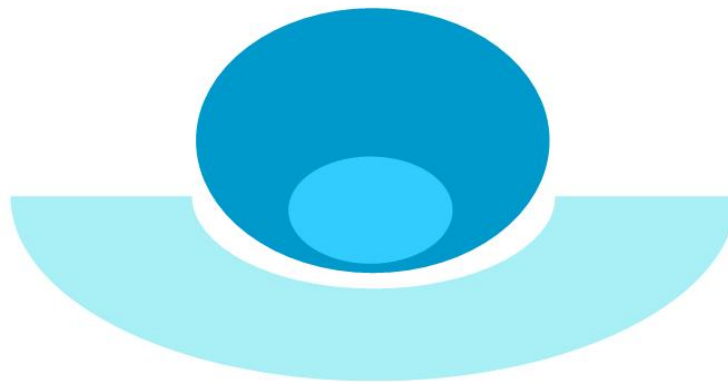




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**Space, Time, Sociality**

**A Conception for Social Sciences**



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**Heikki Mäkinen****Space, Time, Sociality****A Conception for Social Sciences**

"... zwei reine Formen sinnlicher Anschauung, als Prinzipien der Erkenntnis a priori gebe, nämlich, Raum und Zeit..."

Der Raum ist kein diskursiver, oder, ..., allgemeine Begriff von Verhältnissen der Dinge überhaupt, sondern eine reine Anschauung...

Der Raum ist ... nur die Form aller Erscheinungen äusserer Sinne, die subjective Bedingung der Sinnlichkeit, unter der allein uns äussere Anschauung möglich ist...

Die Zeit ist kein empirischer Begriff, der irgend von einer Erfahrung abgezogen worden. Denn das Zugleichsein oder Aufeinanderfolgen würde selbst nicht in die Wahrnehmungen kommen, wenn die Vorstellung der Zeit nicht a priori zugrunde lege...

Die Zeit ist eine notwendige Vorstellung, die allen Anschauungen zugrunde liegt"

(Immanuel Kant: Kritik der reinen Vernunft.

Transzendentalen Elementarlehre, 1. Teil 1. und 2. Abschnitt).

"Ich wandle unter Menschen als den Bruchstücken der Zukunft: jener Zukunft, die ich schaue" (Friedrich Nietzsche: Also Sprach Zarathustra, Zweiter Teil, Von der Erlösung)

**Résumé**

Framing of the question is that 'Information Society', 'Network Society' and 'Risk Society' are well justified sociological concepts and theories describing the same phenomenon. They may all be valid. This indicates that they may have a common foundation.

Theories are based on existence of information and communications network which can be concurrently divided into several logical networks and processes of human action. Knowledge, regardless of its form, is however always based on human consciousness. Its appearance as knowledge in interactive processes and as information in communications networks is founded on transferability of knowledge. This in turn is based on risk management which forms spatiotemporal complexes into contingent communications transmission path, information and incidents.

According to forms of knowledge - actual knowledge or conceptual information - dominant in production of tangible or intangible services are created social formations of risk management environments based on social division of labour or dynamically organised service oriented production, called information society services. When risk management is based on assessment of probabilities and



consequences, are these social formations also based on historical development according to probability. Information society services are global in the sense that information and communications networks they are founded on, can be divided independently of spatiotemporal dimensions.

## **Information Society, Network Society, Risk Society**

The concept 'Information Society' arose in Japan (first proposer Tadao Umesao) at 1960's. It referred to production where information has a central role. The concept enlarged to describe a new kind of social-economic system compared with rural or industrial society. The social change behind the concept was described according to division of professions into groups of occupations, how social activities used information and what kind of technology in these activities was primarily used (Mäkinen, 1993, 17, Mäkinen, 2005a, 183 - 184).

Quite soon it was however noticed that based on these matters it was not possible to point out the corresponding changes as were the inception of capitalism, industrial society or modern society – what ever concept is preferred. It rather seemed that modern society had been information society since its inception (Giddens, 1985, 178). Social change especially in latter part of 1990's was relevant but its description as information society seemed to be improper if not actually a mistake.

A new point of view was presented by Manuel Castells. According to him the technological change or increasing use of information are not features describing the modern social change. Rather question it is about a special social structure which is "associated with but not determined by" the rise of informational paradigm which means the transfer of social activities into networks, the rise of The Network Society (Castells, 2000, Castells, 2004, 250-251). But also networks have always existed. The residual meaning in this context is also the 'increasing' use of networks (Castells, 2000, 500).

Concept 'network' in Castells analysis of 'Network Society' is not limited into a communications network. Rather it is a general concept describing modern society. This is crystallized in concept 'Space of Flows', a three layer social formation of

- Material support of the Space of Flows, circuit of electronic exchanges where places are absorbed to network,
- Nodes and hubs, which links specific places with social, cultural, physical and functional characteristics,
- Spatial organisation of the dominant managerial elites and their personal micro-networks throughout the global set of interaction (Castells, 2000, 442 – 447).

The social change here described is however possible to interpret in quite an other way: by concept 'Risk Society' (Beck, 1986, 1992). In 'new modernity', or 'second modernity', following 'modern society', are performing Grand Risks which are not possible to specify according to probability and whose consequences are not possible to predict. These properties, predicted probability and consequences, are the presuppositions of risk management. Risks are a feature of modern society, unmanageable risks a feature of risk society; in 'second modernity' "wir erwarten unerwartete Folgen" (Beck, 2002, 167).

This issue has also its connections with information and communications technology, although in Beck's original theory environmental risks were the most



essential features of risk society. The global communications network of Internet type is possible to describe by concepts risk society or risk network. In such a network there is no possibility to define management for probability and consequences of risks (Mäkinen, 2006a).

There exists also three theories of social changes which are quite well documented and – it is possible to say – proved valid:

- The increasing use of information and information technology in production – Information Society,
- Use of information in networks and transfer of activities in them – Network Society,
- Uncontrollable risks – Risk Society.

Next it is reasonable to ask, are these theories different sides of the same phenomenon?

Common feature of these phenomena is that they are global. But 'global' has differences.

## **Global**

It is not possible to understand modern society without communications network; and vice versa. Central feature, the essentially modern feature, is that sociality and network are both global.

Technical development based on information technology, or increasing importance of information in production and social life, are consequently issues typical for modern society in general. Instead global, ubiquitous, coherent and concurrently into different logical networks and processes deliverable information and communications network, are not.

Internet constituted originally, at 1970's, as 'network Inter networks'. It connected local area networks and sector networks. Its technical starting point was routing of communications packets through any router in network<sup>1</sup>. Every route in network was thus available and possible to deliver for any node in network and communications packets send by them, in practice concurrently. Similarly X.25-packet network, also originating from 1970's, was able to deliver virtual circuits for several communications packets concurrently.

Further development of communications networks has resulted into transmission path where is no principal difference between local area and wide area network technologies and media used – fiber optical cable, satellites, wireless or mobile technology. Transmission path is ubiquitous (WSIS, 2003, 2005, WSIS-ubiquitous, 2005). Communication is transferred in virtual paths and circuits which are allocating services concurrently in a common media. Transmission path can be allocated for different organisations and their processes without being absent from anywhere - just like information. Network and information are global resources which are not scarce in the economic sense of the word.

Global transmission path does not mean existence in several localities, as does 'network Inter networks', connecting different places, or connecting whole globe in

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<sup>1</sup> This kind of network should tolerate a nuclear war. Any breakthrough in a connection or even several connections should not paralyze the whole network.



one network, but place has no relevance in transmission path. Only when organisations and processes form their own communications complexes and services, place has a special meaning. It is relative to these activities. Into the same transmission path is possible to establish unlimited number of logical networks of organisations and processes, also into a given geographical area or community. Every such logical network can be global.

