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ARTICLE INFO	Andrea Fumagalli and Stefano Lucarelli (2011). Valorization and financialization in cognitive biocapitalism. *Investment Management and Financial Innovations*, *8*(1)
RELEASED ON	Tuesday, 01 March 2011
JOURNAL	"Investment Management and Financial Innovations"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
0	0	0

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Valorization and financialization in cognitive biocapitalism

Abstract

The structural changes that occurred in the last 30 years have substantially modified the capitalistic organization of society, both at national and international level.

A new regime of accumulation, devoid of a stable mode of regulation and centred on financial valorisation of new socio-economic growth perspectives, has been consolidating. Conditions imposed by financial markets in order to create the shareholder's value consisted of promoting downsizing, reengineering, outsourcing and M&A processes. The flexibilization of labor force and precarization of existence has been the result of the established valorization norm. But why should the corporate restructuring sustain the enterprise value by creating income stock?

The definition of a new regime of accumulation involves a research on the criteria of valorization and the prevailing technological paradigm. The main changes of new capitalism concern mainly two spheres: the role played by knowledge in the new technological paradigm, valorization process and the importance of finance. The dominant technological paradigm and the role, played by knowledge within it, lead to a redefinition of the nexus between living and dead labor, between abstract and concrete labor, between space, network and cooperative relationships

Then, after describing the main features of the dated paper accumulation paradigm that many scholars have not hesitated to name as cognitive capitalism, a specific attention is paid to the role of finance as biopower.

Keywords: cognitive biocapitalis, bioeconomics, financialization, etherodox marxism.
JEL Classification: B59, E12, F33, G15.

Introduction

After the crisis of Fordism, many social scientists – sociologists, economists, and those dealing with urban studies − have defined a new stage of capitalism as post-Fordism. It refers to a social model whose modalities of production are no longer dominated by hierarchically organized forms of accumulation or by the negotiation of wealth distribution carried out by representatives of collective bodies and supervised by the State. On the contrary, the so-called post-Fordist model is characterized by forms of flexible accumulation that can integrate and connect highly diversified modes, times and places of production[1].

After the global economic crisis of the first '90's, it is possible to acknowledge the dominance of a new socio-economic paradigm, which is able to capture many of the characteristics of the new organizational and labour processes entailed by post-Fordist stage.

Two main aspects arise as dominant and partially homogeneous in different economic structures and areas: the role played by knowledge in the accumulation process and the centrality of financial markets as source of financing the innovative activity (especially, those based on knowledge), and of income distribution as substitutive of declining national welfare systems.

Therefore, in the nineties, it is better to use the term "cognitive capitalism". The hypothesis of cognitive capitalism leads to the end of the post-Fordist age and it better captures the links between the exploitation of knowledge and the accumulation of surplus.

The starting point of cognitive capitalism is a radical critique of new liberal theories of knowledge-based economy. This critical perspective is clearly indicated by the two terms that compose our object of analysis, namely cognitive capitalism.

The term of "capitalism" underlines the permanence of the structural invariants of the capitalist mode of production: in particular, the driving role of profit and the wage relation, or more precisely the different forms of dependent labor upon which the extraction of surplus labor rests. The term "cognitive" emphasizes the changed nature of the capital-labour relation and the forms of property upon which the accumulation of capital depends[2].

The heart of the accumulation process has been shifting from material to immaterial commodities and the new regime of accumulation is principally driven by information and communication technology (Boyer, 2004b). As Paolo Virno notes, if within the Fordist factory productive activity is mute and work is performed by a silent human chain, in the post-Fordist metropolis, the material laboring process can be empirically described as a complex group of linguistic acts, a sequence of assertions, and a symbolic interaction. This is because labor activity

[1] See Zanini and Fadini (2001, p. 15).
[2] See D. Lebert, C. Vercellone (2006, p. 22).

is now performed alongside the system of machines, with regulating, surveillance and coordinating functions, but also because the process of production uses knowledge, information, culture and social relations as its "raw materials"[1].

Knowledge is the key variable in understanding the recent structural changes. However emancipation does not seem to be the dominant feature of what knowledge economy brings (Andersson, 2006). Cognitive capitalism differs from Fordist-industrial capitalism in two main respects:

1. The origin of productivity gains that are based on learning processes and network economies. Therefore, we are in the presence of a new type of Kaldor-Verdoorn law, with increasing return effects and absence of scarcity, since knowledge, as the key variable of the accumulation activity, is not a rival but a cumulative commodity with the only constraint of intellectual property rights (Fumagalli and Lucarelli, 2007).
2. The capital-labor compromise, based on the connection between productivity gains and real wage dynamics, is declining with subsequent effects on polarization of income distribution. The valorization of production is presently compensated by the role of financial markets as the multiplier of the aggregate demand and by globalization processes (delocalization, outsourcing, lower labor costs). In this context, the balancing of the system relies simultaneously upon the growth of financial markets, the distributions of the generated surplus and a high level of growth in the new industrialized countries, at the core of outsourcing and delocalization processes.

The central role, played by learning and network economies, typical of cognitive capitalism, is put in discussion with the beginning of the new millennium as a result of the explosion of the speculative bubble of "net economy" in March 2000. The new cognitive paradigm is not able to guarantee the economic system from the structural instability that characterizes it. It is necessary that new liquidity could be put inside the financial markets. The ability of financial markets to generate "value", in fact, is based on the development of "conventions" (speculative bubbles), able to create trendily homogenous expectations that push the main financial operators to invest (speculate) in some specific financial activities[2]. In the nineties, it dealt with the net economy, in the 2000 positive expectations came from the development of the Asian markets (with the China entering in the WTO in December 2001) and from the real estate business. Today it stretches to focus itself on the (in)efficiency and (un)sustainability of European welfare (and Euro stability). Independently on the type of dominant convention, contemporary capitalism is perennially in search of new social and vital ambles which could be commodified and subsumed, until dealing with everything that has to do with the vital faculties of the human beings. That is the reason why, in the last few years, terms like *bioeconomics* and *biocapitalism*[3] start to be used.

It should be clear to the reader that the term that we use in these pages derives from the *crasis* between cognitive capitalism and biocapitalism: cognitive biocapitalism as terminological definition of contemporary capitalism[4].

With the shift from Fordism to cognitive biocapitalism, the social relationship embodied by capital from being a relationship between labor force and machineries becomes a relationship between body and mind, brain and heart, unfolding itself within human beings. But, far from being the capital that become human, it is individual's life, with its multiple singularities and differences, to become capital.

The relevance of the role of knowledge and *general intellect* in the accumulation process becomes its tangible outcome. It is not accidental that the productivity of the bodies and the value of affections assume a central role and manifest themselves in three principal aspects, characterizing work activity (Fumagalli, 2005; 2007; Fumagalli-Morini, 2010): communicative work, related to industrial production, more and more connected to the information net; work related to the interaction of symbolic analysis and solving-problem; and work related to the production and manipulation of affections and [collective] imaginaries (Morini, 2007). This latter aspect, focalizing upon corporal production becomes extremely important within contemporary networks of biopolitical production. It is precisely comparing in a coherent fashion the different characteristics that define the biopolitical context, and reconnecting them to the productive ontology, that becomes possible to identify the new body of the biopolitical collective. This body becomes structure not via a negation of the original vital force that animates it, but acknowledging it; it is the language that animates a multitude of singular bodies con-

[1] See P. Virno (2001, p. 181).
[2] See A. Orléan (2010).
[3] The words *bioeconomics* and *biocapitalism* are new terms. The concept of bioeconomics (differently from Georgescu-Roegen meaning of the seventies) is introduced by A. Fumagalli, since 2004; cfr. A. Fumagalli (2004, pp. 141-161), A. Fumagalli (2005, pp. 337-350), and A. Fumagalli (2007). For an interesting analysis of this concept see also F. Chicchi (2008, pp. 143-158) and L. Bazzigaluppo (2006). The term biocapitalism is used by V. Codeluppi (2008). More recently, see C. Morini (2010).
[4] See A. Fumagalli, C. Morini (2010-2011).

nected by dynamic relationships. It is also a mix of production and reproduction, structure and supra-structure, as it is life in the fullest sense. The critical analysis of cognitive biocapitalism should concern the jungle of productive and conflictual determinations offered by the collective body biopolitical.

