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New Institutionalism on the Internet

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Abstract

The Internet has often been described as a new frontier housing endless possibilities within a democratic atmosphere. *Information likes to be free*—an expressive phrase on the Internet reflecting a mentality of open critical minds that were part of the nets genesis, but how free are organizations on the Internet? Recent developments on the World Wide Web indicate that there are structural forces at work greatly limiting the development of new web sites. Although the medium is still in its infancy and many claim to be searching for guidelines in developing web sites, a closer look at current web sites and how they are constructed reveal strong similarities in terms of structure and functionality. Web site development today is largely a matter of following unwritten laws that must be adhered to for purposes of legitimization. This paper provides an explorative analysis of the current situation and seeks possible explanations for the puzzling convergence of web sites.

New Institutionalism on the Internet

—Cognitive escapades in the age of networking

> …the essence of technology is by no means anything technological. Thus we shall never experience our relationship to technology to the essence of technology so long as we merely conceive and push forward the technological, put up with it, or evade it. But we are delivered over to it in the worst possible way when we regard it as something neutral; for this conception of it, to which today we particularly like to do homage, makes us utterly blind to the essence of technology. (Heidegger, 1977 p4)

The Internet and organizations

In the early days industry did not pay much attention to the media, but today the World Wide Web and the Internet-technologies have attained a state of importance unrivalled by any other kinds of computer technologies. The Internet-technologies can be said to fuel the computer industry, and they have become part of a new ubiquitous infrastructure for the development of modern business models (Laudon 98). The majority of new applications are developed with the Internet in mind, and the Internet-technologies serve as a common platform that is becoming increasingly enmeshed with the workings of everyday business life. Technology and business life as part of our social reality are things inseparable for they determine each other (Hedman 96, MacKenzie 85). To understand the development of the Internet and the business drives enabling its rapid growth warrants integrative approaches to technology and organizations (Davenport 92, Davenport 97). Laudon and others argue that we should view them as sociotechnical systems (Laudon 98).

The web as nexus

What ties all the Internet-technologies together is largely the web. It is easy to see why. The Web is simple to use, and traditional IS-applications can be integrated with it. Through such integration the user can access an ever growing number of different services with little effort. The need to learn how to use specialized Internet-applications and technologies diminishes as the integration process unfolds and today users can deploy the web to perform almost any network oriented task.

Web sites as extra features

When the first web sites were developed in commercialized settings they were often regarded as extra features. A company would, for example, put up a web site which served a similar purpose as a leaflet. Those who visited the web site could learn about the company by browsing through web pages that marketed the company in ways similar to printed materials. A typical web site would for example house the following information:

- Product information
- Goals and visions
- Contact information

The experience of using such sites was often similar to reading an ordinary leaflet, and many complaints were raised that such use was unimaginative, and non-productive.

Web sites as dreams of interactivity

Visionaries preached about using the web as an interactive medium—users should be able to interact with web sites in more novel ways they said. A web site, according to this early interactionist approach, should not simply be something that users read, it should be a place were users are much more active. While such thoughts were popular, few managed to develop sites which were truly interactive or even knew what the word meant. In part this had to do with the state of the technology. In the early days before Java, and other interactivity-enabling technologies, developing interactive sites was difficult. But, there were also other reasons for why such developments did not take place more than they did. In many cases the medium was simply not thought of as anything more than another feature. The situation is changing rapidly. However—interactivity the magic word—has lost its spell-casting powers.

Web sites as enmeshed in the organizational structure

The web as medium has gone from a situation of being used much as an extra feature to something much more critical to modern organizations. Interactivity is no longer such a big deal. People regularly use the web as an extended version of the Yellow pages, look up bus schedules or get other kinds of simple facts.

Not only has the World Wide Web become more intimately tied to organizations, but this has happened to Internet-technologies in general. The best examples are perhaps recent developments of intranets within organizations and extranets between them. Although the very concept of an intranet is not easily defined, and many rivaling conceptualizations exist, intranets are based on a set of standardized Internet-technologies. Companies with intranets have started to rely on such sets of Internet-technologies for their information-technology infrastructure. The Web has made its way from the Internet and is now making up for an ever-increasing number of organizational infrastructures. Web-technologies are simply part of the nexus of information technology within intranets or those out on the Internet. Intranets and extranets were constructed out of business concerns and we can observe a shift towards a use of the medium as becoming more central to organizational activities. Whether we examine intra-organizational communication, sales of products, customer support, or other common organizational activities, the web has for many companies become part of the clockwork.

Well developed web sites enhance the organizations behind them, because they not only reflect the structures of those organizations, but they are *inseparable from those very same structures*. The web-medium does not work in parallel with organizations, *it becomes enmeshed with them*. When a company decides to build a web site that company has to reflect on a variety of issues such as:

- Organizational structure
- Image
- Customers
- Market opportunities
- Goals & visions

Such reflections are then materialized on the web in a concrete form. A web site is a tangible representation of something that otherwise might be seen as a very complex abstract phenomena, but on the web you can (at least in

some sense) browse this abstract entity. It is there and it is tangible, even if not fully accurate. A web site, however, also gives a more accurate descriptions of an organization than a leaflet or a videotape because it is (or should in general be):

- Updated frequently
- Rich with information
- Factual and less wordy than printed media

Many web sites also go beyond information and allow customers to interact directly with the organization behind the web site. From the point of view of the user, he or she is interacting directly with the company. The web can be said to change organizations in at least two important ways: structurally and discursively.

