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KNOWLEDGE SOCIETIES –

– THE RISE OF NEW KNOWLEDGE TYPES AND THEIR TRAILBLAZERS, AND THE MANAGEMENT OF VALUE CHAINS

In this article, the authors argue that there is no such thing as the knowledge society. Like many others authors, they claim that the fundamental transformations of our time can be typified as the end of the national 'industrial society' and the move towards some kind of global society dominated by the production and use of knowledge. They argue, however, that these transformations not necessarily produce a convergence of national and regional socio-economic structures. In industrial society two types of knowledge were dominant: 'technical knowledge' and 'social knowledge'. In our time, the growing diverseness of individual and group identities produced by reflexivisation, globalisation and the advancement of information technologies calls for the development and application of a new type of knowledge: 'cultural knowledge'. They analyse the consequences of the increased significance of cultural knowledge in the economic sphere in terms of the division of labour, and subsequently conceptualise three different types of knowledge societies: 'the techno-cultural', 'the socio-cultural' and the 'socio-technical knowledge society'. Finally, they will portray three 'categories' of trailblazers of the knowledge societies, new professionals that perform 'meta business functions'. These trailblazers directly or indirectly create new value chains by linking or destroying existing ones, and breaking up others in to pieces in order to create new combinations. These professionals, in other words, actively manage value chains.

In past ten years or so, many economists and social scientists have strongly argued that modern Western societies are moving in the direction of a society dominated by the production and use of knowledge, of a 'knowledge society'. This assumption has urged politicians from the right and the left to advocate a substantial change of the socio-economic and educational policies of their countries, and to stimulate their constituencies to improve their knowledge and learning skills in order not to miss the boat. In 2000, the leaders of the European Union at a summit in Lisbon even declared that the central aim of the Union's socio-economic policy should be to become 'the most dynamic and competitive knowledge based economy' in the next ten years. But what exactly is a 'knowledge based economy' and a 'knowledge society'?

In this article, we argue that there is no such thing as the knowledge society. Like many others authors, we claim that the fundamental transformations of our time can be typified as the end of the national 'industrial so-

ciety' and the move towards some kind of global society in which the production and use of 'knowledge' is of vital importance. However, since there are more than one type of knowledge and since the emerging global society will be characterised by a global division of labour, these transformations not necessarily produce a convergence of national and regional socio-economic structures, but rather the advancement of at least three different types of knowledge societies.

In Section 2, 3 and 4 of this article, we argue that in industrial society two types of knowledge were dominant: 'technical knowledge' and 'social knowledge'. Industrial society was based on and aimed at the 'homogenisation' of subjects, but at the same time produced at least two diversifying processes: reflexivisation and globalisation. The growing diverseness of individual and group identities produced by these processes and the advancement of information technologies calls for the development and application of a new type of knowledge: 'cultural knowledge'. In Section 5, we

analyse the consequences of the increased significance of cultural knowledge in the economic sphere by using the Marxian concepts 'technical' and 'social division of labour'. Combining the notions of different knowledge types and a global division of labour, in Section 6 we conceptualise three different types of knowledge societies: 'the techno-cultural', 'the socio-cultural' and the 'socio-technical knowledge society'. Finally, in Section 7 we will portray three 'categories' of trailblazers of the knowledge societies, new professionals that perform 'meta business functions'. These trailblazers directly or indirectly create new value chains by linking or destroying existing ones, and breaking up others in to pieces in order to create new combinations. These professionals, in other words, actively manage value chains.

Industrial society and the development of techno-social knowledge

Max Weber, and more recently Ullrich Beck have claimed that the central quest of industrial society was the control of nature and social life. The control was to be made possible by what Weber (1922, 1968) calls the 'disenchantment of the world'. With the concept of disenchantment, Weber refers to human contemplation as well as social action. By analysing nature and social life in a scientific way, *knowledge* could be accumulated and subsequently applied in several control strategies. In the sphere of nature, the quest for control became manifest in the mechanised production of goods and services, in the social sphere in the development of the nation state and its instruments (welfare state, state bureaucracy, etc.). Thus, the development and application of knowledge is not unique for our current 'knowledge society'. Some authors (Bell, 1973; Giddens, 1994a) even argue that all human societies in history were at least partly founded on the development and application of knowledge. Why then do we label our current society a 'knowledge society'?

In order to be able to answer this question, we first have to distinguish two ideal types of knowledge that were dominant in industrial society: 'technical knowledge' and 'social knowledge'. *Technical knowledge* concerns the knowledge of (the functioning of) non-human objects, of what Beck (1992) and Giddens (1990, 1994a) call 'nature'. The scientific disciplines that are concerned with these objects are the natural sciences, and the application of this type of knowledge is at the foundation of the industrial production. *Social knowledge* is the knowledge of (the functioning of) social 'groups'. The term group refers to a collective of individuals who 1) interact and communicate, and 2) share a certain set of values and norms. The latter means that a 'group' to a certain extend is culturally homogeneous. The scientific disciplines that are concerned with groups are the social sciences, and the application of this type of knowledge is at the foundation of, for instance, the nation state.

