

# The development of informational needs and prospects of a needs-based critique of digital capitalism

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## *Abstract*

Aside from bringing media and communication as important but undertheorized topics into the field of critical psychology, this contribution proposes the notion of ‘informational needs’ as an elementary aspect of human agency. The paper first provides a critical psychological notion of human needs. It, secondly, develops an understanding of informational needs and then, thirdly, traces their phylogenetical and historical development up to the current stage of ‘digital needs’. Under the current condition of a subject’s increasing dependence on digital technology there is a need to (re-)integrate information into situative knowledge and experience. Lastly, the paper explores what the notion of informational needs and more generally a historical-materialist theory of information informed by Critical Psychology (Holzkamp) adds to the critique of digital capitalism.

## *Keywords*

Marx, Critical Psychology, digital capitalism, informatization, digitalisation

## **1. Introduction**

This paper makes use of critical psychology to provide some foundational thoughts for a critical media and communication sociology. While this field includes quite diverse perspectives, I’m particularly interested in contributing to research that productively connects to Marx and the Marxist tradition. While the political economy of media and communication has a long-standing tradition and produces current and important work to understand the role of (new) media and (digital) communication in the reproduction of capitalist societies (see for an

overview Holzer, 2017; Fuchs, 2011), it however lacks social theoretical elaborations of its basic concepts such as knowledge, data, information, communication, media, publics, ideologies, etc. A more complete historical-materialist approach to media and communication would ground political economy analyses in what I call a historical-materialist theory of information (Sevignani, 2018). It is here, where I think critical psychological insights are relevant. More concretely, I follow an almost forgotten path of theorizing (Holzer, 2017; Schenkel, 1988) that tries to connect media and communication sociology to the German tradition of critical psychology that mainly builds on the works of Soviet psychologist A.J. Leontyev (1978) and is linked to the works of Klaus Holzkamp (1983; 2013) and Ute Holzkamp-Osterkamp (1990) at the Free University in Berlin (see Tolman & Maiers, 1991; Tolman 2013; Schraube & Højholt, 2015).

However, what, in turn, can critical psychologists gain from a historical-materialist theory of information? Aside from bringing media and communication as important but undertheorized topics into the field of critical psychology, I introduce the notion of ‘informational needs’ as an elementary aspect of human agency. This paper first provides a critical psychological notion of human needs. It, secondly, develops an understanding of informational needs and then, thirdly, traces their phylogenetical and historical development up to the current stage of ‘digital needs’. Today, the increasing dependence on digital technology for communication strongly shapes a subject’s possibilities for attaining agency in a digital society and there is a subjective need for informational convergence. The paper ends by discussing what the notion of informational needs and more generally a historical-materialist theory of information informed by critical psychology adds to the critique of digital capitalism.

## **2. Needs development between appropriation and objectification**

A first definition of needs, drawn from common sense, is that needs consist in a feeling of lacking something, which is accompanied by a motivation that something must be done against it. ‘Need’ is a crucial concept of a subject centred and humanistic theory (Heller, 1976), which is critical insofar as it thinks about the obstacles of human flourishing.

Following Marx’s concept of man as ‘Gegenständliches Gattungswesen’ (concrete species being), humans develop through work: Subjective aspects of the individual (e.g. living labour power) are transformed into objects (e.g. a labour product) by appropriation of the external (first) nature (e.g. labour object

and means of labour). Thereby both, the objective and the subjective objects are transformed. Man-made objects (second nature) then flow into the labour process again. Through labouring on (first and second) nature, not only nature develops but also the labouring subject and his or her needs. Labouring has psychic effects. Critical psychology adds to the Marxian notion of concrete species being and the labour process, by first extending the quality of concreteness to pre-human stages of development and making it the key principle of phylo- and ontogenesis. Second, it highlights the crucial role of mediation, by assuming that the internalization of mediated external processes results in sign mediated processes internal to the subject. Third, it can subsequently develop a detailed theory of how nature transforming activities effect subjectivity, including needs, and thus substantiates Marx's more general assumption on the psychic effects of laboring activity.

Needs are typically situated within the subject, although they have objective connotations. Marx saw the historicity and the class dependency of needs, but for him needs originate from the consumption process: "consumption creates the need for new production, and therefore provides the conceptual, intrinsically actuating reason for production, which is the precondition for production" (MEW 13, p. 624f.). Critical psychology contributes additional insights by asking: "how could humans ever get to the point that they produce the conditions of their survival socially, if there is only a need to consume socially produced goods but no need to create them?" (own translation, Osterkamp, 1990, 18). Marx did not investigate the subjective motives of social production, but critical psychology does by giving a highly differentiated and elaborated account of human evolution. It phylogenetically traces the development of 'the psychic' from pre-human stages to the tipping point where the concrete species being first appears, and then further to its full realisation in society. Thus, what Marx philosophically assumes, is scientifically substantiated by critical psychology with the help of anthropological insights and references to the natural sciences. In the following section, I reconstruct what this account (Holzkamp, 1983; Osterkamp, 1990) means for the development of needs.

