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Marx, Spinoza and the New Technologies

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Abstract

The purpose of this essay is to investigate the nature of the ideology that is developing from new information technologies. The basic thesis is that there is a confusion between the accumulation and mathematical processing of “information” on the one hand and “knowledge” on the other. While knowledge, it is argued, is always based on the world of life, as a set of problems that arise from the materialistic, biological, emotional reproduction of a living human body, information represents the most abstract and formal version of it, which can be accumulated and calculated, but whose true meaning always depends on the meaning and reproductive intention of an organic-human life. Those who think of information as knowledge without a foundation in a materialistic and non-linguistic sense, fall into the ideology of conceiving the world as a massive information process and, consequently, of conceiving the human mind as a calculating machinic structure similar to the way a computer works. In this perspective, the essay, taking up the fundamental intuitions expressed by Gramsci in Americanism and Fordism, analyzes the origin of the term “Technology” in Marx's Capital, its distinction of meaning from the term “Technique” and the likely influence exercised in this field on the Marx’s thought from German Technologie, as a fundamental teaching discipline of the 18th century German Cameralism.

Keywords

Ideology, Technology, Spinoza, Marx, Cameralism

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1. Introduction.

It is in the notes on *Americanism and Fordism* in *Notebook 22* that Antonio Gramsci gives rise to a new topology of the systemic categories of his thought, comparing the new forms of American capitalism with the economic and social organization of the old European continent. And it is precisely from this reconfiguration and rearrangement of the organic concepts of his thinking, with reference to the new forms of production and technology summarized in the term "Fordism", that it is worth starting out as an introduction and guide to this essay which attempts to try and reflect on the new digital technologies and the new "humanity and spirituality" that derive from them. Americanism in Gramsci's pages essentially refers, as is well known, to the technological and social revolution of Fordism, based on the one hand on mass production through assembly lines and a Taylorist division of labour and, on the other, on the increase in wages and consequent consumption. But above all it refers, to move from this radical transformation of the productive structure, to a sort of totalization of capital, in the sense of an economic structure that produces not only material goods and class relations, but also worldviews, values, ideologies through which human beings live their social life. In an America not burdened by great historical and cultural traditions as in Europe,

> it was relatively easy to rationalise production and labour by a skilful combination of force (destruction of working-class trade unionism on a territorial basis) and persuasion (high wages, various social benefits, extremely subtle ideological and political propaganda) and thus succeed in making the whole life of the nation revolve around production. Hegemony here is born in the factory and requires for its exercise only a minute quantity of professional political and ideological intermediaries. The phenomenon of the "masses" which so struck Romier is nothing but the form taken by this "rationalised" society in which the "structure" dominates the superstructures more immediately and in which the latter are also "rationalised" (simplified and reduced in number) (Q22§2,pp. 2145-6; *SPN* pp. 285-6).[1]

[1] A. Gramsci, *Selections from the Prison Notebooks*, ed. and trans. by Q. Hoare and G. Nowell-Smith, Lawrence and Wishart, London 1971, pp. 285-6. The volume is available on the

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It is superfluous to remember how much in the tradition of theoretical Marxism Gramsci dislocated the concept of ideology from the only negative connotation of false consciousness to its gnoseological, cognitive valorization: in the sense of interpreting the world of ideas, worldviews, ethical and moral values, as an indispensable medium, we could say Kantianly as a "transcend-ental", to perceive, move and give meaning to reality. So much so as to define, the Sardinian thinker, for this epistemological, and at the same time ethical-political function, assigned to ideologies, with the term civil society much less the complex of economic relations and practices, as had happened in the Marxian lexicon, and much more that sphere of political activity par excellence, as a place where so-called private organizations (trade unions, parties, organizations of all kinds) appear on the scene, which have as their objective the production and confirmation of the consent or, on the contrary, the transformation of people's ways of thinking. But, without going into the very complex question, here what is important to underline is that Gramsci, with this definition of *Americanism-Fordism* as a social-historical field in which the economic structure directly produces the ways and values of generalized social conscience, has made his own - without being sufficiently aware of them either philological or philosophical - the lesson of the Marx of *Capital*, for which, with the doctrine of fetishism, the ideological production of ideas is produced by the same economic relations of exchange, without the need for social actors specifically and professionally dedicated to cultural activities. In other words, that lesson of Marxian fetishism that tells us that the place of genesis and configuration of the ideological is *not in the superstructure*, as the *German Ideology* and the *Introduction of '59* wanted, but directly, and paradoxically, *in the structure*.

I leave it to the reader to reflect on the epochal scope, in my opinion, of this different location of the foundation of ideology, according to which the production of capital and, at the same time, the production of its self-dissimilation are intrinsically linked, specifically when capitalism reaches the most advanced technological transformations that are most appropriate to its nature. But what is more significant in my view is that this intrinsic

Internet with this page numbering; an alternative electronic version also exists, published by ElecBooks (London), 1999, but with a different page numbering.

connection, originally conceived by Gramsci, between *economic structure* and *ideology* appears to be the most consonant introduction to the content of the reflections that follow in this essay.