In mere economic terms, the biopolitical body upon which is Foucault's bio-power exerted, on the one side, and, on the other, Deleuze's social control is defined by the notion of human capital. However, human capital is still an insufficient concept, as it risks to contributing to the mystification of the relationships of exploitation that pervade contemporary capitalism and are amplified within it[1]. We should then unveil the contradictions hidden by the notion of human capital: between alive and death labor, between concrete and abstract labor, between machinery and man.

Aim of this paper is to highlight some contradictorily aspects of cognitive biocapitalism, just because they are related to the human subjectivity and under a sort of biopolitical power. Among them, we stress upon the paradigmatic role of financial markets as biopower. In conclusion, we start a preliminary reflection on the new forms of valorization deriving from the wielding and exerting biopower.

1. The problematic nods of bioeconomics and cognitive biocapitalism

With regard to the critical analysis of capitalism deriving from Marx's reflection, the problematic, related to *bioeconomics*, might initially be summarized in the redefinition of the relationship between living and death labor and between concrete and abstract labor. As follows, we shall try to reinterpret such relationships *vis a vis* bioeconomic production characterizing cognitive biocapitalism.

1.1. The nexus between living and dead labor, namely word and language. One of the essential characteristics related to the *bioeconomic* production is the dematerialization of fix capital and the transfer of his productive and organizational functions in the living body of labor force (Marazzi, 2005). This process represents one of the most glaring paradox of contemporary capitalism, namely the contradiction between the increased importance of cognitive labor as tool for wealth creation and, concomitantly, its devaluation both in terms of wages and occupational. Such a paradox lies within what Marazzi (2005, p. 109) defined as:

"The anthropogenic character of contemporary capitalistic production: a model of production of men via men, where the opportunity of an endogenous and cumulative growth is given above all by the development of the educational (investment in human capital), health (demographic evolution, biotechnologies) and cultural (innovation, communication, and creativity) sectors".

In the context of cognitive biocapitalism, human beings combine the functions of both fix and variable capital, namely the tools deriving from past and present (living) labor: the *bios*. The distinction between fix and variable capital, namely between living labor incorporated in the labour-force and the dead labor incorporated in the machinery, typical of the Fordist capitalist industrial model, loses its importance. The body of the labor force, as sedimentation of past labor, namely codified, historically acquired knowledge and experiences, further than containing the faculty of labor, also contains functions typical of fix capital, the means of production. In this new context, the relationship between living and dead labor becomes a new relationship that identifies the present forms of both of variable and fix capital. It is a matter of identify, within human beings and their relational, affective, and communicative practices, the components of living labor that can assume the form of fix capital and those that instead constitute variable capital. As Rifkin puts it:

"The economy, at least in physical terms, is narrowing. If the industrial era is characterized by the accumulation of fix capital and properties, the new era privileges intangibles form of power, as informative packs of intellectual capital. Material goods, now it is quite evident, are progressively becoming intangibles" (Rifkin, 2000, p. 41).

Fix capital is not undermined by the downsize of physical capital. If during the phase of industrial capitalism this latter tends to coincide with physical capital in cognitive biocapitalism, knowledge – as it is separated from any products in which it has been, is or will be incorporated, namely when it is mere information and standardized communicative practice – exerts *in se* and *per se* a productive action, taking the form of standardized language, namely software. It could, in other words, assume the role of fix capital (Marazzi, 2005, p. 108), becoming in this way a sort of "cognitive machinery", substituting stored labor to simple or complex living labor (Stewart, 2002).

[1] In economic science, the concept of *human capital* is developed inside the neoclassical paradigm, thank to Robert Lucas: see R.E. Lucas (1988). Lucas realizes that each worker more is productive, higher is the degree of education in his environment. In Lucas's model, the economic growth is strongly influenced by the dynamics of human capital. Nevertheless, Lucas's framework does not take in to account structural changes in capitalistic accumulation process and the role played by intellectual property rights on knowledge diffusion (see R. Herrera and C. Vercellone, 2002).

Similarly to language, the construction of software rests upon the allocation of living labor that, precisely when it transforms itself into a tool of language codification (cognitive machinery), assumes the semblance of dead labor, fix capital. Different is the function of words, intended as the art of communication. Words, in fact, enable us to analyze the relationship among individuals not only as a means in itself, but rather as a social productive process.

Words are the *becoming* of language, whilst *language* is the codification and systematization of this social production and, therefore, regulation and normalization of the linguistic creativity of the subjects[1]. Hence, the mechanical codification of the linguistic practice, intended as a convention, has become the mechanic element of the *bioeconomic* production, the fix capital necessary for the valorization of living labor contained in the word as an instrument of communication, relation, affection. However, the dialectics between word and language, namely between dead and living labor incorporated within the human body, generates a further problem, the one concerning abstract and concrete labor.

1.2. The nexus abstract and concrete labor, namely cerebral alienation. According to Marx, concrete labor, qualitatively defined, is labor aimed at producing use value. On the contrary, abstract labor is pure manifestation of human labor force, which sets aside both qualitative aspects and specific determinations that refer to the utility of singular labor and whose quantity determines the value so generated. In a capitalistic system of production, abstract labor is the socially necessary labour to produce goods that are realized in the market, namely exchange value, on the basis of the available technologies.

During the Fordist period, it was the social relationship between humans and machinery that determines the immanent form of abstract labor, which was transposed into exchange value of material goods. At present, we assist to the development of the hegemony of *immaterial labor*[2], namely "Labor that creates immaterial goods: knowledge, information, communication, linguistic or emotional relationships" (Negri, 2006, p. 159).

This hegemony implies a twofold fracture. Differently from the previously established industrial paradigm, because the division between working time and free time is fading away, we are facing firstly with a redefinition of the working day. In the industrial phase of capitalism, workers produced mostly during their time spent within the firm, as a result of the need to conjugating mechanic means of production with labor force. In this way, the form of abstract labor is defined by a sharp separation with concrete, reproductive type of labor. Secondly, the dematerialization of fix capital emphasizes a new *human* relationship between means of production and labor force.

In the context of immaterial production, in fact, the body of labor-force, further than containing labor, also contains the typical functions of fix capital, namely means of production intended as sedimentation of codified knowledge, historically acquired knowledge, experiences, etc., in a nutshell, all what can be referred to is past labor.