On the basis of these two types of knowledge, another ideal type of knowledge can be discerned, a type that is at the intersection of technical and social knowledge: 'techno-social knowledge'. *Techno-social knowledge* concerns the knowledge of the interaction between non-human objects and groups. Examples of this knowledge type are Taylorism and Fordism. Both Taylorism and Fordism were developed at the beginning of the 20th century and try to formulate an answer to the question how in the mechanical production of goods, machines ('nature') and workers ('group') could efficiently be geared to one another. One could claim that techno-social knowledge was at the core of industrial society, since the central institutions of industrial society – capitalism, bureaucracy, nation state (Weber, 1968) – eventually could not function, and the quest for control could not succeed, without the integration of nature and social life.

Though especially at the beginning of the modernisation process the central institutions of industrial society were confronted with populations that originated from local communities that culturally differed substantially, the institutions in principle were directed at subjects ('citizens', 'classes', 'sexes', etc.) that were to a certain extend culturally homogeneous. Moreover, according to some authors the institutions exerted a strong homogenising influence on their subjects: the institutions 'rationalised' (Weber, 1968), 'disciplined' (Foucault, 1977), and 'normalised' (De Swaan, 1989) social life in industrial society in such a way that the cultural diversity inside the nation state, the factory, bureaucracy, etc. disappeared, or at least was pushed into the background.

Technology, knowledge and information as diversifying forces

The homogenising project of industrial society was however never completed. Even more than that: though the central institutions of industrial society aimed at wiping out cultural differences, in at least two ways they evoked a further 'diversification' of their subjects. To a certain extend, behind both of these diversifying processes is technological innovation and a spread of knowledge.

The *first diversifying process* caused by the institutions of industrial society is 'globalisation'. In the past few decades, the development of capitalism gradually evoked a further scaling-up of the industrial production. A prerequisite for this process is, what Harvey (1989) calls 'time-space compression'. This concept refers to the increased mobility and internationalisation of capital. In the process of capitalist modernisation, the pace of the economic process is gradually speeded-up by the removal of spatial barriers through the application of new technologies. By these innovations the 'spatial rigidities' of Fordist production, in which capital was held to be loyal to a place, were removed and time was so to speak 'compressed', making it much easier and quicker to move information and capital from one place of earth to the other.

In practise, two main drivers of time-space compression can be identified. The first is the technological development of transportation. By the invention of the train, the ocean steamer, the airplane and the automobile, and a gradual extension and of the rail roads and highway network in the 19th and 20th century, more and more local economies on earth could be absorbed in the global economic process. In the West, the consequences of the technological innovations were first felt in the 1960s and 1970s, when 'traditional' industrial sectors like textile and shipbuilding were swept away by new manufacturers from East-Asia. The second main driver behind time-space compression was the technological development of communication. Inventions like the telegraph, the telephone, radio, television and the Internet made possible a further integration of the global economy, not only by facilitating the competition between producers from all over the globe, but more recently also by providing the information necessary for companies to transferred the production to that country or region that can produce at the lowest comparative costs. Thus, by the end of 1970s, globalisation aroused a first 'wave' of change towards what we now call a 'knowledge society'. In the West, this first wave was characterised by a rapid 'informatisation', the flexibilisation of the work organisation, and the outsourcing of several business functions to developing countries, mainly in East-Asia (see also Section **Cultural knowledge types and the division of labour**).

But technological innovation not only causes globalisation and integration on the side of the producers. By absorbing local economies from all over the globe in the economic process, more and more cultural communities become part of the capitalist system as well. In the initial phase of globalisation, the members of these communities only served as producers for a still rather homogeneous Western consumer market, but in the last few decades they have more and more become customers on the global market themselves. For the producers this development has enormous effects. As a consequence of globalisation, the potential market for their products has expanded dramatically, but at the same time the homogeneity and transparency of consumer demand, which was so typical for the Fordist era, gradually disappears, since their clientele is no longer culturally homogeneous.

The latter development was further intensified by *a second diversifying process* that, at least up to now, is very typical for the 'developed' Western countries: 'reflexivisation'. Giddens argues that reflexivisation is the outcome of large-scale processes, which were also in effect in industrial society, but have come to maturity in the last few decades. One of these processes is the enormous spreading of knowledge. According to Giddens, in traditional local society the production and development of knowledge had been monopolised by the so-called 'guardians of truth', mostly priests. Their task and privilege was to integrate past, present and future in a coherent system of knowledge of the natural environment, the meaning of the community and the assigned tasks of the individual members. The knowledge system was presented to community members as 'traditions', ritual guidelines for all aspects of social life that were sacred and unquestionable, and were to be followed by the members in a thoughtless way (Giddens, 1994a).

