

# Information and Communication Technology is Supporting People to Refine Knowledge Because a Safe Balance of Artificial and Human Intelligence Could Leverage the Search for the Right Tracks of World Evolution

## -Part 4-



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### **Abstract**

*Our analyses are focused on knowledge refining (KR) content and optimization, with ICT/AI support, in order to find the sustainable progress solutions and directions for the Earth ecosystem, as there is a risk that our dynamic and complex World to tend to be almost ungovernable just because of the (part of) human behaviour diversity, inside the liberty and democracy limits which could become too large and complex to be controlled in a sustainable manner, considering the actual dramatic challenges, crises and threats, where climate changes, global warming, Earth resources fading, social unbalances and geopolitical conflicts are the most prominent. A prove for such opinion is the World continuous processes of regulation, starting mainly from EU and other states. We are still confident, as the analysed exemples confirmed, in the potential of ICT/AI, powered by KR, to provide an efficacy support to find ways for a sustainable progress in the World emergent context, adding relevant factors, like proactive approach and AI – HI team harmony we recently mentioned [3].*

As the World economy is the base of any progress, ICT/AI already proved to be useful also in the *software engineering workflows*, as we analysed in [1]. Beyond productivity and speed, the improvements arrived also in the critical area of *bug detection* - one of the limiting factors of increasing software complexity and reliability. A further analysis showed that the optimal development of AI is in a continuous dynamic, including *safety, geopolitics and security risks*, as the historical *Paris AI Action Summit 2025* proved [2]. Almost all incumbents agree that regulations have to be part of the game, as it is also confirmed by [4]. The regulations have to include a *risk-oriented strategy*, in order to cover the diversity of AI applications, according to *the level of risk*, but first it is essential to define and combat the *unacceptable risk* areas. Still, **it is more and more difficult to define RK methods and mechanisms, at Earth ecosystem scale and upon human behaviour diversity, even with the increasing AI dynamic support.** For optimizing RK, the analysis from [5] also showed that *common sense* is a prominent factor. Although abstract, this approach could be useful for RK when linking/comparing the data/information/theory with the real-World challenges context, in order to predict/lead to the proper actions, but **noticing that world hypotheses are epistemologically incommensurate, i.e., being conscientious on the relativity of the domain, while this must mobilize us to further improve the RK processes.** Our observation is that, in a way, such *inquiry systems for obtaining knowledge* could be similar to what we also sometimes considered useful, in the well-known *Descartes's method of doubt* and belief (*Cogito ergo sum*), for approaching (preventing) the complex World challenges, crises or incertitudes. We consider that such “*different set of assumptions concerning the logical structure of the social world*” could be actually used for AI machine learning applications when gathering large sets of data to be exploited in the (social) studies to extract methods and conclusions for RK. The potential of AI could be increased **with proper sets of data we have mentioned above**, like *ethical data* presented for the large field of economy by analysing [7], using more criteria, as we also studied in [15][17] while including constructive ways to value the crowdsource intelligence and to harmonize AI/HI. Far from considering these examples as exhaustive, we still could observe the huge diversity of AI applications challenges and the necessity to long term prioritize ethics and regulations, over the short-term criteria of visible benefits.

**Finally, again we can see that the actual complexity and fast evolutions of Earth ecosystem and humankind behaviours are challenging factors for finding sustainable progress solutions in all areas of human activity. These factors, on the other side, need complicate methods for mitigation, where ICT/AI ethics and regulations could be included, although, this way, the development, liberty and democracy could be affected and this is the reason of further timely analyses and actions.**

**Keywords:** *ethical data, AI regulation, knowledge refining, AI Action Summit 2025, software engineering, refining common sense, sustainable AI*

**JEL Classification:** *L63; L86; M15; O31; O33*

***“Any fool can know. The point is to understand”***  
***- Albert Einstein***

## **1. Toward a sustainable AI - between productivity, challenges and regulations**

Sometimes, we can observe, surprisingly, how different and slow people, generally, react to complex information, in the actual information era, in spite of the exponential speed of information and communication technology (ICT) proliferation.

