

AI Inventions: The Best Mode Requirement, Is It up for Redefinition, Minimizing Potential Innovation Bias and Optimizing Visual Aids?

Serge Rebouillat

STEPInd (Science Technology Ethic Intellectual Property & Related) Arc Lémanique, Echenevex, France

Email: sergereb@yahoo.com

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Abstract

From the author, there are not less than a dozen of rather significant recent publications in scientific editions anticipating some aspects of importance to innovation such as “bigger data”, AI, IP, and frontier technology with a central massive contribution in 2020 on AI, IP, and EI. Nonetheless, the IP associated with AI remains still barely covered in scientific publications. Especially patent discussion tends to be rather a legal matter. Another trilogy, 2013, “Business Strategy-IP Strategy-R&D Strategy: An All-in-One Business Model” proposed by the author, marked the advent, and customized implementation of a new strategy level. After the two trilogies’ volumes, the AI-IP “accessibility” chapter was a logical step brought to the attention of a larger public by the author. The time now to bring to light another chapter, namely the IP eligibility of AI innovation steps in ad hoc inventions. The main objectives of this short, principally illustrated communication, are to: 1) Revise the best mode requirement status, *i.e.* the best way to enable the reproducibility of claimed matter, reviewing its need for improvement when AI is involved. And proposing a unique sequence of evolution inspired by IP’s current and evolving practices. 2) Give a new dimension to visual aids to help the Best Mode description, demystify AI complexity, and underline frontier traits that may hinder a confident adoption or well-argued rejection. 3) Further illustrations take into account the fact that IoT, AI, and 3D can be simpler than perceived. 4) Finally ATA[©], Adjacent Technology Analysis, is timely refreshed in a unique challenging, indeed tumultuous, environment. 5) Bias, such as semantic ones is consistently monitored. 6) Overall leaving space for innovative pleasurable interpretation. The emphasis is on educational, illustrative and demonstrative value.

Keywords

AT, Frontier Technologies, AI, Intellectual Property, IP, Emotional Intelligence, EI, Ethics, Open Innovation, Frugal, Reverse, Bias, Innovation, Collaborative, Participative, Adjacent Technology Analysis, ATA©, Biotechnology, Advanced Materials, IoT, FRAND, Best Mode Requirements, Eligibility, Sui Generis

1. Introduction

From the author, there are not less than a dozen of rather significant recent publications in scientific editions anticipating some aspects of importance to innovation such as “bigger data”, AI, IP, and frontier technology with a central massive contribution in 2020 on AI, IP, EI (Emotional Intelligence); and trilogy [1]; with high reading and downloading score in IIM journal.

Nonetheless, the IP associated with AI remains still barely covered in scientific publications. Especially patent discussion tends to be rather a legal matter.

Another trilogy, 2013, “Business Strategy-IP Strategy-R&D Strategy: An All-in-One Business Model” [2] proposed by the author, marked the advent, and customized implementation of a new strategy level in line with the famous generic principles book, “The Invisible Edge: Taking Your Strategy to the Next Level Using Intellectual Property” published a few years earlier [1] (reference 56).

Regardless of whether patent applications have a scientific content or not? With scientific publications, they both anticipate or retrofit innovation and take part in “A Science and Business Equation for Collaborative Corporate (or SME) Innovation” [2].

As outlined in the present work the Small and Medium Enterprise (SME) part is closely linked to the accessibility of IP within the new frontier technologies context. For all practical purposes, common sense approaches are also essential. After the two trilogies volumes, the AI-IP “accessibility” chapter was a logical step brought to the attention of a larger public by the author [3]. The time now to bring to light another chapter, *i.e.* the IP eligibility of AI innovation steps and ad hoc inventions. Certainly, not as disruptive and spectacular as the two aforementioned trilogies, it is an essential practical and impacting one, which would not possibly be simplified and implementable without such anteriority work as the one of the author and the experience, and expertise thereof.

Furthermore very little is available in scientific literature. The dominant legal jargon of specialized publications does not encourage Individuals and smaller structures to adopt a clear IP strategy, especially with the current overwhelming complexity of data packages handled by AI.

The main objectives of this short, principally illustrated communication, are to:

- Revise the Best Mode Requirement status, *i.e.* the best way to enable the reproducibility of claimed matter, especially reviewing its need for improvement when AI is involved. And proposing a unique sequence of evolution

inspired by IP's current and evolving practices; simple, practical and implementable ones; a uniquely collaborative mode! Leaving space for interpretation and customization.

- Give a new dimension to visual aids to help the Best Mode description, demystify AI complexity, and underline frontier traits that may hinder a confident adoption or well-argued rejection.

