Niklas Luhmann

A Social Systems Perspective on the Internet

Marco Toledo Bastos

This paper presents a social system's perspective on the Internet. It summarizes the contributions of German sociologist Niklas Luhmann and outlines the theoretical boundaries between the theory of social systems and that of media studies. The paper highlights the self-referential nature of the Internet, which is depicted as both system and environment by means of a network of serialized selections passing on data. Therefore, whereas media theory pictures the Internet as a medium, this paper describes it as a system, in regard to its self-referential dynamic, and as an environment, in regard to the non-organized complexity of data within the medium. Even though the Internet is hereby depicted as an autopoietic system via a social system's perspective, this paper will not resort to all concepts from this theory.

Keywords

Niklas Luhmann; Internet; Media Theory; Sociocybernetics

Niklas Luhmann and Media Studies

[1] This paper uses Luhmann's theory of social systems to highlight the self-referential nature of the Internet. However, contrary to Luhmann's theory, the Internet will be depicted as both system and environment by means of a network or cloud of serialized selections passing on data. The notion of sender and receiver (Internet users), essential to media theory, are replaced by Luhmann's understanding of actor, action, and content (reference) as attributions not only produced by, and dealt with, by communication, but also structuring the latter. Therefore, whereas media theory pictures the Internet as a medium, this paper describes it as a system, in regard to its self-referential dynamic, and as an environment, in regard to the non-organized complexity of data within this medium. This twofold description allows an understanding of medium away from media theory, as it comprehends both medium as a language and as distribution media.

[2] Media theory, nonetheless, is based upon the notion that the medium exerts great influence on the message transmitted to the receiver, and it therefore requires an action-driven theoretical layout. This fundamental conception was first presented by Marshall McLuhan, who pointed out that media were not just passive channels of information, but rather interactive extensions of men, therefore supplying them with ideas and shaping the process of thought. It was based upon this classic design that media theory succeeded in targeting phenomena such as persuasion, reception and control. However, this mechanic association of media and society by means of messages and recipients is hardly adequate, since media and society not only influence each other but also produce each other.

[3] As a subarea of social sciences, media theory revolves around what is known today as the dualism of agency and structure (Reckwitz), an aporia that separated German sociology in three main groups, each of them making up for a certain deficiency of the other. The first relates to Habermas, who postulates a chasm between life-world and social system; the second dates back to 1984 when Niklas Luhmann published his book on social systems using the theory of autopoietic machines and applying them to society; the third began in 1986 with the book *Die Risikogesellschaft* (Beck), in which the idea of a different modernity is introduced. Hofkichner asserts that the response to how individuals relate to society makes these paradigms of social theory distinct from each other, and this theoretical setback echoes around media theory. In this paper we intend to shed light on the use of Luhmann's theory of social systems when applied to media theory.

[9] The common denominator between the media theory and Niklas Luhmann's theory of social systems is that they both understand modern society as a complex of communications. However,

media and communication are depicted in Luhmann's theory as concepts that do not necessarily relate one to another. Communication would be the operation of social systems, not of people, hence removing any reference to subjects or agents that make the utterances. Messages and understanding would be the effect of a double contingency between two different systems. Therefore, there is no transmission, influence or persuasion in Luhmann's model. Notwithstanding this epistemological divergence setting Luhmann's sociology and media studies apart, it is possible to look at media, specifically the Internet, using the general design of the theory of social systems.

[10] Luhmann defines the environment in opposition to the system, which reproduce itself via autopoietic operations. The latter is a unit that processes complexity; the former is the source of all non-organized complexity. The mechanism that selects which information is significant for the system is the communication itself, hence portrayed as a key and the foremost concept of sociology. In contrast to media studies, which was established upon the concept of transmission and agents (people) as the basic unit of operations, communication for Luhmann is performed only by social systems, and people — or psychic systems, according to the terminology — perform thoughts, not communications. Moreover, because social and psychic systems are closed and designed as black boxes, modifications are only possible in view of the system's own operations.

