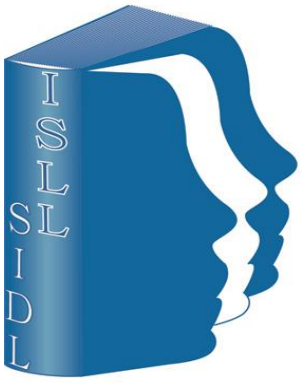

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The machines never stop. On the slippery slope of artificial intelligence

Alessandro Ferrara*

Abstract:

The contribution – inspired by Edward Morgan Forster's dystopian short story The Machine Stops, a reversed 'myth of the cave' in which humans voluntarily regress to epistemic automatism – aims to analyse the current relationship between humans and technology by linking the thinking of philosopher Bernard Stiegler with recent studies that have analysed the psycho-cognitive approach of humans towards artificial intelligence systems. Starting from the concepts of the grammatisation of technology and epiphylogenesis, according to which, according to the French philosopher, humanity is undergoing a process of cognitive proletarianisation, we will examine whether the current condition can be reversed through a pharmacological approach or whether we have already embarked on a slippery slope.

Key words: Cognitive Proletarianisation, Slippery Slope, Bernard Stiegler, The Machine Stops, Artificial Intelligence

1. Introduction

Edward Morgan Forster's 1909 short story, The Machine Stops, anticipates with alarming foresight the slippery slope that humanity seems to have embarked upon about a century later[1].

In a dystopian future, humans live locked underground in individual cells, able to communicate with others only through screens and sound devices, and completely dependent on a giant technological Machine that provides every good and satisfies every

* PhD in Theory of Law and European Legal and Economic Order at Magna Graecia University of Catanzaro, a.ferrara@unicz.it. This paper is based on a reworking of the talk delivered at the XI Conference of the Italian Society for Law and Literature, "Knowledge Without a Subject: The Epistemological Limits of Artificial Intelligence".

[1] "I want you to come and see me. Vashti watched his face in the blue plate. But I can see you! she exclaimed. What more do you want? I want to see you not through the Machine, said Kuno. I want to speak to you not through the wearisome Machine. Oh, hush!' said his mother, vaguely shocked. You mustn't say anything against the Machine. Why not? One mustn't. You talk as if a god had made the Machine, cried the other. I believe that you pray to it when you are unhappy. Men made it, do not forget that. Great men, but men. The Machine is much, but it is not everything. I see something like you in this plate, but I do not see you. I hear something like you through this telephone, but I do not hear you (Forster 2024).

need: air, food, entertainment, communication, education; on the sole condition that they do not attempt to emerge onto the Earth's surface, where the air – according to the Machine – is unbreathable.
From these few lines of the story, some of the most debated aspects of the modern relationship between technology, artificial intelligence and humanity clearly emerge: digital isolation, the replacement of real experience with virtual experience, (blind?) trust in systems that humans do not fully understand and, above all, the theme of knowledge and the relationship of continuous dependence that is developing between humans and artificial intelligence through a series of self-perpetuating psycho-cognitive processes, highlighting how, raising the question of whether humans are actually heading down a slippery slope.

2. The Epimethean defect and technology: Bernard Stiegler's epi-phylogenetic trajectory.

Artificial intelligence has changed and continues to change the ways in which human beings access, produce and validate knowledge, pushing them beyond their constitutive condition, which originates, one might say, in that Epimethean defect that makes man first homo faber, the man who creates and produces, and subsequently homo sapiens, the man who is forced to think, organise and plan. In Protagoras, Epimetheus forgets to distribute to human beings the qualities necessary for their survival, causing a congenital defect that Prometheus will attempt to remedy by stealing fire in his representation of technology, so as to allow human beings to use nature to their advantage and survive.