For concept 'global' it is reasonable to define two meanings, social and geographical. If activity is socially managed, it is 'local' in relationship to this activity although it were geographically global. The way and degree of management can vary from functioning of global markets to social relationships requiring close proximity and consistency. Relationships can further be based on transferable information or interaction. Social management depends only on when there exists a balance between trust required by activity and acceptable risk it confronts (Giddens, 1990, 35 - 36). If this balance exists not, events and incidents appear as contingent risks<sup>2</sup>.

'Global', in social sense, is closely related to the concept 'risk'. Formation overruled by extensively global, discrete, socially contingent incidents, can be 'risk society' (Beck, 1986, 1992). Incidents experienced by subjects are situated in time and space connected to the experience. Otherwise they may have connection to time and space through information which make them trusted in relation to activity. They are local in relation to the activity. If such relationship does not exist, incidents are risks, experienced as threats. Risks do not necessarily realise in human experience but they can, if sufficient information security structures are not developed. Unspecified space and time exists also in relation to information or rather its absence. If by information management is not formed social specifications of time and space, phenomena or incidents appear as risks. Order into the social incidents enters through risk management; the incidents themselves are contingent.

Risks are constructed reality, although not voluntarily (Beck, 2000b, 213, Adam-van Loon, 2000, 2, van Loon, 2000, 165 - 182)<sup>3</sup>. They are experienced through threat and specified as risk by probability and consequences. Their probability, and basis for involuntary, is based on existence of incidents not in the immediate experience of actors or in specified social institutions. The measures planned to counteract risks create trust these institutions are based on.

If risk management environment general in some respect exists, global in social sense is possible to define. Generality should not be defined by extension but by social properties of functions. Then for example a resource, as information or communications network, having a property of unrestricted divisibility into social processes, can be global. An other example of such a general connection covering

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<sup>2</sup> In risk management contexts are separated threat and risk (ISO 27001, BS 7799-3). Global risk in this context is contingent. It can be called 'potential risk'. Subject may experience it as 'threat'. It becomes risk when it has probability and consequences specified. – In sociological argumentation is mostly used concept 'risk' also of potential risks or threats if they have social consequences. - About potential risks is in risk management contexts used also concept 'vulnerability'. It is rather a property of an object, for example equipment, program, communications protocol or service.

<sup>3</sup> "Risks are not real in themselves; they have to be realized in causal articulations of conditions with actions and actions with effects" (van Loon, 2000, 166). In this sense risks can be described as 'virtual risks'. Their property is always uncertainty: "Central to understanding virtual risks are, ..., notions of chaos and complexity" (van Loon, 2000, 173)



'all objects' is money, which functions globally, but only when commodities are in relationships to each other.

Geographic global is a special case of socially local. In that case there exists general social connection between objects of activity, which has property for global extension and thus covers 'all' objects, but also only in a specified formation; 'all objects in communications network' or 'world' are concepts impossible to define.

When production or service uses global transmission path as part of its processes, it is always even potentially global. At the same time global risks enter into the connections of organisation. When process is specified according to its result, and not for example by labour force or production factors it uses, it must be able to use also social resources according to result. This can in principle require unlimited amount of properties of resources and their acquisition must be unlimited too; they are global in this sense. The only resource which seems to fulfil this property is information. Service is however not determined through the properties of activity based on the properties of information but on transferability of information in network, its delivery. By activities and selections of enterprises' and organisations' consist the historical, scarce, production ways and sectors.

If transferability of information is bound with a 'limited' production resource, it is bound to the division of labour, concrete knowledge and fixed organisation. The opportunity of process organisation, specified according to result, is also based on transferability of information, on network. But information and network are in this connection too represented in different forms, conceptualized information for example in databases and communications network or knowledge in interaction.

Production or service resources can be divided into deliverable and non-deliverable according to forms of information and their carriers (Mäkinen, 2006e). The first ones are global, the other ones connected to actual production process and thus scarce. In information society services these components are possible to separate. This means the development of service production also in connection to the industrial or tangible production.

Development of communications network into a global, ubiquitous transmission path, which corresponds to the properties of information, makes it relevant to speak of a new phase of global and globalization. It is called **genuine** globalization compared with **pre**-globalization, which constituted of internationalization and increasing transferability of factors of production. Genuine globalization is a dimension of information society and network society, actually their only relevant property differentiating them from former social formations (Mäkinen, 2006c, Mäkinen, 2006d). The property 'being global' is based on properties of information, its transferability and also builds organisational forms peculiar to information society production, process organisations based on network.

Divisibility of transmission path as such is not a socially new issue. Probably the first 'widely connecting', 'disembedding'<sup>4</sup> social transmission path is sea, river or

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<sup>4</sup> According to Giddens sociality in modern society is composed on widely connecting, 'disembedding' social relationships which are either symbolic tokens, as money, or expert systems (Giddens, 1990, especially 21 – 29, Giddens, 1991, Mäkinen, 2005a, 4 – 5). – In this connection concept 'widely connecting' is used in a broader sense: about a connection which is not based on community.



lake<sup>5</sup>. They are naturally divisible as also roads or railways. But they are locally connected, not global, and by them is possible to transfer only 'scarce' resources and items, divided in a restricted way. Communications network is global and resources transferred in it are divisible in an unrestricted way. It is ubiquitous.

Information security in global network is possible only if risk management is. There cannot be a complex which covers 'all' events in a geographically global network. Such is an unspecified totality. The only possible way to secure a global network are transferable and divisible information security profiles whose delivery and acceptance functions are specified by and through distributed systems, for example by X.500 directory (Mäkinen, 2006e). Total complexes are formed on connections of delivery systems. Information security profile is applicable regardless of details of events and in that sense divisible and transferable. It can be concerned as commodity delivered I network and also sold.

## Ubiquity, Ubiquitous Network

In 'ubiquitous' communications network it is possible, at least in theory, "to seamlessly connect 'anytime, anywhere, by anything and anyone', and to exchange a wide range of information by means of accessible, affordable and user friendly devices and services " (WSIS-Ubiquitous, 2005).

Communications network of this kind has – in some degree - been reality already for a long time; as said Internet and X.25-packet network can be understood as such. A new phase was reached at the beginning of 1990's with breakthrough of ATM-technology which created for example the broadband consumer connections. Mobile and wireless networks have again created a new phase, which allows a broadband connection into mobile devices. Then it is possible genuinely to conduct communications with 'anybody anywhere'<sup>6</sup>.

The essential differentiating features of ubiquitous network are not the comprehensive connections it forms, in some 'society' which should be previously defined, but delivery of global network concurrently, independently of spatiotemporal dimensions which does not presuppose the connection of places or local area networks. Having a connection into 'everywhere' has any kind of social relevance as place has no relevance in network. Instead network divided concurrently into several processes and logical networks has social relevance, also division into geographically interlocked networks<sup>7</sup>. In a locality or community can exist several global networks at the same time.

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<sup>5</sup> Klinge introduces a hypothesis that 'states' in Finnish mythology, Kaleva and Pohjola (North) were formed on foundation of connection created by sea (Klinge, 1983). Sea, lake or river were connecting, not separating factors, in a world where did not exist infrastructure created by man, as road, railways or communications networks.

<sup>6</sup> Taking into consideration that network of transceiver stations must be build. This is however essentially easier than stretching out of cable network 'everywhere'. – The appearance of 'ubiquitous network' as a new phenomenon is a small surprise. It may be conducted by the fact that for a long time the mainstream of communications has supposed to be the development of 'network inter networks', Internet. The most important development has however happened on basis of X.25. It created Frame Relay, ATM, xDSL-connections and finally mobile broadband connections. At the same time Internet-paradigm has not developed quite at all, but has effectively utilized the developments of network.