[11] Niklas Luhmann's theory presents a rather original approach to the general mechanics of communication. However, his approach cannot account for the understanding of communication as employed by media studies, in which communication refers to the effect of a linguistic, intersubjective, agent-driven or transmission-based action. Because Luhmann's theory blocks any attempt to understand communication as an effect of agents (psychic systems), it also becomes impossible to make references to central concepts of media studies, such as mediation, transmission, persuasion, efficiency, permutation, conversion or even exchange and interchange.

[12] The theoretical challenge is to describe media in view of Luhmann's theory without dumping the original insights brought by the theory of social systems. This can be achieved, for instance, by defining the basis for communication not in relation to language — as in the humanism philosophy — but as autopoietic operations as devised by Luhmann. It is also possible to give up the general action-driven design that previously based media studies in favor of a sociocybernetic view, by which there are no proper agents or messages, but rather communication and information. Psychic systems are still part of the communication process, even though they are presented not as actors, but as social address of communication.

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[13] This scenario, which depicts society as communication, comprehends human agents as elements that merely structure communication. For Luhmann ("Massenmedium" 11), interaction is not based on transmission or permutation, as presented by the symbolic interactionism, but rather as binding connections. Communications, on the other hand, cease to be the transmission of contents to become a process of systemic reproduction that is hierarchically or heterarchically organized. This approach makes it possible to define Internet communication as a clustering instead of a transmission process; a clustering operation of utterances and understanding, therefore avoiding the subject-based categories that traditionally defined communication. As an alternative, Internet communication is seen as serialized selections detached from any necessary understanding and whose purpose is merely to pass on data.

[14] Different attempts have been made to integrate Luhmann's view of society with media theory. For Hofkirchner, the Internet is a social system and a subsystem of the larger and overarching system of the whole society. Palacios offered an approach to the Internet within a conceptual pair system and/or environment, thus providing an alternative to the ideas of medium and mediation as processes associated to transmission and exchange of messages. Stockinger suggested that cyberspace and social organizations could form co-systems that operate as mutual and parallel environments with one another, thus rejecting the hypothesis that social systems are operatively closed with regard to each other. Tække worked on the concept of media in a Luhmannian perspective and refused the classical idea of transmission of messages between a sender and a receiver. As an alternative, he offered the systemic distinction between form and medium as a new ground to understand the blogosphere.

[15] But in order to apply Luhmann's theory to the Internet it is necessary to review the social systems theory in a way it can account for utterances and some consciousness interplay. Concepts such as the generalized symbolic media of social interaction and the codes of communication will not be addressed in this paper, as they add further complications to this systemic approach of the media theory. On the other hand, Luhmannian concepts of medium and form, which are based on the distinction offered by George Spencer-Brown, can depict the Internet both as system and environment whose borders are resilient. Users and network nodes, which are both systems themselves, would be simultaneously closed inwards and open outwards, in the sense that any system is capable to relate to the environment in order to process information and to take part of the communication process. Finnemann explains that the Internet would be both a matrix of media, made of a multitude of sub-systems, and a system itself. Instead of a channel, it could be described as a clustering of data; instead of senders and receivers, a network of nodes. This approach avoids any focus on agency and underlines the autopoietic process of communications

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operating without any agent control. This sociocybernetic description of the Internet allows the media studies to reassess its own standards and conceptions of mediation, senders and media.

A Luhmannian Theory of Communication

[16] According to Andersen, even though Luhmann's remarks on communication and systems cannot be automatically extended to the Web or to the Internet in general, there are strong reasons to consider it as a subclass of autopoietic system. The World Wide Web is, after all, built upon recursive processes through components that influence each other. The operational boundary is also the environment and there is no central control or intentional agency. Even if the Web cannot perform processes autonomously, self-development and auto-reproduction still play a role in its dynamics. Moreover, self-reference and self-observation add the necessary reflexivity to depict this media as a system that differentiates itself from its subsystems.

