and convert it into knowledge. Employees are expected to have a distinct communication competency and the skill of self-management as well as an ability to be creative and solve problems themselves. The social competence or «*capability to work in a team*» involves consulting within the group, solving conflicts, dealing with stress and unexpected behaviour of the others. Management is mainly responsible for organising the above mentioned framework conditions «ecology» as well as for determining the goals and measuring the achievement of goals as per the extended criteria of a knowledge firm. The management itself is an expert – be it for a specific theme, be it for coaching others to learn or be it for communicating the values and goals.

■ Short Analysis: Fitness for Knowledge Competition

Grade how you assess the position of your company in the knowledge competition between a «*knowledge-oriented company*» and «*company insensitive to knowledge*». (You might also use the self-assessment on p. 41). Students can do the same with their university, department or teamwork with their fellow students. A good approach to sensitisation is copying and distributing the questionnaire given below among colleagues so that the results can be discussed subsequently on points such as how different the categorisation turned out to be? Where was the maximum difference in the grading? Where do we see the biggest obstacles on the way to a knowledge firm and which measures can give maximum results with less effort? How can each of us contribute to the distribution of knowledge in the company?

■ Short Analysis: Fitness for Knowledge Based Competition

Company insensitive to knowledge	1	2	3	4	5	**Knowledge oriented company**
Our markets						
Low differentiation.						Customer requirements are highly differentiated, demand 'for custom-made' products and services
Demand standard products.						Honoures customized and high value products/services.
Low innovation speed and long life-cycles.						High innovation speed and short life-cycles.
Our solutions for customer problems						
Work or capital intensive						Knowledge intensive.
Can be imitated easily.						Are difficult to imitate.
Can be substituted.						Cannot be substituted at present.
The firm faces difficulties to generate new business fields.						Generation of new business fields and products is more effective than the competitors.
Our capital providers						
Are interested in short-term yield.						Are interested in long lasting increase in the value of the company.
Knowledge and learning						
We get few ideas from the employees.						Good ideas get implemented not withstanding where they come from
We learn slowly (from other companies).						We learn fast (from other companies).
We do not know "who knows what?"						We know where to locate our knowledge
We do not take much effort to protect our knowledge.						We protect ourselves systematically against loss of knowledge.
One is afraid to emphasise best practice and expertise.						We emphasise best practice and expertise.
Training does not lead to a collective learning process.						Training practices teamwork and knowledge transfer across business units.
The employees are "sent" for traning.						The employees actively control their own learing processes.
There is no institutionalised KM .						KM processes and roles are implemented.

Inefficient experience exchange.						Communities of practice exchange experiences.
We do not have systematic and open benchmarking.						By benchmarking (internal and external) we find out best practices.
Offices and social places are seperated in our company.						Our offices and social zones encourage teamwork.
Basic organisational conditions						
The values of our organisation foster mistrust, scepticism against innovations, confromity and formalism.						The values of our organisation promote trust, openness to innovations, authenticity and informal contacts.
The company goals have no relation to the knowledge goals.						KM strategy is embedded in business strategy.
Knowledge is power.						Knowledge sharing is power.
Reward systems are directed towards the performances of an individual or a single unit.						Reward systems align individual performance and contribution to the overall success of the company.
There are no indicators for the creation and transfer of knowledge.						We measure the creation and transfer of knowledge based on business goals.
Management positions are valued higher than experts' positions.						Management positions and experts' positions are valued equally.
Information and communication technology						
Our systems are not available to all the employees.						Our systems connect all the members of the organisation and enables effective collaboration.
Our systems are exclusively meant for matters within the company.						Relevent customers, suppliers and external partners also have access to our systems.
Stored information is incomplete and not updated.						We always have access to latest and complete information.
There are different isolated applications thus making it difficult to connect the systems.						We have an integrated platform that enables access to relevent information across functional units and business units.
There are no discussion forums wikis, or blogs.						Discussion forums, wikis or blogs are used for discussion and transfer of knowledge.
The available systems are user unfriendly or are not accepted.						The systems are user friendly and are used intensively by the employees.

1.4 Key Insights of Chapter 1

- Knowledge as a resource and the capacity to learn become the main ingredients for sustainable competitiveness.
- All over the world we view structural changes towards a knowledge economy and society giving rise to changed education systems, new forms of learning and valuating talent and competence.
- Intangible assets increasingly determine the value of organisations.
- Self-assessment provides insights if an organisation can be considered as «knowledge firm».

1.5 Questions

1. What are the characteristics of a knowledge economy?
2. What are the driving forces of knowledge based competition?
3. What is the influence of intangible assets on company value.
4. How would you define Knowledge Management? Describe at least five factors that determine the success of knowledge-based management.
5. What are the objectives and basic questions of knowledge-based management?
6. What hampers creation and transfer of knowledge in and across organisations?
7. What are the characteristics of a «knowledge firm».

1.6 Assignments

1. **Knowledge Oriented Company**
   - Give examples (or prepare a poster) on firms which display the characteristics of a «knowledge oriented company» according to the criteria described in the test at the end of ► Chap. 1.
2. **Knowledge Management Definitions**
   - Conduct an internet search on the definition of KM and compare them.

1.7 KM-Tool: Knowledge Café

What is a Knowledge Café?

A Knowledge Café is a means of bringing a group of people together to have an open, creative conversation on a topic of mutual interest to bring to the surface their collective knowledge, to share ideas and insights and to gain a deeper understanding of the subject and the issues involved.

Why use it?

A Knowledge Café provides a space for people to meet, discuss and reflect. This ultimately, leads to action in the form of better decision making and innovation and thus tangible business outcomes.

How to run it?

A simple session may go something like this:

1. The facilitator «Coffee house owner» welcomes people to the café and explains what knowledge cafés are all about and the role of conversation in business life (max 15 min).
2. The facilitator spends 10–15 min outlining the subject or theme of the café and poses a single open-ended question. For example, if the theme is knowledge-sharing then the question for the group might be «what are the barriers to knowledge-sharing in an organisation and how do you overcome them?»
3. The group breaks into small groups of about five each and discusses the questions for about 30–45 min and then we come back together as a whole group for the final 30–45 min where the individual groups share their thoughts.
4. **Optionally** in the small group sessions, people change tables every 15 min to broaden the number of people they get to interact with and thus the differing perspectives of the group.

Usually no attempt is made to capture the conversation as doing so tends to destroy the conversation. The value of the café is in the conversation itself and the learning that each individual takes away. In some circumstances though it makes sense to capture things from the café depending on its purpose and there are ways of doing this that interfere minimally with the dynamics of the conversation. A good idea is to have a paper table cloth and café tables on which participants can write, draw, mindmap.
For more information refer to:

- http://www.gurteen.com/gurteen/gurteen.nsf/id/run-kcafe
- http://en.wikipedia.org/wiki/Knowledge_Cafe
- www.youtube.com/watch?v=NTZ0vf0Tmi4

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