Hence, the separation between abstract and concrete labor becomes no longer clear. Firstly, what Marx named concrete labor, the labor that produces use values, today could be renamed as *creative labour*. This definition allows to better understand the cerebral [plus] entailed in such an activity, whilst concrete labour, although conceptually synonym, sends back to the idea of *doing* rather than that of *thinking* – with a more marked reference to the labor of the craftsman. Rather, within cognitive activities, it is possible to indifferently shift from abstract to concrete-cognitive labor, with the result of valorizing both exchange values and production of use value[3].

In these respects, Halloway writes:

"Here … is the center of the class struggle: it is the struggle between the creative activity [*creative labor*] and abstract labor. In the past, we were used to consider the class struggle as the struggle between capital and labor, where labor was wage, abstract

[1] The difference between word and language has been the focus of L. Bloomfield (1996) studies and of those concerning the ethnography of communication, discipline attentive to the priority of the contextual functions and problematic in the language *vis a vis* the structure of the codex.

[2] We use here improperly the expression *immaterial labor*, in the sense of *cognitive-relational labor*, since labor, *strictu sensu*, can never be immaterial.

[3] Riccardo Bellofiore proposes a different reading of the category abstract labor. Cf. R. Bellofiore (1996): abstract labor is understood as a sequence ranging from the labor force sold in the labor market to the living labor produced by the waged workers in production, to the dead labor objectivated in commodities (potential money). Hence, according to Bellofiore, the way in which the capitalistic production organized is seen as the result of a consciousness separated from the will of the workers, although it also represents the place where class antagonism occurs. Bellofiore does not deny the centrality of living labor – intended as the ability to work in *actu* and as a value *in potentia* – but he considers pure post-industrial mythology the analyses on the cognitive dimension of labor (see R. Bellofiore and J. Halevi, 2006, p. 63). In my understanding, living labor, intended as creative-created labor, derives from a careful analysis of the (tendencial) structural changes characterizing contemporary capitalism. In the context of cognitive biocapitalism, living labor can indeed be captured by capital and reduced to mere commodity; however, the creative and innovative abilities of single individuals are always greater than productive labor in a capitalist sense.

labor and the working class is often defined as the class of wage earners. But, it is a mistake. Wage labor and capital are complementary, the first is a moment of the second. Without any doubt, there is a conflict between wage labor and capital, but it is a relatively superficial conflict. It is a conflict on wage levels, on the length of working time, on labor conditions: these are important aspects but they require the existence of capital. The real threat for capital does not come from abstract labor but from useful labor or creative activity, since it is the creative activity that is radically against capital and its own abstraction. It is the creative activity that says: no, we'll not let the capital to command, we must do what we think suitable or desirable" (Halloway, 2006).

It is indeed in order to impede that "creative labor" gets the upper hand over abstract labor that in this phase becomes central to control both training and learning processes, exactly as it is central to take control of knowledge via intellectual property rights. In fact, training and learning processes are intrinsically ambiguous: (1) to what extent is it possible to distinguish between the learning process aimed at developing one's own culture according to an autonomously chosen logic and the process of training necessary to carry out the working activity aimed at capitalistic accumulation? (2) To what extent is it possible to separate, within a working day, the time necessary to produce exchange value from the time necessary to produce use value? Obviously it is impossible to provide an adequate answer to these questions. Unless we do not hypothesize a real subsumption process of individuals' entire life. This leads, on the one side, to the disappearance of use value and, on the other, to the absolute predominance of exchange value. This, evidently, would be a dreadful perspective as it would entail the cerebral subjugation of human beings.

However, the intrinsic difficulty to separate concrete labor from abstract labor is testified by the increasing importance given to the training processes of labor force, intended as investment. Firstly, this depends upon the fact that labor and training coincide with the workers entire life-cycle. It is not a *una tantum* investment, occurring during the scholarization period, but rather it has become a long-term investment (it last the entire working life) and, therefore, it should entail an amortization, similarly as to when an entrepreneur, in order to start a productive process, invests in machineries already thinking that, at the end of their utilization, he will substitute them with new ones.

Living labor, reproductive of the labor force, allows the capital to reduce the cost of labor force and, therefore, to increase the plus-value. It would be possible to argue that the quantity of reproductive living labor is what permits the amortization of fix capital. In fact, reproducing the labor force's use value, it reproduces, at the same time, its ability to consume capital. Secondly, to consider training as investment, also means to underline the fact that, from the national budget point of view, training is a current management cost that depends upon the annual fiscal income, which, in turn, is conditioned by the amortization of investments. In this way, an imbalance between investment policies inherited from Fordism (according to which infrastructure costs – in the public hardware – played a strategic role) and training expenditure policies occurs. The privatization of training cycles is an attempt to solve such an imbalance, although its outcome tends to worsen a further imbalance: the one referring to the social nature of human capital and the exclusion of an increasing quantity of labor force from long-life training processes. Training-learning-culture is the triad around which the process of valorization and alienation of cognitive labour unfolds. The accumulation regime entailed by cognitive biocapitalism rests upon three different levels: information, knowledge and systemic learning. Such a cognitive division of production is transformed into a cognitive division of labor, represented by *training*, *learning* and *culture*.

Today, *training* is essentially considered as professional training, and provides the information; dynamic *learning* in time (also named long-life learning and/or apprenticeship) produces knowledge; systemic knowledge presupposes culture. If training is finalized to immaterial production of exchange value, as it is manipulated and subjected to the intrinsic mechanisms of the schooling organization via the neoliberal restructuring of educational paths, learning − where the human component is the intermediary and produces the refashioning of the received training − represents the dynamic moment in which exchange value of information is also mixed with the production of use value: in this context, learning activity can become a potential creative labor.

Intended as personal growth leading to a maturation of one's "view of the world", *culture* becomes antithetic to training, becomes its negation, as product of the relative doing and antithesis to abstract cognitive labor.

However, the relationship between these three levels is not linear: it presupposes and send back to the dialectic between abstract labour, which is exchange of labour, and concrete-creative labor, that is con-

crete-creative knowledge, because at present the exchange of labor has become more and more exchange of knowledge.

And it is from the fact that the development of professional training and apprenticeship negates and obstacles the development of culture that arises the process of alienation intrinsic to cognitive labor. The more professional training and apprenticeship extend themselves, the more ignorance in its ethimological sense, namely "non-knowledge" and "non-comprehension" becomes diffuse.

As it resides within the individual, alienation becomes cerebral alienation, between heart and hand, between left and right brain hemisphere, no longer between inside and outside, between participation to production and outcome of the productive process itself.

1.3. The nexus space, network and cooperative relationships: the molecular space. With the diffusion of flexible accumulation and subsequently of cognitive biocapitalism, we assist to an even more profound permeation between productive place and the formation of productive network: the space, intended in its geographical and virtual dimensions, becomes a place of production no longer characterized by a unique and self-centered presence, but rather by an ensemble of formal and informal polycentric networks. The *bioeconomic* production becomes the result of a network structure, more and more immaterial, which assumes a net-shaped form even when it has to do with material production. A structure characterized by fluxes, presupposes [linguistic hubs] of communication and high levels of social cooperation. Such cooperation concerns both the transmission of symbols and the logistic transportation of goods and commodities. However, within such a space, cooperation, far from being horizontal, develops itself along new trajectories of spatial division of production and cognitive division of labour. The net-shaped production, the network, becomes a molecular space, individualized, characterized by individual relationships that most of the times produce cooperation but that are not, paradoxically, cooperative between them (Salvini, 2006).