2. The "German Technology".

In order, from a Marxist perspective, to carry out certain critical considerations on new information technologies today I think it is necessary to reflect briefly on the different meanings of the terms "Technique" and "Technology", with particular reference to the history of the meaning of the word "Technology" (*Technologie*) in German. The main hypothesis that I intend to present is in fact that the German meaning of "Technologie", which Marx uses above all in *Capital* and in the *1863-65 Manuscripts*, is profoundly different from the meaning of the English terms *Technology* and *Technique*.[2]

The semantic context of the term *Technologie* in the context of late eighteenth-century German culture appears marked by deeply original characteristics. German *Technologie* is an academic discipline that was born and developed as a science of administration and politics in the German principalities. *Technologie* was taught in German Universities and was part of the *curriculum* of the state officials, civil servants, who had the function of managing the growth of material wealth and production activity. *Technology was a science* whose scope was to give state officials a precise knowledge of craft and manufacturing activities, their classification, articulation and distinction based on the different types of products, their best location, procurement and transport network, their relationship with agriculture and with other social and administrative areas of the cameral ("chamber") and police sciences. As the long title of Johann Beckmann's *Anleitung zur Technologie* says, "Technologie" had its field of study in "knowledge of crafts, factories and manufactures, above all those which are in closer connection with

[2] The indispensable reference on all this is to the research work that Guido Frison has been carrying out for many years now, and from whose writings I personally have drawn the fundamental indications for the study of cameralism in German culture and society and, at the same time, for the deepening of the semantic and conceptual distinction between the German entries "Technologie" and "Technik". Of Frison's considerable production, suffice it to mention here G. Frison: *Linnaeus, Beckmann, Marx and the foundation of technology. Between natural and social sciences: a hypothesis of an ideal type.* First Part*: Linnaeus and Beckmann, Cameralism, Oeconomia and technologie*, in "History and technology", 1993, vol. 10, pp. 139-160; Second and Third Parts, *Beckmann, Marx, technology and classical economics*, in "History and technology", 1993, vol. 10, pp. 161-173. By the same author see also *Technical and technological innovation in Marx*, in "History and technology", 1988, vol. 6, pp. 299-324.

agriculture [*Landwirtschaft*], police [*Polizey*] and cameral science", where *Polizey* meant, approximately, government administration.

The aim of *Technologie* was to increase the wealth of the State and, as such, it had as its object of knowledge much more the classification and definition of the procedures and phases of a production activity – starting from the nature and specific type of the object of work – than the study of machinery and work tools. One of its fundamental purposes was to subtract artisan know-how from a purely empirical and practical competence and to translate it into a precise path, into a method of rigorous knowledge, which was not used by the craftsman but by the state bureaucrat.

> It [*Technologie*] must not train any weaver, any beer-maker, nor in general any craftsman (*Handwerker*) because to practise their art they need great ability and dexterity which [both] have to be acquired separately through boring exercise, but are useless abilities for those to whom I am referring (Beckmann, *Anleitung zur Technologie*, Vorrede, 2nd ed. 1780).

In handicraft workshops knowledge was only of a customary nature, according to the instructions of the master craftsman to companions and apprentices. Instead *Technologie* ordered work operations in a rigorous and systematic way, according to the view of a social actor, who, external to the production process, was able to direct a production that was not only efficient in itself but coherent with the entire territory of the Prince and of the state, as well as with the well-being of the whole population.

> Technology is the science which teaches how to treat (*Verarbeitung)* natural objects (*Naturalien*) or the knowledge of crafts (*Gewerbe).* Instead in the workshops, it is only shown [that] one must follow the instructions and the habits of the master in order to produce the commodity, [on the contrary] technology provides in systematic order fundamental introduction[s] in finding the means to reach this final goal on the basis of true principles and reliable experiences, and how to explain and to utilize the phenomena which take place during the treatment (J. Beckmann, *Anleitung zur Technologie*, 2nd ed., 1780: 17).

Due to its exteriority to the production processes understood in the strict sense, *Technologie* therefore showed a dual nature. On the one hand, in fact, it was a *political-administrative discipline*, which participated in state power, in state authority, and on the other it was a *scientific discipline* because, similarly to the natural sciences, it

objectively described the necessary way of being and of carrying out production processes. Both these characteristics came together in the same goal: to separate the *knowledge of doing* from the *doing* in the context of economic activities and to differentiate learned and skilful men (the cameralistic bureaucrats as much as the business-men) according to a hierarchical relationship of competences or expertise from the executors of manufacture and crafts.

Johann Beckmann studied the methods of working the mines, factories and foundries as well as the collections of art and natural history, during his travels in Holland, Denmark and Sweden. Inspired by the taxonomic work of the botanic scholar Linnaeus, he taught "Philosophie und Technologie" at the University of Göttingen, which had been since its foundation one of Germany's best universities open to the modern culture of the Enlightenment. There he lectured on political and domestic economy, and in 1768 created a botanical garden according to Linnaean principles.

Among the many works by Beckmann, those most significant for our topic are the *Anleitung zur Technologie* (1777) and the *Beiträge zur Geschichte der Erfindungen* (1780–1805).

What is important to consider is that his activity as a scholar of manufacturing, craft techniques, mining and his teaching of *Technology* (*Technologie*) as a university discipline, falls into the socio-political and administrative context of the era of so-called *Cameralism*.

Cameralism (from the German *Kammer*, the prince's *treasure chamber* first, and after the prince's *council chamber*,) characterized the political and administrative theory and practice of the German principalities during the eighteenth century and continued to influence German state theory, especially Prussia, even during the nineteenth century.