Structural changes

Structural changes are brought about when the web and related technologies become part of an organizations technological infrastructure. An intranet can, for example change this infrastructure most markedly by allowing for:

- Discussion forums
- Electronic calendars
- Homepages
- Shared work areas

Nothing is perhaps new or novel in these technologies per se. Still, when information technologies are implemented and taken seriously, they not only allow for new ways of interacting within organizations, they also change or replace traditional ways of working. The structural impacts can be considerable.

Discursive changes

Discursive changes stem from discussions about the use of the web and its related technologies. The company that decides to build a web site is likely to go through many issues regarding how to present the organization on the web. These discussions are likely to change the overall conception of the organization. In many cases an organizations web site can become a central *discussion piece*. It is a concrete representation of an organization which can serve to help newly hired to orient themselves within the organization, but

it can also be a starting point for deeper analyses of an organization in general.

Technology and organizational change

No one doubts that computer technology has become an important part of modern organizations. Few are the companies that could survive more than a few days without their local area network, and work usually means using computers in one way or another. Today as organizations embrace the Internet-technologies in general and the web in particular, the technology has become of more central concern than at any earlier point in time. Organizations have, during the last two years, been rushing to the Internet in search for new markets and better ways of using technology.

One way of analyzing this rushing towards the net would be to think of the companies as rational agents composed of rational decision-makers along the lines of rational choice theory (Elster, 89). Parsons once dominated sociological organizational research in the US with a theory dependant on a variant of rational choice theory (Craib, 92). In the view offered by rational choice theory-variants, companies seek out new ways of doing business because they sense market opportunities and/or ways of attaining better technological infrastructures. Such a view tends to neglect several contextual issues.

New institutionalism

According to the tradition of *new institutionalism* within the field of organizational analysis, institutional change is best understood from analyzing factors that go beyond individual organizations (DiMaggio 91). Individual organizations are seen as shaped from without rather than from within. External environments lay at the basis of institutional changes and developments. As the environment acts on the organization, the organization comes to adopt new classifications, routines and schemas. In a subtle way the environment comes to create fundamental frameworks of cognition within organizations:

> Environments…are more subtle in their influence; rather than being co-opted by organizations, they penetrate the organization, creating the lenses through which actors view

> the world and the very categories of structure, action, and thought. (DiMaggio 91, p 13)

It is the inherent limits of cognition that leads to passive acceptance of pressures from the external environment. On such a view rational decision making is no where to be found within organizations. Todays fast paced world leaves organizations with no choice, but to accept prefabricated formal frameworks on this view.

Technological requirements

The new institutionalism of the web is partly technologically driven. Having a web site is taken as a natural requirement in modern business life. Organizations without web sites run the risk of being labeled as technologically obsolete. No one doubts that the deployment of technology can give companies market advantages. Companies that fail to deploy cutting edge technology can often be perceived as less aggressive and less successful. The underlying technological demand does not come from within, but from without. The demand surfaces because there are technological norms dictating how companies should use technology. Customers today have come to expect that “their” companies are on the web and that they can interact with them. Similarly business to business relations have come to become dependent on extranet technologies. Moreover, many expect companies to have their own intranets. Organizations who cannot participate in the extranet business might lose potential business partners. Thus there are many external forces at work in determining the course of organizational deployment of the Internet and its related technologies.

Conceptual requirements

The deployment of the Internet-related technologies, and especially the web is a subject that has brought much attention from other media, as well as from the Internet-community. There are countless sites that publish style guides and they almost invariably claim to know how to develop web sites fruitfully. Although the medium is still quite young it already has its generally acknowledged gurus, as well as many self proclaimed ones.

The law of the web

While the Internet has been described as a free, open-ended medium with limitless possibilities, there are also strong constraining forces at work. As business organizations and other institutions make their way onto the net they are driven by desires to be successful in what they do and they try to find sound advice on how to best utilize the technology. In response to this, the web has rapidly become associated with standard ways of developing web sites and deploying Internet-related technologies. Companies also spend much time spying on each other through the web. A spokesman from Ericsson (Infomaster 98) stated that they had a lot of traffic coming in to their site from a small town in the U.S. They wondered why this small town had such an interest in their site until someone pointed out that Motorola, a competitor, had their central office there.

Style guides

Style guides have been found on the web since its inception. They are meant to aid in the web-development process by giving advice on what to do and on what to avoid. There are at least thousands of such general style guides on the net. Amongst the more authoritative are:

- Yale Style Guide[1]
- Sun Style Guide[2]
- W3C Style Guide[3]

It is common practice, and a courtesy for those who develop their own style guides to link to such authorative guides. It is not so strange therefore that the advices given are repeated over and over again and again.

Desperation

Jacob Nielsen, the world-leading expert on web site usability claims at his own web site that "… the Web is desperate for design rules…"[4]. There is a danger in such desperation, and that is that *organizations building web sites may lose track of the real issues*. The question is how well design—an insightful creative phenomena—can exist in a world of desperation and hype about new technologies. When companies lose themselves in desperation, they end up holding on to ready-made rules. These may not lead to very creative or unique designs; they could become organizational straight jackets.

Absolutism

At TechWeb, a large-scale site providing information about Internet-related technologies they claim that "There is a definite science behind Web site design…"[5]. This proposition at first might seem perfectly natural, but why should we think that there is a science behind design? Doesn't design involve artistry, and estethics? It is not at all clear that design ever could be reduced to science, no matter what kind of design we are discussing. The proposition reveals an attitude towards design on the web as being a mechanical process, determinate and scientific. It reduces design to the following of rules. The design of web sites becomes a manner of following norms. Such positivistic norms weave the fabric of straightjackets.