1.4. From the fetishism of commodities to symbolic fetishism. The commodity as final elucidation of the symbolic imaginary. Under cognitive biocapitalism, commodities assume new significances. For Marx, a commodity is a unit of use value and exchange value, namely: it is at the very same time object of the specific sensible quality and a crystallization of the expense of indistinct human labor force; it is the result of the allocation of physical and intellectual energy with no regard to the form and the modality with which such an allocation occurs[1]. According to Marx, the value of commodity is given by the working time socially necessary to produce it. Being value a common quality to all commodities, differently from the use value, which is different for any kind of commodity, it is possible to exchange commodities in a way quantitatively proportionate to the expended working energy, objectified within each commodity. We have already seen that under cognitive biocapitalism, use value and exchange value are intrinsically linked to the extent that it is difficult to identify a clear demarcation between them. This is something that Gorz underlines when he discusses the novelty introduced by cognitive biocapitalism:

"The intangible dimension of the commodities prevails on their material reality: their symbolic, esthetical, social value on practical use value and, needless to say, on their exchange value, which erases" (Gorz, 2003, p. 35).

When Gorz refers to exchange value as something that erases itself, he refers to the fact that the value of a commodity is no longer merely definable by "the necessary working time"; to the value, that in any case cannot disappear[2], should be added the value deriving from the degree of social symbolic nature that it contains. When its immateriality increases, the symbolic value of commodity becomes even more apparent. It is on this edge that the relationship between production and realization (consume of goods) is played. The valorization of the commodity no longer occurs within the productive process alone but, as the immaterial production has become production of imaginaries, it occurs when the imaginary realized itself, at the very point of consume: it is the result of what we can define the *brandization* process, which goes beyond the commodity as it concerns more and more the territory and the space (Arvidsson, 2006). It does not relate to the mere act of consumption. When the commodity becomes a symbol, there is no difference between production and consumption, namely: there is no clear cut between production and realization. This is the result of the process of valorization of language, which is so only when language is expressed rather than when it is created. It is in this sense that in the context of cognitive biocapitalism occurs the shift from the Marxian fetishism of commodity to the so-called symbolic fetishism, fetishism of language and, finally, fetishism of the imaginary (Castoriadis, 1998). Not only this occurs in any economic phase, from financing to consume, but it becomes pervasive in the life of individuals, beyond the codified working time.

[1] See K. Marx (1906, cap. I).
[2] In my opinion, the use of the term "delete" seems too extreme.

1.5. The overcoming of gender and racial difference: towards the bionic being, perfect machinery of the anthropogenic evolution. Under cognitive biocapitalism, it is life in itself that has become subjected to the valorization process. This occurs via the valorization of the differences that characterize each individual. In their singularity, these differences make possible the relational activity at the root of the social cooperation that produces *general intellect*. It is no longer possible to refer to racial or gender differences. The differences *tout court* are valorized, a part from the anthropological characteristics defining them. Cerebral differences are segmented and divided, namely the individualities. The natural differences, gender and race first of all, might constitute the immediate disciplinary tools of the body social but only under condition of backwardness, where cognitive biocapitalism and immaterial production are not jet fully deployed. But they are destined to be partially overcome towards the constitution of a human subjectivity characterized by the contradictory conflict between the creativity of *doing* and cerebral homologation: a sort of bionic being, the only one able to manage the anthropogenic process of production; *a world in which individuality is denied in favor of individualism*.

2. The biopower of financialization[1]

The five nodes of cognitive biocapitalism mentioned here are homogenized by the pervasive role played by the *bios* in the labor relationships and in the accumulation process. The life itself is put to work[2]. From this point of view, financialization can be considered as paradigmatic.

There are different ways, most of them correct, to define the process of financialization. For instance, financialization can be defined as the diversion of domestic economy savings to stock market shares[3]. In a broader sense, financialization represents the definitive transfer from the idea of money as *commodity* to the concept of money as *pure sign*. This passage dates August 15, 1971, with the collapse of the post World War II Bretton Woods system. In the capitalistic process, the main role played by money is the *credit money* function. Credit activity implies an inter-temporal relationship which is based on a subjective trust/confidence between the loaner and the borrower. In this case, money plays not only the role of means of payment and unity of measure of value but it has the property of costless liquidity: stock of value. During the Fordist era, because of the fixed parity between dollar and gold (dollar exchange standard), the credit money function, even if depending on subjective expectations, operates in a context in which the unity of measure of value of money is fixed, linked to the parity with gold. That is why it is possible to consider money as commodity money[4]. After Bretton Woods, the value of money depends on the dynamics of financial and exchange markets. The monetary policy is obliged to fix it own targets according to the stability of the same financial markets. It is thanks to this structural change that financial markets wield a *biopower*.

It is interesting to highlight that the *money sign* created by financial markets (*financial money*) as consequence of the dematerialization process of money (started in Western countries with the formation of the national States in the XV century) represent the most adequate form of money in capitalism, able to substitute *credit money* as commodity money[5]. Financial markets, from this point of view, substituted since the nineties, the credit bank market in addressing investment activity and in providing liquidity for the whole system. If credit activity necessary has a limit according to the scheduled time in which liquidity is supplied by banks to firms, financial markets are able to postpone indefinitely this limit: the debit and credit relationships do not have necessarily to be always closed. That is the difference between capitalism and a free market economy[6]: capitalism, differently from free exchanges economy, implies accumulation and there is no accumulation without debt. That is the source of structural capitalistic instability: an instability, which is destined to increase, if financial markets are able to keep unsolvable the imbalances that arise from the accumulation process. From this point of view: "Capitalism is an historical realization of the debt-credit relationship, characterized from the fact to remove to this relationship, as a matter of principle, what makes it humanly bearable − the end, the closing"[7].

Financial markets are the core of modern capitalism. Until they are able to supply liquidity, thanks to positive expectations and positive capital gains, crisis does not exist, because debt situations are postponed in the future and there is enough confidence in the economic behaviors. But since liquidity

[1] See Lucarelli (2010a).
[2] See M. Hardt, A. Negri (2000), A. Fumagalli (2007), A. Fumagalli, C. Morini (2010; 2011).
[3] See C. Marazzi (2008, pp. 115-127). In reality, the definition of the concept of "financialization" is problematic in itself, see B. Paulré (2010, pp. 187-205).
[4] It is not a case that mainstream economics takes in account a monetary market in which it is possible to define a money supply and a money demand in which money is considered as commodity.
[5] See M. Amato, L. Fantacci (2009, especially ch. V).
[6] See M. Amato, L. Fantacci (2009, pp. 86-88).
[7] See M. Amato, L. Fantacci (2009, pp. 87) [our translation]. The etymological origin of the term "finance" derives from Latin "finis", which means "end", just to highlight that each financial relationship "must" have a temporal limit. In the modern capitalistic society, the new role of financial markets implies that there are no temporal limits to debt-credit activities.

is the result of speculative activity, nothing can guarantee that this confidence can last on time, since the risk cannot be calculated[1].

Therefore, speculation is a reoccurring risk in capitalistic systems. Even so, if we look at the current crisis while keeping the new character of capitalism in mind, speculation needs to be analyzed in a new light: this crisis is not simply the fruit of financial insanity[2], but instead should be understood starting from the specificity of the existing accumulation regime[3], a finance-led accumulation regime[4].