In this sense, according to Bernard Stiegler's reconstruction, the existence of technology is contemporary with that of human beings. In contrast to Gehlen's theory of compensation (Fadini 1991), Stiegler's techno-logical framework does not postulate any dialectical exemption of humans from Nature; on the contrary, it assumes that the structure of the human being is intrinsically co-implicated with technology along an epiphylogentic trajectory that connects, in the same process, the organic and the inorganic[2]. In this framework, technology is not configured as a simple additional prosthesis or as an external superimposition on the living, but as a co-original dimension which, instead of freeing man from natural constraints, re-inscribes him more deeply into its organic fabric. To summarise the concept using the words of the French philosopher, "at the origin there would have been only the defect, which is precisely the defect of origin or the origin as defect" (Stiegler 1998)[3].

According to this reconstruction, human beings are born at the same time as technology and are not something different from technology but are technology itself; indeed, "it is the tool, that is, techne, that invents man, and not man who invents technology. Or rather: man invents himself in technology by inventing the tool – 'externalising' himself technologically" (*Ibidem*: 184).

This perspective takes on the characteristics of technology, namely the relationship between human beings and technology in which human beings externalise themselves by continuing life with means other than life itself (*Ibidem*: 135).

[2] For further information, see Di Martino (2019: 39-50).
[3] For a comparison between Stiegler's position and Gehlen's position, see Pilotto (2020: 171-184).

Through this process, technical memory or consciousness is formed which, thanks to the recursive coupling between lithic tools and the cerebral cortex, takes shape in a non-specific artificial memory, i.e. one that cannot be traced back to either the phylogenetic dimension or epigenetics alone, but to what Stiegler calls epiphylogenesis (*Ibidem*: 220-223)[4]. It results from the sedimentation and stratification of individual epigeneses—i.e., the experiences and memories of individuals—fixed on inorganic recording media, which make it possible to transmit them between generations outside the genetic programme (Vignola 2025: 17).

Conceived in this way, the technique consists of a sort of epiphylogenic memory, supplementary to the two biological memories that are the genetic code (phylogenesis) and the memory of the nervous system (epigenesis) (Vignola 2016: 22). This epiphylogenic memory, which is essentially the memory of traces, is to be understood "in the sense of the preservation, accumulation and sedimentation of successive epigeneses and, articulated between them, a break with pure life in the sense that in pure life epigenesis is precisely what is not preserved" (Stiegler 1998: 136).

In other words, as a discretisation of cognitive, emotional and experiential flows and the archiving of memory on material supports, grammatisation has been both the vector for the transmission of knowledge and collective identifications throughout human history and, in different ways, the generator of the opposite effect: a progressive loss of knowledge, i.e. a proletarianisation as an externalisation of memory contents without return, that is, without re-internalisation (Vignola 2016: 23).

In Bernard Stiegler's thinking, the concept of *epimetheia* fits into this dynamic and represents its cognitive and temporal dimension. It plays a decisive role in understanding the originally technical structure of knowledge and, more generally, of human existence. The prefix epi- does not designate a simple external addition or superimposition on metheia (or mathesis)[5], but introduces a dimension of accidentality and contingency, a factual character that marks human beings as derivative and passive. In this sense, epi- expresses an original possibility, the condition of a subject that never presents itself as an absolute principle, but as the heir to what precedes it.

Metheia, understood in the sense of mathesis, refers to the idea of participation and learning; knowledge does not arise from a solitary or autarchic act, but from a process of transmission and sharing of already given knowledge, of a past being that traverses history. With the addition of the prefix epi-, Stiegler emphasises that such transmission is always also inheritance (*epimathesis*): to know means to receive, assume and transform what has been, in a movement of appropriation that is never entirely original. Knowledge, in this perspective, is always mediation, deposited and reactivated memory – a process in which tools, writings and technologies act as supports for collective memory, allowing humanity to evolve beyond the biological limits of phylogenesis.