Groupthink

It is a well known psychological fact that groups with charismatic leaders and/or closed internal belief systems tend to overestimate their own grasp of problems they encounter (Janis 82). The tradition of web site development lacks neither of these features.

Formality

The larger a group becomes, the more formal it tends to become. The web development community is certainly a sizeable group and the number of style guides, as well as their striking convergence, can be seen as an attempt to bring focus to it. The web community searches for tangible rules that will bring order and concreteness.

Dogma

One could argue whether or not the Web is, as Nielsen claims, in desperate need of design rules, but at any rate many are willing to produce what appears to be such rules:

> This article will break down the essential characteristics of great Web sites into some easily followed rules of thumb.[6]

Modern web sites, and other Internet applications are more than some extra feature of an organization. They are enmeshed with organizations, and cannot be separated from them. To understand what a great web site is should require more than just following easy rules of thumb. A brief look at some of the book titles from the online business litterature gives one a very different impression:

- *Cyberlaw; What You Need to Know about Doing Business Online* (Johnston 97)
- *Webonomics; The Nine Essential Principles for Growing Your Business on the World Wide Web* (Schwartz 98)
- *Online Marketing Handbook* (Janal 98)

Business books in general are notorious for making strong optimisic claims regarding simple effective rules and principles, but the online business literature appears to take this approach to a higher level so to speak:

> Everything you need to know to harness the full power of the Internet for your promotional, advertising, and selling endeavors is here. (Whiley & Sons about *their Online Marketing Handbook* - Janal 98)

This statement, as well as the title of the book, reveals an attitude that "business on the Internet" is simply a matter of following concrete advice from a single volyme. Whiley & Sons is a respected publisher and they are not alone in taking on this attidude. In fact, most publishers within the genre appear to be of the same basic opinion. The web is there to conquer for business organizations that learn the rules of the game. But such a perspective is false from the beginning. This is why: business life, nor social life can be separated from technological developments. Modern society is socio-technological in nature and therefore the decopuling from business and technology is impossible. The litterature that focuses on the business organization, on the one hand, and its deployment of technology on the other is deeply misguiding. Part of understanding a business era (any one throughout history) is understanding how it is enmeshed with technology whatever the technological artefacts may be. In our era, as soon as a business enters online it is transformed, it changes because its technology changes. Is the fear of such changes what makes organizations cling so strongly to simple recipies and SOP:s? For the truth of the matter is that few of todays business organizations are likely to be around in the next decade or so[1]. Those who will be around are those who can understand something much more crucial than recepies—our business era. Laudon & Laudon are two of the few writers who take seriously the challenge of how

[1] For example, of the Fortune 500 companies in 1918 less than ten percent survived for 50 years. (Laudon 89).

to understand a business era as being partly constituted by and enmeshed with technology (Laudon & Laudon 98).

Atmosphere

Apart from the fact that there are sources out on the web that contribute to a new kind of institutionalism by attempting to define all wide scope norms that govern and mechanize web site design, there is also as Nielsen claims a desperation for help and advice. Many organizations are new to the web and they have very little understanding of the media. In such a setting, it is only natural that they are struggling to find out how to better deploy it. To answer their needs web consultancy firms have emerged quickly. Still these firms have often not existed for more than a year or so, and thus they are themselves new to the medium. In a sense everyone is hungry for knowledge. The safest bet is likely to be this: follow the herd.

Legitimacy

Legitimacy has become an important factor in designing web sites. When consultants are hired to help with web site development their ways of establishing credibility is often based on norms of web site design found on the net. They can also refer to earlier productions of successful web sites as a way of establishing credibility, which naturally also leads to further homogenization. The end result may be that a particular consultancy agency produces many sites that appear very similar. The organizations that acquire web sites are tacitly accepting this, because by indirectly accepting externally legitimated formal structures (Meyer 91) they increase the commitment of their members, business partners and customers.

The associative effect

Information is wonderfully accessible on the Internet. For those part of web site-projects this means that they can easily study other sites, check with usability guidelines and get information on web site design from various other sources. At a time when many are seeking advice on web site design this accessibility may well come to serve a homogenizing function. Successful sites can easily be imitated and even copied. What appears in one style guide can be equally easily incorporated into another. In a time of desperate knowledge seeking, copying and imitating is safe. The net is in a sense a huge associative network, much like a mind map. The net is a

brainstorming phenomena. Every organization with a web site has a node in the mind map, and they pay close attention to other nodes. Surely such a process must lead to many new and novel ideas? Surely this must be an era of discovery and insight? There are two factors that work against creativity and discovery on the web. One is the kind of new institutionalism that is influencing web site development, the other is what can be termed the associative effect. Within the field of social psychology studies have shown that large groups that engage in brainstorming activities, in general produce fewer novel ideas than when each participating person brainstorm by herself (Lamm 73). Groups that brainstorm have a tendency to pick up on certain ideas as dominant and others are never expressed . The web works the same way, there are certain ideas that are very prominent on the web regarding web-development and they have a tendency to structure the web and the very thoughts we have about web-development. These ideas are present on the web and they are easily accessible, much like in a giant brainstorming session. Conformity to these ideas is common, and thus we risk ending up with dominating cognitive frameworks that structure thought about organizational web-development.

Possible homogenizing factors

From the analysis so far one could hypothesize that the following factors may be contributing to an evolution towards more similar types of web sites.

