

Knowledge of Society White Paper : 6

Knowledge Society or Information Society?

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Abstract

Forms of knowledge are forms of social interaction. Knowledge has any internal properties, but its properties are constituted of its transferability in social interaction. On the other hand social interaction, and actually social, are created by communication. Its general form is knowledge relation in different forms of knowledge transferability.

Social action is a relationship of risk and probability. These dimensions constitute dimensions global and history of social. Social interaction, which knowledge mediates, is constituted of continuum of these dimensions. Genuine 'Global' is an event having a risk probability 1. Historical event is unique and certain. Social relation is some management of global risk giving it a social meaning. Depending on probability basis of social relation, knowledge has different types of meaning.

Logical network layers in global network constitute of social relations based on historically developed forms of risk management. Network is a principal unit of social interaction. Its constitution in organization and co-operation between them, is a secondary form on foundation of social division of labour.

Internet fulfils requirements of concepts 'Risk Society' and 'Risk Network'. Internet has no information security or any other kind of service level. This depends on the principal properties of Internet, rationality of local social division of labour in coherent global environment.

This kind of network can be characterized 'chaotic'. There however exist relations which are required to the formation of a limiting case of social and knowledge mediating it. Chaotic network is a social formation of risk approaching up to One and social continuity approachig down to Zero.

Knowledge development icludes processes of tacit and conceptual knowledge and development of network information. It is essentially dependent on change of information security. By change of social rationality information security is an element in development of meaningful knowledge to fulfil the requirements of social action.

Concept 'Information Society' is required for definition of social constructions for all situations where information exists. In services or economy is a rationality attached with them. Then is also determined social probability, continuity and knowledge with a specific meaning. Services and economy are kServices and kEconomy from inception.

In global network social component of information security is composed of security of kServices, 'Information Society Services'. The totality of these network requirements – service level and security included – is **Globalnet**.

Knowledge Society or Information Society?

1. Knowledge Relation and Social

Difference between knowledge and information may be defined by the specific assets they are realized, information and knowledge assets¹. The former has an external carrier as for example document, file or database. This presupposes that knowledge is conceptualized and expressed in explicit form. Knowledge assets can be information assets but also tacit knowledge which is realized in human action and interactive processes. Knowledge is always meaningful for human action. Information is produced by a subject, but has also external, transferable form where it is presented without a subject. In global networks should also be defined a third form of knowledge, network information (Mäkinen, 2008/12). It has external presentation but not exact form in continuing social relationships.

Forms of knowledge are forms of social interaction. Knowledge has any internal properties, but its properties are constituted of its transferability in social interaction. On the other hand social interaction and actually social are created by communication (Mead, 1972). Its general form is knowledge relation in different forms of knowledge transferability.

Knowledge is ubiquitous, concurrent and coherent; its forms are developing into each other in social process – in knowledge spiral (Nonaka – Takeuchi, 1995, 70 – 73, vonKrogh – Ichico – Nonaka, 2000, 6 -7, Takeuchi – Nonaka, 2004).

To be used in human action, for example in organisation's processes, explicit knowledge and information must be internalized by people involved with the process. In this form knowledge is sharable in process, but its transmission throughout the organisation or to the co-operating parties presupposes conceptualization and presentation in explicit form in documents, files or databases.

Knowledge exists in a context, environment where it is created, delivered and even stored. This is a specific time and space relation, 'Ba', shared space of interaction required for knowledge creation and delivery (vonKrogh – Ichico – Nonaka, 2000, 47 – 49, 178 – 179; Nonaka-Toyama-Konno, 2001, 21 – 28).

Knowledge is created and delivered in network which has different qualifications according to the requirements interaction settles. These networks have a specific construction for every phase of knowledge development. From the concept of 'value creating process' of 1990's process approach is passed on to a 'value creating network' or 'value network'. In it knowledge has form 'network information'.