A specificity of a historical-materialist account to human needs is that they are conceived as varying in the historical process and that no definite, 'thick' description of them can be given, as some influential approaches do (e.g. Maslow, 1987; Doyal & Gough, 1991; Nussbaum, 2011). Needs are always developing through social activity. While this does not necessarily imply that the notion of basic needs has no value for setting standards of what humans need for a minimum or a decent life, it rather focuses on the form needs take when we speak of specific human needs – for example in contrast to the demands of other living beings. This focus is, as we will see, expressed in the concept of

‘productive needs’ respectively agency. And, I would add, also in the concept of informational needs.

### 3. The development of the system of needs from pre-human organisms up to the level of concrete species beings

In the view of critical psychology (Holzkamp, 1983), we can first speak of a psyche, in a very basic sense, if the relation between an organism and its environment is internally mediated by a) orientation, b) emotion, and c) learning (see figure 1). These three aspects together form the psyche that develops evolutionarily as a mediation between activity and given objective circumstances because it provides the organism with better chances to adapt to external life conditions.

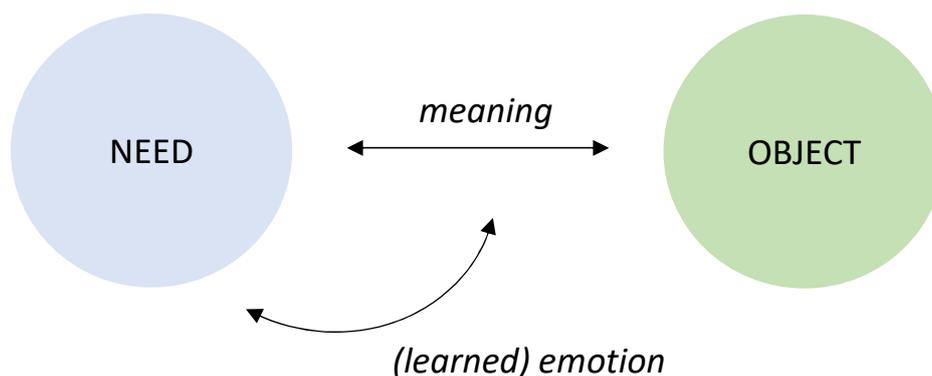


Figure 1: A basic model of the psyche.

The first psychic or internal mediation is orientation: With the development to orientation, organisms’ activities are no longer restricted to simple execution, as a second kind of activity – orientation – emerges. Execution is an activity that serves the conservation of the self and the species. Orientation is an activity that guides towards an execution or mediates execution. The environment becomes meaningful for the organism according to these two forms of activity (e.g. an object prevents an organism from drinking (executive activity), then circumventing this object is an orientational activity). A doubling of the system of needs takes place simultaneously: From now on there are needs that refer to the execution of an activity (e.g. thirst) but also needs that motivate orientational activity that is necessary to satisfy executive needs (e.g. scanning the environment for potential barriers).

The second mediation is emotion: With the rise of the psychic, meanings and emotions mediate the relation between needs and their satisfaction and form a first system of motivation. The pre-human organism has certain needs and there are possibilities to satisfy them in the environment. The organism has the basal cognitive ability to recognise these possibilities, which is the same as saying the environment becomes meaningful for the organism. Needs point to the disposition of an activity and meanings point to the relevance of an activity. Emotions evaluate meanings according to the organism's needs. Meaning is then actualised and an activity follows or not. An object has meaning for an organism if, and only if, there is a need for it, and it is evaluated. Emotions allow problem solving if meaning and need fall apart; they allow orientation and unification in ever complex environments.

The third internal mediation is learning or the ability to develop: An organism's ability to learn meanings of the environment instead of following fixed meanings and fixed emotional evaluations, which are determined by genes, is a significant advantage for survival in changing environments. Learning extends the range of what can potentially give meaning to the organism. Organisms are then able to learn relations of meanings, e.g. to know that five orientational steps/meanings are necessary to satisfy hunger. In these chains of meanings, it becomes necessary that the organism learns to emotionally anticipate the final satisfaction, in order to be motivated to go through the chain of steps in the first place. The new psychic quality of learning also implies that meanings are no longer clear from the outright, they must be learned now. This simultaneously means that there is now a coercion to learn to survive. Accordingly, a specific need develops in this uncertain situation that motivates learning activity – the need to control the environment.