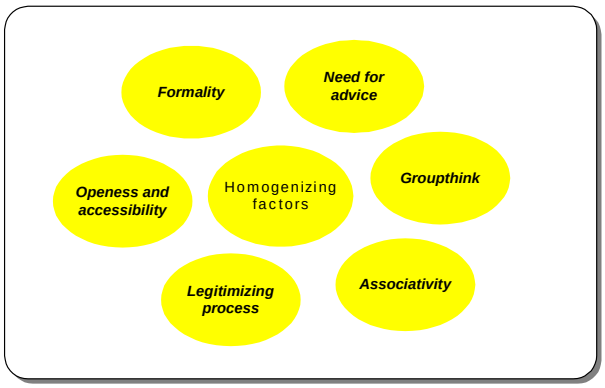

Figure 1 Homogenizing factors on the World Wide Web

From the perspective presented here, the web is a collaborative project. The web is created by large agents that all have the possibility of observing the

developments. As in all such large groups were developments are openly displayed the phenomenon of homogeneity raises its head.

Fundamental cognitive determinants

No one doubts that the web and the Internet is a media-space partly based on hype and sometimes simple prepackaged solutions for organizations that want to utilize the medium, but what is it that lies at the bottom of the development of organizations on the web?

Networking

One of the most powerful ideas of this age is the idea of networking. It is not possible to understand how organizations work today without understanding the concept of networking. It is such a dominant theme in most, if not all organizations today. It is in a sense more than a simple concept, it is a whole philosophy. This philosophy lies behind the Internet and it is part of the essence of the Internet. It also points the way towards understanding organizations from the new institutional perspective. Because, as I will try to make clear, it is a cognitive phenomena that lies well beyond individual organizations, yet it governs organizations and determine their structures and their inner workings.

Connectivity

Part of the philosophy of networking is connectivity. Connectivity has to do with the ways in which various devices can be connected to a network and how easy such a process is. The trend is clearly towards greater and greater connectivity. When the new addressing scheme for the Internet (IPV6) was worked out one choose to make it a 128 bit addressing scheme. To the lay person that may not mean much. If you work out the possible combinations with 128 bits you get roughly 1,70 * 10^38. This addressing scheme is built for unconstrained connectivity. In the future we might well imagine that just about anything with a processor and TCP/IP (the Internet protocols) can be hooked up to the Internet—everything from refrigerators to supercomputers.

Technology as a means of revealing

The classical view of technology is as means to ends. Technology is seen as instrumental in this view. Although such a view of technology surely is correct. It is according to Heidegger still not true to the essence of technology:

> The correct always fixes upon something pertinent in whatever is under consideration. However, in order to be correct, this fixing by no means needs to uncover the thing in question in its essence. (Heidegger, p6 1977)

If we take Heidegger seriously, we can not understand technology without understanding the forces that drive technology. On such a view, what we commonly think of as technology are merely manifestations of underlying determinants.

Technology and cognition

According to some advocates of new institutionalism, the workings of organizations can be explained in terms of cognitive supra-organizational aspects. This radical approach emphasizes the external environment in which organizations have their lives. Organizations are on such a view not autonomous, and are ultimately completely resistant to intentional analysis. The determinants of action and decision making come from outside the organizations and forces the organizations to act in ways which are beyond their control–the organizations are merely puppets in the hands of the master environment.

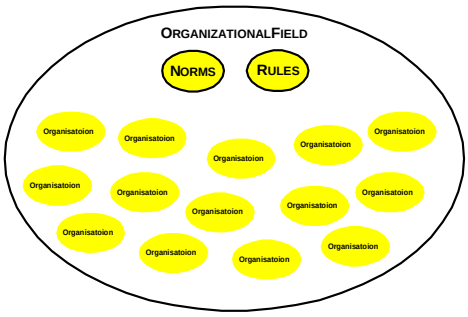

Figure **2** *supra-cognitive new institutionalism*

We might call this variant of new institutionalism supra-cognitive new instiutionalism (from here on referred to as SCNI). But were exactly is that supra-cognitive realm and how does it work?

The idea appears to be that the supra-cognitive realm is made up of norms and rules which float above the organizations in a Hegelian-like universal mind. The organizations are then in some more or less mysterious ways shaped by these rules. The power of transforming and sustaining organizations lies in the rules of the supra-cognitive realm. According to the SCNI-perspective the organizations themselves are neither free nor are they rational. Whether or not organizations are rational, irrational, free or not, is an issue open for debate, but that their members follow unconscious rules seems odd. They may well have developed dispositions to act in certain ways and not others, but that is not the same thing as following unconscious rules.

> We can acknowledge the extremely complex, rule-governed structures of human institutions, and we can also acknowledge that those rule-governed structures play a causal role in the structure of our behavior, but I want to propose that in many cases it is just wrong to assume…that our behavior matches the structure of the rules because we are unconsciously following rules. Rather we evolve a set of dispositions that are sensitive to the rule structure. (Searle, 95, p 95)

We humans engage in a variety of activities in our everyday life, and many of them can perhaps be characterized as being in line with systems of rules, but that does not mean that we are attempting to follow any rules or that they are somehow part of our mentality. Searle expresses this point quite clearly:

> Let me give you a thought experiment that will illustrate the line of explanation I am proposing. Suppose there were a tribe where children just grew up playing baseball. They never learn the rules as codified rules but are rewarded or criticized for doing the right thing or the wrong thing. For example, if the child has three strikes, and he says “Can’t I have another chance?” he is told, “No, now you have to sit down and let someone else come up to bat.” We can suppose that the children just become very skillful at playing baseball. Now also suppose that a foreign anthropologist tries to describe the culture of the tribe. A good anthropologist might come up with the rules of baseball just by describing the behavior of these people and what they regard as normative in baseball situations. But it does not follow from the accuracy of the anthropological description that the members of this society are consciously or unconsciously following those rules. Nonetheless, those rules do play a crucial rule in the explanation of their behavior, because they have acquired the dispositions that they have, precisely because those are the rules of baseball. (Searle, 1995, p 144-145)

Much of social reality is indeed rule governed, but in order for us to engage in those rule governed parts, we need not be acting upon mental rules. It is unclear that paying for coffee at a café before leaving need to involve any mental rule following, whether conscious or not. Similarly, people stand closer to eachother when they converse in Latin America than in Sweden, but that certainly does not imply that people in Sweden and Latin America follow different mental rules, they just go about standing the way they do because they are accustomed to.

Finding a safe home for information and cognitive processes

Why should we think of human complying with norms as manifesting conscious or unconscious rules? It is indeed a very common perspective that to some extent stems from the field of artificial intelligence with the work of researchers such as Herbert Simon, and Allan Newell (Simon 1969, Newell 72). From a psychological perspective, cognitive psychology with its emphasis on variations on the computer model (Anderson 90, p10) and strands of thinking from the artificial intelligence heritage became the dominating model after behaviorism started to lose its attraction. Cognitive psychology, and cognitive science is still a well respected way of making inquires into our mental workings. Much of those inquiries are undertaken with the computer model as starting point. In the standard introductory text to the field of human computer interaction (Dix et al, 93 p10) the view of the user is based on a computer model. The user is seen as a rule driven system which processes information in calculative manners according to rules.

Cognitive escapades

During the era of behaviorism, the workings of mental capacities were scientifically not a legitimate area of inquiry. The cognitive revolution (Gardner 85) changed that and the focus was turned from the environment and its effect on behavior to the individual and her inner mental capacities.

Cognitivism

To some extent this move to cognition was made legitimate in the eyes of many by natural and simple computer model. The field of artificial intelligence had its glory days in the late sixties until the mid-eighties when it

still had failed to deliver many of its early promises (Dreyfus 92). Cognitive science relied on the same machines as sources of inspiration and to some extent evidence for that the computational information-processing model was correct. Since the inception of cognitive psychology the view of cognition has become diversified however, according to some of these views cognition cannot be understood as something harbored only within the brain or a single system. Situated action theory, distributed cognition and activity theory are all examples of theories which emphasize alternative ways of exploring cognition in terms of contextual dependence, interrelated systems and the role of ordinary day-to-day actions.

Rationalistic models and situated action

Situated action models (Suchman 1987) can be seen as a response to the rationalistic models of human cognition and general coping in different environments. According to the standard model of cognitive science, humans can be characterized as goal driven information-processing agents. On this cognitive model , an attempt is made to explain human behavior in terms of calculations on internal representations derived from input mechanisms. Those operations are in turn guided by internal goals and plans. In short, human activity on the standard cognitive model is an activity dependent on internal representations, input and output units (senses), memory and information processing or more precisely calculations. On this model humans act because they are trying to fulfill a goal or a plan– their actions are goal driven, purposive and rationalistic.

Situated action can be seen as a response to this rationalistic model. The rationalistic model stems largely from theoretical models in computer science, and in particular from the field of artificial intelligence (Boden 88, Haugeland 81, 85, Johnson-Laird 88).

Many experimental computer programs from the early era of the AI field were modeled on rationalistic goal oriented models, and as artificial intelligence later became at least partly absorbed into cognitive psychology and cognitive science in general, the models were also migrated. Artificial intelligence programs have always had difficulty in coping with complex environments and novel situations. In a similar vein cognitive models of humans coping in complex environments are difficult to construct. It is simply difficult to model and explain such behavior in terms of entities such as rules, memory, representations and calculations. The whole cognitive apparatus derived from rationalistic AI models appear embarrassingly simplistic.

On the situated action model humans are able to cope with complex environments because they are able to improvise (Lave 1988) in novel situations no matter how unique they are. Moreover they do so without following rules, strategies or plans. On this model such things are rationalistic constructions generated after the coping has taken place. Solving any kind of work task is, on the strongest version of situated action, always a matter of interacting with the environment; work is carried out *in situ* only by interacting with the environment.

The model of situated action has a behavioristic after-taste. The environment in some sense governs the human. Goals, plans and strategies have no or little importance, because such things are seen as explanatory constructions that have little or no bearing on how a particular task is carried out. Thus what goes on in the head of the individual is not of central interest. In order to understand how a person interacts with an environment, the preferred way is to make detailed observations of the users, but how they characterize or perceive the situation is not of any greater significance. The understanding lies in paying attention to the complexity of the environment, which often is done by watching videos of human activities. Situated action models express a general concern to explain human behavior without referring to mental processes.

Distributed cognition

This view of cognition is basically in line with the traditional assumptions of cognitive science that humans and computers can be treated in similar ways as far as cognition goes. Accordingly, the proponents of distributed cognition do not view cognition per se differently, but they enlarge the scope of cognitive analysis. Cognition is not analyzed in localized singular entities such as humans or computers, but as phenomena occurring in *distributed systems* (Flor & Hutchins 1991). This means that humans, computers and all sorts of other physical artifacts are seen as part of a cognitive system. For example, a number of humans working together using networked computers would be cognitive sub-systems of the whole cognitive system made up of networked computers, possible other artifacts and humans.