The conception of the state in the cameralistic tradition was profoundly different from the tradition of English liberalism. In the latter, the public authority must essentially guarantee *order*, so that everyone can act freely with his own private initiative, provided that it does not harm the private sphere of the others. On the contrary, in the German tradition, where the prince was also *the father* of his subjects, the state had to guarantee people not only order but also happiness and wellbeing. In this context, *Technologie* was a university discipline aimed at increasing the wealth of the state and constituted the competence, the *knowledge* of the cameralistic bureaucrat as regards

his ability to direct a production process, in which the workers had to follow the prescriptions of the competent scientist.

Moreover, understanding the function of *Technologie* as a university discipline for the formation of the bureaucracy of the German Principalities implies underlining the different vision of the economy that distinguished the British culture and the German culture of the second half of the 1700s. In the former, the *economy* was increasingly a *political economy*, that is, a science that had the market as its fundamental object as a place of socialization and comparison between free economic players. It is a *political economy* because it considers the market as the characteristic institution through which modern civil society lives and reproduces itself, as a social sphere distinguished from the political state. In the modern market, the formation of prices is impersonal, each person's action not depending on anyone in particular, since it depends on everyone's economic action. For this reason, in English *political economy*, the nature of economic law has a different character from the nature of political law, based on decision and choice. Instead, in the German culture of the late eighteenth century, economics still has a profound link with the classical-Aristotelian meaning of economy as *oikos-nomos* (administration of the house).

According to an ancient conception by which the patrimony of the sovereign is not yet distinct from the patrimony of the state, the Prince in the German principality was not only sovereign but also, as said, father of his subjects. As a father (as head of the *oikos*) he had the obligation and the honour to guarantee not only order but also the well-being of his subjects-children. In this sense *Technologie* was part of the more general *Polizey*, as having care of the whole of the *polis*, that is, as management and functioning of the State with particular reference to the well-being of the population. Nor was it by chance that the two university chairs that were established in 1727 at the Universities of Halle and Frankfurt an der Oder are chairs of *Ökonomische-, Polizey- und Kameralwissenschaft*. That is to say, the cameralists were not so much economists, in the most modern sense of the term, as primarily bureaucrats and political scientists, in the historical context of the extraordinary reforming push produced by so-called "enlightened absolutism" on the basis of the political effects of Protestantism.

Johann Beckmann's *Anleitung zur Technologie* (1777) was the first work that self-consciously developed the concept of technology as a discipline devoted to the systematic description of handicrafts and industrial arts. Beckmann sought to make *Technologie* into a true knowledge (*Wissenschaft*) by creating a classificatory scheme equivalent to the Linnaean system for plants and animals.

From this point of view Beckmann tried to develop through the whole work of his life a number of overall classification frameworks that could contain the entire complex of the manufacturing and production processes of goods. From the raw materials and the natural resources of agriculture handled in his *Principles of German Agriculture* [*Grundsätze der teutschen Landwirtschaft*, 1769], through the description of the different productive branches and its corresponding innovation process in his *Guide to Technology* [*Anleitung zur Technologie*, 1777], to the classification in material-physical sense of final goods in his *Introduction to the Commodity Sciences* [*Vorbereitung zur Waarenkunde*, 1795-1800] and, finally, to the *Guide to Science of Trade* [*Anleitung zur Handelswissenschaft*, 1789].

Nevertheless it can be emphasized that the most general characteristic of cameralist culture was grounded in a natural-historical approach to knowledge and as such, focused on classifying rather than explaining. Beckmann's *Technologie* rested indeed firmly in the tradition of Bacon's proposal for a natural history of trades, a project also pursued in Denis Diderot and Jean D'Alembert's contemporary project of the *Encyclopédie ou dictionnaire raisonné des sciences, des arts et des métiers*. However, this scientific tradition was included in the education processes belonging to cameralism, as a set of practically-oriented academic disciplines concerned with state administrative organization.

In this historical and social context, the meaning of *Technologie* in the German language of the eighteenth century combined in an inextricable way a meaning that belonged to the *natural sciences* and a meaning that belonged to the *social and political sciences*.

3. Marx between Technology and Technique

Marx is well aware of this meaning, attributed to "*Technologie*" by German cameralistic culture. In the *1861-63 Manuscripts* he expli-

citly wrote about it: "Beckmann, 1772, braucht zuerst die Bezeichnung Technologie" [*Beckmann first used the denomination of Technology*].[3]

This means that he was well aware of *Technologie* as a newly established discipline, whose origin dated back to the work of Beckmann (*Anleitung zur Technologie*), which Marx cites here with the wrong year 1772, instead of 1777. As we know from the London notebook of 1851, ten years earlier Marx had come into contact with the German technologists, with Beckmann's *Beyträge zur Geschichte der Erfindungen*,[4] with the *Geschichte der Technologie* of J. H. M. Poppe, a pupil of Beckmann, and with other works by Poppe himself. Previously Marx had approached the study of the labour process in the manufacturing and modern factory system through the works of A. Ure, C. Babbage and W. Schulz. With the extracts of 1851 he widened his gaze to the history of techniques before the industrial revolution. So testifies his letter to Engels of October 13, 1851: "just recently I have been slogging away in the library I use, reading above all about technology and its history, and about agronomy, to get at least some idea of this rubbish".[5] We also know from another letter to Engels of January 28, 1863 that later, precisely during the writing of the 1861-63 manuscript, he felt the need to return to his technology extracts.