In the process of modernisation, the monopoly of these 'guardians' was slowly but surely dissolved. Nation-states forced local communities to open up, while national governments introduced compulsory education with the objective of fostering economic development and thus actively stimulated the spreading of knowledge. Though the *application* of knowledge in industrial society was no longer the monopoly of privileged elites, the *evaluation* of knowledge as truth remained the domain of 'higher' institutions like modern science and state bureaucracies. These institutions inherited the 'aura of authority' the knowledge-producing elites in traditional societies once possessed (Giddens, 1994a: 56-109, 86-87). As a consequence of a second large-scale process, the disintegration of social ties, traditional forms of authority disappear and individuals finally start to think for themselves. Our current 'post-traditional' world, Giddens claims, 'is a world of clever people', who actively *reflect* on their actions and those of others, and no longer take prefabricated rational knowledge for granted (Giddens, 1994b: 7, 1990, 1994a). Thus, reflexivisation is also interpreted by Giddens as a process of 'individualisation'. The grow-

ing knowledge of nature and social life, he suggests, enables individuals to exceed social structures and culture and make their own choices (Giddens, 1994b: 6; Hoogenboom – Ossewaarde, 2005).

To sum up, by time-space compression more and more cultural communities are gradually integrated into one single economic system. Though without completely removing the cultural differences between these communities, globalisation poses the challenge of surmounting cultural differences in the exchange of goods and services. This economic challenge is also felt in the production of commodities, since the simultaneous scaling-up of transportation and the mass media also removes the spatial rigidities of people to physically and virtually move across vast distances, creating one single (partly virtual) production system.

The processes of reflexivisation and globalisation that were produced by the central institutions of industrial society gradually undermine the homogeneity these institutions were based on and aimed at, and aroused a second 'wave' of change towards a 'knowledge society'. Whereas the first wave of change was characterised by informatisation and flexibilisation, the second wave can be typified as 'cultural fragmentation'. While in industrial society, the pursuit of collective objectives (welfare, security, etc.) was facilitated by a set of values and norms, that was shared by all members of the community, in the current society values and norms are fragmentised, and the pursuit of certain objectives has become highly complicated by a growing diversity of subjects. Since the homogeneity of industrial society gradually disappears, new types of knowledge are needed to bridge different individual and group identities.
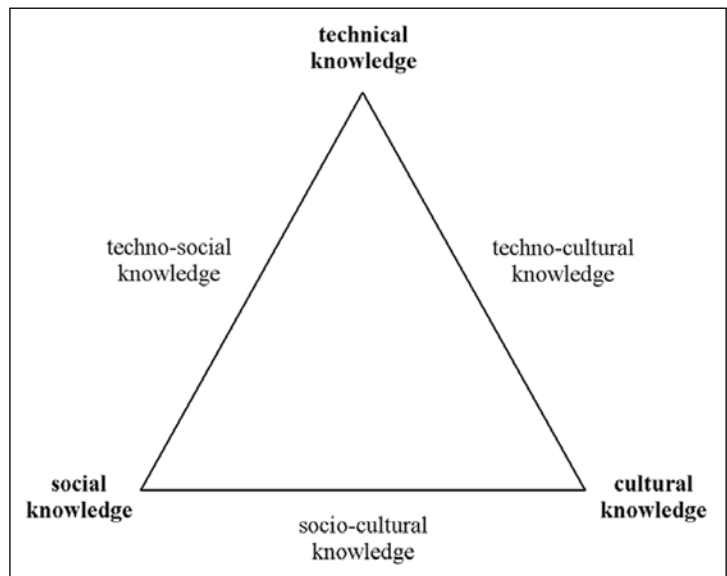
The rise of cultural knowledge types

In our society, as a consequence of the diversification of subject identities a third type of knowledge becomes more significant: 'cultural knowledge' *(Figure 1)*. *Cultural knowledge* refers to the knowledge of identities different from the own identity. From the fact that in knowledge society diversity comes from two sources (reflexivisation and globalisation), it can be concluded that in theory cultural knowledge can take two forms. The first form consists in the knowledge of *individual* identities in a society that is characterised by reflexive individuals. The obtainment of this form of cultural knowledge requires certain psychological capacities like empathy (cf. Giddens, 1992). In our current society,

this type of knowledge is required on all levels of economic life, especially on the level where the producer meets the customer 'in the flesh', for instance in the department store. The second form of cultural knowledge concerns the knowledge of other *group* identities, that is the norms and values of other culturally homogeneous groups. The obtainment of this form of cultural knowledge requires certain anthropological capacities. In the economic process, we can observe the need for this type of knowledge in the appointment of cultural anthropologists in multi-national business companies.

Figure 1

Ideal types of knowledge

The increased significance of cultural knowledge goes hand in hand with the increased significance of two further types of knowledge: 'socio-cultural knowledge' and 'techno-cultural knowledge'. *Socio-cultural knowledge* refers to the knowledge of the ways in which differences between individual and group identities can be bridged. This type of knowledge somewhat resembles Castells' concept of 'hypertext'. In his analysis of the 'network society', Castells claims that as a consequence of the annihilation of time and space in our time, symbolic interaction loses its reference to experience and 'culture' becomes individualised. 'Thus, because there are few common codes', Castells (2000: 21.) argues, 'there is systemic misunderstanding. It is this induced cacophony that is celebrated as postmodernity. However, there is one common language, the language of the hypertext. Cultural expressions left out of the hypertext are purely individual experiences. The hypertext is the vehicle of communication, thus the provider of shared cultural codes.'