According to the view of distributed cognition, humans, computers, as well as other artifacts stand on equal footing in that they can be thought of as making up cognitive systems. Distributed cognition aims for more explanatory power by enlarging the scope of cognitive analysis, but the

traditional fundamental assumptions of cognitive science lie untouched at the core of the perspective.

Activity theory

While distributed cognition can be seen as an elaboration on the traditional cognitive science model, activity theory (Nardi 1996) takes a different path. Activity theory also stands in contrast to the situated action model. Both the model of situated action and distributed cognition treat humans as more or less mechanically functioning entities. In the view of distributed cognition, humans are cognitive systems just like any other kind of such system such as computers or other artifacts. According to the situated action perspectives, action is more or less completely context dependent. Intentionalistic entities such as plans and goals are taken as rationalizations after the fact; humans are reactive mechanical entities responding to features of the environment.

In activity theory neither cognition nor the environment are explanatory elements, but the unit of analysis is activity. Activity theory provides for an analysis embracing intentionality, human subjectivity and adaptability. Leont'ev (1974) describes activity as composed of subject, object, actions, and operations. The subject holds one or several objects, which can be thought of as objectives in that they guide the subject. The subject's actions stem from these objects which guides the subject. Objects can in turn be seen as arising from desires. In acting the subject attempts to reach the goal of meeting her objects through conscious purposive intentional action, but the objectives are not seen as set in stone–they can change dynamically–due to the environment or other actors.

Although the subject is seen as acting consciously on the level of goal directed behavior, the ways in which actions are carried out need not in themselves be conscious. Actions are carried out through operations, and the more frequently operations are carried out, the less conscious they may become. Still, subjects hold the objects of action consciously and purposively in mind. Objects shape activity, and what distinguishes one activity from another is a question of knowing what objects come into play.

New institutionalism

Why should we think of organizations as intentional agents? One answer is that our standard organizational vocabulary suggests that they are such agents. When, for example, the DOJ calls Microsoft to court, the vocabulary and the language used suggest that Microsoft is a consciously

goal driven agent. The company is accused of having applied unfair marketing tactics. The company might get into trouble and so on. The whole idea of bringing an organization to court is that it in some way can be held accountable as an intentional agent. On closer inspection our use of language indicates that this is how we conceptualize organizations. We might say things such that a company exploits its customer, is near sighted, pollutes the environment, cares about its customers and so forth. But hardly do we speak of them as not being intentional.

At the heart of new institutionalism (DiMaggio 1991), lie questions regarding the more traditional intentionalistic variants of organizational theory. We also find a latent critique of rationalism. Organizations are no longer seen as rational agents acting purposefully and veraciously towards carefully chosen goals. Nor are the employees seen as acting along the lines of such rationalism. In fact, neither organizations nor individuals are viewed as free cognitive agents. Organizations and their members are seen as part of a larger schema, a schema the workings of which is to be found on a *supraorganizational* level.

The supraorganizational level is composed of interactions among sets of organizations within *fields* (market sectors). The supraorganizational level is not a phenomenon devoid of culture and value. It harbors many taken for granted facts, schemas, rules and regulations that perhaps can be seen as making up a picture of the world or a part of the world. Such a picture encompasses the cognitive ground for discussion, judgement and work within and between organizations.

New institutionalism is essentially a cognitive model. According to it, cognition within organizations can be understood in terms of cognitive frameworks emerging from organizational fields. Organizations may talk about creativity, restructuring and inventing new ways of working, but according to new institutionalism such activities are always to be found within the cognitive straightjackets of organizational fields. There is no escape. The cognitive frameworks of new institutionalism: rules, guidelines, schemas, procedures, beliefs and other artifacts of thought that organizations are bound to follow, are not necessarily consciously created by intentional agents, but should rather be seen as emergent phenomena constitutive as well as dependent on organizational fields.

Social technology – the technological materialization of new institutionalism

On the standard model of new institutionalism organizational behavior and structure can be accounted for in terms of cognitive elements harbored in organizational fields, as well as in society at large. The model of explanation is a cognitive model attempting to make clear how thought and action in relation to modern organizations are shaped by formal as well as less formal rules, guidelines schemas and other normative mental determinants of behavior. The underlying assumption appears to be that organizations share cognitive frameworks that could perhaps also be characterized as sub-worlds. Each such sub-world is, in Wittgenstenian terminology, associated with its own world picture of reality. It seems to me that this is really what new institutionalism holds as its cognitive fundament. Wittgenstein writes eloquently about world pictures and how they work as cognitive determinants:

> 94. …I did not get my picture of the world by satisfying myself of its correctness; nor do I have it because I am satisfied of its correctness. No; it is the inherited background against which I distinguish between true and false.
>
> 95. The propositions describing this world-picture might be part of a kind of mythology. And their role is like that of rules of a game and the game can be learned purely practically, without learning any explicit rules. (Wittgenstein, 1969 p15e)

Wittgenstein's work *On Certainty* (1969) is epistemological in nature. His main concern is knowledge and certainty. It gives us an interesting backdrop against which new institutionalism can be analyzed and better understood. He proposes that arguments should not be analyzed in an atomic way only in terms of singular rules, facts or schemas, but that they require a more inclusive perspective:

> 105. All testing, all confirmation and disconfirmation of a hypothesis takes place already within a system. And this system is not a more or less arbitrary and doubtful point of departure for all our arguments: no, it belongs to the essence of what we call an argument. The system is not so much the point of departure, as the element in which arguments have their life. (Wittgenstein, 1969 p17e)

Wittgenstein forces us to think about systems of thought, and the nature of arguments. Arguments only have their life in systems. But, the systems

themselves are not part of the arguments, we do not step out of our argumentative structures and watch them from above as it were. Wittgenstein's statements about arguments find resonance in new institutionalism. Workers, administrators and CEOs may argue as much as they please and they may think that such arguments stem from some veracious rationality, but in Wittgenstein's view any argument is bound within the confines of a system.