Probably, first of all, it is a matter of perception or expectation, i.e., how we see or expect the persons answers and reactions, as mainly they depends on every individual way of react and think, when they are confronted with complex or complicate information contexts or events.

It is sure that here we have to consider the essential role of education and knowledge and also the personal profile regarding the general way to react to environment/reality (sometimes associated with so called *common sense*).

Above all these assumptions, we believe that it is interesting to also consider that it could be, especially when ICT is the information source, a sign/consequence of large liberty/democracy or it could be the indifference/difficulty caused by too much data/complexity and ...incertitude!

This way, we have just arrived to the reason of such subjective questions about people's perception, because it is worth to notice that such assumptions/causes generally could deeply affect knowledge refining, in both positive and negative ways, all over our dynamic and challenging World.

All these premises, applied over subliminal influences of ICT fast development and of the World dynamic context, lead, among others, to sometimes less expected reactions of people to information and knowledge, thus affecting the normal or proactive thinking and actions eventually involved in refining knowledge (RK) complex processes we need in order to find the sustainable progress solutions and directions for the Earth ecosystem, facing the actual World dramatic challenges, crises and threats, where climate changes, global warming, Earth resources fading, social unbalances and geopolitical conflicts are the most prominent [3][9][6][13][23].

In this World complex and complicate context, our analysis continue to point the importance and role of the ICT development, including artificial intelligence (AI), in order to contribute on supporting the sustainable progress of the Information Society (IS) on the way toward the Knowledge Based Society (KBS), along with the human intelligence (HI), finding the optimal ways toward KR, wherever necessary, under the continuous changing Earth ecosystem and subjective humankind behaviour [20][26][3][14][9][18][19][11][12].

Before other aspects, we want to recall an image, linked, sometimes, with the above “behaviour”, that could also be surprising, either for summer or winter time: people sitting in their stopped cars, long looking to their smartphones, on the noise of the car motor... Fortunately, in some EU countries it is probable to soon sanction such behaviour, but this is, of course, just a tip of an iceberg to be seen (recalling climate changes, global warming or Earth resources fading)!

If such an example could be considered minor, we have to mention that, still, the large picture is constructed of details and our dynamic and complex World is becoming almost ungovernable just because of the (part of) human behaviour diversity, inside the liberty and democracy limits which could become too large and complex to be controlled in a sustainable manner, considering the actual crises and severe threats we are facing. A prove for such opinion is the World continuous processes of regulation, starting mainly from EU or other states, going from carbon emissions to proper materials recycling etc. [23][26][18][25][10].

Also, this image could appear irrelevant, but it could complement the statistics of how people react (or not) to the information, or to the obvious need to refine knowledge everywhere on Earth, with or without the help of ... ICT.

We are still confident, as the next examples could confirm, in the potential of ICT/AI, powered by KR, to provide a substantial and efficacy support in helping to find solutions for a sustainable progress in the World dramatic emergent context, considering relevant factors, like proactive approach and AI – HI team harmony we recently mentioned [3].

As the World economy is the base of any progress, here ICT and AI potential already proved to be useful, also in the software industry (an impressive speed provider for ICT development), as it is confirmed by [1]:

*“The integration of artificial intelligence (AI) agents into software engineering workflows has brought significant advancements in the field, particularly in enhancing developer productivity. These AI agents, often designed to automate tasks, assist with code generation and streamline complex processes, have the potential to reshape how software is engineered...As AI agents continue to automate routine tasks and boost productivity in software engineering, their impact reaches beyond efficiency gains.”*

The importance of the actual phase of AI advances in *automated code generation* is given by the *higher-level* of complexity which could be orchestrated this way:

*“AI’s immediate impact on software engineering is evident in automated code generation, exemplified by tools like OpenAI’s Codex and GitHub Copilot. These AI models generate code snippets from natural language prompts, streamlining repetitive tasks. By reducing time spent on boiler plate code, they enable developers to focus on more complex, creative work, improving code consistency, and speeding up prototyping. AI agents also offer real-time suggestions, completions, and explanations, reducing cognitive load, and simplifying workflows. As a result, developers can address higher-level challenges, with AI handling routine tasks, significantly boosting productivity and enhancing overall software development efficiency.”*

The concrete results of these AI advances lay into some new tools, implemented with incredible performances figures:

*“AI is significantly transforming software engineering through tools like OpenAI’s Codex and GitHub Copilot, which automate code generation and enhance developer productivity. For instance, a controlled experiment demonstrated that developers using GitHub Copilot completed tasks 55.8% faster than those without AI assistance. Moreover, more than 50,000 organizations have adopted GitHub Copilot, with 67% of Accenture developers utilizing it at least five days per week. This widespread adoption underscores AI’s role in streamlining repetitive tasks, allowing developers to focus on more complex and*

*creative aspects of software development, thereby enhancing code quality and accelerating project timelines.”*

Beyond productivity and speed, the improvements arrived also in the critical area of *bug detection*, i.e., one of the limiting factors of increasing software complexity:

*“For example, AI-driven tools like DeepCode and SonarQube now play pivotal roles in code reviews and bug detection, leveraging machine learning algorithms to identify potential issues. Recent studies indicate that deep learning-based review tools can reduce bug-related incidents by up to 75%,<sup>6</sup> drastically improving software quality. These tools can catch up to 60% of security vulnerabilities that human reviewers might overlook. Integrated into continuous integration/continuous deployment pipelines, they continuously monitor for performance bottlenecks and adherence to coding standards, reducing the need for time-intensive manual reviews. This automation can reduce review times by up to 25%, particularly in large-scale projects. As a result, teams benefit from faster and more reliable deployments, maintaining both high code quality and overall system robustness.”*

This way, we have to notice that, step by step, ICT/AI advances approach some of the most difficult actual challenges, at least concerning productivity and reliability.

On the other side, it is sure that, for a World sustainable progress, supported by the optimal development of ICT/AI, there is a long and winding road, which, unfortunately, is not only at the beginning, but mostly on a continuous dynamic, including *safety, geopolitics and security risks*, as the historical *Paris AI Action Summit 2025* proved [2]:

*<<AI’s impact on global security and democracy was another area of concern. Several experts highlighted the risks of AI misuse in cyberwarfare, autonomous weapons, and misinformation campaigns. The cautioned that advanced AI models could manipulate users, deceive developers, and potentially “escape” human control if left unchecked.*

*As a stark warning the Anthropic CEO Dario Amodei said in a statement, “While AI has the potential to accelerate economic growth throughout the world dramatically, it also has the potential to be highly disruptive. A “country of geniuses in a data center” could represent the largest change to the global labor market in human history.>>*

Coming back to World prominent and dramatic challenges, involved by climate changes and global warming we also repeatedly mentioned [22][24][9], it was confirmed that:

*“Researchers presented studies on the environmental footprint of AI systems, particularly the energy consumption associated with large-scale data processing. Strategies for developing energy-efficient algorithms and leveraging AI to address environmental challenges were proposed.*

*Launched at the summit, the Coalition for Sustainable AI brought together 37 tech companies and several countries to create standards for measuring and reducing AI’s carbon footprint. Specific commitments included, developing energy-efficient AI models to reduce computational complexity, encouraging tech companies to report AI’s environmental impact transparently, and optimizing AI algorithms to minimize resource consumption. The coalition offers a platform for collaboration on these initiatives.”*

In order to mitigate and find sustainable solutions for such complicate AI challenges, almost all incumbents agree that regulations have to be part of the game, as it is also confirmed by [4]:

*“8 December 2023 marked a historic occasion for AI regulation in Europe. Following three days of extensive final debates, the EU Parliament, Council, and Commission ultimately reached a provisional agreement on the EU AI Act, a landmark legislation governing the development and use of AI in Europe. It represents one of the world’s initial comprehensive efforts to regulate AI usage. As of the end of December 2023, the EU AI Act was awaiting a formal adoption by both the Parliament and Council to become EU law. The regulations will be universally applicable across all EU Member States.”*

Due to their complexity and importance, these regulations have to provide a detailed structure, including a *risk-oriented strategy*, in order to cover the diversity of AI products and applications, according to *the level of risk*, beginning with the usual accepted ones:

*“Minimal risk: The majority of AI systems fall into the minimal risk category. Applications with minimal risk, such as AI-driven recommender systems or spam filters, will be exempt from obligations, benefiting from a free pass as they pose minimal or no risk to citizens’ rights or safety.*

*Limited risk(s): AI systems with limited risks will be subject to minimal transparency obligations, such as disclosing that their content was AI-generated, enabling users to make informed decisions about further use...”*

As the risks increase, the potential impact must be very carefully analysed, based on possible scenarios:

*“High-risk: AI systems categorized as high-risk must adhere to stringent requirements, including the implementation of risk-mitigation systems, ensuring high-quality data sets, maintaining activity logs, providing detailed documentation, offering clear user information, incorporating human oversight, and achieving a high level of robustness, accuracy, and cybersecurity. Examples of high-risk AI systems include critical infrastructures in water, gas, and electricity; medical devices; systems determining access to education or recruitment; and those used in law enforcement, border control, administration of justice, and democratic processes. Biometric identification, categorization, and emotion recognition systems also fall under the high-risk category.”*

We also agree that the most difficult target is to define and combat the *unacceptable risk* areas, where all incumbents must firmly action:

*“Certain uses of artificial intelligence present deemed unacceptable risks, leading to a ban on their use in the EU. These include cognitive behavioral manipulation, predictive policing, emotion recognition in workplaces and educational institutions, and social scoring. Remote biometric identification systems, such as facial recognition, will also be prohibited, with limited exceptions.”*

At this point we can observe not only the scalable features of AI development challenges, but also the increasing difficulty of their mitigation rules, at World scale, as, for example, outside EU there are certain reserves and oppositions to adopt or apply them.

**More than AI potential contributions, we notice that all challenges for identifying the right tracks of a sustainable progress, facing the World complex context and threats, lead to the point that RK should be a prominent factor, but on this turn, it is more and more difficult to define its methods and mechanisms, at Earth ecosystem scale and upon human behaviour diversity, even with the increasing AI dynamic support.**

## 2. Refining people's knowledge by AI, while keeping ethics and common sense

When we analyse the role and content of RK, we often meet the fundamental problems of knowledge meanings, but further, its refining becomes the most difficult and perhaps relative step to realize in a proper/optimal manner, especially when considering HI and personality/behaviour.

Still, as usual, the human history could be the useful help and starting point for defining RK, by analysing and integrating some precedent types of work and thinking on this subject.

It is worth to notice, as we pointed from the start of the paper (*how different and slow people, generally, react to complex information*), that history and human evolution proved the fact that, for the entire life of any person, it is essential to benefit from the period of (7) years of parental education, which could mainly provide *common sense* (meaning not only to be polite, but also to properly consider all environment facts!) that leads the personality to survive and grow in the dynamic Earth ecosystem, i.e., to adapt by ... correctly perceiving all around knowledge.