Epimetheia, therefore, is not reduced to an intellectual faculty, but defines the historical and temporal structure of the human. Man is a being who inherits an already

[4] Epiphylogenesis is the concept according to which technology, understood as an extension of memory and human evolution – in which tools, writing and technologies become repositories of knowledge that allow humanity to evolve beyond biological limits – is not a mere external tool, but the original technicality that constitutes the very nature of the human being.

[5] Mathesis (μάθησις), in Greek, means learning, acquired knowledge. Here used by Stiegler as a synonym (or calque) of mathesis to indicate knowledge as transmission: knowledge received, shared and reactivated over time.

constituted world, a language, a culture, a technique that precede and determine him. In this, Stiegler remains faithful to Heidegger's lesson of Dasein as 'being-thrown' (*Geworfenheit*) (Heidegger 2010). Human beings are always consigned to a past that is not strictly theirs, but which constitutes them as such. However, he goes beyond Heidegger, showing – through the mythical figure of Epimetheus – that this 'thrownness' is not only existential, but also technical: it is externalised memory that makes temporality itself possible, and therefore knowledge. In this perspective, inheritance carries with it a sort of original sin, since technicality – the condition of memory and transmission – is both what grounds and what alienates humans, revealing their nature as beings irremediably mediated by technology (Stiegler 2016).

According to Stiegler's reconstruction, human knowledge is therefore always a technical phenomenon. There is no knowledge without material supports of memory that allow for the transmission, preservation and reactivation of thought. The human mind, in this perspective, is inseparable from its 'prosthetic organs': language, writing and cognitive machines.

Epiphylogenesis accurately describes the process of sedimentation of individual experiences (epigenesis) into externalised memories which, as they accumulate, become the driving force behind cultural and cognitive evolution.

In this argumentative context, the relationship between technology and artificial intelligence and, above all, the relationship between knowledge and artificial intelligence becomes relevant.

As we have seen, Stiegler believed that technology was not a contingent accessory of the spirit, but its condition of possibility: what we call 'spiritual' is constitutively technical. Logos always requires a material medium; every act of thought occurs through something outside itself. Consistent with Leroi-Gourhan, according to whom technology is in a co-evolutionary relationship with human beings and therefore humanisation occurs through the externalisation of memory, technology is the memory of humanity: every tool, every form of writing, every piece of software externalises a human capacity (walking, counting, remembering...). But what happens if, according to Stiegler's conception, the relationship between man and technology dissolves? What happens if *techné* loses its meaning as know-how and becomes how, doing without knowing? Doing without remembering and without transmitting memory? How do or will the gnoseological limits of artificial intelligence affect the development of the human brain and, consequently, the society in which we live and, above all, the progress achieved thanks to technology?

If artificial intelligence allows human beings to do, to achieve, to reach factual goals without knowing and therefore without coming into contact with the essence of technology, without transmitting, making the epigenetic outcome indifferent and nullifying the epimetheic link, what awaits us in the near future?

3. The slippery slope of *cognitive miser* and *algorithmic appreciation*.

The increasing use of artificial intelligence risks, in the long term, producing a disturbing paradox: human beings, although surrounded by information and solutions,

could – as in the story that inspired this reflection[6] – gradually lose the ability to know, understood as the critical and internalised possession of knowledge. Knowledge is becoming an external service, produced by algorithmic systems, and human beings are increasingly ceasing to exercise their interpretative faculties and with them the ability to control, validate and understand the results of AI.

This argument is based on a number of recent and older studies that could confirm that the widespread use of artificial intelligence could lead humans to 'do without knowing', resulting not only in dependence on artificial intelligence itself but also in a loss of control over the output generated. This conclusion is reflected in two different but complementary cognitive dynamics: the tendency of the human mind to save energy and rely on simplified, automatic or heuristic strategies (*cognitive miser*)[7] and the tendency of human beings to prefer advice, guidance and, in general, the output produced by AI systems rather than that of other human beings or that derived from their own beliefs and skills (*algorithmic appreciation*) (Logg, Minson, Moore 2019), often leading them to overestimate the accuracy of the output produced even in the face of clear evidence to the contrary (*algorithmic over-appreciation*) (de Jong, Bos, van Berkel, Lamers 2025).