<sup>7</sup> This is described also in the way that information can be transferred 'without network' , where network means network inter localities. Such a speaking however obscures the concept communications network.



The concept 'ubiquitous network' has conducted into a new description of information society, as into an objective "Ubiquitous European Information Society" (EU, COM (2006), 251) or objective 'Ubiquitous communications strategy to the foundation of new everyday life information society': "Synergy of technologies makes possible a new phase of information society: a new everyday life and user friendly information society. This means flexible, independent of time and place interaction and equality in availability and delivery of information" (Tietoyhteiskuntaneuvosto, 2006). Also a concept 'ubiquity-society' has been introduced (Turkki, 2006).

It is supposed that this shall lead into a social formation where "people will be able to share knowledge and information easily which will help them achieve their full potential in promoting sustainable development and improving the quality of life. It will support the design and realization of a people-centred information society, where the secure and reliable flow of information will be ensured" (WSIS-Ubiquitous, 2005).

On ubiquitous network based social formations can totally override the older formations based on communities. Proximity of interaction with 'known' people may lose its special functions. Thus it is quite an open question what kind of social relationships, as a balance of acceptable risk and trust required, are developing. It is quite possible that social formations are becoming more contingent when 'close' relationships are possible with people who are 'known' only through communication and live anywhere on the globe. Binding which exist with object 5 meters away, is just as loose or fast as one at the other side of globe.

By default 'ubiquity' phenomenon is risk. When network and information become ubiquitous, so are risks too<sup>8</sup>. Global, but also global risk, becomes part of everyday life. Social extension loses totally its geographical content and everyday risk is equivalent with global risk. If respectively is not developed actual social formations, result is just the disappearance of old formations and appearance of new risks.

Ubiquity development of communications network promotes mostly the inception of chaotic social formations (Mäkinen, 2005b). In order that on foundation of this should develop social relationships, are required strong solidifying factors of society. These are comparable to those which are required for formation of sociality in geographically global systems although the activities are geographically local.

Concept like 'ubiquity society' or 'ubiquitous information society' are almost internally contradictory; where is ubiquity, there is total deliverability of communications network which as such does not indicate any social relationships. These concepts cannot be associated with information society, network society or risk society as descriptions of modern society – only at the utmost in the sense that in ubiquity world risk society has a new – ubiquitous – dimension.

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<sup>8</sup> "A totally interconnected and networked everyday life promises significant opportunities. However, it will also create additional security and privacy-related risks. While common platforms and applications contribute positively to interoperability and the take-up of Information and Communication Technologies (ICTs), they can also increase risks"... "Given the ubiquity of ICTs and information systems, network and information security is a challenge for everybody" (EU, COM (2006) 251).



This does not however mean that the ubiquity development would be socially insignificant. It makes every social phenomenon potentially global. At last instance it guarantees that in everyday relationships there can exist unlimited amount of communications networks and global connections. Thus are possible also all kinds of modifications in social division of labour and use of global resources in production and services.

One interpretation of information society is "an order in which the principle of 'society' becomes displaced by the principle of 'information'. An order in which sociality becomes displaced by a certain 'informationality'. Sociality is long-lasting and proximal. Informationality is of short duration and at a distance" (Lash, 2002, 75, also Mäkinen, 2005b, 2006e). Social phenomena based on wide-connection relationships have always indicated a change of social relationships into a form which resemble the characteristics of 'informationality'. Ubiquity in network means that even the 'closest' relationships are formed according to that principle, distant, short duration and – finally - risk.

## **Electronic Service (eService), Information Society Service (kService)**

Social-economic activity associated with information society is usually called 'Electronic Service', eService, or 'Electronic Business', eBusiness. It fulfils well also criteria of network society phenomenon. It can be characterized by following features

- Service is based on communications network,
- Service is independent of place in relation to connection of customer and service provider and in same customer relationship can exist several service providers,
- Service is relatively independent also of time; it can be utilized also outside 'office time' or 'working time'.

The central problem in 'electronic service' is information security. Service itself is usually defined quite precisely but its information security is based on contingent processes and communications environments. It is supposed to exist a complex which defines the environment of services, 'society', but on the other hand services exist in a global network where risks cannot be specified. Information security is applied as 'Internet-security', constituted by firewalls, virus protection and various cryptographic procedures supposed to be general solutions which function in the network in its 'wholeness'. 'Internet-security' is however an entity impossible to define (Mäkinen, 2006a).

The problem in security of information society service is independence of space and time. It should be defined. It should not mean a connection to a priori existing 'society' and network which have these properties. Independence of information for experiencing subject means only existence, transferability in network which may be communications network or interaction. It cannot be based on intrinsic properties of information. This transferability is based on trust subject is experiencing on social formations based on information. It is also connected with risk management which overdraws difference between immediate experience and social formation.

Otherwise is acted by conditions of risk society hypothesis. Into the core of the service is imported global communications network in form where 'global' means uncontrollable risks. Information security should be managed by same principles regardless is it performed inside organisation, between them based on agreements



or in general social processes. Presupposition is that risks and information security management complexes are determined. In organisations this is based on information and processes, instead of division of labour and hierarchy, and same principles should be followed also in information society services.

Electronic services, eServices, eCommerce and even eGovernment are phenomena which may exist in electricity plants or firms but only there. The others have information society services, knowledgeServices, kServices.

Information society service, as processes in general, is aiming at to produce certain intended results. In common sense view this means that division of labour is not based on use of certain production factors or labour force but the latter ones must be able to be chosen in an adjustable way according to requirements of result. This is possible when production is based on global resources, as for example on information and communications network.

Independence of information, its being a global, universal and general resource, means also its transferability in network. This is valid for both forms of information and their difference is in the spatiotemporal dimensions of information. Production of service according to result, or any commodity in general, must be based on both forms of information. It should realise in concrete service used by customer and be based on specified knowledge and other resources. But it must also use general information and resources.

In this sense production based on processes is always based on network. Also production based on information presupposes foundation on networks of two types where information and knowledge exist as independent resources. Organisation, process and information society service are part of same dimension, specified according to development of risk management environment. eService can be a boundary value of kService with certain conditions (Mäkinen, 2007c). Processes' and network's information security is a necessary presupposition for functioning of service.

Information security of communications network 'an sich', as such, exist not; 'network' is a global risk formation. Network has no centre or structure, which should - according to usual experience - make possible risk management, and any 'automatic' security which should be realized on foundation of technological properties, exist not (Mäkinen, 2006a). In network can be applied general technological security procedures but in – even geographically - global environment comprehensiveness of this cannot be specified. Information security exists only in relation to the activities of humans and organisations.

In communications network can exist information security only by means of information society services – instead that network security should be presupposition of information society service.

Characteristic of information society service is not utilization of communications network but utilization of information in form where its application is independent of time, space and organisation. Service is global in this sense. It utilizes global communications network but its characteristics of time and space are characteristics of information, dimensions of its transferability. Services can be independent of organisations because they are based on transferable and divisible information resource. Organisation can protect it to guarantee its own competition reasons but otherwise information resource is not bound with organisation.



Organisation's activities are directed by processes. They constitute a management procedure which works 'over' the division of labour. Division of labour has been the most important characteristic of capitalist economy, in addition to organisation also in markets: market originated from division of labour when 'immediate producer' (Marx) could not any more have by his own work all use values needed.

Organisations' functions based on processes cannot be explained by organisation's accepting 'process approach'. Its foundation is factor which regulates functions and proves to be information in its different forms. This develops a quite an other kind of management procedure and enterprise rationality than division of labour and social phenomena based on it.