At this stage of human evolution, the stage of higher animals and coordinated groups, tools are used to ensure the satisfaction of needs. Additionally, other animals that are identified as similar can be used as a kind of "social tool" for need satisfaction. For instance, driving in a hunting expedition only makes sense if the catch is distributed later and drivers also get a share of it. The single activity becomes meaningful only in an interindividual (chain of) activity. Individual satisfaction is only possible if there is a form of social control. The participant in this social coordination must learn that someone is rather a hunter than a driver. In this stage, the individual survival depends on successful coordination. The control needs now not only refer to an undifferentiated environment but also to the group. If coordination fails, need satisfaction cannot be guaranteed. A specific need for it comes to life, the need for control over social relationships.

After the psyche and its specific aspects have evolved and higher animals grouped together, a decisive qualitative step towards humanity, or what Marx calls 'concrete species being', has been made. However, two further steps must be taken to its full realisation. The first precondition for this, is an important means-end-reversal. So far, means (objects but also social tools) have meaning only within a certain activity that aims for need satisfaction. After this certain activity, the meaning of means is de-actualised, the tools disappear. Now tools are produced as a precaution. Their meaning is contained even if it is not used, tools now have a stable and socially generalized meaning. The environment is now enriched by generalized ends and affordances. A transindividual storage of the processes necessary for survival is created that can be appropriated by the descendants.

The social control need loses its reference to actuality. (Primary) needs are no longer satisfied if actual shortage and threat is prevented by social control. Control needs are now directed towards provision in relatively stable social cooperation. A need for individual participation in the cooperative-provisional production of life conditions and opportunities of need satisfaction develops. Holzkamp describes this crucial step as follows:

The general principle characterizing this development is the growth in the active appropriation of nature by means of altering, interventional objectification of generalized life-sustaining aims. The objectification thus characterized is the new societal quality of the previously described 'externalization' of orientational activities through the preparation and use of aids to action [= tool use] [...]. The process of appropriation objectification is the earliest shaping of 'labour' as the creation of use-values in human life; it is the creation of that which makes [human] life possible. (Holzkamp 1983, p. 176 as cited in Tolman, 2003, p. 91)

The second precondition is the rise of language. Holzkamp puts forward a production-based theory of the origin of language. Tools, such as a stone axe, can be used for a variety of purposes. They could, for example, cut trees, kill animals, or dig soil. The objects to which an axe was applied could be soft or hard. Some objects were easy to cut, some required substantial time and effort, and some were so hard that it was impossible even to leave a dent on them. Despite these differences, all the objects could be compared against the axe, which was an invariant component of all encounters. Therefore, the axe could be considered an embodied standard of softness/hardness. Using the axe for practical purposes to do something with an object in the environment had the side effect of placing the object on a 'scale' of softness/hardness. This scale emerged as a generalization of the individual experience of using the tool. Since people followed shared,

culturally developed procedures of creating and using tools, the tools could serve as an embodiment of abstract concepts based on the generalization of both individual and collective experience. In short, the cooperative tool making process leads to so called practical concepts to which symbols can be attributed. The activity to fix a roof necessitates a concept of liquid tightness. Symbols can now represent these practical concepts but allow to detach them from the immediate point of origin, which leads to the creation of symbolic worlds. However, within Critical Psychology itself Holzkamp's production-based theory of language was challenged (referring more to Wygotski than to Leontjew) by arguing in favour of mutual development and equiprimordiality of labour and language. The argument put forward here is that not one of the means of production that archeological research has found could have been reproduced without at least a very rudimentary form of language (see Reithel, 1998; Sevignani, 2018).

#### **4. The specificity of humans: Productive needs**

At this phylogenetical level, people for the first time are able to make their own history; evolution is no longer the dominant driver of development. The integration of a substantial number of social cooperations leads to a final new quality - the rise of society. This new quality is characterised by the 'transcending of the immediate' (Unmittelbarkeitsdurchbrechung, Holzkamp 1983, p. 193). This means that the nexus between the production of the means to survival and their individual use/consumption is broken. Surely, there are still necessities for reproduction, but these only exist on the societal level. They only become effective on an average of all society members and no longer determine the concrete individual. An individual's specific socio-economic position and personal condition mediates the connection between the individual and the society. Objective demands that a society has to react to if it wants to reproduce now reach meaning for the individual only if they are mediated by its specific condition of life and position in social structure. It follows that societal meanings become potentialities for the individual. Objective activity and subjective agency are now differentiated, human agency expresses a relation of possibility to the activities that must be performed in a specific society. This includes the possibility not to act.