Our thesis is that contemporary capitalism is characterized by a financial accumulation regime that tends to lead every specific moment of individual existence back into the process of valorization. That is the reason why we name it *bio-capitalism*. The means, through which this happens, do not only include economic politics of neoliberal inspiration, but also include the command devices that are only comprehensible. These latters are put in the hybrid zone, where the political economy meets social psychology, according to the role played by subjectivities in the economic and social behaviors, for instance, in presence of the so-called "wealth effect". We can define financialization as a practice of social control. In fact, in order to understand an accumulation regime unable to construct long-lasting modes of regulation, there is only one alternative: assume a new point of view that immediately focuses on the problems of command and power. This new capitalism needs a social control compatible with democratic societies, where order is based on the formalized participation of great masses[5]. One of the new characteristics of the financialization process that involves us is its mass participation, at the same time a sort of formal democracy and a *biopolitical power*.

In order to articulate this line of reasoning, we borrow a few categories from Michel Foucault, in particular *biopower*[6] and *governmentality*[7]. We will

[1] About this point, Keynes' writings are still exhaustive. See J.M. Keynes (1971; 1976; 2010).

[2] It is a crisis that cannot be simply reduced to the classic scheme described by Galbraith, that is, however, necessary to have clear: "A handmade article or evolutionary process, apparently new and desirable – tulips in Holland, gold in Louisiana, lands in Florida, the ambitious economic plans of Ronald Reagan – attract the financial mind … the price of the speculation object rises. Titles, land, art objects and other properties, if bought today, tomorrow will be more valuable. This increase and that foreseen attract new buyers … Inherent to such situation is the final crash … and because both groups of participants in the speculative situation, who has full faith in the rise of the market and those who believe they feel the speculative atmosphere of the moment, are programed for sudden instances of escape" (J.K. Galbraith, 1994, pp. 11-19).

[3] An accumulation regime delineates a long-term growth model. This term, introduced by the scholars who identify themselves with the research program of the so-called French Regulation School, refers to the set of regularities that assure a general and relatively coherent progression in the accumulation of capital; thus allowing for the reabsorption of imbalances that arise from the duration of the process of accumulation. According to Robert Boyer, these regularities principally regard: the type of evolution of the organization of production and wage relations; the temporal horizon of valorization of capital on the basis of which managerial criteria are established; the criteria of the division of value produced necessary for the reproduction of time in social groups that participate in production; a composition of social demand compatible with the evolution of productive capacity; lastly, the modality of articulation between the sphere of capitalist production and the non-capitalist areas. The regulationists in fact acknowledge that the non-capitalistic forms are relevant in the evolution and the very formation of the different socio-economic assets ascribable to the capitalist mode of production (cf. R. Boyer, 2002). The main contribution to the regulation approach in the UK has come from Bob Jessop (cf. B. Jessop, 1990, p. 308): "The key concepts, initially offered by the Parisian regulationists, were "regime of accumulation" and "mode of regulation". An accumulation regime is defined as a particular combination of production and consumption which can be reproduced over time despite conflictual tendencies; and a mode of regulation comprises an institutional ensemble and complex of norms which can secure capitalist reproduction *pro tempore* despite the antagonistic character of capitalist social relations".

[4] See R. Boyer (2000) and M. Aglietta, A. Rebérioux (2005).

[5] In the reflections that are presented here, we have constantly consulted with Marzocca (2006). We have particularly adopted Dario Melossi's interpretation, "Controllo Sociale", applying it in a totally personal way to financialization.

[6] The choice of referring to Foucaultian categories depends first of all on the desire to re-elaborate up one of the directions traced by the "Primo Maggio" workgroup on money. In particular, see C. Marazzi (1978, pp. 75-80), Christian Marazzi (1977/78). Marazzi, commenting, maybe in an excessively critical way, an important study conducted in the attempt to build a new distribution statistic of incomes in a monetary economy of production, stressed how the critique of the political economy was behind in respect to the critique of power developed by Foucault: "In fact it is simpler to see the simultaneousness of the knowledge-power relation than the exchange-wealth relation" [our translation]. The workerist journal *Primo Maggio* opens in 1973 and ends in 1986. Its founders Sergio Bologna, Lapo Berti, Franco Gori, Andrea Battinelli, Guido de Masi were interested in innovating in the areas of the methodology of history, sociology, economics and political science; "its main focus was on placing itself within a network of initiatives of self-organization at the level of political culture and formation "at the service of the movement". Primo Moroni's bookshop *Calusca City Lights* in Milan was the most original and important of these initiatives. If *Primo Maggio* had not joined this network, it would have never exercised the influence that is only today being recognised. […] *Primo Maggio* was also able to produce interesting, new and forward looking material in the analyses of financial capital, the welfare state, history and class composition because its editorial board comprised of comrades who differed in age and experience from "classical operaismo", such as Cesare Bermani, Bruno Cartosio, Marco Revelli, Christian Marazzi and Marcello Messori" (cf. Sergio Bologna, *Steve Wright's Storming Heaven. Class composition and struggle in Italian Autonomist Marxism*, http://www.generation-online.org/t/storming-heaven.htm). About the "Primo Maggio" workgroup on money, the English reader can refer to Steve Wright, "Revolution from above? Money and Class composition in Italian *operaismo*", presented at the 5th annual Historical Materialism Conference, School of Oriental and African Studies, London, 7-9 November 2008, steven.wright @infotech.monash.edu.au.

[7] The logic of biopower therefore takes us to the exact modalities of control that Foucault called *governmentality*. "With the word "governmentality" I mean three things. First, the whole of institutions, procedures, analyses and reflections, calculations and tactics that permit the exercising of this specific and quite complex form of power, that has the population as its main target, in the political economy the privileged form of knowledge and in the security devices the principle technical tool; second, for "governmentality" I mean the tendency, the driving force that, in the whole West and for a long time, continues to assert the preeminence of this type of power that we call "government" over all of the others – sovereignty, discipline – with the consequent development, on one hand, of a series of specific government apparatuses and, [on the other hand, a series of knowledge. Lastly, for "governmentality" we should mean the process, rather than the result, of the process through which the state of Medieval justice, having become the administrative state in the course of the 15th and 16th centuries, gradually found itself "governmentalized" (M. Foucault, 2009, p. 88). See also Lucarelli (2010b).

then adapt them to our object of analysis, concentrating on the role that the wealth-effect assumes in the financialization process, as tool of distorted income distribution. It is not a case that the roots of the crisis are to be sought in the instabilities in the new accumulation regime, characterized by a dominant technological paradigm and by an unfair income distribution.

The new technological paradigm started with the crisis of Fordism and the so-called Smithian division of labor. In the new division of labor, along the whole productive assembly line, knowledge plays a key role in the redefinition of the capital-labor relation[1]. These structural changes affect labor market organization, by inducing the prevalence of individual bargaining with respect to the traditional collective bargaining which characterized Fordist industrial relations. Labor flexibility and the rise of the so-called "atypical contracts" (*precariousness*)[2] define the trend in the labor market dynamics, with the risk, in absence of an adequate welfare system, to transform "flexibility" into "precarity". Here is the main reason of the worsening of functional income distribution.

The distorted income distribution is the result of a new form of income *governmentality.* Ever since the 1980s, the American economy has been characterized by the process of financial market liberalization and the consequent explosion of new financial tools: thus the passage from a Keynesianism built on a pact between producers in an environment of a monetary system that binds currency and financial maneuvers – already weakened by president Nixon's declaration of the inconvertibility of the dollar to gold in 1971 – to a financial Keynesianism based on private deficit spending, in which the largest financial market deregulations are accompanied by the diminution of social incomes distributed by the welfare state. We are facing an evolution in neoliberal governmentality. In other words, financial Keynesianism is a modality of neoliberal governmentality. Shareholder value[3] becomes the principle macroeconomic indicator, the scepter and the pastoral that govern both investment and consumption through the wealth-effect[4].