What we find governing organizations, on our elaborated view of new institutionalism, are systems of thought that arise in sub-universes our organizational fields. But, where are those systems of thought? How can their ontology to be characterized? Wittgenstein gives a simple, but perhaps disturbing answer:

> 204. Giving grounds…justifying the evidence, comes to an end;–but the end is not certain propositions' striking us immediately as true, i.e. it is not a kind of *seeing* on our part; it is our *acting*… (Wittgenstein, 1969 p28e)

Could it be the case that what lies at bottom of organizational fields are ungrounded ways of acting? This would be disturbing for most organizations. Claiming legitimacy in terms of ways of acting does not sound rational, nor scientific. Still, if we reject old institutionalism in favor of new institutionalism we are in a sense leaving behind rationalism, and we no longer regard organizational behavior as grounded in rationality. Rational or not, it is humans that create institutions. We create them although our relation to them may become that of estrangement.

I do not wish to settle the questions of institutional ontology, but merely point out an alternative to common ontologies. We might agree with Wittgenstein on that at bottom of all thought lies acting, or we may have more traditional cognitive views of thought and action. These issues are certainly food for thought, but let us leave them for a while. Let us take a step back in our analysis. We have covered a lot of ground in these few pages here. We have discussed new institutionalism as opposed to old institutionalism, and along the way we encountered situated cognition, distributed cognition and activity theory as well as Wittgenstein's epistemology. What divides the strands of thinking in these different areas is thought itself.

Each of the perspectives have, fundamentally different views on thinking or more scientifically sounding, they have different views of cognition. Activity theory, situated cognition and Wittgenstein epistemology belong together on the one hand, and so do old institutionalism, new institutionalism and distributed cognition on the other hand. Proponents of

the latter group attempt to find models of cognition that are location focused. Let us call this group locational cognitivists. With location focused I do not merely mean to say that this group is interested in localizing cognition per se. I am not trying to make the point that they are out on some epistemological hunting activity. I am proposing that their treatment of human coping cannot be decoupled from a strong stand on cognitive location. For the old institutionalist, organizations and their members act dependent on cognition performed by individuals in the organization, and perhaps also by the organization as a whole–the organization as a cognitive agent. In the perspective of distributed cognition thought occurs through distributed systems. One takes a step out of the traditional cognitive model on which cognitive processes are localized to a single individual. Cognition is instead modeled as having multiple systems making up a cognitive substrate. These systems can be artifacts or humans. Thus distributed systems is the realm of cognition, not organizations, not humans, not machines, but cognitive systems. New institutionalism has a radically different view of cognition. Here we localize the cognitive realm as existing *supraorganizationally*. The realm of cognition appears to become something like the Hegelian world mind. The organizational field is the basis of cognition. Here we find the cognitive determinants of organizational life.

The first group has given up the search for location in relation to cognition and we may call them pervasionists in that cognition for them is a phenomenon beyond localization. For all the proponents of the this group, human acting is not to be understood in terms of some cognitive localizable framework. Activity is not to be decoupled from cognition. Moreover activity is in a sense a self-reliant. Wittgenstein argues that nothing that would give us further understanding lies behind our acting. Acting is what lies at the bottom of our epistemological worries. But, acting is empathetically not the same as cognition on Wittgenstein's view.

Perhaps, it would be appropriate to here enter into a discussion concerning behaviorism, but instead of such a digression I would like to take another direction. Instead of comparing theories and approaches in terms of their actual workings and methodologies, one could ask the question of what fuels them. What are the driving forces at work? The claim here is that the locational cognitivists are attempting to find various homes for cognition, and that the pervasivionists deny that there can be any such safe localized harbors of cognition. Rather than to make judgments of truth and veracity about these perspectives per se, one can take on another mode of analysis. One could ask questions of implications. What does it imply

that the dominating trend of analysis in cognitive science belongs to a tradition that is searching for safe homes of cognition? Can we really be certain that it is so? Why could it not be that cognition has safe locational homes?

Building on Heidegger's analysis of technology as a mode of revealment. Let us ask what is revealed by information technology. It is perhaps not clear what such an analysis would mean. But, there are at least two certain unmistakable features of today's use of information technology: networking and connectivity. Why is networking so important? Why is information so important? It is important to network information, because networked information is a safe home for our ideas and thoughts, rules and regulations, procedures and all other kinds of artifacts of cognition. Information technology is our best attempt at *finding a safe home for cognition*.

Closing words

When new institutionalism treats of cognition as a supraorganizational phenomena working on and structuring the microlevel of organizations, it takes a giant step out of the organizations into something greater than the sum of the organizational units in cooperation. On an emergent level of analysis we find the organizational field with its cognitive determinants: rules, schemas, guidelines and so forth, but how far does such a normative analysis go? The rules of information technology are normative, but they are also constitutive of the very phenomena they describe. On the World Wide Web there are currently millons of web sites, but very few of these sites have anything but a hierarchical structure. Is it the case now that there is a normative rule that says all web sites should be hierarchical? Maybe so, but what is more interesting is that there is no clear way of separating the technological structure from the organizational structure—technology and organization become enmeshed.