> I am inserting certain things into the section on machinery. There are some curious questions which I originally failed to do with. To elucidate these, I have re-read all my note-books (extracts) on technology and am attending a practical (only experimental) course for workers on the same by Prof. Willis (in Jermyn Street; the Institute of Geology, where Huxley also gave his lectures).[6]

In my opinion it is precisely with the *1861-63 Manuscripts* that Marx starts making a distinction of meaning between the term *Technologie* and the term *Technik*, to which I would like to draw attention, starting from the very explicit definition of *Technologie* that Marx gives with the first edition of the first book of *Capital* in 1867.

> The principle of large industry to resolve in its constitutive elements each production process, considered in and of itself and without taking man's hand

[3] K. Marx, *Manuskript 1861-1863*, MEGA, II, 3.6, p. 1932.
[4] [English translation *A History of Inventions, Discoveries, and Origins*, Bohn, London, 1846; modern reprints by Kessinger , Whitefish (MT), 2010, and HardPress, Sligo 2012 – ed. note.]
[5] *Marx-Engels, Collected Works*, 38: 476.
[6] Marx-Engels, *Collected Works*, 41: 449; in English also in Marx-Engels (1983), *Letters on Capital*, trans. A. Drummond, London, New Park, p. 82.

into account, has created the most modern science of technology. The multi-colored configurations of the social production process apparently devoid of reciprocal and stereotypical connection, broke down into applications of the natural sciences, consciously planned and systematically distributed according to the useful effect that was intended. Technology has also discovered the few great fundamental forms of movement in which every production action of the human body is carried out by necessity, despite the multiplicity of the tools used: just like mechanics that in machines there is a constant reproduction of elementary mechanical powers, and he cannot be fooled by the maximum complication of the machinery.[7]

In this definition it seems to me that Marx welcomes the basic inspiration of the cameralistic *Technologie* as objective knowledge of the production processes, borrowed from the precision and objectivity of the natural sciences. In this objectivistic reduction of *Technologie* there is no space or relevance for any autonomous agency of human action.

But at the same time Marx extends the meaning of *Technologie*, or to put it better, concentrates it on a production process also understood as a work process, the size of which had remained extraneous to German technologists. *Technologie* for Marx does not only concern, as he will say in other places, "the application of machinery, and in general the transformation of production processes into the conscious application of natural science, mechanics, chemistry etc., for certain purposes (*die Anwendung der Maschinerie, und überhaupt die Verwandlung der Productionsprocsses in bewußte Anwendung der Naturwissenschaft, Mechanik, Chemie etc., für bestimmte Zwecke*)".[8] *Technologie*, then, is not only knowledge related to innovation made up of machines, i.e. knowledge of the way in which science enters directly into the production process, but it is also, at the same time, study and knowledge, in its naturalistic-objectivistic perspective, of the movements of the workforce. *In other words, for Marx, the machine is intended simultaneously as a specific form of use of the workforce.* Furthermore *Technologie* is precisely the new science which, while dealing with the introduction of machines, takes as object of its knowledge the use of the workforce as an objective and impersonal performance.

[7] K. Marx, *Capital*, vol. I, *Collected Works*, 35: 489. [For Moore and Aveling's original 1887 translation, see *Capital* Vol. 1, London, Lawrence and Wishart, 1967, p. 486 – ed. note.]
[8] K. Marx, *Ökonomische Manuskripte 1863-1867*, *MEGA*, II, 4, 1: 95 (my translation).

Modern Technology in the first volume of *Capital* is therefore intrinsically connected with the concept of *abstract labour*, as the capitalist use and disposition of the labour force in the modern factory system. It is the science of the machine-force-labour system, in which the latter is itself machine activity, from which every possible element of subjectivity and intentionality is absent.

But it is precisely the *1861-63 Manuscripts* that is the text in which Marx first came to a theorization on the machinery that allowed him to confirm what he had already intuited in drafting the *Grundrisse*: namely that the original reality of abstract work, as substance of value, is placed not in the sphere of exchange and circulation but in that of the labour process as capitalist use of labour-power within the machinery system.

At the centre of the initial page of notebook XIX Marx wrote «*Theilung der Arbeit und mechanisches Atelier, Werkzeug und Maschinerie*», to carry out from there a long discussion that occupies the whole of Notebook XIX and the first ten pages of Notebook XX. The central question is that of the metamorphosis of the tool in the machine and the transition from craftsmanship as a determining factor of production to work as a subordinate and marginal factor with respect to the productive force of science. The machine, on this Marx is very clear, does not arise from the division of labour and the breakdown of labour operations. This was in fact the path that Adam Smith had followed, writing in the *Wealth of Nations*:

> I shall only observe, therefore, that the invention of all those machines by which labour is so much facilitated and abridged, seems to have been originally owing to the division of labour. Men are much more likely to discover easier and readier methods of attaining any object, when the whole attention of their minds is directed towards that single object, than when it is dissipated among a great variety of things.[9]

Instead for Marx, the introduction of the machinery interrupts all historical continuity with the centrality of an anthropomorphic principle in production in favor of a production process that is autonomous from the knowledge and centrality of the human being.