The question however remains if in reality a single, non-cultural hypertext, as it is conceptualised by Castells, is imaginable. In fact, Castells not only presupposes a universality that (maybe apart from mathematics) is hardly feasible, he also suggests that the existence of plural *hypertexts* is not possible. In our interpretation, socio-cultural knowledge is not necessarily universal, but only serves the goal of bridging the misunderstanding between *some* individual or group identities on a given moment in a given context. Thus, socio-cultural knowledge requires the capacity of constant (re-) interpretation of identities and is an endless search for the ways in which these identities can communicate. In international business, workers assigned to the task of 'inter-cultural management' are supposed to exhibit this type of knowledge.

Finally, *techno-cultural knowledge* concerns the knowledge of the ways in which non-human things ('nature') can be tuned to more than one individual or group identity, and vice versa. The word 'techno' in the concept might seem to be a little bit misleading, since the sheer workings of a certain technology *itself* can in most cases not be adapted to a specific individual or group identity. By techno-cultural knowledge is, however, meant the knowledge that is necessary to apply a given technology in such away that it can produce different mental and/or physical products for individuals or groups with divergent identities. An example is the 'Smart' car, which to a certain extend can be adapted to the individual desires of the modern reflexive customer, or the 'hallal burger' McDonalds offers in Islamic countries.

Cultural knowledge types and the division of labour

We can analyse the consequences of the increased significance of cultural, socio-cultural and techno-cultural knowledge in the economic process by applying the Marxian distinction between the 'social division of labour' ('Teilung der Arbeit') and the 'technical division of labour' ('Verteilung der Arbeit'). The *technical division of labour* refers to the splitting up of tasks in the production process into smaller parts that are performed by a single individual or a single collective of individuals. In the production of a certain good or service within a single business company, the technical division of labour results in a 'materialisation' of business functions (1): the emergence of separate offices and/or departments responsible for the performance of one or a series of related business functions. If the performance of a certain business function becomes more complicated and the costs rise, a process of specialisation is likely to

set in. Separate business companies or completely new sectors will emerge that concentrate on the performance of a certain business function or a series of related business functions and that gradually take over the performance of that function from non-specialised companies: *social division of labour.* Through the social division of labour, new commodities and value chains emerge. According to classical sociologists like Smith, Marx and Durkheim, this division of labour type was one of the main engines behind the process of modernisation and the rise of industrial society.

In the production of many goods and services, reflexivisation and globalisation 'create' new business functions. The production of commodities, management, marketing, sale, etc. in an increasing degree require the development and application of cultural, socio-cultural and techno-cultural knowledge. If the complexity of the required knowledge is low, the application simple, and thus the costs relatively low, business companies can create their own in-house facilities in the form of specialised offices and/or units: technical division of labour. However, if the required knowledge becomes more complex and the costs rise, the business functions that require these types of knowledge are, like in the early phases of the modernizing process, gradually 'outsourced' to new specialised companies: social division of labour. Here, it might be fruitful to make a distinction between two types of outsourcing: 'technical outsourcing' and 'social outsourcing'. *Technical outsourcing* concerns all kinds of outsourcing; *social outsourcing* or 'offshore outsourcing' refers to technical outsourcing that implies the transfer of business functions to 'oversees' regions.

Thus, the increased significance of cultural, techno-cultural and socio-cultural knowledge generates changes in the economic structure on three levels. Here, we will only analyse a few of these change briefly.

On the *micro level,* the level of the business company, the technical division of labour induces fundamental changes in work organisations and individual job descriptions. Since the development and application of the cultural knowledge types are transferred to specialised offices or units, not only new jobs are created, but existing jobs change too. And since the cultural knowledge types imply a continuing re-interpretation of identities and an endless search for the ways in which these identities can communicate, all positions responsible for the development and application of the cultural knowledge types require a large amount of flexibility and life-long learning (more on the micro level and the organisation of work in Sections **Conceptualising knowledge societies** and **The making of knowledge societies: trailblazers).**

On the *meso level,* the level of the 'national' or 're-gional economy' (as far as these can still be discerned in a global economy), technical outsourcing produces a social division of labour and severe changes in the economic structure. This implies the emergence of new economic sectors specialised in the performance of business functions related to the development and application of the cultural knowledge types. The new social division of labour affects all spheres (social, cultural and political) of life, and in the economic sphere generates the emergence of new value chains.

Finally, on the *macro level,* the level of the global economy, social outsourcing induces a global division of labour and the emergence of new global value chains. In the process, not only the social and economic structures of the outsourcing 'regions' are transformed, but also the social and economic life in the regions that take over the outsourced business functions. The new global division of labour facilitates, maybe even enforces, the development of 'mono-knowledge economies', specialised in the development and/or application of a specific knowledge type.