[17] The complexity scenario pictured by Luhmann could also explain the circulation of messages in cyberspace. According to Izuzquiza, Luhmann's idea of complexity refers to the difference created by the multidimensional units of numerous and different perspectives (61). Complexity thus implies in a surplus of relations and connections, which can be analyzed only due to the essential role of relations. Therefore, connection and selection are necessary conditions for operations within complexity, and also the only way complexity can be approached. Luhmann also revised the fundamental elements of the communication process to offer the concepts of *Adressat* (Ego) and *Mitteilender* (Alter), thus replacing the concepts of sender and receiver and establishing the situation of a double contingency. Ego and Alter do not make reference to people and Luhmann chose these terms to avoid any anthropomorphic suggestion. They refer to systems in a given context that share no contact with one another, for Ego and Alter process information independently and autonomously, a distinction Luhmann made to set information apart from message.

[18] Consequently, Ego and Alter do not perform transmissions by turns and are created only through their frame of reference that is the process of communication. Double contingency also means that Ego waits for Alter to do a first move, and vice versa, so that nothing happens if there is no suggestion of understanding, acceptance and purpose. This scheme creates a circular and auto-referential dynamic of information, inasmuch as Ego and Alter understand each other as communication and rely on the process as a nexus that creates both communication and communicational "agents" all together. Luhmann describes this process as steady sequences of connections, in such a way that one act of communication binds to the next creating a dynamic where communication stages are exterior to the very process of communication. From the point of

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view of understanding, acceptance or refusal of messages corresponds to the difference between information and message towards the reduction of complexity.

[19] Luhmman's concept of double contingency also means that each participant relies on the other and organizes its behavior according to the awareness of being object and agent of an action. This idea of double contingency linking actions, together with Talcott Parsons' concept of a shared symbolic system, depicts an environment of symbolic interchange ruled by actions that link one communication to the other (Izuzquiza 244-45). Luhmann also argued that meaning and the continuum reproduction of the systems are the same thing. The auto-referential reproduction of the system evaluates the possibilities to operate connections, therefore allowing meaning reproduction either as a process of communication (performed by social systems) or as consciousness (performed by psychic systems).

[20] The concept of meaning for Luhmann refers to an internal operation of the system without any crossover properties that cannot account for the coupling properties of meaning generation. However, the concept does describe the inner operations of meaning towards the environment. As an open horizon of possibilities, meaning enables a relation between system and environment; a relation that does not refer to the world as a central or sole point of reference (Izuzquiza 259). Instead, it allows selection and actualization of psychic and social systems towards a decentralized complexity. This multifocal relationship between systems and environment leaves out the principle of efficiency, which was the cornerstone of previous communication models.

[21] Another point of departure for Luhmann is the controversial assertion that human beings do not communicate, only communication communicates ("Die Wissneschaft" 31), or yet, that no consciousness revolves around communication and no communication around consciousness ("Social Systems" 271). These statements were attempts to avoid the background of action theories and subject-centered perspectives with respect to the process of communication, thus allowing an explanation based upon the units of communication with reference only to the social system that produces it. Luhmann's theory maintains that there can be no communication without human beings even though they do not take part in the process. Communication is therefore an operation not based upon agreement, consensus or persuasion, and meaning would represent the principle of selection that divides information into what does or does not have meaning.

[22] As a result, Luhmann's contribution to media studies delivers an understanding of communication and meaning detached from hermeneutics and subject-centered perspectives. According to hermeneutic tradition, meaning was rooted in the subject and not in the object, which only gains significance by the attribution of a Cartesian agent. This agent is *res cogitans*

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and not *res extensa*, that is to say, it was the spirit that conducted operations of meaning attribution. This hermeneutic topology has enforced the correspondence between expression and interpretation, therefore resulting in a concept of meaning that is utterly subject-centered and significance-oriented. None of these inferences exist in the theory of Niklas Luhmann. Communication and meaning are once and for all an operation of systems.