The decisive concept that follows these complex derivations is that of 'productive needs' (Osterkamp, 1990) and agency (Handlungsfähigkeit) (Holzkamp, 1983). Critical psychology has convincingly shown that the 'societal nature of humans' (Holzkamp, 1983, p. 178) evolves phylogenetically and has

thus made a strong point to bridge not only the juxtaposition of nature and culture but also of individual and society. Although humans are set free from natural and societal determination, they do not lose their necessary relation to nature and society. Both the modified need structure and the cooperation on a societal level, are conditions of possibility for their agency. Agency, in this dialectical view, means the exercise of control by the individual over the conditions relevant to the satisfaction of his or her needs through participation in societal production. The corresponding psychic element to this situation are 'productive needs'. Productive needs do not have a homeostatic-cyclical quality. They do not move from tension to relief to renewed tension because they have no fixed objects as a goal; rather they cause a general disposition for activity. They refer to the social form within which sensual-vital need satisfaction takes place. To speak about productive needs does not mean that there is now a need to be a productive worker; rather it means the need of individual integration and participation in social relations that enable the production, distribution, and consumption of goods.

At the societal level, sensual-vital needs - various basic needs and socially determined needs - can only be satisfied if productive needs - the participation in societal mediated provision - are satisfied at the same time. It is precisely this integration of sensual-vital needs into productive needs that marks the specific human face of need satisfaction. For instance, it is a crucial difference if bread is eaten in the condition of acute shortage or if it is consumed with the knowledge in mind that there will be bread in the coming days, too. If this guarantee exists, that is, if productive needs are satisfied, then the satisfaction of sensual-vital needs is joyful instead of driven by acute demand. The sociality of needs does not only consist of the fact that needs are socially determined but also characterized by an important change in their quality. This means that, on the one hand, human needs are not satisfied simply by giving refugees food if refugees at the same time suffer from a lack of socially mediated control over their life conditions. On the other hand, it means that satisfying basic needs by lobster, champagne, and palaces is inhuman if these satisfactions do not take place in a situation where the societal provision of these goods is sustained.

## **5. The development of informational needs**

Information stems from the Latin word 'in formare', which means 'to impress', 'to bring something into shape', 'to design' but also 'to instruct', 'to brief', 'to let somebody know about something'. In the first meaning, a nexus between information and making (the world, social relations) and thus the reference to

objectifying and appropriating activities is clearly visible. Information mediates a subject's relation to the material and social world (objective). By information a subject can reproduce or map external effects through internal change and thereby react to the external world. The origin of information thus relates to the evolution of the psyche and the development of organisms that are not completely determined by the outer world. To speak of information presupposes the instances of recognizing meaning and evaluation according to given demands/needs<sup>1</sup>.

Informatization is in this perspective not equal to the mechanization of the social information process that we saw from the 1970s onwards (Nora & Minc, 1981), but suggests a much broader and general process of the objectification of mental activity, knowledge, or the psyche (Boes & Kämpf, 2012, p. 320ff.). What was only in the mind and grew there due to the increasing psychic sensitivity of organisms for information now becomes (re-constructed) information again. The objectification of mental activity subsequently allows others to gain access to these informations. Without information appropriation and then objectification humans would not understand each other, and knowledge could not be shared. This refers to the second meaning of information as something that informs somebody. Thereby information (objectified knowledge) is not identical to the initial thoughts but is an incomplete reflection of it. Similarly, the appropriation of information is structured by its production process but not completely determined (Pfeiffer, 2004, p. 71). It must be deciphered in the context of the receiver's knowledge. Informatization is a twofold activity of objectification/externalization and appropriation/internalization. From the perspective of the subject, information reduces knowledge by making it shareable, but to understand information again demands knowledge to (re-)contextualize it. Knowledge is the non-objectified form of information.

Informatization in this general meaning is the precondition for mental activity being able to exist as a particular form of human work that is relatively independent from manual work. As such it can later be subjected to rationalization and mechanization. Mental processes become independent from their authors and flow into technology, e.g. the construction of machines and the organization of work. Informatization is a process that co-originates and develops with the human ability to work on the objective world. Formalisation and informatization are necessary qualities of the development of the productive forces and (post-capitalist) societies that are based on a high degree of division of

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<sup>1</sup> This, the close connection of information and objectification/concrete species being diverts from Hofkirchner's universal approach to information (Fleissner & Hofkirchner, 1996; Fuchs & Hofkirchner 2002, p. 277), who assumes that information processes are also a quality of non-living matter that adapts to its environment thermodynamically.

labour and are not imaginable or desirable without informatization (Pfeiffer, 2004, p. 130; 183f.). Informatization is a general dimension of the development of productive forces, and not only of capitalism, as some commentators put it (Schmiede, 2006).

Critical psychology's analysis of need development can be specified by considering informational aspects. I assume that informational needs are integral to orientational activity and occur first with its differentiation from executive activity. While needs develop from simple orientational demand to control demands on the pre-human stage to social control needs in the field of transgression between animals and humans to species being's productive needs, so do informational needs (Schenkel 1988). Thus, productive needs do have an informational aspect. If the specificity of human need structure lies in productive needs and the latter are the motivational base for participation in social relations that enable to satisfy all other needs, then information processes (in its different forms) are indispensable for a subject's agency that is only effective via its participation in determining its social conditions.