And further:

- Reverse imagery, proposed several times by the author long ago as a visual aid to classic 2D and black-and-white patent drawings, is presented with practical relevance as an approach to assisting in an examination, for example. A patent case is also described for its value in highlighting ergonomics that are more difficult to describe literally than to portray.
- Further illustrations take into account the fact that IoT, AI, and 3D can be simpler than perceived; concretely demonstrated via provocative, entertaining Manga's approaches extended to educational professional IP principles presentation.
- Finally ATA© <https://new.societechimiquedefrance.fr/?s=rebouillat>, Adjacent Technology Analysis, is timely refreshed in the current unique and challenging, indeed tumultuous, environment.
- Last but not least, this shorter paper largely populated with unique hand-drawn figures, is also uniquely taking its scientific impacting contribution role, in a journal that combines science and Intelligent Information Management, with a broader IP dimension.
- A brand "new" format, indeed, in a structured way, self-innovative and based on a massive work base, with illustrations focusing on the tip of the iceberg. Paying close attention to bias, on and on.
- The emphasis is on educational, illustrative and demonstrative value.

2. Preamble

According to the World Intellectual Property Report 2022: The direction of innovation p8, Geneva WIPO [4], "Digital-related innovation has grown 172% faster than all patents in the past five years" as shown in **Figure 1**.

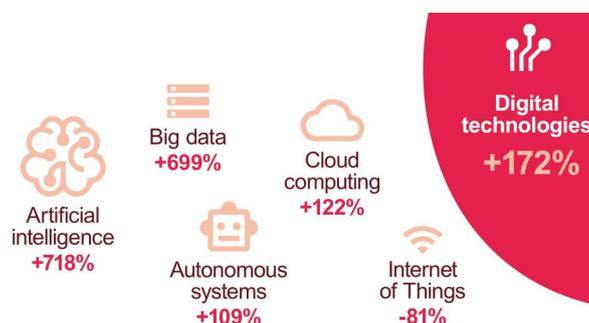


Figure 1. Digital-related innovation has grown 172% faster than all patents in the past five years.

“Digital innovation quadrupled in the 20 years upto 2020, when it represented 12% of all patent applications, with a 13% annual growth rate.”

https://www.wipo.int/pressroom/en/articles/2022/article_0004.html

Figure 2, [4] (Figure 3.7, p. 74) left and right, further outlines the rather overwhelming digital context and its statistical “strong grasp”, with the portion of digital general-purpose technologies and its corresponding percentage of all patent filings.

One may associate digital matter of the 4IR to the iron transformation and combustion engine roles in the transportation and related networks of the 1st industrial revolution. The digital aspects of the Fourth Industrial Revolution, 4IR, comprise technology such as robotics, artificial intelligence and big data.

2.1. Coincidentally

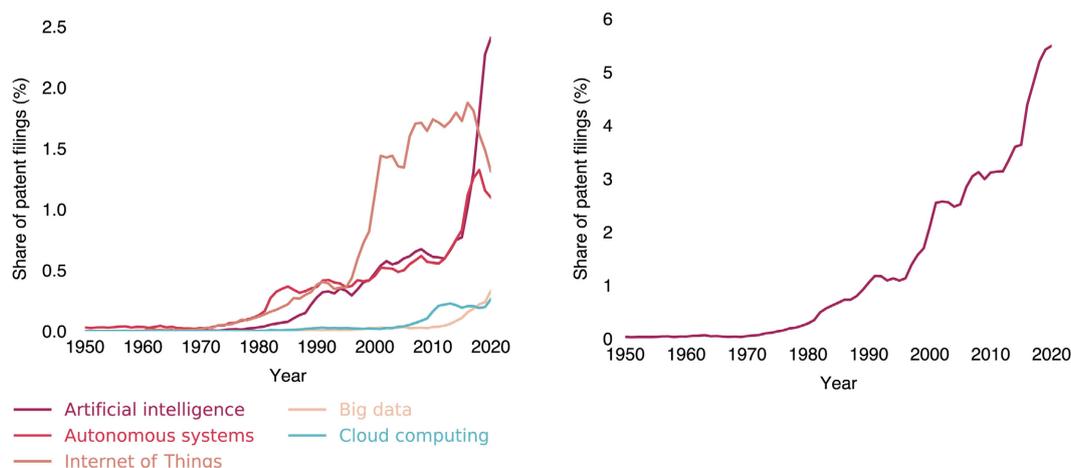
“Switzerland, the United States, Sweden, the United Kingdom and the Netherlands are the world’s most-innovative economies, according to WIPO’s 2022 Global Innovation Index (GII), with China on the threshold of the top 10. Other emerging economies are also showing consistently strong performance, including India and Türkiye, both of which enter the top 40 for the first time.”

2.2. And Further on

“Switzerland is the most innovative economy in the world in 2022 for the 12th year in a row...”

The 6 countries listed in the top ten according to the GII are part of the top 13th in the:

“Overview of IP filing activity (WIPO (2020). World Intellectual Property Indicators 2020. Geneva: World Intellectual Property Organization.) Table 1”.



Source: WIPO based on PATSTAT.
Note: A patent may refer to more than one category.