Forms of knowledge are based on the meaning attached with knowledge, not its content. Social action has a subjective meaning to acting human (Weber, 1976). Social meaning is historically developed on foundation of risk management. Interaction includes always risk in connection with other people. It must be managed for that rational action can take place. Action is a relationship of risk and probability. These dimensions constitute dimensions global and history of social. Social interaction, which knowledge mediates, is constituted of continuum of these dimensions. Genuine 'Global' is an event having a risk probability 1. Historical event is unique and certain. Social relation is some management of global risk giving it a

¹ Definition of information assets ISO/IEC 27001 and 27002, knowledge assets Nonaka – Toyama – Konno, 2001, 28 – 33, Teece, 2001, Mäkinen, 2008, 77 – 78, 105 (in Finnish).

social meaning. This makes possible rational social action having historical continuity by a certain probability (Mäkinen, 2008, 12, Mäkinen, 2008/13).

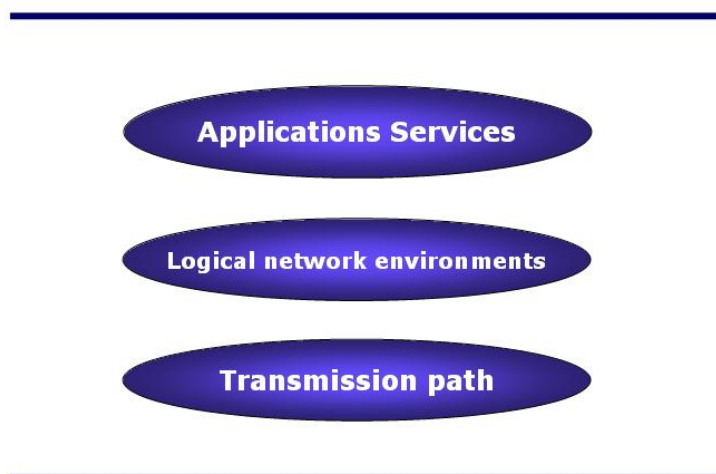
Depending on probability basis of social relation, knowledge has different types of meaning. Meaning in tacit knowledge is connected to immediate action, in conceptual information to continual social formations, and in network information on a probability based risk management. Meaning of knowledge requires continuity in social relationships based on managed risks.

There exist a non-trivial connection between knowledge, interactive processes and communications networks which carry these processes. They are global-history environments specified by managed risks. Information may be delivered concurrently into several knowledge assets in different processes. It is possible to deliver even in a way where it has no social meaning. This creates 'Risk Network' (Mäkinen, 2008/3). Foundation of communications network, transmission path, too can be delivered into separate networks, processes and services concurrently, like information. Without a specified information security structure, risk management, global network creates contingency of social risks (Mäkinen, 2008, 222 – 224, Mäkinen, 2008/13).

2. Communications Network's Service Architecture

Network cannot in connection with social interaction be considered as a general, comprehensive totality; such 'absolute' totalities exist only as risks. Network must be defined by meaningful social relations. According to characteristics of services network offers to users, service architecture, network is divided into three layers (Mäkinen, 2008, 224 – 228, Mäkinen, 2008/13).

The Structure of Network



Foundation of communications network is Transmission Path, physical structure of network and its objects. Transmission path is global, comprehensive and concurrently deliverable between organisations and services. It does not have any security structure; a general security solution for transmission path is impossible. Information may exist as an object in transmission path but is not functioning as knowledge.

In transmission path is however specified management environments, which are a special case of the second layer of network construction.

The second layer is logical network structures. They constitute of a set of users, services, nodes and communication connections situated in transmission path and specified working totalities by communication services and socially by a common information security policy.

The third layer is constituted by services, general network services or applications utilizing them. In principle service layer is a global and comprehensive set of relations. At this level every information asset in network can be accessed by any node or user in network. Services are regulated according to information security policies of network partners constituting logical networks.

Logical network layers in global network constitute of social relations based on historically developed forms of risk management. Security structures are principally created at this level but they use transmission path and services layers. Network is a principal unit of social interaction. Its constitution as organization and co-operation between them, is a secondary form mainly on foundation of social division of labour (Mäkinen, 2008, 37 – 41, Mäkinen, 2008/12). Network carries all forms of interaction and all forms of knowledge.