Conceptualising knowledge societies

The increased significance of cultural, socio-cultural en techno-cultural knowledge has turned industrial society into a 'knowledge society'. From the analysis in Section 3, 4 and 5, we can however conclude that there has to be made a distinction between different types of knowledge societies. First, we have to distinguish between the 'knowledge society in a broad sense' and the 'knowledge society in a narrow sense' *(Figure 2).*

Knowledge types and knowledge societies

Figure 2

The knowledge society *in a broad sense* refers to the global society as a whole. The knowledge society *in a narrow sense,* concerns a part of global society that has specialised in the development and/or application of a specific knowledge type. Second, since we have discerned three main types of knowledge, we have to distinguish between three types of the knowledge society in a narrow sense *(see Figure 2 and Table 1).*

Knowledge society in a broad sense

Of the four knowledge society types we have discerned, the knowledge society in the broad sense is the most difficult to conceptualize, since it is composed of at least three types of knowledge societies in the narrow sense. The global knowledge society might however be called a *knowledge* society, since one of its main organising principles is the division of labour on the basis of knowledge.

Ideally, a business function is transferred to and performed in that country or region that can produce at the lowest comparative costs and is specialised in the production and/or application of a certain knowledge type that is required for the performance of the business function. This social division of labour is made possible by the application of new communication and transport technologies.

Knowledge society in a narrow sense (1): techno-cultural knowledge society

The techno-cultural knowledge society might be characterised as the 'real' successor of industrial society. To a certain extend, this society type is the materialisation of Ritzers (1993) 'McDonalisation': the ability to efficiently apply the knowledge of 'nature' is combined with the capacity to gear this application to the variety of individual and group identities on the global market.

Also in the organisation of the production, the techno-cultural knowledge society shows a Janus face. On the one hand, the inclination of industrial society to efficiency is recognisable in the continuous quest for a further technical division of labour and the perfection of the Fordism model. On the other hand, the techno-cultural knowledge society is characterised by high-qualified and culture-sensitive capacities, necessary for the continuing adaptation to new consumers' demands. As far as the organisation of work is concerned *(see Table 1),* this combination requires a flexibilisation of the 'traditional' Fordist corporation. The result might be called 'neo-Fordism' (Gottfried,
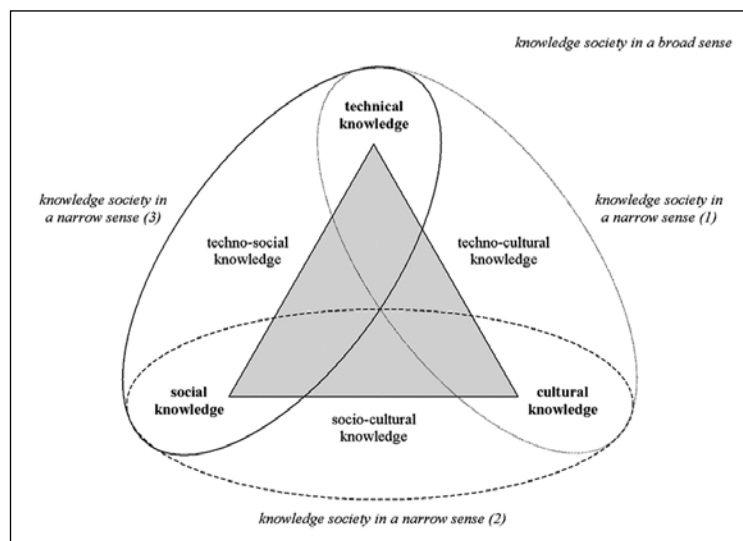
1995): a capital-intensive and very flexible organisation with nevertheless a high degree of technical division of labour.

The hero of the techno-cultural knowledge society is Sennett's (1998) 'flexible man'. His or her restlessness, ability to adapt to constantly changing circumstances, and lack of commitment to any community makes this knowledge society the most dynamic of the three types. Under these circumstances, 'communities' are mostly temporary and not really able to impose the necessary 'solidarity' (Durkheim, 1947) on its 'members'. This lack of binding force is however compensated by the invisible disciplinary power of the 'social structures' of the techno-cultural knowledge society as a whole (Foucault, 1977). In terms of social stratification, this society type is a true 'meritocracy', furnishing those with a minimum of knowledge of the technological hypertext and an antenna for superficial cultural similarities with status and wealth.

Knowledge society in a narrow sense (2): socio-cultural knowledge society

The second type of the knowledge society in a narrow sense might be characterised as the service society (Bell, 1973; Touraine, 1974) par excellence. At a first glance, it seems that this knowledge society is 'beyond' the production of real goods. At the core of this society type is the production of intangible things – trust, communication channels, images, emotions – making it very difficult to discern highly valuable commodities from hot air. The development and application of knowledge in this society type hardly requires large capital investments. Knowledge is produced and used in small and ad hoc 'organizations' and in networks, and certain high-skilled business functions that were split up in the industrial era, are re-integrated. A high percentage of the working force is not even working in organisation at all, but is self-employed *(see Table 1)*.