Figure 2 illustrates the parallelism of human development, including the corresponding forms of sociality and the most important qualitative steps that had been taken in phylogenesis, and the evolution of the psychic. The psychic basically includes (see figure 1) two aspects: Meaning, which is the aspect that connects to the objective world (the increasingly social nature) and the aspect of needs/demands, which is the genuine subjective side within the subject that provides the background for the evaluations of meanings. Which concrete informational aspects does the development of human needs include (see figure 2)? The development can be sketched in 4 stages: *First*, already in the pre-human stage of development, with orientation and emotion as psychic instances that mediate the organism-world-relations, an informational need arises, and the organism now needs to be sensitive and create information to survive. *Second*, still in the pre-human stage, with processes of group-building and initial forms of sociality, informational needs as an aspect of the new need to control the social environment evolve into communicational needs. Bi-directional communication is the informational aspect of the social, which later develops to an informational need of language. *Third*, in the stage of transgression from animals to humans, the need for individual participation in the cooperative-provisional production of life conditions accompanies the evolution of simple communicative needs to medial needs that manifest in script mediated communication.

| Human development (Phylogenesis)              | Sociality  | Qualitative steps  | The psychic                                  |                                       |                          |   | Informational aspects of need development               |
|---|--|--|--|---------------------------------------|--------------------------|---|---|
|   |  |  | Objective side                               |                                       | Subjective side          |   |   |
| Pre-human                                     | Coordinated group  | Tool using Learning (anticipation) 'Social' tool using (driver-hunter-example) | Meaning                                      |                                       | Needs/Demands            |   | Informational needs<br>Communicational needs (language) |
|   |  |  | Orientationa l meanings                      | Executive meanings                    | Executive needs/demand s | Orientationa l needs/demand s                                     |   |
|   |  |  | Learned orientationa l meanings              | Preferred meanings                    | Learned needs/demand s   | Control needs/demand s  |   |
| Field of transgression from animals to humans | Inter-individual cooperation ('community')                   | Tool making species being Means-end-reversal (axe-example)                     | Meanings of means                            |                                       |                          | Participatory needs in cooperative participation (social control) | Medial needs (representation in symbols, script)        |
| Human   | Trans-individual system of cooperation = Society ('society') | 'Transgression of the immediate' Relations of potentiality                     | Societal structures of meanings (ideologies) | Socially determine d primary meanings | Sensual-vital needs      | Productive needs  | Mass medial needs (individual/society)                  |

Figure 2: The phygenetical development of informational needs.

The perspective of critical psychology stresses differences in forms of human cooperation. Direct cooperation in communities differ from mediated cooperation in societies with a complex division of labour. Thus, there is an additional *fourth* step of the development of informational needs that points to the human stage of phylogenetical development: (Mediated) communicative needs transform into individual participation in the process of societal self-understanding. This communicative need is externalized in separate institutions - the mass media. Mass media creates and builds on a mass communicational need that is the foundation for human development into societies. The informational aspect of productive needs is the development of mass medial needs. With the 'transgression of the immediate', the nexus between individual communication and communication as a process of self-understanding of a society becomes problematic or loses its immediateness. The appropriation of socially mediated meanings is mediated by one's socio-economic position and personal life condition. The individual's relation of possibility to the whole society also effects his or her communicative relations. If, what, and how an individual communicates is no longer pre-given. The individual ability to communicate must be developed, but at the same time can be developed, because through internalization there is now a foundation in the individual need structure. Similar to the changed quality of sensual-vital need satisfaction in the light of productive need satisfaction, the quality of individual communication now depends on its integration in mass media discourses: "If one level serves the function of a necessary condition for the next higher level, then the lower level might be

influenced, shaped, adjusted according to this function by the higher level" (Fuchs, Hofkirchner, Schafranek, Raffl, Sandoval, & Bichler 2010, p. 52).

## 6. Informational needs in the digital era

The preceding thoughts about need development are very unspecific concerning the latest development of capitalism to its digital stage so far. As a next step, I build on the previous but now consider that digital media mark once again a change in the process of internalisation, objectification, and, consequently, a subject's need structure. To draw a picture of this change, it is first necessary to elaborate on what the transgression to the digital age means.

### 6.1 The process of digitalisation

Digitalisation means a further development of the system of productive forces and a decisive phase of the process of informatization, where the computer eventually operates as the guiding technology. Computers are an outcome of cognitive, communicative, and collaborative productive activity and operate as tools that mediate human access to first and second nature. This development of the productive forces is accompanied by key qualities – further formalisation, universality and plasticity, reflexivity, and integration.