Traditional basis for logical network constitution are local area networks of organizations and their co-operation. These constituted 'network Inter networks', Internet. This construction is technically obsolete – at least from the beginning of 1990's with ATM-technology breakthrough. There is no principal difference in network technologies in relation to geographical area, organizational structure nor media. Network is technologically coherent, concurrent and ubiquitous. This coincides the development of interaction on foundation of knowledge forms, general meaningful social interaction.

3. Risk Network

Social relations are continual forms of interaction based on probability of a certain course of social action (Weber, 1976, Mäkinen, 2008, Mäkinen, 2008/12). They are constituted by risk management, and as part and result of it information security. In social division of labour social relations are principally connected with continual 'structure', forms of conduct and rules in organization, classes, state. At general network foundation continuity is constituted on information security solutions functioning with communications services.

Logical network environments are constituted by information security developed in this way. The security requirements specify coherence, proximity and permanence of network and social relations in it. Security is based on balance of accepted risk and trust required (Giddens, 1990, 35). If such a balance is not possible to specify, 'Risk Society' and 'Risk Network' are developed (Beck, 1986, Mäkinen, 2008/3).

Internet is a logical network formed by security of firewalls between local area networks, nodes identified by network addresses, users by eMail-addresses and files by URL. Internet is not a global network. It is constituted by rationality developed on basis of division of labour formations. Between these are constituted socially rational formations, making possible rational social action, only if they produce commodities sold on market or on foundation of nation states. Market creates risk management system only for economic relations and states cannot act

in global environment (Mäkinen, 2008, 270 – 281, Mäkinen, 2008/3, Mäkinen, 2008/12, Mäkinen, 2008/13).

Internet fulfils requirements of concepts 'Risk Society' and 'Risk Network'. In basic Internet cannot be specified risk management. Internet has no information security or any other kind of service level; it has a zero-level service and security (Mäkinen, 2008/3). This depends on the principal properties of Internet, rationality of local social division of labour in coherent global environment.

This kind of network can be characterized 'chaotic' (Mäkinen, 2005/1). There however exist relations which are required to the formation of a limiting case of social and knowledge mediating it. Chaotic network is a social formation of risk approaching up to One and social continuity approachig down to Zero. But it exists anyhow, when relation of global and history exists. – "Näin on, ja näin on aina oleva" (Mika Waltari, "So it is, and shall always be"). Social is based on coincidents. In risk network this is striven to be a virtue. Result is probably global totalitarianism.

It would be a rather terrible situation if it would be possible to say that here social ceases and some other kind of co-existence – for example 'informationality' (Lash, 2002, 75) - begins. Transmission path and information, which exist in network as objects, have no social global-history dimensions. When a social relation is developed, is it chaotic or not, knowledge and social relationship are created. Chaotic network is not useless network and people or social events are not divided into categories.

Social relations in network are built on several levels. Risk Network is level zero. This does not depend on technical properties of Internet but the social formations there are functioning. Global network requires rationality based on individuals and their services, not on division of labour and organizations. It should access individual and his requirements in a whole. The global market is a risk management system of economic relations – although it collapses on regular intervals. The risk management system of general social relations based on interaction in network cannot be developed on rationality dependent of social division of labour.

4. Information Society, Network Society, Risk Society

Social is constituted of relations in action, risk and probability, global and history; not on existence in society, global network or any other predetermined totality where interaction exists. Properties connected with information, network (Castells) or risk society (Beck, Giddens) are relations in action, mediated by knowledge. The 'extensions' and 'temporal intervals' they create are determined by meaning of action (Mäkinen, 2008, 1, 28 – 29, Mäkinen, 2008/12, Mäkinen, 2008/13).

Network information is an object, an 'information asset', for rational action. For 'knowledge' is needed a subject which binds itself with information. Then information has a meaning. Technically this requires identification and authentication of subject and object, and non-repudiation of their connection – Binding (CommonCriteria 3.0, Mäkinen, 2008, 91 – 96). Socially it depends on interactive processes and network environments carrying them.

Network information mediates information, network or risk society. Connections in network, which form transmission path, do not imply a service which has security or social content. This requires social meaning and processes. Concept 'Network Society' as such does not imply an information or knowledge content. Transmission

path is ubiquitous and its technology coherent regardless types of data transferred or transmission media. But this does not mean development of 'social'.