A Luhmannian Perspective on the Internet

[23] Luhmann ignored in most of his works the computer-mediated communication, but there are some passages where CMC is enigmatically discussed. In *Auswirkungen auf die Evolution des Gesellschaftssystems*, Luhmann offers support for reevaluating the role of computers in contemporary society. Such ideas are based upon a historic view regarding media and the self-organization of society. In this view, Luhmann claims society needs a cultural form to survive every new distributive pattern of communication. That is, a form that would enable society to deal with the surplus of meaning brought by new technologies. In view of that, if Aristotle's principle of *telos* managed to deal with the surplus of meaning in writing, and Descartes' principle of a self-referential consciousness has given society a way to deal with the surplus of meaning in printed communication, there would have to be a way to deal with the surplus of meaning regarding computers and the Internet.

[24] The catastrophe that computers created would be especially interesting since it adds reflexivity to communication autopoiesis, hence establishing for the first time a competition with consciousness. Computers and the Internet would not only carry out distribution, transmission and understanding of information. They would also change information and understanding, which from now on would be grasped by electronic routines of processing and filtering. This historic approach is presented by a distinction among three major cultural forms in history. The first is the literary society of antiquity, the second is the printing-press society of modern Europe, and the last is the computer society of the current globalized world. Luhmann refers to these media as cultural forms because they deal with the surplus of meaning in specific ways. In reference to the Catastrophe Theory of Rene Thom (1985), Luhmann claims society passed over the first catastrophe (the writing), creating a *Hochkulturen* that organizes society in layers. The second catastrophe, the press, introduced the possibility of comparing and analyzing manuscripts since then standardized and mass-distributed across social layers, hence jeopardizing previous forms of classical authority.

[25] According to Baecker, the third catastrophe is the integration of computers into communication processes, which reorganizes communication styles and contents, thus changing

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the meaning and deconstructing the ways we previously viewed understanding. Every age would have found a way to deal with the problem of meaning, and the introduction of computers is about to bring its way. Some messages are going to be taken seriously and others are not. There are criteria regarding what to pay attention to and what messages to accept. Even though the introduction of computers put an end to the former meaning-processing paradigm, it is not yet clear how the current mediascape, which was formed not only by computers but also by the Internet, is organizing form and content.

[26] Another contribution of Luhmann to the investigation of media can be found in the description of the Internet as a medium, which is rather different from the concept of medium in cultural and media theory. For Luhmann, a medium is always given in relation to a form. There is no form without a medium and media only exist because of forms. The famous example is the footprint left in the sand when walking on the beach. The sand represents loosely coupled elements which are grouped together by something more solid — that is, the foot. The sand is thus a medium of the form imprinted on it, and the footprint is a form that only exists because of the sand. The dynamic between medium and form is the same one described in Luhmann's concept of meaning. The medium is what is possible and the form is the actual structure.

[27] Yet Luhmann refers to three different types of media. They are language, symbolically generalized media and distribution media, and this latter distinction somehow fits the Internet dynamic even if this medium is far too structured in comparison to loosely-coupled traditional media, such as sound waves or paper. This dichotomy between form and medium, on the one hand, and Luhmann's particular theory of communication, on the other hand, are both based on a historic image of overlapping media that can together target the components of the contemporary mediascape. Whereas the first image seeks a cultural form that can deal with the surplus of meaning that computers and Internet brought, the second pictures the mechanics of communication in a scenario of complexity.

These two descriptions provide analytical tools to address the Internet as an autopoietic system. Even though Luhmann sets no distinction between the computer society and the current digital mediascape, his theory can furnish a set of metaphors that go beyond the nonspatial metaphors of diffusion that shaped the Internet imago, such as rhizome (Hamman 1997), atmosphere (Markley 1996), realm of fantasy (Hamman 1996), unthinkable complexity, ray of light or data constellations (Gibson 1995). All these notions have a connection to ideas such as acceleration, expansion and interactivity, thus picturing a world of continuous movement towards a permanent change. Luhmann's theory, on the other hand, can offer a straightforward metaphor to the digital

mediascape as inner circuits of communications and a sequence of connections binding one bit into the other. This is what we will explore in the following topics of this paper.