This way, we could agree on the fundamental role of education, but also on the directions to search the mechanisms to optimize the RK, where *common sense* is prominent, as the next relevant example is presenting [5]:

*"In his World Hypotheses Pepper (1942) argued, some time ago, that human knowledge is an endless process of cognitive refinement: the criticism and improvement of common-sense claims (cf. Payne, 1975/1976, 1982). Cognitive refinement occurs in two ways. First, by a process of what Pepper called 'multiplicative corroboration', namely, a process of merely obtaining inter-subjective confirmation of certain phenomena. And secondly, by 'structural corroboration', that is by constructing theories or hypotheses about the world and comparing them with empirical data."*

This abstract approach may still be seen as the start of finding the constructive ways for RK when linking/comparing the data/information/theory with the real-World dynamic context, in order to predict/lead to the proper actions:

*"For Pepper, structural hypotheses do not merely produce predictions whose validity is decided on comparison with real data, but also they organize the evidence they encounter and try to accommodate it even when anomalous. In other words, structural hypotheses are inquiry systems for obtaining knowledge (cf. Churchman, 1971), and as such they do not merely reflect aspects of social reality but also impose a cognitive organization upon it (Burrell and Morgan, 1979)."*

Without entering the whole analysis details, it is useful to observe the realistic approach of epistemological context:

*"Pepper distinguishes four 'world hypotheses', which he considers to be the most adequate ways of refining common sense. He also argues that world hypotheses are epistemologically incommensurate - one cannot reject one on the basis of another and, thus, they cannot be synthesized into an overarching world hypothesis. These four world hypotheses are: formism, mechanism, contextualism, and organicism. Each one is associated with a different 'root metaphor' (Pepper, 1942), and characterized by a different set of assumptions concerning the logical structure of the social world..."*

**We could still notice that *world hypotheses are epistemologically incommensurate*, i.e., be conscientious on the relativity of the domain, but this must mobilize us to further improve the RK processes, especially adding the complexity, dynamic and the World threats context.**

Although abstract and general, such points of view could, at least, give a rough idea about the complex and complicate the RK could be seen from an universal regard or epistemologically approach.

We would add our observation that, in a way, such *inquiry systems for obtaining knowledge* could be similar to what we also sometimes considered useful, in the well-known *Descartes's method of doubt* and belief (*Cogito ergo sum*), for approaching our complex World of challenges, crises or incertitudes [25][20][18][14][21][22][16][9][13].

More than these, we consider that such “*different set of assumptions concerning the logical structure of the social world*” could be actually used for AI machine learning applications when gathering large sets of data to be exploited in the (social) studies to extract methods and conclusions for RK.

Perhaps, coming back, concretely, in our days, we could meet a more updated approach, especially with the omnipresent contribution/support of AI, but, naturally, keeping the old rules of *common sense* and the actual requirements given by the IS/KBS accumulated advances, including wellbeing, liberty and democracy.

For understanding and controlling the actual role of AI, an important sign was also given just from the highest level of AI World Forum [2]:

“*A panel of experts examined the interplay between AI technologies and democratic processes. They also explored AI’s role in combating misinformation, enhancing civic engagement, and the ethical considerations of AI deployment in political contexts.*”

Obviously, from such general targets and orientations to practical and urgent results there is a long chain of steps to reach the huge potential of AI with a controlled approach policy and **the proper sets of data we have mentioned above**, as presented for the large field of economy by [7]:

<<*In an era where data is often described as the “new oil,” its management transcends basic operational considerations and becomes integral to organizational trust and sustainability. Ethical data practices, including transparency and informed consent, have emerged as compliance requirements and strategic differentiators for business growth and customer retention.*>>

This way, we observe that for proper sets of data we need more criteria, where customer opinion is more than a polite approach, but, as we also studied [15][17], it is a constructive way to value the crowdsource intelligence and generally to harmonize AI and HI.