The dominant social stratum in this knowledge society type somewhat resembles Florida's (2002) 'creative class': consultants, artists, musicians, architects, journalists, social scientists, and the like (2). The most valuable tool of this stratum is its 'cultural capital' (Bourdieu, 1984), that is: a thorough understanding of cultural meanings and differences, but also the presence of the right 'habitus'. As Bourdieu knew, the acquisition of cultural capital is much more difficult and time-intensive than the obtainment of economic and even social capital. Accordingly, in this knowledge society type the rat race for economic success and social recognition already starts in the cradle, giving the offspring of the culturally gifted a head start. In order to keep

up, also in adult life a permanent training is required, not only through formal education, but through virtually all activities performed during the waking hours of the day. Consequently, in the socio-cultural knowledge society the boundaries between work and private life have been completely blurred. Maybe this is why this knowledge society type is easily mistaken for a 'post-materialist society' (Inglehart, 1977). Formally, the working week is relatively short, but in practise work goes on during lunch and diner, the evening visits to the movies and the theatre, and even during vacations to distant places.

In terms of social stratification, the socio-cultural knowledge society is a hybrid, in which status position, economic position and power position tend to fuse. Since social, cultural and economic life are hardly separable, cultural capital is easily convertible into social and economic capital, and vice versa – maybe in this knowledge society it is not even sensible to make a distinction between the three capital types. As a consequence, in the socio-cultural knowledge society there is a sharp dichotomy in the economy, in politics as well as in cultural life between the 'haves' and 'have-nots', and hardly any jobs for those who lack a minimum amount of cultural knowledge.

Knowledge society in a narrow sense (3): techno-social knowledge society

Finally, the techno-social knowledge society is specialised in the development and application of the knowledge types required for the production of mass consumer goods. This is the reason why this type of knowledge society might also be called the 'new industrial society'. With its concentration on large-scale industrial production and its Fordist organisation of the production process, it highly resembles the industrial society of the early phases of the modernising process in the West. Initially, in the first wave of change (see Section "Technology, knowledge and information as diversifying forces"), this society type was the result of the process of social outsourcing of business functions that require low-skills and had become too expensive in the other knowledge society types. In the second wave of change (see Section "Technology, knowledge and information as diversifying forces"), the phase of cultural fragmentation, the techno-social knowledge society however develops into a mature knowledge society in its own right. Since the development and application of techno-social knowledge have become too expensive and, to a certain extend, unnecessary in the other knowledge society types (as they have specialised in the development and application of the

other knowledge types), this knowledge society type can eventually outstrip the other two in the development of new efficient and cheap techno-social organisation forms. This is why this society type might be called the new industrial society.

However, compared to the other *knowledge* society types, the techno-social type can hardly be labelled a knowledge society, since its labour market is characterised by a low demand for high-skilled and a high demand for low-skilled (and low-paid) workers. The latter are working in highly rationalised production processes, and are subject to alienation and exploitation. The organisation of work in the techno-social knowledge society is characterised by extreme degrees of technical division of labour (see Table 1). The quest of the 'old' industrial society to efficiently tune technology to the capacities of workers and vice versa is in the new one intensified. New 'neo-Taylorist' techniques are developed in order to produce faster and cheaper in a extremely competitive environment. The result is a further de-skilling of the vast majority of the working force.

cific regions on the globe. The American West Coast and Japan with their successful high-tech sectors would for instance be perfect examples of the techno-cultural knowledge society, North-western Europe with its creative industries of the socio-cultural variant, and the new industrial areas in China and India of the techno-social type. For many Westerners, it might even be reassuring to divide the world in a capitalist 'centre' of luxury, culture and safety, and a 'periphery' of poverty and exploitation (Wallerstein, 1974, 1980). But with the nearing death of distance (Cairncross, 1997) and the ever growing mobility of labour, the new industrial society is already on their doorsteps – and in the coming decades it will probably even enter their homes.

The making of knowledge societies: trailblazers

Though the emergence of the knowledge society types is the result of a series of long-term social processes that can hardly be influenced by governments and companies, let alone individuals, in reality the new social and economic configurations in which the new know-

Table 1

Types of knowledge societies (KS) and the organization of work

	Techno-cultural KS KS in narrow sense (1)	**Socio-cultural KS** KS in narrow sense (2)	**Techno-social KS** KS in narrow sense (3)
Dominant knowledge type	■ Technical ■ Techno-cultural ■ Cultural	■ Social ■ Socio-cultural ■ Cultural	■ Technical ■ Techno-social ■ Social
Products and services	■ Techno-social goods: computers, software ■ fast food, bio-technology ■ Techno-social services: banking, web services	■ Socio-cultural goods: multiculti food, pop music, movies ■ Socio-cultural services: consultancy, advertisement, diplomacy, tourism	■ Mass goods: cars, clothing, toys ■ Raw materials: oil, mining products, meat, grain
Work organisation	■ Neo-Fordism ■ Re-skilling and de-skilling; ■ Life-long learning ■ Re-integration of certain business functions that require high skills; further splitting-up of business functions that require low skills: alienation ■ Flexibility, mobility and insecurity; exploitation, poverty and insecurity ■ Dichotomy between high-skilled and low-skilled workers	■ Networks and self-employment ■ Re-skilling ■ Life-long learning ■ Re-integration of certain high-skilled business functions ■ Flexibility, mobility and insecurity ■ Dichotomy between high-skilled and low-skilled workers; few jobs for low-skilled workers	■ Post-Taylorism ■ De-skilling ■ Further splitting-up of business functions that require low skills: alienation ■ Exploitation, poverty and insecurity ■ Few jobs for high-skilled workers

For us, the inhabitants of the early 21st century with still one foot in industrial society, it is tempting to identify the three knowledge society types with spe-

ledge types are dominant are actually *made*. While most of us can still hardly imagine what the new world we are about to enter will look like, in the background real

people are laying the foundations for this world and in a sense act like this world is already in place. They are the trailblazers of the knowledge societies.