Knowledge content has forms knowledge and information. Global information can mediate also social form 'risk society'. These different concepts also describe same social phenomena. They are relevant together, and only then.

Information and knowledge are effective in networks, organizations, processes, and in immediate action. Forms differ from each other by their probability in social sphere determined by meaning of knowledge. Tacit knowledge is connected with immediate interaction which has not necessarily continual social relations. Conceptual information requires social formations having such relations (structures) and vice versa.

The creation of global relations in global networks means change of social meaning, rationality of action. Rationality of action is not managed as social relations of high continuity, probable structures. They can change by unforeseen probability. This is not possible to manage in units in social division of labour, as organizations, but at network level. This requires an information security management system for services in network. It does not mean security for network as such – it has no security structure – but for social formations above network.

This creates services to be called Information Society Services, kServices. These are so far called 'eCommerce', 'eService' or 'eGovernment'. This however is connected with the form of rationality created in social division of labour. It cannot be managed in global network. Characteristics which are tried to describe by 'e', 'electronic', are aimed at service that is same as before, but is conducted by 'electronic' devices through network. More reasonable acronyms are kServices, knowledgeServices, kCommerce and kGovernment. They are based on fact that all social relations are based on knowledge, but this is normally hidden into historically developed social 'structures'. Such exist not in network society, where basis of social relations in knowledge is apparent.

The concept 'Network Society' emphasises an important property: Network Society means that society has no hierarchy, no centre. This is typical to knowledge but with a important restriction: knowledge is scarce in the economic sense of the word; it is deliverable and when delivered not absent from the place of origin, but always connected with the learning capacities of societies, organizations and human beings. Information is relevant in such relations but it can also exist in network without connection to meaning.

The increasing use of information in social or production processes, is no reason to talk about a new social formation: it can very well been understood as an informational capitalism (Castells, 2000, 500 – 503, Castells, 2004, 250 – 251, 372 – 377). The only relevant dimension of information society is 'Global' in the sense of rational social relations independent of local place. This is thoroughly connected with communications network. It is also the distinction of kServices with other services.

5. Knowledge Development and Security

Information processing dominating units of social division of labour, should in kServices be replaced by a more general approach for knowledge development. This means specification of the development process of tacit and conceptual

knowledge (Nonaka – Takeuchi, 1995, Takeuchi – Nonaka, 2004) but also process for development of network information into meaningful social forms.

This is essentially dependent on change in concept 'information security'. By change of social rationality the function of information security in protection of organizations' information becomes recessive. Information security is rather an element in development of meaningful knowledge to fulfil the requirements of social action.

6. Knowledge Society or Information Society?

Modern societies have been information societies since their inception (Giddens, 1985, 178), and perhaps even the pre-modern societies. As clear is that societies are formed around networks. And clear is too, that the social development has changed in a remarkable way in recent years.

Concept 'Information Society' is required for definition of social constructions for all situations where information exists, even those where risk is approaching up to One and social continuity approachig down to Zero. On the global dimension of transferable information exist not knowledge based on social and security but these are developed historically.

In the same way it is necessary to define transmission path without any security structure. But when services or economy exist, there is rationality attached with them. Then is also determined social probability, continuity and knowledge with a specific meaning. Services and economy are kServices and kEconomy from inception. Society as a common historical and cultural environment of people is built around them.

Knowledge based service and economy are always social relationships in network having information security specified at kService. Its special cases are organizational processes. Information is not scarce, but knowledge is because it is attached with the human interaction. It has specified global-history dimension.

In global network social component of information security is composed of security of kServices, or 'Information Society Services'. The totality of these network requirements – service level and security included – is called **Globalnet** (Mäkinen, 2008, 282 – 338).

Globalnet will be much larger economic and social upswing than Internet ever was. Distinction is that in Globalnet the biggest expansion rests on social innovations. Technical innovations are required, but they have only an auxiliary role. The development and creation of knowledge, its delivery, and protection of its value and networks, is much more important – even in consideration of economic development.

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History of modifications

Date	Version	Writer	Modification
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17.11.2008	2.0	Heikki Mäkinen	Modifications according to 'Yhteiskunnan Tiedon turvallisuus', Version 2.0