Already in the *Grundrisse* he had written that the machine was born from the specialization of the instruments and their synthesis

[9] A. Smith, *An inquiry into the nature and cause of the wealth of nations*, Elecbook Classics: 23-24. [Printed version, cf. *Ibid.*, London, Ward, Lock and Tyler, 1910, Ch. 1, p. 23 – ed- note.]

in an automatism that autonomized itself, through science, from the shape and limits of the human body. The theory of *formal* subsumption and of *real* subsumption, that Marx has already developed here, is based precisely on this autonomization of knowledge deposited in the machine by the knowledge and doing of the craftsman who in manufacture was one with his instrument.

The autonomization (differentiation) of the system of machines from the human body implies the radical transformation of the knowledge involved in the production process. We move from the competence and experience of the "partial worker", i.e. of the *Teilarbeiter* of manufacturing, to the sciences of nature transformed into the materiality of the means of labour. As a consequence of this overcoming of the limits of the human body it is impossible to deduce the introduction the machine system moving from the manufacturing division of labour.

> It is altogether erroneous to suppose that modern machinery originally appropriated those operations alone, which division of labour had simplified. Spinning and weaving were, during the manufacturing period, split up into new species, and the implements were modified and improved; but the labour itself was in no way divided, and it retained its handicraft character. It is not the labour, but the instrument of labour, that serves as the starting-point of the machine.[10]

For Marx "this subjective principle of the division of labour no longer exists in production by machinery"[11] and this disappearance of subjectivity means that work in the new factory system becomes abstract work, no longer highly individualized and particularized work like that of the *Teilarbeiter* of Manufacture, but work reduced

> to a purely barren abstraction – a simple property which appears in unvarying monotony in the same operation and for which the total production capacity of the worker, the manifoldness of his abilities, is confiscated.[12]

Application of the natural sciences to production through the creation of the machinery and transformation of the virtuous and very particular work of the *Teilarbeiter* into abstract work: these are the two deeply connected characteristics for Marx of the factory as

[10] K. Marx, *Capital*, vol. I, *Collected Works*, 35: 381n. [1967 London edition, cit., p. 378, n.]
[11] *Ivi*, 382. (1967 London edition, cit., p. 380)
[12] K. Marx, *MEGA II*, 3/1, p.252 (*1861-1863 Manuscripts*). [English trans. in R. Beamish *Marx, Method and the Division of Labor,* Urbana and Chicago, University of Illinois Press 1992, p. 109].

a new production system and as a specific object of the new science of *Technologie*.

With respect to this meaning of *Technologie*, it should be emphasized that Marx rarely uses the term *Technik* in *Capital* and in the preparatory manuscripts, while he uses the adjective technique that derives from it more frequently. I think that the term *Technik* in the Marxian lexicon refers to a much less structured and much less historically determined context of meaning. It means the ability of *homo faber*, in general, throughout the history of its species, to intervene on the work object through means and procedures appropriate to the peculiar characteristics of the work object. That is the term *Technik* refers to a production process seen from the anthropological perspective of the worker-producers and their skills, acquired through apprenticeship and generational transmission over time, in order, through tools and means of work, to make useful an initially useless work material.

In this view in Marx's texts of *Capital*, the term "Technik" generally has two meanings: it means, more frequently, either the *set of means of production*, that is, the physical set of tools or machinery for working objects of work, or, with fewer occurrences, the procedures, the skills of an art, that is, the systems of action of an actor oriented towards a productive end. It is a meaning that in both cases refers to the degree of development of the productive forces, in their relationship with nature and work materials, without considering the social relations between the means of work and the workforce.

Think of Marx's concepts of *technische Basis*, *technische Unterlage*, *technische Grundlage* or their synonym as *technische Bedingung* or, again, technical progress. Think also of the category of the "technical composition of capital" [*technische Zusammensetzung*], where the relationship between the means of production and the workforce is only physical, quantitative, and does not refer to the qualitative nature of the relationship.

In short, even if the occurrences of the terms *Technologie* and *Technik* in Marxian texts are not always distinguished precisely, I believe that it can be said that the two concepts are used by Marx with reference to the action of two different social actors: *Technik* refers to the history of the tools and means of work created and accumulated by man, as a characteristic of the human species, in its diversity from other living species, to know how to confront and

work nature (development and accumulation of productive forces over time), while *Technology* refers to a production system through machines created by science and at the same time under the control and direction of those who through the monopoly of science organize the specifically capitalist production process, in which the producers are themselves, like nature, made the object and subordinate elements of the work process.

Based on this diversity of meanings between *Technik* and *Technologie* it is legitimate, in my opinion, to theorize an expansion of the concept of *fetishism*, even if this formulation is not explicitly stated in Marx's text. Fetishism is not only the one explicitly theorized by Marx in the first book. It is not just that of the "commodities" that move autonomously themselves, of their own life, like fetishes. But it is also *the fetishism proper to capital*, when the meaning of *Technik* overlaps that of *Technologie*, making every dimension of domination and authoritarianism, every asymmetrical relationship and power between human beings disappear from the representation of the production system.