These trailblazers are the same time the product of the old industrial society and the producers of the three knowledge society types in the narrow sense, that we have conceptualised in the previous section. They are the product of industrial society, since they simply perform a certain business function in the manufacturing of a certain product or service. However, by doing so they fundamentally transform the value chains they are part of, and reshape the social configurations that they touch upon. In the final section of this article, we portray three 'categories' of these trailblazers.

Trailblazers of the socio-technical KS: economic hit men

The emerging socio-technical knowledge society is fuelled by the restless search of large corporations for new markets, lower costs and higher profits. One could argue that one of the basic challenges of capitalist production, the creation efficient technology-labour combinations, has taken a new form, now that the dependency on local labour markets has diminished and information technologies facilitate organisational coordination over large distances. Consequently, global business corporations must constantly reconsider the organisation of their value chain, to see if a more efficient production regime is possible.

Thus, in socio-technical knowledge society the creation and management of efficient value chains has become a business in itself, including such tasks as the search for and contracting of the cheapest labour possible, and the integration of the dispersed activities into profitable products or services. These tasks are performed by a staff in which a large variety of old and new occupational roles are represented, and that is composed of people that can be typified as *economic hit men* (Perkins, 2004).

The economic hit men (and women) act as the shock-troops of the socio-technical knowledge society, preparing the way for value chain improvements. Economic hit men transform the poor majority of this world into an underpaid and disposable workforce, they force local firms to perform a certain business function and they manipulate governments into a cooperative attitude. This job is performed by a large army of lawyers, financial specialists, anthropologists, interpreters, personnel officers, organisational advisors, diplomats and other great communicators.

Next to this segment of professional value chain (re)designers, one can distinguish various workers who

deal with the conditions for functional, spatial and temporal integration, once the new organisational pathways have been opened up. IT-specialists are brought in to create the informational infrastructure, supply chain managers take care of an efficient flow of materials, and social managers make sure that all relevant production activities are coordinated. Together, the value chain designers and managers shape a new techno-social system that is transgressing not only geographical but also political, legal and moral borders.

One might argue that this new job-market depends on the existence of institutional vacuums and niches. Value chain *designers* search for places where labour laws are poor or lacking, where environmental rules are hardly enacted or where governmental authorities are willing to bypass legal and political restrictions. At the same time, however, value chain *managers* lay the basis for some degree of social integration, by creating functional interdependencies.

Trailblazers of the socio-cultural KS: language builders

The main objective of the trailblazers of the socio-cultural knowledge society is the creation of 'common ground' and 'trust'. The production and use of these (mostly) intangible commodities become more important where cultural fragmentation and the increasing length of value chains create an increasing danger of mistrust resulting from information asymmetries or cultural misunderstandings. The economic interaction between actors – producers as well as consumers – who are more distant in a cultural, geographical or organizational sense can be facilitated through a common unifying *language,* e.g. a shared set of images and words.

The production of these languages is the task of what might be called the *image builders.* Out of an immense amount of culturally diverse meanings these image builders create common ground by selecting or inventing sets of images and words that for all the actors involved more or less represent the same 'feeling' or 'thought'. In the designing process of products and services (and consequently indirectly in the design or reorganization of value chains) the image builders create metaphors that, if successful, generate comparable feelings and thoughts among culturally diverse groups of consumers: a cross-cultural image of 'love' and 'heroism' in movies, of 'quality' in advertisements, and of 'justice' in politics. Thus, amongst this segment of the socio-cultural knowledge elite we can find a wide variety of old and new occupations: graphic designers, advertisers, social scientists, web designers, political advisers, and the like.

Another group of image builders is involved in the designing process of the value chains themselves. Here, they create a language that facilitates the communication, interaction and assessment between all the actors involved in the production of a good and service. Ideally, the language is negotiated in the initial phase of the collaboration by consultants and diplomats, and defines the accounting, auditing and benchmarking procedures for the remainder of the partnership period. In many cases, however, the language needs to be revised time and again, since many concepts ('efficiency', 'equity', etc.) simply can not be caught in a lasting and stable language that can bridge all cultural differences. This maintenance job is done by a second segment of the socio-cultural knowledge elite: *the translators*. These professionals however not only revise the language on a regular basis, they are also involved in a continuing process of negotiation in which consultants, counsellors and mediators try to persuade unwilling partners to accept the language and the consequences it generates. The success of the translators is of course highly dependent on interaction skills that take into account cultural differences, and on a reflexive attitude towards the collaboration process.