For a psychological dynamic that would be worthy of further study but that represents a necessary condition of stability of the *American economic model* (here intended as *ideal-type*), the wealth effect induced by an increase of value in the markets affects consumption behaviors more than the expected

[1] Carlo Vercellone has maintained in various contributions how the new technological paradigm (that he has defined together with other scholars of cognitive biocapitalism) is rooted in three processes: (1) the contestation of the scientific organization of labor; (2) the expansion of the guarantees of collective welfare services; (3) the constitution of a diffused intellectuality as a result of the democratization of learning (see D. Lebert and C. Vercellone, 2006). However, it is evident that at least one of the above cited three processes (the diffused intellectuality tied to the democratization of learning) is put into crisis by the command devices on which the new form of capitalism is structured: reform processes of public education that are pushing down both traditional knowledge and students' critical sense are being seen; in a parallel manner, a rhetoric of permanent formation is being spread to support business restructuring, that rarely reinforces the innovative capacity of the economic system. In other terms, "the investment that assures the reproduction of fixed human capital is actually reduced consequent to the dismantling of the social state and the increase of educational costs". The paradoxical result is "the increasingly strategic importance of cognitive social labor and the simultaneous worsening of the living conditions of those same knowledge workers" (see C. Marazzi (2005), [our translation]). It becomes legitimate to ask: up to what point can this constant exploitation of qualified knowledge that have consolidated thanks to specific institutional factors (the democratization of learning) last? Or, under what conditions can knowledge continue to represent a fundamental valorization element in contemporary capitalism? On the hypothesis of a cognitive capitalism, see C. Vercellone (2007, pp. 13-36).

[2] See A. Ross (2008).

[3] Cf. M. Aglietta (2008, p. 69): "After all, the radical change in monetary policy in the late 1970s and early 1980s triggered financial liberalization. Not only there was a shift from intermediate to market financing that redistributed risk-taking from banks to institutional investors, there was also a dramatic change in the ownership structure of corporations that has shifted business strategy from "insider productivity-sharing" to "shareholder value-optimizing". The norm of profitability has changed altogether. Market-value accounting has replaced reproduction-cost accounting as the yardstick of corporate performance. Furthermore, achieving shareholder value in practice means extracting a rent on behalf of shareholders. This rent is the positive difference between the actual rate of return on equity and the equilibrium stock-market rate of return of the corporation, given by the capital asset pricing model (capm), multiplied by the capital of the firm. Combined with the long ascending wave in the stock market, the imperative of shareholder value gave rise to a much higher required rate of return than in the heyday of post-war growth. Most business strategies − downsizing, spin-offs and the like, but also external growth via mergers and acquisitions and share buybacks − were driven by the lucrative adjustment of corporate executives to the principle of shareholder value. The U.S. adopted shareholder value on a large scale in the early 1990s, at a time when Europe was crippled by extravagantly high real interest rates. Shareholder value does not hamper innovative investment spurred by private-equity funds, especially venture-capital funds; it has had a large impact on productivity growth − the revolution was largely financed by such investment funds". The doctrine of shareholder sovereignty does not consider that, being dispersed, shareholders do not have the real means to exercise their sovereign control. But external and internal controls compensate for the shareholders' inability: externally auditors, financial analysts and rating agencies are responsible for accounting information for investors; internally, the board of directors assumes the task of re-establishing shareholders' real rights (cf. Michel Aglietta and Antoine Rebérioux, "Regulating finance-driven capitalism", *Issues in Regulation Theory*, #51, January 2005, pp. 1-5).

[4] For wealth-effect, usually the modification of aggregated demand caused by variations in the real value of wealth that happens following changes in prices is intended. When this refers to a shareholder, it has a positive wealth-effect. If the movements in the prices of the shares are associated with a movement in interest rates, a fall in interest rates augments the valuation of the representative capital titles and, therefore, the perceived wealth as a whole. Neoclassic economists during the Great Crisis amply used the wealth-effect to support the existence of automatic mechanisms able to guarantee full employment over a long term. The fact that I refer to this concept absolutely does not mean that I am assuming a neoclassical point of view. Instead, I believe that the American model is based on the wealth-effect, first tied to technological titles, then to real-estate, in a low interest rate context and this practice of social control is split by the ambition of a full employment political program.

wealth due to an increase in wages[1]. The model has a high risk of instability; the fact that financial crises have followed one after another so quickly over the last few years is proof of this. The exercising of liberal governmentality means that this form of specific command over individual behavior is reintroduced each time: the rule that has been consolidated consists in passing from one bubble to the next[2], forcing individuals to believe that their wealth depends more on financial markets than demands for wages or other forms of possible claims. Following this approach, the wealth effect represents the form of command typical of financial Keynesianism, here understood as liberal governmentality. The dynamic that goes from profit to financial market and *vice-versa* substitutes the principle political decisions in the Fordist-Keynesian paradigm: the productivity-wage connection and the production-mass consumption connection.

The impact of financial returns on patrimonial decisions becomes the key factor in investment decisions; these must keep count of the financial returns and not only on the variations in demand. Consumption continues to depend on the accumulation of traditional income from labor (i.e., wages) but a variable that measures the value of the financial tools that families own intervenes too. If financialization is highly developed – if family wealth depends more on the share of income coming from financial markets than wages – wage moderation, favoring companies' profitability, increases financial returns. Thus, a dynamic founded on the wealth-effect aimed at favoring private consumption, while even facing falling real wages can be triggered. The level of production becomes a consequence of financial value. This inverts the relations between the real sphere and the financial sphere that prevailed under Fordism: the market dynamic replaces wages as source of cumulative growth. This inversion also revolutionizes social control mechanisms that concern the individuals in the modern world.

In other words, the wealth effect that supports the financial world's thought process depends on the degree of subsumption not only of labor, but of life itself (this is where biopower's feature lies).

In macroeconomic terms, this dependent relation is translated in the growing liquidity that financial markets attract starting with private savings that were previously invested in state bonds. Even so, this growing liquidity is not enough by itself. There is a second explanatory variable necessary so that the wealth effect continues: it is the common sense that forms between individuals about the reasons that should explain the production of money by means of money, and about the hierarchy of needs to satisfy in order to maintain an acceptable social status. The logic of valorization leads to the transformation of social relations. More precisely, this means that financialization is a form of socialization that makes liberal governmentality evolves.

In conclusion, financial markets today are the pulsing heart of cognitive biocapitalism. They finance the activity of accumulation: the liquidity attracted to the financial markets rewards the restructuring of production aimed at exploiting knowledge and the control of spaces external to traditional business.

Furthermore, thanks to the *private* distribution of capital gain (wealth effect), financial markets play the same role in the economic system that the Keynesian multiplier (activated by *public* deficit spending) did in the context of Fordism. However, unlike the classic Keynesian multiplier, this leads to a distorted redistribution of revenue. So that such multiplier is operative (> 1) it is necessary that the financial base (i.e., the extension of financial markets) constantly grows and that the matured capital gain is on average higher than the average wage depreciation. On the other hand, revenue polarization increases the risk of debt insolvency which is at the base of the growth of that same financial foundation and lowers the median wage. Here is a first contradiction whose effects are visible today.