On the view presented here organizational fields should be viewed as enmeshed with organizational infrastructures rather than as removed from them. Such a view turns yields tangible determinants and offers an alternative to the otherwise obscure ideas of institutional fields. When organizations join the Internet community, they are not merely adding some feature or extra part to their organization, they are transforming themselves and adapting to the networking infrastructure. In doing so they are at the same time manifesting, through a cognitive escapade, our ancient urge to

find a safer home for our ideas and information—the home of information technology.

Bibliography

Anderson J.R. (1990) *Cogntive Psychology and its Implications* Freeman and Company.

Berger, P. L.Luckman, T. (1966) *The Social Construction of Reality*: Anchor Books.

Boden, M. A (1988) *Computer Models of Mind: Computational Approaches in Theoretical Psychology*: Cambrdidge University Press.

Davenport T.H. (1993) *Proess Innovation: Reengineering Work through Information Technology*. Harvard Business School Press.

Davenport T.H. (1997) Information Ecology : Mastering the Information and Knowledge Environment. Oxford Univ Press.

DiMaggio, Paul J, Powell, Walter W 1991 *The New Institutionalism in Organizational Analysis* University of Chicago Press.

Dreyfus, D.L. (1992) *What Computers Still Can't Do* MIT Press

Craib, I. (1992) *Modern Social Theory* Prentice Hall.

Dix et al (1993) *Human Computer Interaction* Prentice Hall.

Elster, J. (1989) *Nuts and Bolts for the Social Sciences* Cambridge University Press.

Flor, Nick V. & Hutchins, Edwin L. (1991). Analyzing Distributed Cognition in Software Teams: A Case Study of Team Programming During Perfective Software Maintenance. In Jurgen Koenemann-Belliveau, Thomas G. Moher, and Scott P. Robertson (eds.) Empirical Studies of Programmers: Fourth Workshop. Ablex Publishing Corporation. pp. 36-63.

Gardner, Howard (1958) *The Minds New Science* Basic Books: Harper Row Publishers.

Haugeland, John Ed. (1981) *Mind Design: Philosophy, Psychology, Artificial Intelligence* Oxford University Press.

Hedman A.. (1996) The Transparancy of Social Technology and Partly Virtual Corporations *Iris 19 – The Future* Proceedings of the 19th Information systems Research seminar in Scandingavia.

Heidegger, Martin (1977) *The Question Concering Technology* Harper Row Publishers Inc.

Infomaster 98 (1998) Conference on web-management by Dataföreningen i Sverige, Stockholm.

Janal, D.,S. (1998) *Online Marketing Handbook: How to Promote, Advertise and Sell Your Products and Services on the Internet*. John Wiley & Sons.

Janis, I.L. (1982). Groupthink: *Psychological studies of policy decisions and fiascoes*, 2nd ed., Boston:Houghton Mifflin.

Johnson-Laird (1988) *The Computer and the Mind: An Introduction to Cognitive Science* Harvard University Press.

Johnston, D., Morgan, C., Handa, S. (1997) *Cyberlaw; What You Need to Know about Doing Business Online* Stoddart Publishing

Lamm, H., Trommsdorf, G. (1973) Group versus indivudal performmance on tasks requiring ideational proficiency (brainstorming): A reivew. *European Journal of Social Psychology*, 3, 361-388.

Lave, Jean (1988) *Cognition in Practice* Cambridge University Press.

Laudon, C.,K. A (1989) *General Model of the Relationship Between Information Technology and Organizations*. Center for Research on Information Systems, New York University. Working paper, NSF.

Laudon C.K,Laudon J.P. (eds) (1998) *Management Information Systems – New Approaches to Organization and Technology*, see preface xxi, Prentice Hall.

Leont'ev A. (1974) *The Problem of Activity in Psychology*. Soviet Psychology 13(2):4-33.

Von Neuman, John *The Computer and the Brain* Yale University Press.

McKenzie D, Wajcman J. (eds) (1996) *The Social Shaping of Technology* Open University Press.

Meyer W. J., Rowan B. (91) Institutionalized Organizations: Formal Structure as Myth and Ceremony in DiMaggio, Paul J, Powell, Walter W *The New Institutionalism in Organizational Analysis* University of Chicago Press.

Nardi, Bonnie A (1996) *Activity Theory and Human Computer Interaction* MIT Press.

Newell, A., Simon, H. (1972) *Human Problem Solving.* Prentice Hall.

Schwartz, E.I. (1998) *Webonomics : Nine Essential Principles for Growing Your Business on the World Wide Web* Bantam Doubleday Dell Publishing.

Searle, John, R. (1995) *The Construction of Social Reality* p 95 Simon & Schuster Inc.

Searle, John, R. (1992) *The Rediscovery of the Mind* MIT Press.

Simon, Herbert (1969) *The Sciences of the Artificial* MIT Press.

Suchman, Lucy (1987) *Plans and Situated Actions.* Cambridge University Press.

Wittgenstein, Ludwig (1969) *On Certainty* Harper & Row Publishers.

Online references

[1] http://info.med.yale.edu/caim/manual/

[2] http://wwwwseast2.usec.sun.com/styleguide/

[3] http://www.w3.org/Provider/Style/

[4] http://www.useit.com/hotlist/

[5] http://www.techweb.com/tools/proddesign/12099785tips.html

[6] http://webreference.com/greatsite.html