Division of labour and hierarchy are based on highly specified knowledge. This is limited, scarce resource. It requires general conceptual information foundation but organisation's information is mostly formed around its activities. If production and service are changed into process organisation the relationship of information and activities changes: activity develops around information (Mäkinen, 1993, 62 -64, 193, Mäkinen, 2005a, 13 - 18).

When production and service based on process are necessarily based on information and network, they are always information society services. They use network and are independent of difference between organisational and social formations<sup>9</sup>. This may form boundary values of processes effective only in one organisation.

### **Forms of information and their environment**

Knowledge management defines knowledge in two forms

- Explicit knowledge and
- Tacit knowledge (for example Nonaka- Takeuchi, 1995).

Explicit knowledge, which at least roughly is possible to understand also by concept 'information', is conceptual and can always be represented on some external carrier, as document or data base. These form 'information assets' (ISO 27001/ISO 17799). They are always transferable and divisible, in the special way characteristic to information: it is not absent where it is transferred from. Tacit knowledge, or more generally knowledge, differentiated from information, is always bound with the human activity. For its inception and functioning is important the special environment where action is happening; not in the sense that this environment should 'determine' knowledge but it gives presuppositions for knowledge creation in definite form (vonKrogh - Ichijo - Nonaka, 2000, especially 47 -49).

Differentiating forms of knowledge as ways people create, handle and utilize it in interaction and network, is relevant from the point of view of organisation's development and management. This is the essential Knowledge Management problem. But general social question is how information and knowledge are functioning in their environments and how they are transferred. All the time is question of the same knowledge resource, which is presented in different forms and

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<sup>9</sup> 'Process management' is sometimes presented in form where it is almost a tautology: 'we follow process management because we have adopted process approach'. When from division of labour and hierarchical organisational model based on it is moved over, the question is of a really remarkable social change which should have a very good reason (Mäkinen, 2005a, 7 - 8).



also changes from one form into an other (Nonaka-Takeuchi, 1995, especially 61 - 73, vonKrogh – Ichijo – Nonaka, 2000, especially 5 -10). Tacit knowledge is transferring in socialization and learning process, always connected with human action. Explicit knowledge, or information, transfers in objective form. Both form a special kind of network of knowledge transferability.

Every social formation is based on human activities. In that sense there is no principal difference of networks transferring knowledge, in the same way as there is no difference in forms of knowledge. Knowledge transferability can be seen as the same issue as the network where it is functioning.

The connection between knowledge and activity cannot be based on properties of information or knowledge and their determination on activity. Such would be an 'Aristotelian' supposition, like 'heaviness' as a property of thing. Information is not transferable in communications network because it is information and knowledge in interactive network because it is knowledge. Rather 'information' means transferability in network that is independent of space and time specifications of immediate experience, in last instance ubiquitous and deliverable in different network environments and processes concurrently. And 'knowledge' means transferability in networks which have spatiotemporal dimensions based on immediate experience in human action. These networks are historically developed according to some transferability property – which should be defined more accurately later.

Forms of knowledge have a special connection to time and space. Conceptual information is transferred 'directly' in the external form they are expressed. Transition of tacit knowledge forms a socialization process in time and space. Or vice versa: the experience of time and space is generated from transferability of knowledge and information. Depending on type of transferability, experience of time and place is immediate, interactive, or arranged into network, organisation or other social formation and history.

In both cases time and space are socially specified, socially local. Otherwise time and place are socially 'transcendental' concepts, global risks. Respectively information should have a socially meaningful environment where it exists, either as social-historical formations or as immediate experience with activity.

In this case social formations develop on foundation of transferable information. They are always constituted of human activity and based on consciousness. According to transferable information develops consolidated formations or activities, networks, where it exists. So are formed organisation's deliverable process elements as basis for organisation's formal processes and management systems. From these and social formations of knowledge in interaction are developed organisation's value creating processes (Mäkinen, 2006e).

The conceptualization of information is thus a presupposition of organisation and other social formations. In administration social formation presupposes that all the cases are concerned principally in the same way. On foundation of conceptual information is build social formation's processes, which guarantee this. In enterprises also product development, building a product, presupposes a corresponding objective process. This presupposes always historical development and transfer of information on it.



An environment where knowledge is created is thus self created by managed information<sup>10</sup>. It appears as knowledge in time and space which actor experiences as conscience.

Understood in this way, the question of the forms of knowledge is a general problem of social functioning of knowledge and information. One of its forms is appearance of 'Knowledge Management' as a management concept in organisations. Problem as such however suits quite well into whatever social phenomenon.

### **Space, Time and Risk Management**

Earlier was stated, that social formations, as organisation's management systems, do develop on foundation of transferable information. Instead the formation of transferability of information has not yet been considered. Knowledge and information are always based on consciousness of unique human. Some mediating factor is needed between this and information's existence in social formations. This mediating factor builds networks. In network transferability is an objective formation. Instead of network transferring information, transferability of information creates network. Information's transferability utilizes the explicit, conceptual expression and external carriers of information. This does not describe how information exists in a socially functional way in an other environment where it was created.

Transferability of information and knowledge is based on risk management<sup>11</sup>. Information 'as such', as an information asset in transmission path, is contingent or its transferability is contingent. It has its origin in human activity but in transmission path it has no spatiotemporal dimensions but can be divided into different processes and logical networks. Information is global and similar to global and contingent risk. Transferability presupposes that it has special meaning from the point of view of processes and networks; it is part of their rationality. Information must also build social formations. Foundation of this is trust developed by risk management which connects the inception of knowledge in immediate experience with social formations into this contingent transferability of information. From measures and incidents risks are reacted, is developing social forms of rationality as social formations in processes, management systems, organisations and networks.

The situation where global network has no information security or risk management, equals to only contingent information or knowledge transferability, as packets of data bits, and no socially relevant time and space specified. The

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<sup>10</sup> It is important to notice that here is discussed of organisations and their social connections which produce economic or administrative services, socialization and learning processes in them. In any way is commented, is human action influenced by some other matters, are they 'feelings' or based on biological factors. Instead, it would be useful to consider do the latter ones develop such formations which can be called 'social' in the modern sense of this concept.

<sup>11</sup> It is not possible to suppose that transferability is created by applicability or tenability of information. These are properties which can be tested, not intrinsic properties, but question is ontological not epistemological. (These dimensions of knowledge creation see Nonaka – Takeuchi, 1995, 56 – 90, Mäkinen, 2005a, 15 – 16). - Also activity is not based on truthfulness of information. Especially tacit knowledge is often belief, management's opinion, organisation's policy or corresponding.



historically developing social formations make reasonable the experience of rational forms and incidents which are not in immediate experience.

The inception of global in communications transmission path, based on technological development, changes the risk management environment. When at the same time information has its independent properties, this implies the inception of service production and information society services. When resources of information transferability are local, service and production are bound to division of labour and units in it as organisations.

Thus technological development and increasing use of information in production and service have their connection to the development of risk management environment. These usual characteristics of information society development have a meaningful content - although it is not quite informative to argue that they are 'reasons' or 'influencing' that development. Historical types for development of risk management environments are constituted of unique components<sup>12</sup>. Their existence in any other context than in this historical environment is a social problem which presupposes procedures for transforming these environments. It can be based only on knowledge.

The existence of risk is associated with the absence of solution for encountered events or incidents in immediate time and space or in an environment where phenomena are experienced to situate, as in history, organisation or other social formation. Solution requires "trust ... connected ... to the interpersonal organisation of time and space" (Giddens, 1991, 38, also Giddens, 1990, 33 – 36). Risk is only realised in actions according to risk and trust<sup>13</sup>.