Fetishism means reification, concealment and dissimulation of the relationships between human beings in the body of things. Here, more as *capital fetishism* then *commodity fetishism*, it means a process of capital enhancement that disappears in the face of the objectivity of the work process: it means a process of social relationships, based on inequality and exploitation, that takes the form of a process marked by the objectivity and truth of science and, specifically today, by the creativity and intelligence of the new knowledge-worker.

We must not forget that the doctrine of fetishism in Marx's work is connected with a profound transformation of the concept of "ideology". With the Marxian theory of fetishism in *Capital*, *ideology* becomes intrinsic to the economic process. It is generated by the economic structure itself. It is no longer *false consciousness*, implemented by the abstract and fallacious thinking of philosophers and ideologists. Nor is ideology the production of ideas and images of the world that takes place within the superstructure, according to the indication of the *1859 Preface*. In *Capital*, ideology is the representative counterfeiting that the economic structure produces by itself, objectively, without the intervention, if not only acquisitive and passive, of human consciousness.

4. "Information" against "knowledge": the last ideology.

It is through this thesis of a structural fetishism, intrinsic to the production process, and today to be reread as the exchange between *Technologie* and *Technik*, that we can arrive at a critical analysis of the enormous transformation that we are experiencing today with the new information technologies applied to the production of capital. In other words, we can analyze the enormous mystification that happens through a surface of *technical* staging that hides the deeper *technologies* relationships of exploitation.

From this point of view I believe that, in the world of post-Fordism, the most widespread contemporary ideology is that of seeing new technologies as linked to the development of an intelligence and knowledge, both individual and collective, ever wider and always freer from slavery and repetition of Fordist manual work. The new ideology concerns the new information technologies conceived as techniques capable of putting an end to the anthropological era of labour as effort and initiating the new historical era of a work based on knowledge, and therefore characterized by the enhancement of the most creative and logical-discursive faculties of the human mind. It is the ideology of the easy establishment, through the fielding of new mental work with computer machines, of a collective subjectivity which, freed from the differences and heaviness of bodies, works an essentially common alpha-numeric language.

In my opinion, the core of this new ideology, linked to new technologies, consists in confusing *human knowledge* with the *transmission and processing of information*. It is, namely, an ideology which confuses the construction of *knowledge as interpretation*, as solving problems and clarifying with meanings the intricate and troubled spheres of life, with *the communication and calculation of information* through automatic procedures by systems of signs.

In order to better explain the difference between knowledge and information that I intend to propose to your attention, it is very useful, in my opinion, to refer to the conception of the cognitive process theorized in Spinoza's *Ethics*. In the second book of his more important work Spinoza writes:

> The object of the idea constituting the human mind is the body, in other words a certain mode of extension which actually exists, and nothing else» (Spinoza, *Ethics*, II, prop. XIII).

And he adds in proposition XXIII:

> The mind does not know itself, except in so far as it perceives the ideas of the modifications of the body.

This means that for Spinoza *the human mind first thinks of its own body*, assumes it as a privileged object and content. But the Jewish-Dutch thinker also emphasizes that the body itself is an individual formed by many individuals:

> The human body is composed of a number of individual parts, of diverse nature, each one of which is in itself extremely complex (*Ethics*, II, Prop. XIII, postulate I).

The human body is a "society" made up of many parts and functions. The human mind takes care of this manifold organism by ensuring with its thought activity, as far as possible, to feed the plurality of the body with a variegated multiplicity of sources of energy and life present in the external world. The truth of knowledge, of the activity of the mind, lies in the degree of intensity that manages to ensure the body's effort to maintain itself and to develop its life force, and it also lies in the degree of vital solicitation that is able to assure for all the components of his body. As is known, Spinoza defines the condition of maximum intensity of life of the body with the Latin term: *laetitia*. While defining the opposite condition of low vital activity of the various components of the body: *tristitia*. All this leads us to say that in Spinoza the *logical* value of knowing depends on the *biological* value of the «conatus». The maintenance and reproduction of the body organism, with the emotional feeling that accompanies them, is therefore the place of the *origin of meaning*: origin of the value, what distinguishes *good* from *evil*, *laetitia* from *tristitia*.

In this perspective the act of knowing (from language to the highest conceptual functions), is the activity of the mind that *does not create meaning*, but safeguards it, protects it and brings it to light: because it is able to bind the internal world of the body with the external world, allowing the body to practise the full set of relationships best suited to its life needs.

For all this Spinoza's *Ethics* looms large in the history of modern philosophy, because it has profoundly connected *body paths* and *thought paths*, and because he was the first in the history of Western culture to propose *a materialistic-corporeal conception of the distinction between good and evil*. According to Spinoza, in fact, that fundamental distinction does not arise from knowing but from feeling.

An *intellectualistic* ethic presupposes that good and evil are external objects, belonging to a tradition or an objective structure of reality. Whereas the *Ethics* of Spinoza considers *good* what increases the power of life of the emotional body of the human being and produces the feeling of "laetitia": whereas it considers *evil* what diminishes and saddens that same power of life, generating the feeling of "tristitia". This kind of passage from an *intellectualistic ethics of knowledge* to a *materialistic ethics of feeling* is still fundamental today, in my opinion, to understand the depth of the interpenetration of mind and body in human experience and to understand how much emotions, instead of abstract reason, can be a source of knowledge.