Describing Digital Communication

[28] The Internet was first defined as a network of networks working under the Transmission Control Protocol/Internet Protocol (TCP/IP) — a definition created by the Federal Networking Council and the RFC 2026 of the IETF (Internet Engineering Taskforce). The most radical outcome of Internet, in regard to the previous business models, was the end of audience as a thermometer for media economics. The concept of audience ceased to provide meaningful feedback given the lack of a clear public opinion or a physical commons. Instead, digital media fed the matrix with instantaneous connections between nodes, which pass information further from one to the other and disappear afterwards. Nodes are always given in this temporary settling: they pop out, and the general design of a node prevents any subjectively oriented hermeneutics. A node is, after all, a knot whose existence depends on a multitude of nodes within a network.

[29] But the inner structure of the Internet dates back to December 1969, when a group of researchers sent via the newly operational ARPANET a draft of network protocol standards called Request for Comments (RFC). The first RFC, entitled "Host Software," established a less formal written style that has since then become typical of Internet draft documents. These memorandums would describe methods and feasible innovations regarding the rules by which computers exchange information. Later on, these sets of comments would be applicable to the Internet and internet-connected systems. The RFC does not address anything related to the content distributed by Internet, only to the standards by which the Internet works. However, the very standards created by the RFC became an underlying principle of the Internet regarding the organization of data. This underlying principle shares strong resemblance to the communication process as depicted by Luhmann.

[30] Each RFC, for instance, was assigned a unique serial number by an RFC Editor. Once this number was published, it could never be rescinded or modified. The subsequent versions would be published as a revised document in such a way that one RFC supersedes the other (they become deprecated or obsolete). The serialized RFCs dispose a continuous historical record on the evolution of Internet standards and practices. A similar Request for Comment system was established in Wikipedia during its beginnings as an informal process for requesting outside input about article content, particularly in regard to dispute resolution or user conduct according to Wikipedia policies and guidelines. Because of that, any article on Wikipedia has a continuous

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record available to the public on the tab "history," a feature very similar to the serialization of the RFCs that deliberated about communication between computers.

[31] The serialized and overlapping RFCs somehow meets the depiction of meaning generation provided by Luhmann ("Complejidad Y Modernidad" 28), which refers to a steady input of new elements. New elements are necessary because no storage is provided and the system needs to constantly renew the amount of elements to be selected. That is to say, the input of new elements is a precondition to the continuity of the system, and without the continuous loss of elements the system would forevermore enhance accumulation and storage, consequently jeopardizing its internal order. Luhmann ("Complejidad Y Modernidad" 29) also understands that meaning is based upon the instability of the elements and dynamic systems operate in view of this instability. This is because systems assume that the center of meaningful experiences is not stationary, but something that changes constantly. This scheme can be applied to communication and meaning dynamics on the Internet, which would reproduce itself as an autonomous system. Because meaning is what connects one selection to the other, the same way one message is linked to another on the Internet, the connection between one input of information introduced by a medium and the reverberation guaranteed by another medium meets Luhmann's understanding of meaning.

[32] Therefore, information transmitted over the Internet only generates meaning inasmuch as one node passes it through to the other, thus allowing information to travel among the cyberspace. Meaning is thus a horizon generated and engendered by the chain of multiple and steady interactions. It is somehow like a dialogue in which one phrase relies on the previous phrase in order to give continuity to the conversation. This general regulation of selections implies, firstly, that meaning is not given in the act of understanding; secondly, that the process of communication is detached from any direct action based on bilateral and at-hand participants; thirdly, that interactions are shaped as a sequence of links through themes that builds a memory without any action of agents. This molecular sequence of communications is possible because technology gives form to the unshaped medium of users, who as an unstructured gathering of individuals can be grouped around any configuration or arrangement, such as comment boxes in blogs, Twitter hashtags or any other temporary crowd that might as well cease to exist in the next moment.