When risks are assessed they are defined by probability and consequences. Risk's criticality is evaluated according to the interaction or 'mathematical' product of these factors. Social formations, and trust, based on them are also based on probability. This is realized in concept of acceptable risk. The costs of risks and counteracting them are supposed to be in balance and risk is accepted by this principle. But it is, of course, only a probability of balance. If it is trusted, the social formation will be developed. The 'better' risks are managed according to probability and consequences the 'wider' can be extended the socially meaningful, rational formations – institutions – in time and space. Rationality according to trust creates the institutionalized modes of conduct (Giddens, 1982, 10, 1976, 81 - 86).

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<sup>12</sup> "Ein ... historischer Begriff ... kann, da er inhaltlich sich auf eine in ihrer individuellen Eigenart bedeutungsvolle Erscheinung bezieht, nicht nach dem Schema "genus proximum, differentia specifica" definiert (zu deutsch: "abgegrenzt"), sondern er muß aus seinen einzelnen der geschichtlichen Wirklichkeit zu entnehmenden Bestandteilen allmählich komponiert werden" (Weber, 1963 (1904), 30). – Weber's solution was to build 'ideal typen' (ideal types) constructed by dominating factors of a phenomenon. These were a sort of explanation models helping to understand phenomena deviating from the model.

<sup>13</sup> "The discourse of risk begins where trust in our security and belief in progress end. It ceases to apply when the potential catastrophe actually occurs. The concept of risk thus characterizes a peculiar, intermediate state between security and destruction, where the perception of threatening risks determines thought and action... it is cultural perception and definition that constitutes risk." ... "The sociology of risk is a science of potentialities and judgments about probabilities..." (Beck, 2000b, 213). Also time: "...relationship of past, present and future. The past loses its power to determine the present." (Beck, 2000b, 214).



### **Space, Time and Society**

Concept 'society' has in sociology traditionally – at least immanently - been associated with nation state (Beck, 2000a, 23, Beck, 2006,<sup>14</sup>, Touraine, 1988, 4, 21). This may be the only reasonable meaning concept 'society' can be used. State is a society determining organ using sovereign power at an area.

Ubiquitous transmission path instead is global and social formations based on it can cross the boundaries of nation states and be interlocked with them. In same geographical place, in same local 'community' or nation state 'society', can exist unrestricted amount of communications formations which are all global.

Consideration of social activity on foundation of global communications network cannot be limited into a beforehand defined 'society' and its history. Such geographical concepts as local area or wide area network are meaningful only in relation to some activity of humans or organisations. On the other hand in order that a network complex will be socially functional, there must be defined information security as a balance between trust and risks. Network as a technical entity does not specify it. In global network information security can be realized only as a global acceptance, based on network itself, of information security profiles (Mäkinen, 2006e).

Information society, Network society, Risk society are not 'situated' in any geographically limited totality. World society is a same kind of impossibility as global complex of communications networks without outline created by social balance of trust and risk. Instead of 'societies' characterized in different ways, must be considered social activities which can have properties of 'information sociality', 'network sociality' or 'risk sociality'<sup>15</sup>. This does not however mean that human need for identity relevant in connection with nation state or society should disappear (Beck, 2006, 110).

Social formation is historical and thus unique. In history develop the social relationships which create the proximity which in turn consists of social interaction - were its foundation on community or 'widely connecting' relationships. The kind of these formations cannot however be determined a priori. On ground of the above there must exist some balance of trust and risk, but the kind it is, is an open question from the point of view of sociality. By common history can develop totalities which are reasonable to call 'societies', are they based on nation state or 'network states' created by several nation states (Castells, 2000a, 356 – 364, Castells, 2004b, 361 – 363)<sup>16</sup>.

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<sup>14</sup> "The image of the world in the social sciences is determined by the opposition between the national and the international". But in 'second modernity' "a single national society is a meaningless concept (Beck, 2006, 28).

<sup>15</sup> Touraine emphasizes social action instead of 'society'. "Social life is defined above all by the self-producing and self-transforming action" (Touraine, 1988, 11). - "What we call society is a system, but it is an action system" (Touraine, 1988, 62). - To keep it simple, I however use also in future different 'society' concepts.

<sup>16</sup> The idea of state as something else than nation state is not, however, quite new in sociology. Weber made a difference: "...man den ... ökonomischen von dem politisch-administrativen Begriff der Stadt durchaus scheiden muss" (MWG I/22-5, 72). The grounds for 'network state' are economical and based on information transferability.



Common experience of time and space is based on transferable information resource. It can be described as development of rationality. Historical events come into consciousness through information. By it is created the connection to history and social space, social formations and institutions. A connection of events outside immediate experience comes into the consciousness also by information. It is not reasonable to suppose that they have a social meaning without this connection to actual social activity. Every social and historical formation is based on human activity and thus consciousness. But they use socialized forms based on socialized knowledge, information, which is internalized in social action<sup>17</sup>.

This can first be based on language<sup>18</sup>. Through its transferability knowledge functions in human interaction and consciousness. The general presupposition of transferability is presentation of information as conceptual and external form; first of all as writing<sup>19</sup>. Then knowledge transferability is independent of immediate time and space.

In this connection formations which are developed in economy are the most interesting. The existence of economy is as such a social problem. It seems that 'scarcity', which is basis of existence of formal economy, does not emerge before the inception the concept of 'time' (Sahlins, 1981, 36 – 37, Baudriallard, 1998, 66 – 68, 152 – 154, Giddens, 1979, 210, Mäkinen, 1993, 147 - 148).

'Scarcity' cannot be understood as insufficiency of commodities or goods<sup>20</sup>. Phenomena like 'all commodities', 'all factors of production' are unspecified totalities, neither scarce nor non-scarce. The idea, that commodities have price or

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<sup>17</sup> The so called 'knowledge spiral' (vonKrogh – Ichijo – Nonaka, 2000, 180, Mäkinen, 2006d, Mäkinen, 2006g) describes this transformation of knowledge into different forms.

<sup>18</sup> Language is a social institution (Giddens, 1976, 20, 1982, 10). - Connection between language and consciousness is described for example as follows: "With language, the light of consciousness soon spread over man's whole sky" (Mumford, 1966, 94). Language does not mean the general transferability of knowledge but is its basis: "Every member of community has access to this linguistic organization" (Mumford, 1966, 97). The latter feature emphasize also Berger and Luckmann: "Language has the quality of objectivity" (Berger – Luckman, 1987, 53). – This develops from the social connection: "... knowledge is from the very beginning a co-operative process of group life, in which everyone unfolds his knowledge within a framework of a common fate, a common activity, and the overcoming of common difficulties" (Mannheim, 1979, 26).

<sup>19</sup> "Without man's time-keeping activities, the universe is yearless, as without his spatial conceptions, without his discovery of forms, patterns, rhythms, it is an insensate, formless, timeless, meaningless void. Meaning lives and dies with man, or rather, with the creative process that brought him into existence and gave him a mind." (Mumford, 1966, 33 – 34). Giddens emphasizes that "writing did not originate as an isomorphic representation of speech, but as a mode of administrative notation, used to keep records and tallies" (Giddens, 1985, 41). Essential is, that "writing provides a means of coding information, which can be used to expand the range of administrative control exercised by the state apparatus over both objects and persons" (Giddens, 1985, 44). At the same time by writing is reached "control over timing and spacing of human activities" (Giddens, 1985, 47). According to Giddens writing can be understood as a basis for inception of linear time consciousness; it gives a chance for connection with remote generations (Giddens, 1979, 201). Respectively symbols are respected because they perpetuate the experience of generations (Giddens 1990, 37).