The process of reducing the energy expenditure required to process a decision means that humans often settle for partial information in order to improve processing speed at the expense of assessing the accuracy of the information (as demonstrated, for example, in a study carried out on a review site that used automatic categorisation systems) (Jiang, Ye, Zhao, Gu 2025). Even in the field of writing, one of the essential forms of the epiphylogenic process according to Stiegler and Leroi-Gourhan, the use of a generative intelligence model seems to increase immediate performance, but not knowledge gain or transfer, with more superficial self-regulation patterns: the authors refer to potential "metacognitive laziness" (Yan et al. 2025).

The use of ChatGPT in writing assistance, the subject of numerous studies, also shows a decrease in cognitive recruitment (less mental effort, less deep attention, less ability to develop strategies) in the group assisted by ChatGPT compared to the control group. Students produce more but think less, signalling what is known as "cognitive offloading" (Georgiou 2025), i.e. the tendency to shift the cognitive load to external media through a cognitive process opposite to that described by Stiegler with regard to the relationship between man and technology and their continuous overlap.

Interaction with generative artificial intelligence systems establishes a low-friction cognitive regime that rewards immediate gratification (ready answers, well-formed text, etc.) and, as a result, shifts processing towards an impulsive decision-making system, marginalising the reflective one. In this context, routines of requesting and accepting output become established, with cognitive miserliness (systematic preference for shortcuts) and metacognitive offloading (reduction of planning, monitoring and verification processes). However, studies show that the configuration of self-construal (the interacting subject) modulates the phenomenon. Independent orientations tend to

[6] "There was the hot-bath button, by pressing which a basin of (imitation) marble rose out of the floor, filled to the brim with a warm, deodorised liquid. There was the cold-bath button. There was the button that produced literature. And there were, of course, the buttons by which she communicated with her friends. The room, though it contained nothing, was in touch with all that she cared for in the world." (Forster 2024: 127).

[7] For further information on the psychological processes that give rise to cognitive miser behaviour, see, among others, Stanovich (2009); Orbelli, Dawes (1991) and Barone, Maddux, Snyder (1997).

enhance impulsive engagement, while interdependent ones support more deliberative processes; however, under pressure, in cases of mental fatigue or low task complexity, even reflective profiles seem to progressively yield to the low-friction circuit (Deng Z., Deng Za 2025). The outcome of these studies seems to show that the increasing use of output generated by artificial intelligence is accompanied by an increasing decline in cognitive mastery (explainability, verifiability, transferability of knowledge). In essence, more is produced, but less is known.

This trend is fuelled by the relationship of trust that is developing between humans and artificial intelligence. This relationship of trust can lead people to consider advice labelled as coming from artificial intelligence to be more reliable than advice coming from humans, regardless of its content (Logg, Minson, Moore 2019: 100). Similarly, in the field of medical diagnosis, it makes it very difficult for doctors to deviate from the diagnostic suggestions of artificial intelligence, even when they conflict with their own expertise (Jussupow, Spohrer, Heinzl, Gawlitza 2021).

The influence of the very existence and use of artificial intelligence systems on the human mind, on the ability to choose, learn and transfer knowledge, cannot but be taken seriously.

In fact, although further studies seem to show that moderate and controlled use of artificial intelligence can improve not only productive performance but also cognitive performance, and that the influence of artificial intelligence on one's own knowledge is determined by the individual's level of expertise (Jessup, Alarcon, Willis, Lee 2024), it cannot be ignored that these theoretical assumptions for the maintenance of benevolent artificial intelligence seem, in reality, difficult to pursue.