Figure 2. Left and right, further outlines the rather overwhelming digital context and its statistical “strong grasp” with the portion of digital general-purpose technologies and its corresponding percentage of all patent filings.

This Table 1 indicates the “Ranking of total (resident and abroad) IP filing activity by origin, 2019” in terms of patent filing.

https://www.wipo.int/edocs/pubdocs/en/wipo_pub_941_2020.pdf

Are patent records aligned with GII classification?

The absence of a significant difference tells us about the real impact of inventions converted into patents with the GII innovation ranking.

Associating innovation with patent ranking is still relevant. Further element of correlation; “Sweden scores well in all dimensions. It ranks the highest in the use of internet by citizens. Sweden is among the best performing countries worldwide and its main challenge is to continuously improve its already high levels of digitization”. <https://digital-strategy.ec.europa.eu/en/policies/desi-sweden>

No need very long touring in Sweden to agree with above. Digital trend is well rooted in small countries innovation endeavor, sometime overwhelmingly.

In a nutshell as outlined in the foreword and executive summary of [4], “the Direction of Innovation” is “the combination of all the decisions individuals, firms, universities and governments”.

Some of us have fond memories of our grandmother “Lucie”, who died in 1946 at the age of 51 from untreated pneumonia due to the restriction of civilian purchases of penicillin during World War II. This rationing spurred innovation in antibiotics, which were mass-produced for decades as a result of research into penicillin in the 1930s with Fleming’s discovery 1928.

3. Some SWOT, *i.e.* Strengths, Weaknesses, Opportunities, and Threats, of AI Inventions Related Innovation

Accordingly, four areas have been suggested to be considered:

- 1) “Patent-eligible subject matter for AI, including the legal framework for patentability of ‘software patents’.
- 2) Patentability and inventorship issues for AI-generated inventions.
- 3) Liability issues for patent infringement by AI.
- 4) Non-obviousness standard for AI.”

These four areas of patent focus p. 143, (WIPO Geneva (2019) Technology Trends 2019: Artificial Intelligence, and [1] [3]) were outlined by: Kay Firth-Butterfield, from WEF, (World Economic Forum), as follows:

“The impact of AI on the patent system could be quite significant. Together with a WEF Centre for the Fourth Industrial Revolution Fellow, Yoon Chae, I authored a white paper on this subject. Our conclusions were that four areas should be considered.” As listed above.

The Best Mode requirement, part of the eligibility criteria, was selected as the motivation for this paper.

Other patent offices developed similar co-operations. For example, the IP5 which comprises five patent offices, (the US Patent and Trademark Office (USPTO), the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), and the National Intellectual Property Adminis-

tration (CNIPA) in China). IP5 continues its effort on New Emerging Technology (NET) and AI.

This, in order to advance the possible co-operations in this matter at the appropriate time according to the specific needs. A useful roadmap, reproduced as-is with permission of IP5, below in **Figure 3**, helps to figure out the amazing breadth and depth involved in such a task. The vocabulary and semantic are quite functional to draw the attention of a broader audience and to raise opportunities to further close the knowledge gaps.

Without ranking, here are some other initiatives.

WIPO held the [First Session of the WIPO Conversation on IP and AI](#) in September 2019 “to discuss the impact of AI on IP policy, with a view to collectively formulating the questions that policymakers need to ask”.

The WIPO initiated these September 2019 conversations on IP and AI to address some of the concerns listed above. The author of this paper proposed a series of 8 comments related in part to “hybrid inventorship” comprising individual inventors, a legal representation as well as integrating the AI role in the invention. Additionally or separately using a sui generis right.

https://www.wipo.int/export/sites/www/about-ip/en/artificial_intelligence/call_for_comments/pdf/ind_rebouillat.pdf

Additional WIPO initiative was introduced in these words:

Sixth session of the WIPO Conversation:

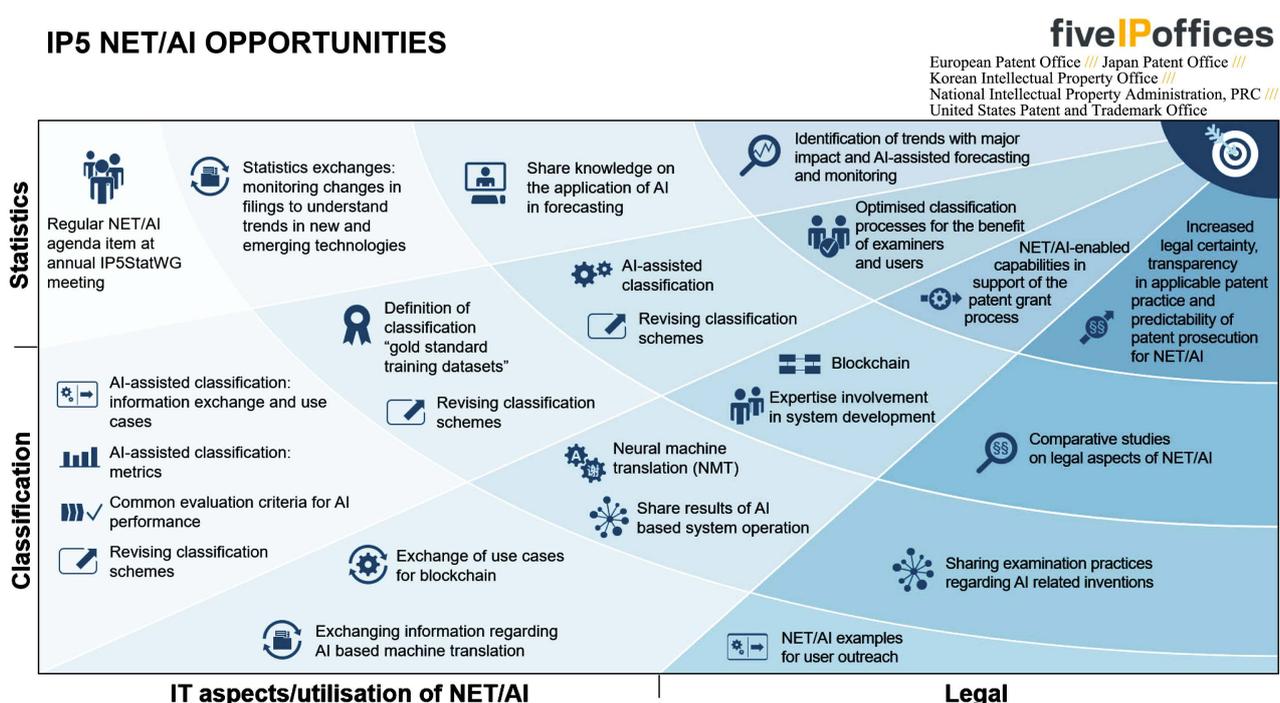


Figure 3. The possible co-operations in this matter at the appropriate time according to the specific needs. A useful roadmap, (reproduced as-is with permission of IP5) from:

https://www.fiveipoffices.org/sites/default/files/attachments/d344faab-9dd0-4dd5-81af-b9cde1c986eb/IP5_NET_AI_roadmap_FI_N.pdf.

“What are the market trends and how do these translate in terms of patent applications? How autonomous is AI actually, what role does it play either as part of the inventive process or as part of an invention? What questions does this raise for the IP system? And how are IP Offices supporting AI inventors?”

[https://www.wipo.int/about-ip/en/frontier_technologies/frontier_conversation.html?utm_source=WIPO+IP+and+Frontiers+Technology+Newsletter&utm_campaign=45a80a46ae-DIS_WIPO_CONVERSATION_EN_150822&utm_medium=email%20&%20utm_term=0_2b70fedeed-45a80a46ae-256922665&ct=t\(DIS_WIPO_CONVERSATION_EN_150822](https://www.wipo.int/about-ip/en/frontier_technologies/frontier_conversation.html?utm_source=WIPO+IP+and+Frontiers+Technology+Newsletter&utm_campaign=45a80a46ae-DIS_WIPO_CONVERSATION_EN_150822&utm_medium=email%20&%20utm_term=0_2b70fedeed-45a80a46ae-256922665&ct=t(DIS_WIPO_CONVERSATION_EN_150822)

The UK patent office, UKIPO, recently worked out similar scenarios among other much more sophisticated legal considerations, which are far beyond the layman practical purpose of our illustrative, demonstrative and educational work.

The status of the UKIPO’s work on “Patentability of inventions using artificial intelligence (AI) and by AI”. (UK Intellectual Property Office, Dr. Nicki Curtis Senior Policy Advisor, UK IPO) is available at:

https://www.wipo.int/edocs/mdocs/scp/en/scp_34/scp_34_e_quality.pdf... was reported at the 6th session of the WIPO conversation on intellectual property (IP) and frontier technologies.

https://www.wipo.int/meetings/en/details.jsp?meeting_id=72090

4. The Best Mode Requirement

The Best Mode requirement was also selected for a short intervention at the 6th session of the WIPO conversation on Intellectual Property (IP) and frontier technologies.

The Best Mode requirement is described in the WIPO (2022), Patent Drafting Manual, 2nd edition, Geneva and in the WIPO (2007), Patent Drafting Manual, 1st edition, Geneva, in the following terms:

- In the 1st edition (2007) in the glossary: “Best Mode—Some jurisdictions require that patent applicants disclose in their patent applications the best way they know of carrying out their invention. This requirement does not compel applicants to disclose absolutely the best way of carrying out an invention but merely requires that they do not keep key aspects secret. See III(A)(4)(b), III(B)(5) and IX(A).”
- In the 2nd edition (2022): “Best mode requirement in some countries, at least one mode (*i.e.* one example) of carrying out the claimed invention must be disclosed in the description. In others, including the United States, an applicant must disclose in the specification the ‘best’ mode of carrying out the claimed invention as contemplated by the inventor at the filing (or priority) date. The best mode requirement has a basis in the principle of equity, which requires inventors to be fair and prevents inventors from disclosing only what they know to be the second-best way of carrying out the invention while

reserving the best way exclusively for them. In the United States, however, the failure to disclose the best mode is not one of the grounds for cancellation or invalidation of a patented claim, or otherwise holding it to be unenforceable.”