<sup>20</sup> Baudriallard states, that poverty is not due to small quantity of goods but is a social relationship (Baudriallard, 1998, 67). This does not mean relationships of quantities of things people have, such an argument is a tautology, but such a social connection where are developing quantifiable amounts according to which it is reasonable to talk about quantities of commodities.



value because they possess some property, is similar to things falling down because they have an 'Aristotelian' property 'heaviness'. Even 'being commodity', not a thing, signifies something quite else than property.

Scarcity can be defined as limited transferability of production factors or commodities; or in other words: probability of their transferability is smaller than 1, when for information and communications network it is equal to 1. Production factors cannot be used in whatever combination in production. They however exist as global resources which have no specified properties of time and space but only probability of transferability. This limited probability of transferability creates a special environment of time and space: organisation in division of labour. These determine the risk management environment corresponding properties of transferability.

Organisation, like enterprise, which in division of labour manages factors of production to produce a certain product and pays of them a price defined in relation to other commodities, specifies a scarce complex it uses in production. The foundation of scarcity in this sense is based on inception of units existing in social division of labour as organisation, enterprise or similar.

The historical development of division of labour is probably based on the widening of production and technological development. This is the chancing factor of risk management environment. These risk management environments are mostly based on interactive forms of knowledge.

In social division of labour emerges market. To have commodities depends on market. This connection is a 'wide social connection'. It cannot be managed in immediate time and space, but however it has to be managed in a way participants in market can trust. Such management does not develop without history, as without development of commodity exchange<sup>21</sup>. It is in this sense a managed risk. Target of allocation are the limited resources of market participants, actors of risk management. On foundation of this is formed a socially trusted actor – money. All these properties are determined only from how commodities, working time needed to produce them and factors of production are related to each other.

The scarcity must however be experienced subjectively related to profit seeking and rational work moral<sup>22</sup>. This requires reliability and predictability in division of labour and market relations. These are sufficient specifications for rationality required as basis for action in these relationships. They are a form specific to this risk management environment of general rationality based on probabilities of social relationships and activities. Historically developed 'species' to be considered as basic types of 'Western' rationality (Weber, 1963 (1904)) are a special case of this. It is however able to be transferred.

The only social resource experienced genuinely scarce is consciousness, knowledge based on it and their use in production process. In economy working time in

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<sup>21</sup> Marx's 'dialectical method' to present first relationships of value forms (Marx, MEW-23, 1. Kapitel, 49 – 98) and after that to describe the same issue as a historical development in exchange process (Marx, MEW-23, 2. Kapitel, 99 – 108), seems to be one application of the general problem of relationship of social structures, or social formations, and history.

<sup>22</sup> "Entscheidend ist... für zweckrationales Handeln selbstverständlich: daß ... Knappheit subjektiv vorausgesetzt und das Handeln daran orientiert ist" (Weber, MWG I/22-1, 78). "...arbeit .. als absolute Selbstzweck – 'Beruf' - ... ist nich Naturgegebenes" (Weber, 1963 (1904), 46).



division of labour is based on this. But as such it has no transferable properties in social relationships. Such develop only through exchange by organisations in division of labour which creates money.

Money can be seen to deliver information in market relations, but in a degenerated form. It is however the only dimension of time and space in these relationships. The actual information transfer happens mostly in organisation. This creates a formation which can be called 'economic sociality' (Mäkinen, 1993, 272 – 276). The information change in market happens on probability based calculations of supply and demand. This presupposes reliability and predictability of market relations, activities according to rational profit seeking interests.

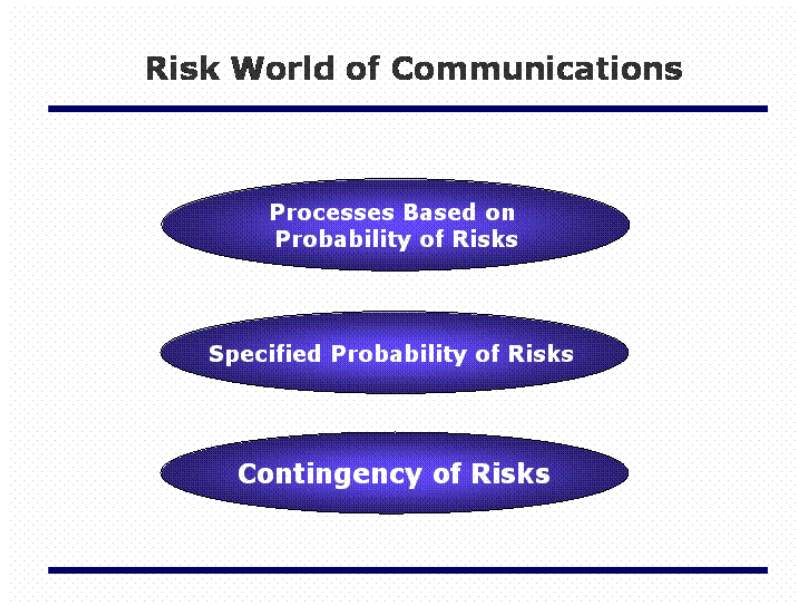
### **Risk management and information based social formations**

Information, and communications network transmitting it, are special production resources, socially divisible into different production and other processes. Divisibility is based on global transferability and availability, also on global network. Information and transmission path are global in the sense they can exist concurrently in different places, communities and societies determined for example by nation states.

Thus is build a specific risk management environment and its actors, a new type of social formation for production or organisation. Social division of labour, where commodities and services are produced, does not disappear and thus not also the functions of above described risk management environment of markets. In it the active unit of risk management is enterprise, probably arranged on ground of internal division of labour and hierarchy and based on continual profit seeking. In the information based case risks management unit are communications networks arranging contingent transmission path and processes arranging contingent information to produce an intended result required by actors of risk management.

It is a misunderstanding to say that networks or processes are developed from forms of information: they develop from information's and knowledge's transferability based on risk management, trust and social institutions formed by controlled risk which can be applied into respective environments and processes. Transferability of information is network which exists in time, history and space, social formations.

Communications network based on risk management environments can be described as follows (Mäkinen, 2006e).



These layers of risk management are presented as network's logical structure (Mäkinen, 2005c, 2006e) where the 'lowest' layer is transmission path constituting about the technical structure of network and information on it. This is the resource which is possible to divide into several logical networks and processes; it has no spatiotemporal dimensions.

On specified probability of risks are build risk management environments and logical network structures. These were at the beginning of network development based on organisations, scarce resources, locality and local area networks and can be even further. But when services are developing on basis of information, the organisation of service production takes place on basis of the service itself. It is based on global resources and possible also to be organised globally. It can constitute of activities of several juridical organisations or other units in social division of labour, on co-operation of their customers or be based on global network. Then logical network environment is actually environment presupposed by information society service and its processes based on specified probability of risks. Risk management environment is information society service.

Information transfer can have a property 'distance' as social formation of social experience. It is based on difference between issues experienced in time and space and their risk management environments building social formations of trust. 'Trust' means in this context the social formation based on risk management, as formation based on rationality, organisation or service. Trust, as a social phenomenon, is not possible to describe as an issue which is experienced, but it should have objective content.

The probability of risks to be accepted is dependent on activity in question. If risk management for activity is able to be defined by probability approaching 1, acceptable risk is possible to define for 'large' totalities. Formal information is possible to protect in a way it has a high probability of 'universal' repeatability. Intense and complex activities suppose risk management based on social proximity and coherence (Mäkinen, 2006e).



It is possible to describe the concept 'large social formation' or 'social distance' by characteristics of risk assessment. The concept 'global' in social sense was earlier defined independently of geographical distance. In ubiquitous network several global networks can exist in a locality or community and information is deliverable into several processes. Social distance means also deliverability of resources founded on information and its carriers in network (Mäkinen, 2006e). Information security is here developing a social formation which is based on probability; also trust social formation presupposes, is based on probability.