*Further formalisation:* We already know about the reduction of knowledge to information through objectification. The computer and digitalisation demand that information transforms again into data. Data are documented distinctions that have per se no meaning. In the process of digitalisation information is reduced to a binary logic of 0 and 1, electronic impulse or no impulse. Information consist of data that is distinct from other data due to a certain relevance or meaning that is attributed to it. Information is thus a 'difference, which makes a difference' (Bateson). For instance, distinctions get a first meaning if they are graduated on a scale, such as temperature. In this process, it is differences in temperature that acquire meaning. Alternatively, and this makes clear that the transformation of information is relational, temperature data/information (e.g. 37,9 °C) becomes meaningful information if it reaches a certain relevance, such as the meaning that 37,9 °C body temperature is 'elevated temperature'. The transformation of information into knowledge is then used to contextualise elevated temperature, e.g. as a symptom of a certain disease. Data and information always must be appropriated and re-contextualised by humans. Human-computer-interactions deal with the transformation of information into data and vice versa.

*Plasticity and universality:* A universal machine, such as a computer that operates with this binary logic, needs an informational input “from the real world and must give back its output to the real world to fulfil its purpose within the context of the system as a whole, within the redoubled world of working on and processing symbols it is free of these limits and open to any step of work” (Schmiede, 2006, p. 337). For instance, a printer needs informational inputs and must produce informational outputs, in the form of a combination of letters that have meaning. However, the printer is not restricted to certain symbolic combinations, but is able to print any number of symbolic combinations.

*Reflexivity:* The universality and plasticity of computers, that is the “autonomization of the machine system” (Schmiede, 2006, p. 339) make possible that “facts and contexts are understood to be informational processes right from the beginning and are formulated and modelled appropriately; they are the starting point of processes of reorganization and technologization” (2006, p. 337). For instance, computer programs simulate the operation of a tool before it is built. The simulation shows that the tool will not be functional, and as an outcome the informational image of the tool is modified accordingly before it is built.

*Integration:* ICTs allow for enormous compression of time and space, they enable to bridge temporal and spatial distances by spending relatively less investments. This, together with the previous qualities, allows formerly distinct information systems (e.g. production, distribution, and consumption related information) to be integrated.

## **6.2 Digital needs and the internet as a medium**

These developments in the system of productive forces result in the Internet as a new medium or as a new social space (Boes & Kämpf, 2012). The tool (the computer as a universal machine) becomes, if it is socially generalized and accepted, a medium (the Internet), as it happened with (body) language, script, and mass media before (Rückriem, 2015; Sevignani, 2018). When tools become media, the psychic organisation of subjects changes, and this process includes the social organisation of new media institutions as a response to newly created informational needs. We are now in this phase of transgression, but we cannot fully grasp it because we lack a standpoint of distance. It is crucial to keep in mind that potentials of the Internet that are extrapolated in the following are not yet fully realized. This is also due to antagonisms and contradictions inherent to capitalism (Fuchs et al., 2010). One way to approximate this change is to picture the new quality of digital mediation in contrast to previous regimes of mediation (Giesecke, 2002; Logan, 2002).

The decisive quality of the Internet as a medium is, *first*, that within this medium non-codified information, such as text, music, and video, as well as codified information, such as software code can be processed and this, for the first time in history, allows to connect the general human use of information to complex information systems via a universal medium (Boes & Kämpf, 2012, p. 325). Brey argues in this context that symbolical user interfaces for systems of codified information “make no good use of our sensorimotor abilities, and instead rely on our capacities for abstract thought. However, because people's sensorimotor abilities are usually better developed than their capacity for abstract thought, it pays to treat data and programs as manipulable, visible objects, when possible. As a result, the tendency in software development has been to devise programs in which data strings, (sub)programs and procedures are translated into visual icons and actions like clicking, ‘dragging’, and scrolling” (Brey, 2008, p. 196). *Second*, the Internet integrates, at least in principle, “Web 1.0 as a tool for cognition, Web 2.0 as a medium for human communication, and Web 3.0 as networked digital technology that supports human cooperation” (Fuchs et al., 2010, p. 43). *Third*, the Internet allows the integration of inter-individual communication, cooperation and societal mass communication. The Internet is a medium of spatial, temporal, and informational convergence.

Giesecke (2002, p. 279) argues that the pre-digital cultural era neglects qualities, such as the revaluation of non-linguistic and non-visual senses, associative, affective, and circular information processing, social self-reflection instead of individual self-experience, interaction instead of mono-directional information flows, that are now fostered by ICTs. He speaks in this context about ‘the vanishing of the central point of view’. The “central perspective solves the problem of communication about our visible environment without interaction. Hence, a third party is enabled to make the same experiences as unknown beholders have done somewhere along the way” (Giesecke 1998, 9). As such, the central perspective enabled the enormous development of productive forces and technology. However, the central perspective has simultaneously reduced multimediality, which “is one of the inborn attributes of the human being” (Giesecke, 1998, p. 13). The Internet revives multimediality and denotes the vanishing of the central point of view: “Our culture will recognize that it needs a variety of media as much as the conversation of the variety of natural biogenous species. By considering the past it will learn that all technical development has resulted in a disruption and singular use of senses and all multimedial installations reached only a percentage of possible integration and sensuality” (Giesecke, 1998, p. 15).