Within the above two citations, two elements are noticeable in the 2022 description. A FRAND-like approach, *i.e.* of fair, reasonable, and non-discriminatory (FRAND) terms, for example, in a voluntary licensing commitment.

Additionally, a change in the requirement; as per USPTO: [2165-The Best Mode Requirement](#): “... effective September 16, 2011, it amended [35 U.S.C. 282](#) (the provision that sets forth defenses in a patent validity or infringement proceeding) to provide that the failure to disclose the best mode shall not be a basis on which any claim of a patent may be canceled or held invalid or otherwise unenforceable. As this change is applicable only in patent validity or infringement proceedings, it does not alter current patent examining practices as set forth above for evaluation of an application for compliance with the best mode requirement of [35 U.S.C. 112](#).”

“The Law of Patents”, [Craig Allen Nard](#), Aspen Publishing, 23 mars 2022, provides a similar analysis in the “Best Mode” Section p. 191.

(preserve or reactivate links in text according to original text)

The year 2011 reflects a change that may be perceptible in the patent drafting and formulation.

“Surprisingly”, a Matter of Semantic?

Some elementary searches, for illustrative, demonstrative and educational purposes, were performed. Using Espacenet, and straightforwardly the advanced search as it is proposed by default, the word “automotive” was used alone as a keyword; automotive being rather continuously associated with several industrial revolutions. The same word was also associated with the word “surprisingly” to perform the same type of search for the same time span 1895-2022.

The reason for the coupling of the two words resides with the fact that the following expression is found in patent drafting, *i.e.* “... the use of certain X based fluids has been found to be **surprisingly** effective...” or “... which **surprisingly** performs the oxidation...” or “... which **surprisingly** performs the Z oxidation without back reaction...”. This type of formulation may be interpreted as a semantic bias under certain context [1].

Both searches conducted indicated roughly the same percentage of patent families prior to 1990 or through 2022 that included the use of “surprisingly” coupled with the word automotive.

By replicating Espacenet searches using lens.org, patents and “scholarly works”, NPL Non-Patent Literature, search engine, additional counts could be made with the keywords—AI and surprisingly—as per the default setting of this engine. Using this combination of words yields about the same relative % level of occurrence induced by the adjunct of “surprisingly”, as per the automotive and surprisingly related search in Espacenet.

On the other side, the number of “scholarly works” is indicatively about 10-fold. The breadth of language used in scholarly articles, NPL, probably accounts for some of the difference in the number of hits compared to patent literature.

Moreover, the 2011 change in the best mode requirement is not detectable using such a basic search mode.

This type of analysis, which merits much further study, is nevertheless useful as a guide.

For the sake of completeness, **Figure 4** presents, from an online dictionary, a scan of the lexical field, in French according to its Latin roots, of the word “surprenant”. Astonishingly, amazingly, unexpectedly, strangely, “confusingly” ... are parts of the selected semantic family. In the spirit of the “Best Mode Requirement”, such a semantic environment can be a source of undesirable hindrances and biases.

These preliminary considerations did motivate the following question proposals during the 6th conversation @ WIPO, previously mentioned:

- **Should the Best Mode requirement be redefined given the overwhelming digital context?**
- **Is the Best Mode requirement sufficiently addressed in AI patent drafting?**

5. Illustratively: Let’s Now Put Images in Action!

“*A Picture is Worth a Thousand Words and a Word 1000 Pictures... with AI.*” (SR)

Illustration 1 [1]

At one end, top of **Figure 5**, of a scale the entirely man made creation and at the other end, bottom of **Figure 5**, of same scale the fully AI made object; in between these two limits the hybrid contribution and involvements of Human vs AI, in **Figure 6** of **Illustration 2**.

Illustration 2 [3]

The hybrid contribution and involvements of Human vs AI are as shown in **Figure 6**.



Figure 4. Presents, from an online dictionary, a scan of the lexical field, of the word “surprenant” in French according to its Latin roots.