This has a close connection to the forms of sociality and the characteristics of information society, described by concepts 'sociality' and 'informationality', the former a long-lasting and proximal and the other of a short duration and at a distance (See before, Lash, 2002, 75).

Based on probability and consequences of risks, forms of sociality vary according to the level of acceptance required by social action and consciousness. With level high enough, the incidents based on deliverable resources can 'spread out' in society but at the same time their duration is reducing. In social-historical resources acceptable risk level is reached in 'smaller' extensions but they are long lasting (Mäkinen, 2006e).

Risk management environments which are developed are information society services. They have components of processes in organisation and corresponding network components. On the other hand they can be described as eServices as a boundary value of service and on the other end interactive service based on personal connection. These services mean transformation of organisational principles of knowledge networking forms; are they based on information and communications network or knowledge and interaction (Mäkinen, 2006e, 2007c).

These forms of social relationships are also based on risk management and information security. It specifies information and knowledge transferability in these forms, make them rational for the activity in question. Former difference of information society service boundary values can be described also on the other hand as eServices based on information and communications network, on the other as an enterprise based on knowledge and working in division of labour. They also build a continuum of risk management environments and social formations.

Risk management, specification of acceptable risk, refers to measures required to determine identified and by probability and consequences specified risks into the level trust requires. Trust and risk acceptance must meet each other by conscious, immediate experience.

Information security as balance between trust and acceptable risk intends organisationally and historically actually to this. Trust is development and 'endurance' of acceptable risk in organisations and other social formations, institutions and in history. This 'endurance' is not a 'structure' but consists of rationality and on concrete specification of information security as measures which form information security management systems. The relationship of systems into activity is described by risks' probability and consequences.

Trust also requires that issue is not immediately experienced in time and space. It does not however develop if issue is not in some way in the sphere of accumulated social experience and information and is in principle understandable through these (Giddens, 1990, 33 - 34). This issue can be described otherwise: trust is required if



issue is not immediately known, in immediate experience based on conscience. But if it is not in sphere of social and historical experience, question is about risk<sup>23</sup>. Events and incidents which create social formations and their history are managed risks.

'Contingent' or 'uncontrolled risk' is a concept which has no equal in general risk management context. There is discussed of 'threat', which is experienced, and of 'risk' as threat which has probability and consequences specified (BS7799-3). Contingent risk seems to emerge independently of immediate experience but influencing activity. This influence seems to be an experienced threat taken into consideration when risk management is implemented. In activity it is assessed with certain probability and certain consequences. In this sense trust and managed risks are in every case based on experience in time and space. This can be seen as foundation for activity based on trust rather than on certainty.

Risk management related for example to conditions of social division of labour or organisational structures around which develop economic units as enterprises or administrative organisations, seem to be at quite an other level than those risk management normally deals with. Undoubtedly they are different, but this seems to proceed from development of these 'solutions' into social formations which have relatively general validity. In principle they are constituted of concrete measures and activities for controlling the situation here described as risk environment. Development of social formations where activities exist has required a history, where risk has appeared as several unique and singular events existing in relation to conscience. Risk in the sense it is considered in risk management usually, is a historical event and not social formation. The latter form from historical events when they form explicit information and trust based on it. Acting according to them may be seen as foundation for rationality in its different forms.

It is misleading to say that economic units, organisations or other social formations produce and protect information and manage risks. They are created by producing and protecting information and managing risks. Information is neither transferred nor stored in social formations' history but their history is built on transferring and storing information. Knowledge is transferred in organisation by socialization on ground of interaction. Process elements which build social formations are also based on protection of transferred information and transition of its protection. These issues can be described as concrete objectives and risk management measures.

The reproduction of information protection is genuinely global. This global connection is build without the a priori frame of 'society' and its history as a totally distributed social formation based on relationships issues and events are with each other. It can be called by a nickname 'X.500-sociality', according to X.500 directory (Mäkinen, 2006e). Directory as such is not important otherwise than as a carrier of information security profiles, but its functioning is descriptive. A social formation can develop when directories form a connection, although they are generated fully independent of each other. Between directories can exist a hierarchy, but they exist

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<sup>23</sup> According to Giddens trust "is related to absence in time and space" (Giddens, 1990, 33). It is not needed if something is fully in consciousness. Then issue is outside the immediate experience of time and space. However there must be some information of it, otherwise than of risk, and issue must in some way be situated in time and space, otherwise than risk. But this information which trust is based on is founded on probability. – 'Knowing' associated with this naturally must not be objective or 'true'; it is enough, if it is trusted.



not in a predetermined totality. These totalities can be build according to communications needs at a given time required. Respectively they can be build by contents required at a given time.

This can be a model for organisation, their co-operation, social service and social formation in general. Social formations in global network cannot be managed by any other principles.

### **Information society service as an economic formation**

Definition of information society service – and as its special case electronic service – presupposes definition of

- organisation's information and knowledge in the form where service uses it,
- organisation's processes, which produce the service,
- communications environments where processes are realised,
- information security of these.

Information society service has following properties:

- It is global in the sense that it uses global, divisible information and communications resources,
- Production, either tangible or intangible, is organising dynamically and flexible according to the service,
- Organisation can be totally based on global network,
- 'electronicService', 'eService', is a special case, boundary value, of information society service, kService,
- Fixed organisations and competition based on it, market economy, are a special case of service production,
- National economy is a special case of global service production.

Information society service is a risk management environment for economy based on information and communications network.

Central feature of information society service is global production resources. It means at the same time global rationality, based on the transferability of information and knowledge in network. Services, their content, specifies the content of rationality - not a special organisation in division of labour. This creates a new form of economic activity<sup>24</sup>. It is not possible to handle by individual rationality as in local capitalist market. Global requires global formations for predictability and reliability of handling (Mäkinen, 2006e).

Foundation for understanding information society service is separation of deliverable and non-deliverable service or production resources. This difference has always existed but development of social formations based on probabilities has kept it recessive. The development of risk management environment of divisible communications network is decisive for transferability of information. This, not information's intrinsic properties, brings out an economic formation based on

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<sup>24</sup> Castells (Castells, 2000b, 52, also Castells, 2000a, 502) argues that "new economy ... is certainly capitalist". Certainly, but this form of economic rationality is a special case of a general, on probabilities based, economic rationality. It is realized on conditions of limited transferability of production factors and thus on social division of labour. It does not disappear, but certainly is not the only or even dominant form of economic rationality. Production based on information and communications network does not suit into the conception; not either Open Source Code, Open Content or Open Innovation. These will be the most important economic formations in the near future.



processes and logical networks. It is also presupposition for development of process elements which build organisation's management systems, as for example quality and information security management systems.

As economic formation information society services are regulated, in addition to allocation, by the environment of transferable and interactive information and managed risks associated with them, also information security. In this case is considered the management of information and communications carrying it. Knowledge and its security are concerned in enterprise with 'usual' or 'old' information security functions. The management of global complexes provides probably development of new kind of services and even 'commodities' as information security profiles and systems delivering them (Mäkinen, 2006e).

Information security is a special quality of information society service. Social formations based on division of labour presuppose information security in protecting information for organisation's business secrets, as a competition factor. But information society service does not work, it exist not, without information security. Information security must be build into every component which service includes; it does not exist as a separate security of communications network <sup>25</sup>.

Functional environment of service varies according to the level of risk management realized, level of risk accepted. In communications network this is described by service and information security level (Mäkinen, 2005c). Partly question is about properties which are achieved by protocol or other technical procedures (for example ATM-service classes, IP Differentiated Services, IETF, RFC 2475) partly about that developing service states special requirements for service and information security level. Respectively formality of process or proximity and interactivity reached by it are varying (Mäkinen, 2006e). In these environments are realised different forms of risk management and information security.