The differentiator of such *Data Ethics* intelligent approach is further pointed in terms of *trust* and *performance*:

“*Ethical data use is essential for building customer trust, which drives brand loyalty and helps companies establish lasting market dominance. Organizations that disclose their data usage practices while implementing straightforward consent systems develop stronger customer bonds. Multiple digital transformation projects demonstrate that organizations that enforce data policies transparently achieve better customer retention. Artificial intelligence (AI) system reliability and adoption rates rely on the ethical standards maintained in its*

*foundational data. Adopting AI-driven insights depends on how accurately and ethically data is handled because it directly impacts system performance and user acceptance.”*

In the real-World diversity and dynamics, the solutions could be covered by many practical AI applications approaches, each being custom conceived, as universal approaches are not recommended:

*“Three emerging technologies, which combine AI-assisted data classification with real-time consent management and decentralized identity protocols, will define the future of ethical data handling: ... Organizations benefit by conducting consent management dashboard tests alongside auditability integration and AI tool evaluations to detect potential ethical risks before they occur...Implementing zero-trust frameworks with dedicated ethics review boards represents a strategic approach to handling changing data ethics environments. The governance models allow organizations to make agile and responsive ethical decisions throughout their structures... It is vital for organizations to standardize their data ethics procedures for global operations to exceed basic regulatory standards like the General Data Protection Regulation (GDPR) and the California Consumer Privacy Act (CCPA).”*

Far from considering these examples as exhaustive covering, we still could observe the huge diversity of AI applications challenges and the necessity to long term prioritize ethics and regulations, over the short-term criteria of visible benefits.

**Here again we can see that the actual complexity and fast evolutions of Earth ecosystem and humankind behaviours are challenging factors for finding sustainable progress solutions in all areas of human activity. These factors, on the other side, need complicate methods for mitigation, where ICT/AI ethics and regulations could be included, although, this way, the development, liberty and democracy could be affected and this is the reason of further timely analyses and actions.**

### **3. Conclusions**

Thinking about some persons's (low) sensitivity to information, we have considered the essential role of education for knowledge and also the personal profile regarding the general way to react to environment/reality (sometimes associated with so called *common sense*), but also, we recalled, especially when ICT is the information source, the consequences of large liberty/ democracy or the indifference/difficulty caused by too much data/complexity and incertitude. Still, such assumptions/causes generally could deeply affect knowledge refining processes, in both positive and negative ways, all over our dynamic and challenging World.

All these premises, applied over subliminal influences of ICT fast development and of the environmental dynamic context, lead, among others, to sometimes less expected reactions of people to information and knowledge, thus affecting the normal or proactive thinking and actions eventually involved in refining knowledge (RK) complex processes we need in order to find the sustainable progress solutions and directions for the Earth ecosystem, facing the actual World dramatic challenges, crises and threats, where climate changes, global warming, Earth resources fading, social unbalances and geopolitical conflicts are the most prominent [3][9][6][13][23].

Further, our analysis continued to point the importance and role of the ICT development, including AI, along with HI, in order to contribute on supporting the sustainable progress of IS/KBS, finding the optimal ways toward KR, wherever necessary, under the continuous changing Earth ecosystem and subjective humankind behaviour [20][26][3][14] [9][18][19] [11][12].

Starting from simple examples, like smartphones addictions, we observed that, still, the large picture is constructed of details and our dynamic and complex World is becoming almost ungovernable just because of the (part of) human behaviour diversity, inside the liberty and democracy limits which could become too large and complex to be controlled in a sustainable manner, considering the actual crises and severe threats we are facing. A prove for such opinion is the World continuous processes of regulation, starting mainly from EU or other states, going from carbon emissions to proper materials recycling etc. [23][26][18][25][10]. Such observations could complement the statistics of how people react (or not) to the information, or to the obvious need to refine knowledge everywhere on Earth, with or without the help of ICT.

We are still confident, as the next analysed examples confirmed, in the potential of ICT/AI, powered by KR, to provide a substantial and efficacy support in helping to find solutions for a sustainable progress in the World dramatic emergent context, considering relevant factors, like proactive approach and AI – HI team harmony we recently mentioned [3].

First considering the World economy, as the base of any progress, ICT and AI potential already proved to be useful also in the *software engineering workflows* (an impressive speed provider for ICT development), as it is confirmed by [1]. Beyond productivity and speed, the improvements arrived also in the critical area of *bug detection*, i.e., one of the limiting factors of increasing software complexity and reliability.