Thirdly, financial markets forcefully redirecting growing parts of labor revenues (like severance pay and social security, other than revenues that, through the social state, are translated into state health programs and institutions of public education) substitute the state as the main provider of social securities and welfare. From this point of view, they represent the privatization of the reproductive sphere of life. They, therefore, exercise *biopower*.

The financial crisis is consequently a crisis of the structure of the current capitalistic biopower.

Lastly, the financial markets are the place, where capitalist valorization is fixed today, which is to say the exploitation of social cooperation and the rent from general intellect.

[1] See A. Fumagalli, S. Lucarelli (2007). In more rigorous terms: in a model where economic scale dynamics directly influence productivity, there is a positive correlation between the dynamic of demand and the dynamic of productivity if and only if the sum of the propensity to invest and the propensity to consume, depending on allocation of financial surplus value, is higher than the tendency to consume deriving from wages.

[2] The positive expression is from M. Aglietta (2007). Aglietta writes that we pass from one bubble to the next because the system is not equipped with any internal brakes. Even when prices have totally lost any relation with fundamental value, short-term logic prevails. Fund managers, intermediaries and business managers have built a mechanism of remuneration and incentives that answers to this logic. Thus it is the same financial organization that causes the next bubble!

On the basis of these considerations, it is necessary to understand the difficulty in separating the real sphere from the financial one. Proof of this is the effective impossibility of distinguishing the profits from financial rent.

With the advent of cognitive biocapitalism, the process of valorization loses all quantitative measuring units connected with material production. Such measurements were in some way defined by the content of labor necessary for the production of merchandise, measurable based on the tangibility of production and on the time necessary for production. With the advent of cognitive biocapitalism, valorization tends to be triggered in different forms of labor that cut the effectively certified work hours to increasingly coincide with the overall time of life. Today, the value of labor is at the base of capitalistic accumulation and is also the value of knowledge, affects and relationships, of the imaginary and the symbolic. The result of these biopolitical transformations is the crisis of the traditional measurement of labor value and with it the crisis of the *profit-form*. A possible "capitalistic" solution was measuring the exploitation of social cooperation and general intellect through the dynamics of market values. In this way, profit is transformed into rent and the financial markets became the place, where labor-value was determined, transformed into a *financial value* which is nothing other than the subjective expression of the expectations for future profits generated by financial markets that, in this way, lay claim to rent[1]. The current financial crisis marks the end of the illusion that financing can constitute a unit of measurement for labor, at least in contemporary capitalism's current failure in cognitive governance. Consequently, the financial crisis is also a crisis of capitalistic valorization.

3. Bioeconomics value

According to Marx's methodology, in order to discuss the theory of value attached to the bioeconomic process, it is necessary to begin with the redefinition of plus-value within cognitive biocapitalism. In the shift from formal to real subsumption of labor to capital, the plus-value, the function of plus-labor can no longer be considered as merely deriving from living labor intended as simple labor (or immediate labor)[2], as mere expenditure of muscular energy. Living labor depends not only upon the labor activity, defined at individual level, but it is also the result of the relational and cognitive connection of the *general intellect*. To explain this, it is useful to subdivide living labor into two components: the first one refers to that part of living labor intended as expense of physical energy that is partially crystallized in the physical capital of machineries that are at the very basis of the new cycle of cognitive accumulation (hardware); the second one, instead, becomes, in all respects, immaterial labour activity (it is not crystallized in physical capital) constituting a sort of means of production (human capital) active in the production of knowledge, innovation, *general intellect*. Not always this second component can be reducible to an objective means of production − it becomes so only partially − as it structures itself as production of living labur by means of living labor. It represents the abstract labor in cognitive biocapitalism, whose productive system is definable as production of knowledge by means of knowledge: K-K.

Already in Marx[3] was present the idea that the genesis of plus-value cannot be exclusively based upon the division of the working day between the part necessary to the reproduction of the labor force (necessary labor) and the exceeding part that produces plus-labor which, if realized, creates plus-value. It is indeed the difficulty to distinguish and separate the component of use value from that of exchange value of labor force that does not allow us to measure the rate of exploitation and, therefore, the origin of plus-value. This is the result – as Marx itself recognised – of the shift from formal to real subsumption of labor to capital, passage that, however, makes it difficult to distinguish between labour enslaved to machineries and labor that we might said to be *enslaved to itself*, and that is given when abstract labor becomes capital. The contradiction around which capital is entrapped is:

"It presses to reduce labor time to a minimum, while it posits labor time, on the other side, as sole measure and source of wealth" (Marx, 1973, sect. 2, p. 706)[4].

However, such a contradiction is only apparent. Firstly, because today the temporal reference that should be utilized is no longer the working day, but rather the entire life cycle, within which we can find different phases of apprenticeship, development of knowledge, evolution of intellective abilities and, therefore, different levels of social productivity. Secondly, because the reference to the reduction of working time can be ascribed only to material production that, although it was the peculiarity of Fordist industrial capitalism, at present has become a limited portion of the overall working time (life).

[1] Cf. A. Negri, C. Vercellone (2007), C. Vercellone (2010). See also C. Marazzi (2010, especially ch. 3).

[2] In *Grundrisse*, Marx often refers to "immediate labor" in order to indicate the direct application of labor, both in terms of fatigue and intellectual effort. In this case, by simple labor we refer to the immediate labor of physical nature (see K. Marx, 1973, sect. 2, p. 710).

[3] See, especially, K. Marx, Grundrisse, 1973, sect. 2, pp. 705-706.

[4] It is a part of above quotation.

Otherwise, starting from mid-1970s, working time *de facto* has been progressively stretched as a result of the increase of cognitive labor[1]. This is a paradox that cannot be understood unless we take into account the intrinsic differences of work activity, above all between material production (*hardware*), linguistic production (*software*), knowledge (*wetware*) and network production (*netware*). Obviously, this creates much confusion, reflected in the following statements:

1. "The production sphere needs an amount of labor which is lower and lower with respect to increasing amount of wealth" (Gorz, 1995, p. 7).
2. "Since the beginnings, the human society is based on the concept of labor. From the Paleolithic hunters to the Neolithic farmers, to the Middle-Age artisans, till the assembly line mass workers of contemporary age, labor has always been integral to everyday life. Today, for the first time, human labor is systematically eliminated from the production process: in the next century, in market economy, "mass" labor will be probably cancelled in almost all the industrialized countries of the world" (Rifkin, 1997, p. 23).
3. "For an increasing number of individuals, labor ceases to be the place of self-realization and it is lower and lower considered central in the social activity" (Gorz, 1995, p. 7).

Even supposing that Tayloristic waged labor would have been the path leading to self-realization and a tool for social bond (as it might have been the professional labour performed by factory workers), the above statements, which for a certain time represented a fashionable attraction for many intellectuals, refer quite exclusively to Fordist manual labor, and do not take into account the new forms of digital-cognitive labor that are the heart of cognitive biocapitalism.

The extension of digital work as form of linguistic performance, the diffusion of cognitive labor as mode of flexible production of knowledge, the deployment of the relational structure as collective and social space, where working activity produces wealth via social cooperation, these are the elements that make the working activity, on the one side, no longer homogeneous and definable according to an unique typology, and on the other, pivot on those that are human faculties possessed by each individual.

It is individuals' life that today is put at work. It is the reaction to such a human condition to assume different forms, both negative and positive, according to the situation of each singular individual.