[33] For example, if a TV network broadcasts a major event, it is expected that news websites will also report on it and add information. Regardless of its digital or printed format, media work with an implicit arrangement that makes the system grow bigger by the time other sources join the reporting, consequently enlarging the media matrix. This progression of adding another medium

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to the matrix in order to broadly spread the information resembles an example that Luhmann used to describe something external to agents and observations. In a given classroom there is a teacher and his or her students. Beyond that, there is the interaction between teacher and students and this very interaction observes both parties. The interaction senses the imminent system to come and promptly starts projecting possible meanings.

Conclusion

[34] The process of communication over the Internet can thus be depicted as a sequence of messages that move across time while journalists are reporting to editors or users are stumbling upon a news story (viewing it on a mobile phone or writing about it on a blog). At the same time that the internal structures of news corporations are processing data through editorial decisions that determine whether a story is worth publishing or not, users are feeding the Internet without any clear filter. Once the data reach the Internet, they are equally ranked in regard to technical distribution within the matrix. The data is continuously clustered throughout the system thus providing a variety of meanings to different inputs regardless of its digital, printed or broadcasted form. TCP/IP protocol and hypertext structure provide links to a wide variety of documents and organizations, and their digital status allows a perfect integration among peers, so large in number that the separation between system and environment is not really operational.

[35] As a result, a particular story can be linked to the source material of a company or government website. Later on, witnesses can directly join in the process and the story background might be fed by links to archives. Commentaries from observers add perspective into a growing accumulation of data. The press still plays a major role, but it is surrounded by peers and media devices that are not press themselves. The story turns into a living organism whose nurturing process is composed of several stages that continue after publication. Reporters, editors, witnesses, archives and commenters add different elements, and it is not always clear who is gatekeeping the final material. According to Shank, the key feature of multilogue is that once a story is published on the Internet, the author loses control of it. Control, subsequent comments and responses to the story are shaped as an independent process that no one owns and that rapidly slips away.

[36] An Internet viral is, after all, a snapshot of these molecular cycles. E-mail, Twitter, RSS updates or social networks allow users to drill down into the information of a particular story. This communication process turns the inverted pyramid — once the main model of news making — into a normal pyramid attached to an inverted pyramid. Users take part in the story and redesign the process through which ideas and information are filtered for publication. What was before an

internal decision-making process by the media of relaying or withholding information to the masses is now a decentralized and dynamic process of following up on a story, with an updating structure that resembles the permanent imputing capacities of an e-mail thread or a web forum — models that bear a resemblance to the RFC standards. This illustrates the iterative process of new media as a story that is forever unfinished, as it can be always updated. Deuze has suggested an octagon to represent a different but non-linearly interconnected element of the news story, where only the shared peaks of the eight pyramids are seen as the traditional news lead.

[37] This general description of the Internet Protocol (TCP/IP) shares a resemblance to the central problem for Luhmann, which is to establish the difference between psychic and social systems. For Luhmann, both systems operate on the basis of meaningful self-reference reproduction, and psychic systems must therefore reproduce consciousness through consciousness as a consequence of self-reference. They must be able to do this without sharing any "consciousness," as Luhmann depicts the founding principles of the autopoiesis of psychic systems as one thought producing the next thought. Thoughts would be closed inwards and each one would produce the next, not reflecting on what it is not and not seeing what it does not see. Each thought distinguishes itself from previous thoughts and is limited or linked to further thoughts in a bounded way.

[38] There is no mechanical transmission of information, but a double contingency in which every node is a selection both within itself and in relation to the others, as well as being an object to itself and to the others. This Luhmannian insight allows a description of the nodes as the elements that account for the realization of potential communications given within a horizon of meaning. That is, the nodes work between the projected value of potential connections and the actual value of active connections between nodes. Finally, this distinctive serialization of nodes that connects different communications is what allows the fusion effect, that is, the gathering of different media, regardless of their digital or paper-based nature, that provides content to the Internet.

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