Read in light of Stiegler's reflections, these results show the risk of a split between doing and knowing how to do. So long as technology remains a means of transmission (externalised memory and knowledge that humans inherit, interpret and relaunch), it feeds the epimetheic circuit of knowledge; when, on the other hand, production is external and autonomous – and humans merely select plausible outputs – the cycle is interrupted: technology no longer conveys knowledge, it replaces it. If the relationship of trust is self-reinforcing, it would seem plausible to argue that dependence on the use of artificial intelligence systems stabilises offloading habits, causes attention to focus on easy clues, critical control to diminish, and the ability to learn over time (the historicity of knowledge) and the possibility of transferring knowledge to weaken. Through this process, the relationship of dependence reinforces the relationship of trust and vice versa, causing humans to embark on a slippery slope from which it is difficult to turn back.

4. Anthropocentrism and cognitive proletarianisation: a pharmacological solution?

According to the various studies cited, the use of artificial intelligence systems is weakening the human capacity to acquire and transfer knowledge and, above all, to remain free and independent, even for the purpose of validating the results produced by the systems themselves. The slippery slope, it would seem, feeds on itself and amplifies these effects over time, as the more artificial intelligence is used, the more the bonds of dependence and trust are reinforced, leading in turn to greater use of artificial intelligence systems.

This process should not only be imagined in the short term, but should be imagined in an intergenerational evolution in which the processes of learning and knowledge transfer could be compromised.

In the dystopian scenario mentioned in the story cited at the beginning of this paper, humanity no longer has any books available, but the only one available is the one relating to the functioning of the Machine[8] . Knowledge is no longer in the hands of human beings but in the Machine, and there is no alternative for human beings but to rely on the Machine.

But why should such a situation be problematic?

There are at least two essential aspects, the first of a regulatory nature and the second of a philosophical nature.

From a regulatory point of view, it should be noted that, to date, any regulatory framework containing principles relating to the use of artificial intelligence systems, the recommendations adopted by the OECD on artificial intelligence[9] , the UNESCO recommendations on the ethics of artificial intelligence[10], as well as the AI ACT[11], affirm as a key principle of the ethical and legal admissibility of AI systems – especially in areas that the AI Act defines as high risk[12] – anthropocentrism, understood as a guarantee not only that artificial intelligence does not produce adverse effects on human beings (based on the principle of non-maleficence), but above all in the sense of allowing human beings to control and validate the results produced by artificial intelligence, essentially remaining responsible for them.

Furthermore, this ability should not be the preserve of a minority of people with particular personalities, expertise or skills in managing the relationship with artificial intelligence, but rather an ability that can, at the very least, generally be attributed to those working in a given sector.

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[8] "By her side, on the little reading-desk, was a survival from the ages of litter — one book. This was the Book of the Machine. In it were instructions against every possible contingency. If she was hot or cold or dyspeptic or at a loss for a word, she went to the book, and it told her which button to press" (Forster 2024: 168)

[9] Recommendation of the Council on Artificial Intelligence, Adopted on 22/05/2019 and Amended on 03/05/2024 - Available at: https://legalinstruments.oecd.org/en/instruments/oecd-legal-0449 (last accessed on 10/10/2025).

[10] Recommendation on the Ethics of Artificial Intelligence, UNESCO's first-ever global standard on AI ethics – the 'Recommendation on the Ethics of Artificial Intelligence', adopted in 2021, is applicable to all 194 member states of UNESCO. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000381137 (last accessed 10/10/2025).

[11] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Regulation on artificial intelligence). Available at: https://eur-lex.europa.eu/eli/reg/2024/1689/oj?locale=it (last accessed 10/10/2025).