Trailblazers of the techno-cultural KS: identity facilitators

The main objective of the knowledge society elite is the bridging of individual and cultural differences. These differences can be bridged by creating temporal (but inherently unstable) alliances between actors, like the socio-technical elite does, or by producing (or suggesting) common ground, as the socio-cultural elite tries. The differences can, however, also be overcome by the creation of instruments that allow the interaction and coexistence of divergent identities. This is the objective of techno-cultural knowledge elite.

Since in a globalised and reflexive world individuals and groups can no longer derive their values, norms, and world view from a collective source, the fulfilment of one's own identity or the cultivation of a group identity has become a critical and inescapable task. As Giddens argues, this task can not be accomplished without the aid of other identity-seeking individuals or groups. They serve as 'mirrors' and can provide answers to questions as what kind of actor one is to become, what kind of identity one is to develop, and how one is supposed to express an identity (Giddens, 1991). In a daily, face-to-face setting, actors organise these confrontations in friendships, romantic relations, and in the contacts with colleagues on the shop floor. On a higher level, the identity-seeking individuals and groups however need instruments to meet and mirror.

This collective quest for uniqueness has opened up a whole range of new avenues for communication in which an elite of techno-cultural professionals has taken the lead. They create the means by which individuals and groups can exchange their uniqueness and can find the elements they need to realise or model a (new) identity.

One section of the techno-cultural elite, the *channellers,* enable the communication between individuals and groups by the production of physical or virtual 'pipelines', like cell phone and internet connections, chat boxes and the like. This task only partially involves the actual invention of these high-tech communication instruments themselves, though even for the techno-cultural elite a minimum of knowledge of the technological hypertext is essential. The main and most precarious mission of the channeller is however the channelling of the communication to the created channels by the destruction of the old ones and by making the new channels indispensable – or at least by *suggesting* that they are indispensable. Thus, by digitalizing books, maps, photographs and any other competing medium, internet providers, computer engineers and software designers for instance outclass the older means of communication, and at the same time 'channel' the communications to their own pipelines.

In this sense, the channellers have an essential feature in common with a second segment of the techno-cultural knowledge elite, the *platformers.* Both the channelers and the platformers try to make themselves indispensable by offering high-tech commodities to satisfy the most intimate need for self-reflection and self-fulfilment – for identity. In the case of the platformer this task is, however, much more complicated, since it is not confined to the connection of identity-seeking individuals and groups by 'simple' pipelines. For the platformer, the secret of the knowledge-based economy lies in the invention of products that on the one hand are acceptable for a wide variety of cultural groups and individuals as a means to express their uniqueness and at the same time can easily be produced in large quantities. This paradoxical task, that somewhat resembles the production of 'fashion' in industrial society, can be fulfilled by the invention of a wide variety of high-tech products: standard blue jeans with unique tears and scars, cars that can be tuned to the individual taste, electronic devises to store individual music or photo collections, and standardised web logs to disclose one's ever-changing identity.

Conclusion:
meta business functions and the management of value chains

In this article, we claimed that the rise of the knowledge societies is accompanied by a fundamental 'reorganization' of economic value chains. However, this reorganization is not simply a matter of the extension and/or complication of economic ties. In many cases, value chains are becoming more extended and value-adding processes are becoming more complex and opaque, but these changes are no longer simply the outcome of ad hoc decisions by individual business men or companies looking for ways to produce cheaper and more efficient. In the new global economy, these changes are the result of well-planned activities by specialised professionals.

With the advancement of the knowledge types, new business functions have emerged that diverge fundamentally from the functions we already knew. The economic hit men, the language builders, and the other new professionals that we have portrayed in the previous section not simply perform a certain value-adding task in the overall manufacturing of a product or service, like the other and older professionals did and do – in a sense, their products are the value chains themselves.

The new professionals directly or indirectly create new value chains by linking or destroying existing ones, and breaking up others in to pieces in order to create new combinations. In this respect, the new professionals perform a type of business function that did not existed before, and almost literally 'exceeds' all the other functions: they perform *'meta* business functions'.

Contrary to the older ones the new professionals are not in any way linked to a certain geographical setting or national community. They are, to paraphrase Anthony Giddens (1990, 1994a), the first real 'dis-embedded' professionals, rooming virtually (and only in some cases physically) around the globe, re-embedding themselves if necessary but always dis-embedding when their job is done. Though all of the new professionals are the product and producer of a specific knowledge society, they are in a sense the 'linking pins' between the three knowledge society types in a narrow sense that we have conceptualise in this article. By actively managing value chains, they annihilate the social tissue of industrial society, but at the same time integrate the three emerging knowledge societies in an overall structure of interdependency – in a global knowledge society.

Notes

(1) See for the concepts of 'business function', 'value chain', 'outsourcing', and 'offshore outsourcing' the glossary on the website of the WORKS-project: www.worksproject.be.
(2) Florida (2002) does however not make, as we do, a distinction between what might be called a 'socio-cultural' and a 'techno-cultural' creative class.

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