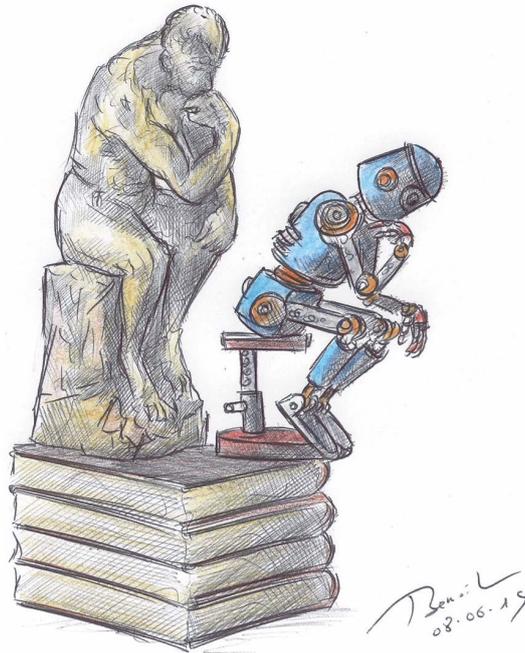


Figure 5. Be my guest I am a truly 100% man-made thinker, by Rodin indeed; be my guest as well, I am a truly 100% machine-made, reflecting AI robot.

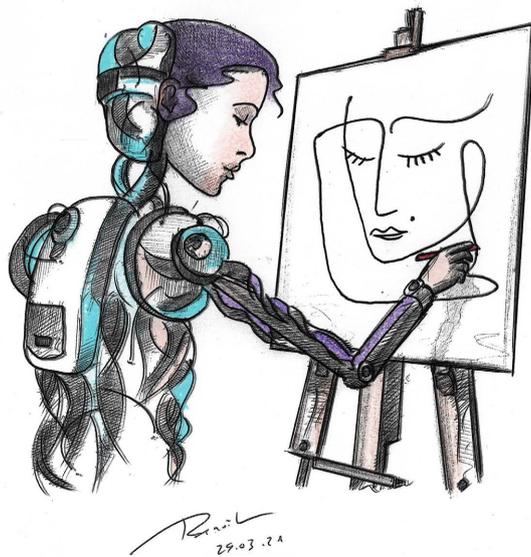


Figure 6. The partially AI assisted creating artist.

Illustration 3

Figure 7 illustrates a new virtual dimension of IoT in building new link via AI.

(*) Stem composition and active structuring hormone migration under UV ensure the **timeliness** of sunflower orientation.

<https://www.carrementfleurs.com/blog/actualites/178-le-tournesol-suit-il-vraiment-le-soleil-.html>



Figure 7. The **timely*** reverence of the IoT rooted sunflower. Let's reciprocate thanks to well routed G5.

Illustration 4

Figure 8(a) “converted” into **Figure 8(b)** by similitude AI analysis, can further be exploited to turn **Figure 8(b)** into a novel “Three-phase_contactor_principle_vertical_(numbered)”(**) by adding to **Figure 8(b)** the red sphere element of **Figure 8(a)** for, e.g. a mobile floating electrostatic dissipation purpose, which, may amount to an invention.

(**)

https://commons.wikimedia.org/wiki/File:Three-phase_contactor_principle_vertical_numbered.jpg

Bisgaard, CC BY-SA 3.0, via Wikimedia Commons

Starting from a virtually conceptualized, inimitably artistically designed, novel coffee machine: a more reliable contactor may be a realistic AI/human outcome result of this interrelatedness or a rather risky 100% AI-blinded adventure.

Illustration 5 [1]

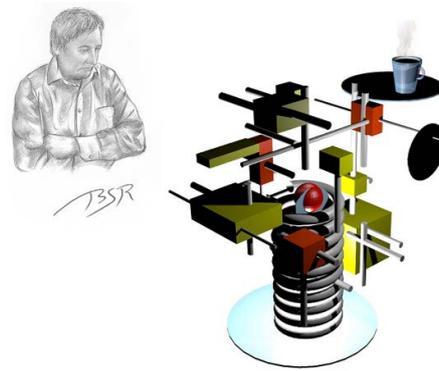
Figure 9 suggests making new friends with AI “holistic” approach.

Illustration 6

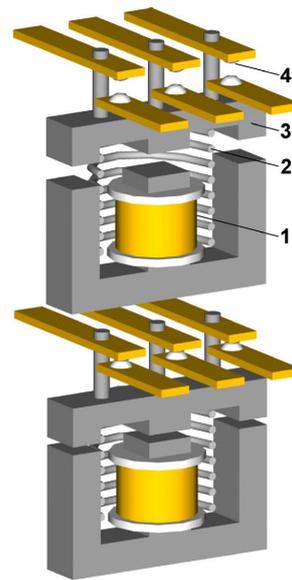
As shown in **Figure 10** with:

- 1) “A first hollow element of variable volume, called the dosing device P1;
- 2) A second substantially flat element, called permeator P2;
- 3) A third hollow element with at least one filling opening, called receiver P3”.

In this patent the human touch, namely the hand drawing, by the inventor, is visually definitely helping the “best mode requirement”.



(a)



(b)

Figure 8. (a) The “Lego™-lised coffee machine [1]. (b) The “reverse” image of 8a obtained via <https://lens.google.com/search>, reflects a creative potential and risks of confusion in practice.