[12] As indicated in Annex III: High-Risk AI Systems: With reference to Article 6(2), high-risk artificial intelligence systems are considered to be those used in biometrics (remote identification, categorisation by sensitive attributes, emotion recognition), in the management of critical infrastructure (security components for digital networks, traffic, water/energy), education and training (admission, learning assessment, grading, proctoring), employment and HR (recruitment, career/termination decisions, monitoring and task allocation), access to essential public and private services (eligibility for benefits, credit scoring, pricing/insurance risk assessment, emergency triage/dispatch), law enforcement (risk assessments, polygraphs and similar tools, reliability of evidence, profiling and risk of recidivism), in migration/asylum/borders (risk scoring, visa/asylum support, identification/recognition) and in the administration of justice and democratic processes (assistance to judicial authorities/ADR; systems that directly influence election outcomes or voting behaviour).

However, although this principle is generally accepted, it seems that its effectiveness remains only on paper and that both the dynamics of cognitive miser and those of algorithmic appreciation demonstrate the difficulties that the pervasive use of artificial intelligence can entail in terms of complying with this principle.

The issue of knowledge then becomes central and deeply intertwined with that of anthropocentrism and the need for a human-in-the-loop or at least human-over-the-loop[13]. The possibility of intervening to manage artificial intelligence systems, i.e. to validate or invalidate their results, can only be closely linked to the maintenance of knowledge, understood as internalised knowledge, which is necessary in order to speak of techne according to a process of identification within the human being.

The technique, devoid of maieutic effort[14], loses its epiphylogetic function and becomes doing without knowing how to do, uncritical acceptance of the result or, over time, deification of doing without knowing, risking the reproduction of a scenario similar to that depicted by Forster in The Machine Stops. Human beings, after striving to leave the cave to look at the stars[15], risk returning to it, enchanted by the ease with which their needs seem to be just a click away. Truth loses its origin in the logical contrast between a concept and its opposite but is imposed from above. Instead of freeing man from the cave, the semblance of knowledge chains him once again, bringing him back to his ignorant beginnings.

If, for Stiegler, this process of proletarianisation of knowledge[16], i.e. the progressive loss of knowledge that is externalised[17], is inherent in the process of grammatisation of technology[18], the pharmacological approach[19] is the determining

[13] Technical and regulatory literature distinguishes between three types of human-machine interaction. In human-in-the-loop (HITL), the output of AI is purely advisory and the binding decision remains with the human, who approves or rejects each relevant step. In human-on/over-the-loop (HOTL), the system operates autonomously but is subject to continuous supervision with the possibility of timely intervention/override (a condition that requires suitable interfaces, alert thresholds and logging to avoid automation bias and passive surveillance). In human-out-of-the-loop (HOOTL), the decision is entirely automated without significant human control in real time, with humans relegated to ex ante design or ex post auditing. In high-risk contexts, good practice (and European regulation) favours HITL or, at most, HOTL with effective supervision, while the HOOTL approach is, in principle, incompatible or only admissible in low-risk scenarios.

[14] Although we refer lexically to the Socratic maieutic process (described in Plato's well-known work, see Plato 2015) and of a dia-logical nature, in this case we mean the maieutic relationship as the relationship between the ego and the logos, as an intellectual effort capable of producing knowledge.

[15] This refers to the myth of the cave described by Plato in The Republic (Plato 2004).

[16] Stiegler shifts his focus away from the author and the concept of reference: drawing on Marx's proletarianisation, he extends and expands what would be the particular situation of the Marxian proletarian, whose professional knowledge, once delegated to machines, is 'expropriated' from him and is no longer necessary (since the machine will perform the work in his place). In fact, proletarianisation in Stiegler is always generalised: everyone, in their relationship with technology, experiences a loss of knowledge, precisely because of the original technicality that distinguishes humans. See Baranzoni (2025: 65-66).

[17] Anyone who loses a form of knowledge, whether practical, physical or theoretical, is proletarianised: industrial workers lose their know-how, absorbed by machines; consumers lose their savoir-vivre, nullified by marketing; cognitive workers and web users lose their very mental lives, formatted by the computer systems of 'cognitive capitalism' Vignola (2016: 24).