Development of services, post-industrial society, information society are as forms of social relationships anymore same as economic formations based on commodity production and division of labour. When acted in social division of labour, social formations are economic, based on money. But above them is build regulation formations which partly mean 'overrunning' also of social division of labour. Essential is service which is offered for 'consumer' and it can mean that into supply must participate several enterprises or other organisations. The rationality and predictability of activity must cover also reproduction of social connection and co-operation it requires. This can be described as an information based sociality which is basis for social chance, and thus information society<sup>26</sup>.

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<sup>25</sup> On background of this is global communications network included into the core of service. It is by default a risk formation. Perhaps one interpretation of security requirements of information society services is that issues, which risk management and trust require, are in economy based on division of labour in last instance managed by activities of community or state. They guarantee the reliability and predictability of activity. This role naturally exist but functional risk management environment presupposes respective properties in the service self. - Hobsbawm states that markets do not guarantee trust which is central for all private profit seeking or its juridical correspondent, following agreements. For this was required either state or connections of gender or community (Hobsbawm, 1999, 427). But when economy does not any more 'respect' nation state, this trust must be build into the economic activity; or vice versa.

<sup>26</sup> This has also implications into economic policy. Into the problem of global competitiveness apparently exist no such technological solutions which should leave essential competitive advantages for a country like Finland. Instead in developing information society services such are possible to reach. In future ICT service enterprises must invest on research and



The forms of economy developing from this are still very weak but some features - in addition to 'kServices' as eServices - are possible to specify. One of the most interesting is the idea that if the basic product is gratis, it does mean that the business idea is bad<sup>27</sup>. The other one is idea of open innovation where innovation is introduced already as an idea and reported during development phases instead of concealing it until the final product is ready. Information business is by default global. It can be such also in practice and the essential business be based on application of information in consultation processes – also on knowledge.

### **Forms of information, knowledge management and information security**

Forms of information, explicit information and knowledge can - on ground of above – be specified as social representations of information according to social formations based on managed risk and their history or immediate experience of risk management environment. Essential is social activity and social formation developing with it. Information is all the same totality – which Knowledge Management very well emphasizes – but is represented in different ways in different environments, different networks of its transferability.

This means that the status of Knowledge Management as a management system and development concept must be considered anew. Certainly consideration of forms of information is essential from the point of view of organisation's management, its activity and development of information management and processing systems. This means that information systems and knowledge managed in processes should have the same status in organisation's knowledge resources. This is quite essential issue concerning planning of organisation's information and ICT-strategies. But it is not the general social problem.

Statement that organisations' functional processes are based on information and knowledge indicates actually that their foundation is knowledge transference mediated by information security. Information can be, and is, in common experience, the driving reason of activity, but the sociality of activity, its transferability and rationality is constituted by that it happens in risk management and information security mediation.

Knowledge Management should be considered from this point of view. Managed risk, trust, outlines events and incidents building process elements based on transferable information. Forms of processes are based on protection for forms of information either in formal process elements or in interactive elements. Respectively knowledge creating environment, central in definition of information, especially knowledge, ('Ba', for example vonKrogh – Ichijo – Nonaka, 2000) is a risk management environment.

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product development quite the same amount, or more, than the technological enterprises nowadays. This research however happens in social or behavioural sciences, partly even humanistic. – Perhaps consciousness of this is growing, concluding that in September 2006 published Finnish National Information Society Strategy emphasizes 'human', services based information society instead of numbed technological hype of the former programs, - although digital television, speeds of communications and 'electrification' of business have still their room (Tietoyhteiskuntaohjelma, 2006)

<sup>27</sup> There are some quite attractive examples - as Google. – Idea as such is old; for example the development of Internet has, at least at the beginning, in great proportion been based on that. It is utilized also in development of open source code.



### Information Society, Network Society, Risk Society

Neither information society, network society nor risk society do not build a society. Modernity denoted dissolution of community as a social formation and rise of nation state. These 'second modernity' ('andere Moderne', 'zweite Moderne', Beck) phenomena are neither possible to border on a nation state. Nation state appears as prototype of society because in the conditions of division of labour it is a way to guarantee the reproduction of social production resources; a predictable and rational social system which according to Weber was a presupposition of capitalism (Mäkinen, 2006c).

These social formations are global but either 'world society' does not in this case rescue into the good shelter of society. There exist international actors which have an administrative status and without doubt in future also 'network state' (Castells), but on ground of it the formation of 'society' is at least unfinished and it is an open question is it possible. In principle this does not deviate from the situation where society is formed on ground of nation state. Either there is not possible to manage 'all' risks but some of them stay as genuine risks. The phenomenon where increasing social risks result in formation of network state, runs besides a phenomenon called 'globalization'.

It is not reasonable to talk about society if it does not indicate social activities – which also in modern society are information society services – whose social content is based on information security management. About 'society' can be discussed as a common formation of social services, in economic sense, or generally social activities.

Thus concepts like 'information society', 'network society' and 'risk society' describe properties of these social formations of activities, not specific social complexes. 'Ubiquity society' or 'ubiquitous information society' are both mostly degeneration of concept 'network society'. These properties are effective at the same time and their common feature is that they are global. Information is basis for activity both in sense 'information' and in sense 'knowledge', however so that a service is by default always knowledgeService, 'kService' although it constitutes always of both formal and interactive components (Mäkinen, 2006d, 2006e). Reproduction of information is on the other hand a global process and presupposes network. If service processes are not managed, we are in risk society.

The reproduction of information is global. This is a property of information, only property which can be shown it objectively has. Information and network are the same issue at least in the sense, that they are based on each other. Thus 'global' is a necessary property for understanding information society, network society or risk society; global particularly as independence of geographic place and interconnection of global events. Its basis is transferability of information and divisibility of transmitting network, which are independent of spatiotemporal qualifiers of factors of production and commodities. In this regard 'second modernity' really differs from first, 'old modernity' which was based on division of labour and existence of nation state.

Above does not mean principally nothing from the point of view of properties of nation state or development of state's role<sup>28</sup>. State may preserve its role in

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<sup>28</sup> This should be kept in mind when discussing for example about 'The Finnish Information Society Model' (Castells - Himanen, 2002) or any other nation state model in this context. 'Finnish model' refers to the fact that increasing use of information and communication



maintaining social reproduction, predictability and rationality either in network state or without. But it is possible too, that when 'society' loses its proximity and uniformity, state strengthens (Touraine, 1988, 27). It on turn can in the worst case mean strengthening of totalitarianism. Development of Internet-like contingent networks into 'ubiquitous' is strengthening such a tendency. But quite alike can functioning and internationality of welfare state services have a democratizing impact.

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technology in society does not require breaking off the structures of welfare state. This is a valuable but also usual argument about reproduction requirements of capitalist economy (Mäkinen, 2005a, 191 – 195). – In Finland is usual to argue that 'we are in the front line of information society development'. On ground of the above, best measure should be the state of information security in society. A survey of statistics concerning for example the status of ISO 27000 Information Security Management System certificates (<http://www.xisec.com/>) rather points out to the Finland's position in the backwoods.



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**History of modifications**

<b>Date</b>	<b>Version</b>	<b>Writer</b>	<b>Modification</b>
28.9.2006	1.0	Heikki Mäkinen	1. Finnish version
30.10.2006	2.0	Heikki Mäkinen	Modifications in English translation
23.1.2007	3.0	Heikki Mäkinen	Separation of production resources as deliverable and non-deliverable, risk environments and their consequences
30.3.2007	4.0	Heikki Mäkinen	Modifications in risk management environment based on division of labour. Specifications in forms of rationality.