A further analysis showed that the optimal development of ICT/AI is a long and winding road, in a continuous dynamic, including *safety, geopolitics and security risks*, as the historical *Paris AI Action Summit 2025* proved [2], but eventually involving the climate changes and global warming, as we also repeatedly mentioned [22][24][9].

In order to mitigate and find sustainable solutions for such complicate AI challenges, almost all incumbents agree that regulations have to be part of the game, as it is also confirmed by [4]. Due to their complexity and importance, these regulations have to provide a detailed structure, including a *risk-oriented strategy*, in order to cover the diversity of AI products and applications, according to *the level of risk*, but first it is essential to define and combat the *unacceptable risk* areas. At this point we could observe not only the scalable features of AI development challenges, but also the increasing difficulty of their mitigation rules, at World scale, as, for example, outside EU there are certain reserves and oppositions to adopt or apply them.

**More than AI potential contributions, we notice that all challenges for identifying the right tracks of a sustainable progress, facing the World complex context and threats, lead to the point that RK should be a prominent factor, but on this turn, it is more and more difficult to define its methods and mechanisms, at Earth ecosystem scale and upon human behaviour diversity, even with the increasing AI dynamic support.**

Analysing the role and content of RK, we often meet the fundamental problems of knowledge meanings, but further, its refining becomes the most difficult and perhaps relative step to realize in a proper/optimal manner, especially when considering HI and personality/behaviour. Here we observed that the human history could be of useful help and starting point for defining RK, by analysing and integrating some precedent types of work and thinking on this subject. Human evolution proved the fact that, for the entire life of any person, it is essential to benefit from the period of parental education, which could mainly provide *common sense* (meaning not only to be polite, but also to properly consider all environment facts!) that leads the personality to survive and grow in the dynamic Earth ecosystem, i.e., to adapt by correctly perceiving all around knowledge. For finding the directions to search the mechanisms to optimize the RK, the analysis from [5] also showed that *common sense* is a prominent factor. Although abstract, this approach could still be seen as the start of finding the constructive ways for RK when linking/comparing the data/information/theory with the real World dynamic context, in order to predict/lead to the proper actions, but **noticing that world hypotheses are epistemologically incommensurate, i.e., being conscientious on the relativity of the domain. This must mobilize us to further improve the RK processes, especially adding the complexity, dynamic and the World threats context.** We would add our observation that, in a way, such *inquiry systems for obtaining knowledge* could be similar to what we also sometimes considered useful, in the well known *Descartes's method of doubt* and belief (*Cogito ergo sum*), for approaching our complex World of challenges, crises or incertitudes [25][20][18][14] [21][22][16][9][13]. More than these, we consider that such “*different set of assumptions concerning the logical structure of the social world*” could be actually used for AI machine learning applications when gathering large sets of data to be exploited in the (social) studies to extract methods and conclusions for RK.

From such general targets and orientations to practical and urgent results there is a long chain of steps to reach the huge potential of AI with a controlled approach policy and **the proper sets of data we have mentioned above**, as presented for the large field of economy by analysing [7]. This way, we observed that for proper sets of data we need more criteria, where customer opinion is more than a polite approach, but, as we also studied [15][17], it is a constructive way to value the crowdsourcing intelligence and generally to harmonize AI and HI. In the real-World diversity and dynamics, the solutions could be covered by many practical AI applications, each being custom conceived, as universal approaches are not recommended. Far from considering these examples as exhaustive covering, we still could observe the huge diversity of AI applications challenges and the necessity to long term prioritize ethics and regulations, over the short term criteria of visible benefits.

**Finally, again we can see that the actual complexity and fast evolutions of Earth ecosystem and humankind behaviours are challenging factors for finding sustainable progress solutions in all areas of human activity. These factors, on the other side, need complicate methods for mitigation, where ICT/AI ethics and regulations could be included, although, this way, the development, liberty and democracy could be affected and this is the reason of further timely analyses and actions.**

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