Over the past few decades, contemporary psychologists, psychoanalysts and neurobiologists have referred to this conception of Spinoza. Some of them have developed a so-called "two-axis anthropology", according to which the existence of the human being must be conceived as the organization of two constitutive axes. On the one hand the *vertical axis*, as the structure of all possible relationships between mind and body, between thought and emotional dynamics and on the other the *horizontal axis* as the structure of all possible relationships between that body / mind and the other external minds or external environment.

The nature of these two axes is deeply heterogeneous. Their characteristics, their way of proceeding, are different. Nevertheless according to these scholars it is fundamental to focus on their intertwining, following Spinoza's lesson, to access a deeply materialistic conception of life and in particular of human knowledge. The basic thesis of these scholars is in fact that the more the mind expands its external field and horizon of knowledge, the more it accesses a rich and deep drive dynamic on the vertical plane, and *vice versa*.

In biological terms this means that knowledge of the external world finds its original meaning in the way in which the unity of a

biological-emotional organism, such as the human body, pre-intents the environment, anticipating and promoting the purpose of its reproduction. Therefore even the most abstract and elaborate human knowledge finds its original and remote but no less present meaning (without falling into easy reductionisms) in the body-emotional system. It is always an organism, *as a unity*, that acts and moves, that attributes meaning to an incoming signal or perturbation.

But the peculiarity of the human brain is that of being able to fix, through abstraction and generalization, invariants, general concepts or general modalities of meaning and behaviour that can be used not only once, in a single context, but several times, by several people, in different and variable contexts. These invariants of knowledge, these formations of universal and generalized use, constitute information properly so called, the codification of which allows the accumulation and transmission of any fundamental cultural heritage for the reproduction of individual societies as for the history of humanity as a whole.

As is evident the choice and type of identification and communication of information codes – what signs to use, what the rules of their combination, what their grammars and syntax are – has profoundly marked the evolution of human history. In this sense we must recognize, that the greatest transformations in the history of human civilization have always been accompanied by profound revolutions in terms of the techniques of communication. In a very schematic way, it can be indeed summarized, as follows:

1. The invention of the alphabet made it possible to synthesize the entire field of communication, both oral and written, in just 25/30 signs, allowing humanity to get out of an iconographic communication, the use of which remained in the hands of few. In this way the alphabet represented the fundamental means of passage from a society based on an aristocratic-priestly culture to a society of culture potentially accessible to great masses of the population.
2. Many centuries later the other major step in the field of communication technique was certainly represented by the invention of printing and the abandonment of the amanuensis technique, with the enormous diffusion of the book and the written document that followed.

3. Today we are undoubtedly experiencing the third great revolution with computers, capable of transmitting and processing an enormous quantity of signs condensed in a small silicon unit[13].

5. The world as a «massive information process»

However we must not forget what level of abstraction has been reached today by the mathematical coding that underlies the different computer languages. The modern invention of machines for transmission and processing of information, independently of meaning, as strings of dots and lines in Morse alphabet, *0s* and *1s* in today's computers, has fully detached information from any concrete and empirical meaning. *The enormous power to accumulate, process and transmit information today is founded on the possibility of translating the alphabetical code into numerical-mathematical code and in turn of translating the numerical-mathematical code into electronic signs, into energy differentials*. In this way the transmission and elaboration of information has become a mathematical science and information could be formally analyzed, elaborated and transmitted, independently of any interpretation.

The revolution of new technologies offers today, but even more in the future, an enormous possibility that the mankind may enter into communication with itself, reach a self-awareness of itself, precisely through the enormous ability to store and process information. However we must not forget that this enormous acceleration of information processing is based on a logic of moving signs according to formal rules prescribing how to write and re-write them. At the heart of computability, of computational approaches of the notion of information, lies the powerful promotion of *meaningless formalismus* as information carriers.

In the context of this technological revolution, contemporary ideology consists, as I have said, in seeing the world as «a massive information process», in which human intelligence itself is considered as a computational machine that processes information and which can be replaced by artificial intelligence, through machines which can process a huge amount of signs.

On the contrary I believe that it is necessary to maintain the profound difference between "sign" and "symbol", with the

[13] On this topic see the excellent book by Clarisse Herrenschmidt, *Le trois écritures: langue, nombre, code*, Gallimard, Paris 2007.

distinction between *syntax* and *semantics* that this entails. In fact, a system of signs follows the formal rules of connection /disjunction, which constitute its grammar, for example those of a binary code with their respect for the principle of non-contradiction. These formal rules of movement of the signs are in fact "formal", because they form a *syntax* that is independent of meaning. *Indeed alphabetical signs and numbers do not exist in nature*. On the contrary the symbol, from the perspective of the human sciences, is a sign that refers to a meaning, to a semantics, which actually directs our life, separating the good from the evil, and thus building intentions and the prospects of our agency in the world.[14]

I would say that the meaning of the signs as symbols is therefore what constitutes *the content, not reducible to the language of our life*, not reducible to any code, and which has its roots in the body of our memory and our feelings. Because it is by our memory and our feelings that we gradually build the perspectives, according to which we give organization and form to the world we are living in: precisely through an emotional memory that selects the important invariants in our experience and discards what is outside our vital interest.