[18] Grammatisation is a historical-technical process of discretisation and externalisation of cognitive, affective and experiential flows into material traces (writings, images, machines, digital archives) capable of constituting an epiphylogentic memory that preserves and stratifies individual epigeneses on inorganic supports (the 'tertiary retentions'), making possible the transmission of knowledge and psychic and collective individuation.

factor in the outcome of the proletarianisation process itself. The technical supports of knowledge can be used in two different ways, one positive and empowering, so to speak, and the other negative (or defective) and proletarianising, so to speak. The first, therapeutic, consists in the adoption of tools within care practices – rules, education, institutions, design – that guide their use and allow them to be integrated into a personal and collective life worth living. The second, defective, is a 'laissez-faire' approach that abandons new techniques to their toxic side, since, for Stiegler, every technique is "fundamentally toxic" (Stiegler 2010) until therapeutics are applied and responsibility is assumed.

Going beyond Derrida's concept of pharmakon (Derrida 1981)[20], developed with reference to the myth of Theuth[21], according to which technology is both antidote and poison (Stiegler 2014), Stiegler reinterprets pharmakon from an anthropogenetic and technogenetic perspective, deconstructing the separation between *anthropos* and *technè* (as between living and non-living). This distinction, based on critical pharmacological analysis and the political-cultural programme, is aporetic in that there is no real absence of implementation, because there is always some use of technology. The problem, therefore, is not unanswered toxicity, but an insufficient response to toxicity. It follows that, according to Stiegler, the issue is not to demonise technology, but to build care institutions capable of converting its poison into a remedy, deriving from it – through an analytical framework that diagnoses the historical and social effects of *pharmaka* on the processes of psychic and collective individuation – immediate political usability. humans to embark on a slippery slope from which it is difficult to turn back.

5. Conclusion

Understanding the relationship between man and technology as it emerges from certain aspects of Stiegler's thinking, and relating this concept to studies in the field of human psycho-behavioural science, the conclusion hypothesised at the beginning of this work seems to take on a less utopian guise.

The direction taken by humankind – as Stiegler also argues with reference to the technical pharmakon provided by digital algorithms (Stiegler 2017) – is leading to cognitive proletarianisation: the subject loses their epistemic skills and becomes incapable of knowing, reduced to a passive consumer of computational decisions. The

[19] In this case, pharmacological is understood as deriving from the Greek pharmakon, meaning both poison and antidote.

[20] Derrida's deconstructive operation consists in showing that Plato must tame the pharmakon in order to save the primacy of the logos: neutralise its ambiguity, cure it with a 'pharmacy' of conceptual exclusions (writing as a supplement, hypomnesis, artifice) and expel what is ambiguous.

[21] In the myth of Theuth, Socrates, through Plato, dramatises the ambivalence of writing as pharmakon: both remedy and poison. Theuth, the Egyptian god of arts and sciences, offers King Thamus the invention of writing, praising it as a medicine capable of increasing memory and wisdom. Thamus reverses the thesis: writing does not enhance mnēmē (living memory), but only provides hypomnēsis (remembrance), an external repository that lightens the inner exercise of memory and produces an appearance of knowledge; those who write/read 'will believe they know' without having truly understood. Plato links truth here to dialogical practice and care of the soul: the living logos, which responds, defends itself and allows itself to be questioned, cannot be replaced by mute signs that cannot 'help' themselves. See Platone (2022).

result is knowledge without a subject, an epistemic automatism that threatens critical formation, rational autonomy and cognitive responsibility.

Industrialism and capitalism – systematically appropriating all techniques – trigger a progressive emptying of knowledge: first of know-how, then of know-how-to-live, and finally of the ability to conceptualise. The result is a drift towards thoughtless automatism, a technical externalisation of knowledge without internalisation and reappropriation, with potentially irreversible consequences. Losing the ability to know, understand, transmit and remember.