This kind of convergence responds to societal mega-trends, such as globalisation and reflexivity that structure our productive needs to participate in

the societal organisation and to gain agency. Reflexivity, gaining and testing new knowledge through simulation, building networks, and compressing spatial and temporal distances becomes necessary in the face of global threats, uncertainties, and interdependencies. The informational integration of cognition, communication, and cooperation thereby potentially allows for a better transformation between concrete knowledge and abstract information or data. Thus, it also allows for a better balancing of the tension between formalisation and experience because every boost of informatization brings about new subjective necessities of appropriation into concrete practical contexts. The Internet, in principle, serves productive informational needs as it allows to (re-)connect information with contextual experience and knowledge.

| Human development (phylogenesis)              | Sociality  | Media development                                    | Informational aspect of need development           |
|---|--|--|--|
| Pre-human                                     | Coordinated group                                  | Mimetic-dramatic proto-language<br>(Spoken) language | Informational needs<br>Communicative needs         |
| Field of transgression from animals to humans | Inter-individual cooperation ('community')         | Script   | Medial needs (representation in signs)             |
| Human   | Trans-individual system of cooperation ('society') | Modern mass-media (letter press, broadcast)          | Mass-medial needs (individual/society)             |
|   | World-society                                      | Internet   | Digital needs (informational needs of convergence) |

Figure 3: The development of forms of sociality, media, and informational needs

Figure 3 summarises the development of forms of sociality, media, and informational needs in the human phylogenesis including the current developmental stage. 'Digital needs' as the latest development of the informational qualities of participating in societal organisation (productive needs) are best described as needs for informational convergence. While the quality of individual communication became dependent on its integration in mass media discourses with the rise of society and productive needs, the new need structure demands that abstract information and information distributed by mass media must re-integrate with concrete inter-personal forms of communication and cooperation.

## 7. Outlook: Need-based critique in digital capitalism

So far, this paper contributes to a historical-materialist theory of information by putting forward the concept of informational needs as an essential element of productive needs and human agency as critical psychology has framed it. The discussion has focused mainly on the development of the productive forces but was agnostic to the specific social relations within which the productive forces are situated. In what follows, I point to how one might use the developed concepts in a critical theory of (digital) capitalism.

The underlying assumption is that critique presupposes a notion of a good life. However, we are then confronted with the problem of essentializing a notion of what is to be considered ‘good’ and simultaneously excluding or taking on a paternalist stance to alternative views on the ‘good’. In my view, the discourse about needs nevertheless provides a sound basis for a critique of (capitalist) societies. Speaking of needs always means that they should be satisfied, and one can in turn analyse conditions within which this is impossible or impeded. The critical psychology approach to needs might provide an elegant solution to the mentioned tension between the need for imagining a good, satisfied life and the problem of paternalism because it does not focus on the content of sensual-vital or basic needs but on productive – and I would add informational – needs that must be satisfied if any other need satisfaction is supposed to be sustainable and not damaged by insecurity and fear. Thus, a need theory that borrows from critical psychology provides not a ‘thick’ but a form of ‘weak’ essentialism that is nevertheless ‘thick enough’ to serve as an anchor of critique.

From the previous discussion and within this form of ‘weak’ essentialism, I think we can gain three critical arguments:

- First, having productive and informational needs is a feature of being a human and society should ensure their satisfaction.
- Second, it is a problem if productive and informational needs are restricted and people fall back to immediate forms of need satisfaction. Restriction of these needs means that the satisfaction of all other needs becomes less secure and loses its full satisfactory quality.
- Third, informational needs themselves are not fully satisfied if society only allows to satisfy them on a less-developed level that does not coincide with the current historic level of the development of productive forces.

Before I apply each of these arguments to the condition of digital capitalism, I shortly explain what I understand as the specific quality of capitalist societies. In capitalism, individuals face two main problems – exploitation and alienation. The social mechanism of exploitation creates and reproduces unequal life-chances

and antagonistic interests among classes. The efforts and the capabilities of the (manual and cognitive) workers are turned against them as capital, which confronts them as something alien. Exploitation fuels the profit principle that exercises itself against the will of all people in competition. Living in a capitalist society means that the means of satisfaction of productive and informational needs are antagonistically distributed; it however also means that there are limits for everyone to satisfy these needs.