This means, in a materialistic perspective, that knowledge is generated in the human being only when *knowledge* is deeply connected with *feeling*: a complex of feelings that give meaning to and direct our exchange, our "agency", with respect to our biological and social environment. In the human being there is an indispensability of the body, physical and emotional, in building meaningful knowledge. As Giuseppe Longo states, the human brain, like the animal brain, forms information in the sense of knowledge through a way that is completely different from the way in which that same information will then be processed and formalized in the binary languages of the digital computer.[15]

[14] The deeper reflections on this topic can be found, in my opinion, in G. Longo, *Information at the Threshold of Interpretation Science as Human Construction of Sense*, in *A Critical Reflection on Automated Science - Will Science Remain Human?*, Bertolaso M. and Sterpetti F. (eds), Cham (CH), Springer 2020, pp. 67-100. For a more in-depth knowledge of Giuseppe Longo's extensive work see: http://www.di.ens.fr/users/longo.

[15] G. Longo, *Information at the Threshold of Interpretation Science as Human Construction of Sense*, particularly p. 87 and following. But see also by the same author, *Quantifying the World and its Webs: Mathematical Discrete vs Continua in Knowledge Construction*, https://www.di.ens.fr/users/longo/files//letter-to-Turing.pdf.
DOI:10.1177/0263276419840414.

But against a materialistic vision of the human being, based on the interaction of the two axes, vertical and horizontal, the exchange of knowledge with information and with computational approaches to information, an identity of human subjectivity is developing built only on a horizontal axis of identity and relationship, to the detriment of the development of the vertical axis.

This anthropology of the horizontal, due to the removal of the *vertical* dimension, makes impossible any critical distance from which individual and collective life processes can be evaluated and directed. It represents in fact the diffusion over the entire social body of a managerial behaviour, as a way of acting in a world connected, organized through the network, in a horizontal-rhizomatic world, where the primary competence consists in the ability to enter into relationship and to build bonds.

It is the production of a horizontal mind, as a typology of diffuse and mass mind, which therefore today is on the agenda as a fundamental anthropological function for the production and valorization of capital.

The myth of contemporary society of being a society of knowledge and creative participation of all in the world understood as a massive information process is central to this process.

This ideology, based on the exchange between knowledge and information, once again plays the appearance and surface of a concrete work that hides the reality of an abstract work.

It is said that new information technologies need increasingly communicative work performance and therefore a subject capable of interacting with his working environment through all his intelligence and mental skills, his autonomous ability to choose. According to this vision, in the flexible economy of post-Fordism the contexts of production and the market, because of the network organization that characterizes them, are increasingly complex and differentiated. In relation to this it is necessary to make full use of the complexity and elasticity of the human mind. Therefore today we need a performance with strong subjective participation and a degree of individualization that would refute the Marxian discourse on abstract labour, which can now only refer to the past for nineteenth-century and twentieth-century capitalism. According to this vision, with post-Fordist and post-industrial society, the effectiveness of work and concrete knowledge, the need for

personalized intervention, with respect to standardized models of behaviour, would have been extended to a very large extent.

In my opinion the verisimilitude of this discourse reflects only a surface reality, which in hindsight should be reversed. It seems to me that today it is the alpha-numeric language of computer machines that, with its binary codes – that is, codes that are simple and highly formalized – commands human intelligence. It is the computer language deposited in data processing programs that requires an environment that is already simplified and capable of being processed by the computer, which requires an environment with a very low degree of unpredictability. Nor is it a coincidence that the most efficient artificial intelligence systems are those that operate within very simplified work environments and are homologated to the limits of their calculation procedures.

I mean, in short, that the problem of new technologies today is not so much that they, in the near future, would put an end to human work, with the threat of integrally replacing the human mind with automation and artificial intelligence. It is instead that of a reduction/conformation of the world-environment, including workers of the mind, according to parameters mainly of simplification and quantitative measurement, suitable for constituting the massive information process database. The real problem is that of a superficialization of the world reduced to measurement fields and only quantitative evaluation, which exclude value-oriented criteria and parameters. That is, to use Max Weber's sociological language, criteria that are valid for acting, determined for purpose and not for value-oriented action, able to discuss, compare and choose between purposes.

In fact, the intelligence required by information technologies is an intelligence that can certainly operate and choose between several variables, but using programs that already in some way predetermine and force the field of possible answers. That is to say that the field of action of the intellectual worker can be incomparably more varied and polysemic than that of the ancient manual worker, but at the same time that same field is structured according to syntax and work sheets which, however many, refer to a semantics, a choice that is articulable and innovative meanings and aims within a given horizon. Even in this sense of a historically

given and unachievable horizon we can say that flexible and global capitalism increasingly needs a horizontal mind.

In conclusion I believe that it can be affirmed that if in Fordism the *Maschinerei-Arbeitskraft* system required the use of a *mindless body*, today the post-Fordist capitalist economy, in its most advanced places of development, requires a *mind without a body*. A mind that must be anaffective and decorporated and in which there is *knowledge without self-recognition*: that is acquisition and processing of information without recognition of the meaning and emotional value (and therefore of the ethical-political value) of their contents.

For this reason, the social and cultural movements, today critical of capitalism, cannot in my opinion avoid deepening the breadth of their social criticism and attempting, against the computer-dominated knowledge society, to intertwine and strengthen, with each other, the *critique of political economy* and the *critique of the libidinal economy*.