Indeed, it is considering this typology of working activity that we may evince. It is no longer the working time that capitalism is exploiting, but rather the entire life time. With the term life time, we are not only referring to the sum of different daily working times, as it might be imagined if we would consider life as a sum of a number of days. The idea of life time as a sum of daily times refers to the biological or physical evolution of the body that, with the passing of time, tends to consume itself to the point of declining. Foucault, analyzing this aspect, spoke of capitalism as characterized by techniques of power that he defined as "disciplinary" (Foucault, 1997, p.157). The French philosopher referred to the birth of the institutions of disciplinary capitalism that would have reached their apex with the Tayloristic-Fordist organization, aimed at controlling and repressing the body intended as productive biological entity. As we already noticed, Foucault, furthermore, believed that the capitalistic organization characterized itself via specific techniques of *biopolitical* power.

It is this kind of power that is pervasive in cognitive biocapitalism. Indeed, the idea of life time materializes itself, beyond the simple mechanical significance, as a process of creation of what lives. If, during the Fordist period, the plus-value of the accumulation process was linked to the life cycle of commodities, daily produced by living labor, at present, the plus-value is more and more directly interrelated with humans' life cycle. This creates a parallel between accumulation and labor, which defines a new relationship between capital and labor. If on the part of the cognitive accumulation it is possible to speak of knowledge life cycle, on the part of labour subjectivities it is possible to speak of labor life cycle.

The above leads to a preliminary conclusion: under cognitive biocapitalism, the impossibility to detach the use value of the labor force from exchange value with reference to the working day (as a result of the prevalence of non quantifiable immaterial labor upon quantifiable material labor) leads to consider the entire life cycle, namely the overall life-time of the individual, as the measure unit of the working activity[2]. From the above discussion, also second preliminary conclusion might also be drawn: cognitive workers, precisely when language and communi-

[1] For an in-depth analysis see A. Foti (1998), and S. Bologna (1995).

[2] On the concept of "theory of life value" see Fumagalli-Morini (2010). About the necessity to reformulate a new theory of labor value adequate to the new accumulation process cognitive biocapitalism see Hardt-Negri (2000), Negri (2006; 2008a; 2008b), Vercellone (2010).

cation become the engine of valorisation, find themselves − because they are "really subsumed" − within a cooperation process that leads them to perform a working activity that is collective in kind. As Felix Guattari puts it:

"The term *collective* is ... understood in the sense of a multiplicity that unfolds both beyond the individual, on the side of the *socius*, and within the persona, on the side of pre-variable intensities emanating from a logic of the affections more than from a logic of circumscribed wholes" (Guattari, 1996, p. 18).

Life time and collective labor refer to the idea of a social being predicted by Marx in the *Grundrisse*. These are the boundaries within which we should define the subjectivity of labor and from which it is necessary to start if we want to discuss the concepts like exploitation and alienation within the context of cognitive biocapitalism (Negri, 1979).

As it is possible to note, these are the very same variables that define the process of accumulation. And this cannot be otherwise, as working and cognitive activities (production and transmission of knowledge) tend to coincide and to define a multitude (multiplicity) of subjectivity *in opus*, within which the *bios*, namely the affections, the sociality, the body and the mind are the sources from which the capitalistic valorisation arises.

Conclusion

To conclude, in the biocognitive stage of capitalism, the creation of value rests upon the process of exploitation of the *general intellect* for the purpose of private accumulation. The *general intellect* is the result of social cooperation that lies at the very basis of the accumulation process and allows the passage from tacit to codified knowledge − process that enables the production of value in capitalistic terms. Such a passage is regulated by the evolution of the juridical forms of intellectual property rights. This property, in conjunction with the control of the means of production allows *private property* to control the process of generation (intellectual property) and diffusion of knowledge (ownership of the means of production). Because the exploitation of the *general intellect* implies the valorization of the individuals' entire life, the process of wealth creation is no longer limited to the extraction of value from the singular working day but is extended to the point of incorporating the entire life of human beings. In other words, the rate of exploitation should no longer be measured according to the length of the working day generating plus-labor, but rather according to the time necessary to generate codified and, therefore, social knowledge, that is expropriated *by* and *in* the accumulation process.

The forms, both effective and direct, with which the exploitation of the *general intellect* creates value assume different typologies. Among them, the valorization placed by the process of *brandization* upon commodity is particularly noteworthy. To the increase of its symbolic significance and to the capacity to generate a shared imaginary on the part of consumers corresponds an increase of the value of commodity (Arvidsson, 2006). Also in this case, the plus-value originates from totally immaterial elements, created by behavioral conventions, namely by common relational activities, similarly to the functioning of the financial markets.

If private ownership of the means of production implies the theft of a portion of the working day destined to the generation of plus-value, intellectual ownership is the theft of social knowledge as common good. According to the rules informing cognitive biocapitalism, wealth creation derives from the exploitation of what is "common".

In this paper, the aim was to provide some suggestions in order to describe the evolution of the process of accumulation in contemporary capitalism. In other papers (Fumagalli-Lucarelli, 2007; 2011), we provide some first formal modeling of the dynamics of cognitive biocapitalism.

Open problems

The new features of a productive activity tendentially immaterial, based on the exploitation of "common", as well as the pivotal role of a precarious subalternity that prevents a new form of wage regulation, open up for biocapitalism the question of a proper modulation of the theory of value.

The first problem concerns how to measure the value of labor. In fact, it closely relates to the productivity of the *general intellect* and of relational activities (conceived as sources of the process of value creation in biocapitalism).

The second problem deals with the "source" of the value of labor. It refers to working performances, on the one hand, in the context of the dichotomy between the necessity of social and relational cooperation and its exploitation by means of learning and networking economies, and, on the other hand, the privatization of knowledge and the control of individual working performances (Hardt and Negri, 2000). As for labor organization, this contradiction assumes the form of a demand for social cooperation and, simultaneously, a hierarchical imposition organized around the individualization of bargaining and the income blackmail (whose condition of possibility is a widespread social insecurity). Therefore, cooperation and hierarchy are the cornerstones that

regulate labor relations in the contradictory and unstable framework provided by biocapitalism. It is in this context that arises the question concerning the tendential melting down of the distinction between working and life time. Here, we are witnessing a process of assimilation between labor and life which generates a potential contradiction within the working subjectivity itself, creating idiosyncrasy and instability in the basic organization of individual lives. This contradiction recalls the dualism between man and machine, especially in a situation, such as the biocapitalist one, in which the *mechanical* productive tool increasingly tends to be incorporated in the brain/body, namely a non-transferable element of individuals and immediately internal to labor power itself. Moreover, the relationship between concrete labor (whose peculiar production is use value, potentially "creative") and abstract labor (determined by capitalist conditions of production) generates at the same a potentiality for freedom and autonomy and a necessity of repression and brain lobotomization[1].

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[1] The emergence of biocapitalism entails not only a metamorphosis of the relationship between concrete and abstract labor, but also a modification of the concept of productive labor (whose process of "abstraction" produces surplus value). The limits of this essay do not allow us to deal with this issue. Nevertheless, it is important to note that the base of bioeconomic accumulation needs a constant expansion and ends up including the time of reproduction, education and consumption (see Fumagalli, 2007; Amendola, Bazzicalupo, Chicchi, Tucci, 2008). On the relationship between productive and unproductive labor in Marx (see Negri, 2008).

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