Individuals, after the transgression of the immediate and the rise of societies, can satisfy needs under given circumstances or satisfy productive and informational needs additionally and thereby extend the opportunities of need satisfaction in general. In whatever condition the individual may be, a space of opportunity is always available, because there is no total determination. By comprehending the societal conditions, it becomes, from the standpoint of the subject, understandable that individuals waive or limit productive and informational need satisfaction and concentrate on already existing options to satisfy their needs. In capitalism, people restrict extending their life quality by participation in creating the conditions within which they must act, because the risks entangled with this kind of agency are too high. This means that for them, there is an existential insecurity about achieving a higher level of agency that comes with the satisfaction of productive and informational needs and the threat to lose the current opportunities of need satisfaction. He or she can satisfy her needs under given circumstances or he or she can satisfy productive needs additionally and extend the opportunities of need satisfaction in general. Critical psychologists term this twofold range of options 'restrictive' or 'generalised agency' (Holzkamp, 2013, p. 23f.). The former is sustaining agency by accepting dominant conditions and making a deal with partial interest, for instance capital. Restrictive agency externalizes the costs of sustaining one's own agency to others that lose agency. For instance, trade unions make a deal about job securization at the expense of the precarious. Capitalism's reliance on private production and competition structurally suggests such restricted forms of agency. Restricted agency, although subjectively functional, is however not sustainable in the long run. This is because need satisfaction is still dependent on the will of others, and therefore principally combined with the fear of a situation within which it is not granted by the powerful. As restrictive agency is still agency and always involves some degree of productive and informational needs satisfaction, this critical perspective leads us away from framing individuals as deluded or fools towards their active and comprehensible participation in ideologies and domination, because there are always subjective reasons to choose restricted agency.

Many informational problems in digital capitalism could be re-interpreted in the proposed theoretical framework. I think it is useful to think about information, communication, and media in the framework of restrictive or generalized agency. Critical arguments can be gained in the face of horizon of *generalised informational agency* when people create their own or appropriate means of communication to cooperatively change societal meaning structures and generalise the conditions within which they live. This has yet to be elaborated on in detail. I conclude with application examples to illustrate the three above-mentioned critical arguments that operate with the concept of informational needs:

First, from the perspective of informational needs as a form of productive needs, which are not an ‘add-on’ but specific for humans, it becomes clear that the victimization of users in the context of privacy threats caused by commercial service providers is problematic. By victimization of users, I mean the assumption that people freely chose to use commercial social media. Consequently, they must simply accept, for instance, privacy threats that are specific to advertising based business models driven by economic user surveillance (see Sevignani, 2016), and that they are responsible for the self-management of their privacy. There is, however, as we can derive from the preceding discussion, a need for using digital media that founds a subjective force to use social media that are currently accompanied with several disadvantages mainly caused by their commercial quality. Therefore, we can assume that the exclusion from social media equals a threat to humanity today. From this derives the societal task to organize new media alternatively in a public form that do not have the named disadvantages.

Second, the problem of filter-bubbles and the reproduction of one-sided information processes can be interpreted as falling behind possible informational productive needs. Driven by interests of the advertising industry to precisely categorise, identify, and approach users, people de-couple from discourses that aim at societal self-understanding but reproduce specific class positions. This is because mass media communication on the level of society determines the possible range of contents that can be kept in a bubble in the first instance. Without the participation in societal communication and the opportunity to have a say in which meaning structures or ideologies are created, the informative value of filtered news is insecure. We can then ask, for example, to which extent social media communication enables societal communication and at what point it falls back to forms of communication that do not meet people’s societal nature. On the other hand, capital can and does make use of productive and informational needs in a restricted manner. This is sometimes discussed as the transformation of needs into desires in a consumerist culture. Desires have qualities similar to

productive needs. They do not vanish with consumption and thus constantly trigger consumption. Desiring, for instance, an iPhone promises to satisfy not only specific functional needs, but its commodity aesthetics also promise to satisfy productive needs of being accepted, connected, in control, etc. One cannot get enough of these qualities. Thus, it motivates us to buy the newest version of this device. However, this is a form of restrictive informational agency because the iPhone is still a luxury good. Not everybody can have one, otherwise it would lose its appeal. Thus, the commodity form of it cannot hold true what it promises, namely being accepted, connected, and in control.

Third, the problem of de-politisation of information processes and the Internet's underdevelopment in terms of true informational concergence or Web 3.0 applications (Fuchs et al., 2010) could be interpreted as restrictive informational agency. The Internet potentially fosters the necessary re-appropriation of information in specific contexts and subjective knowledge but exactly these technological potentials (Web 3.0) are currently less developed and implemented. One reason for this might be that such applications could challenge hierarchical information processes and the disconnection of experience and knowledge from information. A society that is structurally based on social inequality, however, simply relies on such communicative relations (see Negt & Kluge, 1993).

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