This is why Stiegler has waged a veritable battle against the proletarianisation produced by contemporary computational machines. He argues that there is still room for thought, despite the fact that hyper-industrial modernity tends to reduce us to resources of a global mega-machine which, through widespread profiling, restricts the scope for conscious decision-making. Hence the need to regain the time to think, considering what tools do to us before they decide for us.

To counteract this drift, Stiegler proposes reactivating the processes of psychic and collective individuation by recomposing the triad of knowledge – *savoir-faire*, *savoir-vivre*, *savoir-théoriser* – through pharmacological education capable of transforming technical exteriorisation into critical re-interiorisation. To reverse the trend towards cognitive imprisonment by marketing and media devices, he proposes a therapy of supports capable of giving young people back time, attention and verification practices, so that education can once again become a policy of time for thinking against the consumerist automatism that atrophies judgement (Stiegler 2010).

To protect democracy, understood literally as the power of the people – which, as power, must have within itself a potential outcome to be expressed – it is necessary to achieve de-proletarianisation, understood not only as an educational approach capable of forming autonomy and attention before "becoming a citizen"[22] but through learning institutions that re-internalise the knowledge externalised by algorithms and automation. Not through the rejection of technology, but through a pharmacology of technology, i.e. organisational designs, curricula and interfaces that require explanation, evaluation and responsibility for the knowledge contained in teaching devices that transform externalisation into lived knowledge, avoiding thoughtless automatism (Stiegler 2015).

Today, education seems to be the only truly viable solution as a means of forcing us to plan, argue and verify, while at the same time reversing the role of artificial intelligence as a substitute for intelligence that produces in our place. Moderation in its use could be the solution, even if studies on cognitive miser and algorithmic appreciation raise significant doubts about the human capacity to effectively moderate its use.

It is not easy to propose solutions. The issue of knowledge and its intergenerational transfer is certainly something to be taken into consideration, and we have undoubtedly just begun to slide down a slippery slope. Perhaps it is still possible to turn back and prevent what happened in E.M. Forster's story, where the Machine

[22] This refers, not so subtly, to Rousseau's approach in Emile, according to which it is necessary to educate the man first and then the citizen. This means cultivating autonomy and attention first and foremost, protecting the child from social heteronomy, letting him learn from things and natural consequences ('negative' education), developing judgement from within instead of filling him with external rules. Only when consciousness is formed – when amour de soi is distinct from amour-propre, and attention is capable of sustaining self-examination – is civil and political education introduced. For further information, see Rousseau (1979).

stopped working and condemned humanity to disappear forever[23]. A useful point for reflection can be drawn from the words used by Forster in the last pages of his story, when it is clear that the Machine, by ceasing to function, will condemn humanity, with the exception of the 'cast-outs', to disappear forever.

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[23] «Man, the flower of all flesh, the noblest of all visible creatures, man who had once made God in his image and had mirrored his strength on the constellations, beautiful naked man was dying, strangled in the garments he had woven. Century after century he had toiled, and here was his reward. Truly the garment had seemed heavenly at first, shot with colours of culture, sewn with the threads of self-denial. And heavenly it had been so long as it was a garment and no more, man could shed it at will and live by the essence that is his soul, and the essence, equally divine, that is his body». In the dystopian world of E. M. Forster's The Machine Stops, the 'Homeless' are those who, rejecting the cult of the Machine or deemed 'non-compliant' with its order, are deprived of all technical support—housing, supplies, connections—and expelled to the surface. This category functions as the ultimate sanction and social control device: a sort of secular excommunication that removes the individual from the techno-social ecosystem on which life itself depends. More than a simple punishment, 'expulsion' establishes a symbolic boundary between the 'mechanised human' and the non-mechanical 'residue', reaffirming the absoluteness of the Machine; in fact, it is equivalent to a deferred death sentence, since autonomous survival outside the technical circuit is not possible. In reality, at the end of the story, the 'expelled' will be the only survivors. See Forster (2024: 184).

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