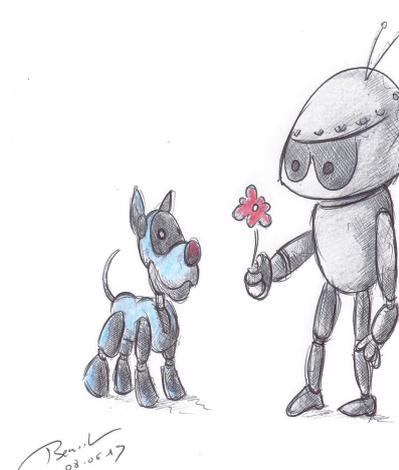


Figure 9. “The St Valentine dating.” 100% holistically AI.

Most inventors on their first NOI, notice of invention, and meeting with the patent liaison have experienced the “show-me” insistence on proof or evidence, and therefore likely realized a pencil drawing of their proposal for patent application, including the inventorship nomination form.

The patent of **Figure 10**, “easily” convertible to an AI patent, except for the additional hand drawing expression, was filed on 2010-12-17 and issued fairly swiftly on 2013-08-09 reasonably shortly after international publication on 2012-06-21! Likely the additional visual aids have contributed.

Abstract of FR2968913B1 patent:

“The invention relates to a reusable device for collecting, metering, transferring and receiving substantially solid products for producing substantially liquid preparations. Primarily, the invention relates to a reusable device P0 for collecting, metering, transferring and receiving, said device being intended for producing a preparation obtained by bringing a liquid, a gas, an aerosol, and a combination thereof into contact, with the aid of an extractor E1, with a product which is preferably and substantially solid; it being possible for said preparation to have a medical, pharmaceutical, dietary, domestic, industrial or other use.”

Illustration 7

*“Once upon a time, an ‘ExI contractor consulted with the ‘ThreeroTM’ team, famous for its commando missions related to 3D technologies. The Threero team had experience in 3D knitting and weaving commonly used in the manufacture of composites and protective equipment. The Threero team, as depicted in **Figure 11** manga, quickly came up with the idea of combining modern art, 3D*

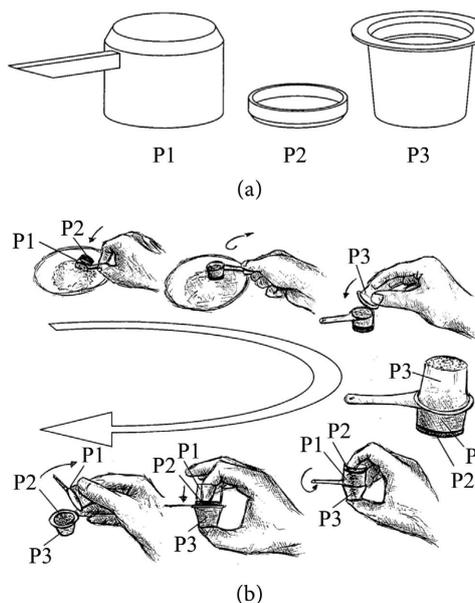


Figure 10. Patent FR2968913B1, WO/2012/080814. Reusable device for collecting, metering, transferring and receiving. Above patent was drafted by the present study’s author, SR, assisted by illustrator and leading inventors, B&O Steffenino

https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2012080814&_cid=P21-L8U9VL-01963-1.

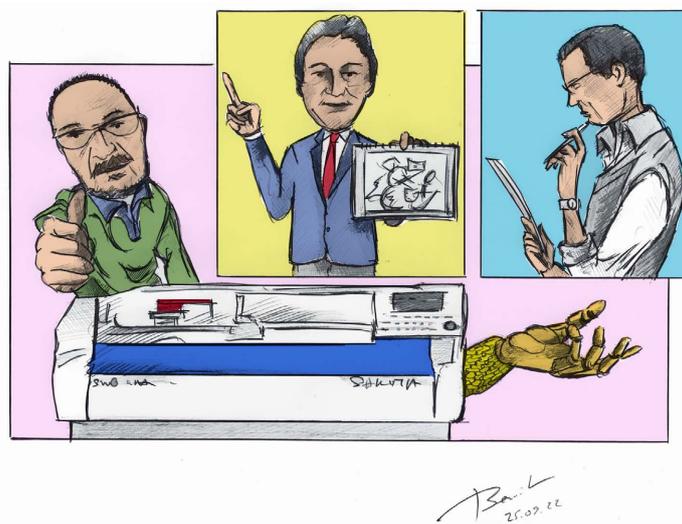


Figure 11. Mr. Id, Ideation, (central character), Mr. Im, Implementation (right side character), Mr. RtP, Reduction to Practice (left side character)... “ThreeeroTM”: An AI/IP/IoT/3D fairytale mimicking a Manga pattern. Shima Seiki[®] is a renowned Trademark involved mainly in knitting technology. <https://www.shimaseiki.com/condition/>.

knitting and 3D printing to produce ergonomic hand shapes on which the dexterity and fit of gloves could be tested. Given the “relationships” between the objects involved, an AI patent was quickly drafted.”

The human sense of manga (mangas are comic books or graphic novels originating in Japan) could become a step in patent policy cooperation, exceeding layman’s expectations, especially regarding the need for AI/IP to **evolve towards greater clarity**.

Circumstantially “The Japan Patent Office (JPO) is leading the world in publishing examination guidelines and case examples regarding AI and IoT technologies. Now, it has released the world’s first manga-based version, namely, ‘Examination Guidelines in Manga: AI/IoT Edition’. The aim of publishing them as a manga is to get people who are not patent specialists interested in patent examination”. Excerpt from:

https://www.jpo.go.jp/e/system/laws/rule/guideline/patent/comic_ai_iot_e.html.

The JPO’s manga on AI/IoT and the IP dimension, is a unique visual approach to the proper handling of “Threeero” fairy tale invention, e.g. eligibility, enablement, clarity, and best mode requirements are well and uniquely addressed in this reference. AI non-obviousness standards can be appreciated.

6. Closing and Conclusions

With the Covid-19 disruptions, climate issues, the energy crisis, and the situation in Ukraine, it’s hard to ignore the integration of related fallout, especially in an article primarily focused on innovation and AI inventions. A good understanding of a company’s current issues can help anticipate some of the interference in the relevant economy.

The ATA[®], <https://new.societechimiquedefrance.fr/?s=rebouillat>, Adjacent Technology Analysis, © S. REBOUILLAT 90's, briefly described below, provides an honest inventory of the relevance of the technology involved and its IP dimension, a comparative inventory also suitable for other situations. Moreover, in such a troubled world.

Frugal innovation previously cited, adapted to current needs, derived from the opportunities and threats identified by the ATA[®], can be part of the remedy to a stressed supply chain. Other forms of innovation, such as reverse innovation, may also be appropriate.

[4] p. 31, “One example of ‘frugal’ innovation is Transsion—a Chinese mobile phone manufacturer and service provider based in Shenzhen—which adapted mobile phones specifically for the African market... addressing issues such as weak network signals and coverage and unreliable access to electricity, among others. Transsion produced price-accessible phones with an effective signal reception, long battery life and apps specifically designed for local market preferences.” The FRAND spirit would also “dictate” a broader market, especially in times of extraordinary turmoil.

S. Rebouillat, M. Lapray and D. Lapray, reviewed the domain of IP search methods (visualization-visuals-analytics-discovery), prompting out various forms of innovation (open, disruptive, inclusive, close, reverse, frugal, nested...) and the “all-in-one” IP-R&D-business strategies model; all these topics are available on-line at:

<http://www.ijias.issr-journals.org/authid.php?id=509>.

And more specifically:

ATA[®], © Serge Rebouillat, 90's

Starting with a key reference [2]:

<http://www.ijias.issr-journals.org/abstract.php?article=IJIAS-13-192-08>.

“A Science & Business Equation for Collaborative Corporate Innovation. Business Strategy, IP Strategy, R&D Strategy: An All-in-One Business Model. A Review with a Bio-Technology & Green Chemistry Focus.”

The discipline of adopting a process, such as ATA[®] and the ATA-4C2[®], © of the author, is essential to the integration of IP and NPL in the business model and roadmaps therewith.

The key associated “inventory-search” phases are:

- **Xpress Technology & Business inventory, incl.:**
- **Unexploited assets;**
- **Unexplored areas;**
- **Ideal & Dreamed approaches;**
- **Perceived Limitations & Frustrations.**

Rather than a longer conclusion, let's summarize some 3 solutioning suggestions [5]:

- **Insert FRAND terms into the practice of the best mode requirement for AI.**

- Insert “sui generis” in the copyright and related rights protection associated with AI inventions.
- Insert at least one human inventor and responsible for AI content, a legal entity for the “liability” aspect, and the quantifiable role of AI, in the inventorship requirements and inventor nomination process eligibility.

And finally a balanced measurable main contribution of this documented work is in part based on former substantial trilogies of the author [1] [2].

The four essential areas of patent focus p. 143, (WIPO Geneva (2019) Technology Trends 2019: Artificial Intelligence, and [1] [3]) outlined by. Kay Firth-Butterfield, from WEF (World Economic Forum), and quoted in the preamble, are further augmented and validated and to a certain extent pre-addressed using the visual aids of all 7 unique illustrations here proposed, and hopefully future resulting trends.

In short, eligibility, enablement, clarity, and best mode requirements are uniquely addressed in this work. AI non-obviousness standards can be appreciated.

The emphasis is on educational, illustrative and demonstrative value.

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More about the Author

Serge Rebouillat [Phonetically: Rebooya], Dr. Ing., Docteur ès Sciences, Certified Prof., Ind. Energetic, Chem/Bio-Eng., Rheology, IP: Mediation/Innovation & Strategy/Management/Valuation.

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Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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