03.10.20

IPBC Connect - AI and the data revolution

Steve Harris, CTO and Nigel Swycher, CEO at Cipher hosted a roundtable on 24 September 2020 on *AI and the Data Revolution*, part of the IPBC Connect series on virtual events.

The session was held subject to Chatham House Rule such that the proceedings can be reported but not attributed.

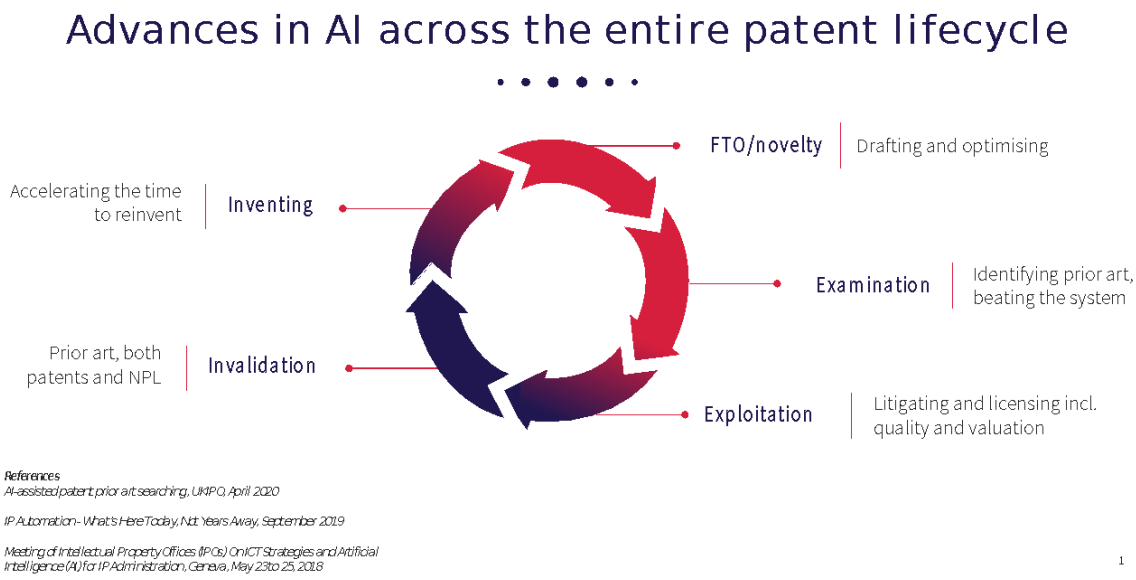
Participants: Gareth Jones, Benevolent AI; Jay Yonemine; Google; Bob Pechman, Seagate, Susan Hallen, IBM, Helen Fengling, Intel; and Thierry Paul, elementai

SUMMARY OF KEY FINDINGS

1. AI/ML brings efficiencies in terms of *getting people to the target, not necessarily hitting the bullseye.* Therefore AI/ML *augments* human expertise
2. AI/ML will successfully replicate a human task if there is consensus on how the result that a human would achieve
3. AI/ML adds efficiency to communications with the business - effectively creating a common language
4. Combining patent intelligence with other data, such as market, product and revenue data, is essential for effective decision making.

Topic 1: In which areas is AI/ML having the greatest impact?

We are beyond the point of asking whether AI and machine learning will transform patents, but focussing on what solutions are well developed and which are still experimental. This slide depicts areas where AI/ML is already being deployed:



Participants discussed important developments in analysing both patent and non-patent literature (NPL) together. *IP Advisor Powered by Watson* takes that approach, while Cipher harnesses supervised ML for dedicated patent classification.

In terms of impact, users must focus on the areas where AI/ML can have the greatest impact. Solutions that have now been deployed successfully include:

- software used in patent preparation and prosecution. Whether AI could be the inventor was not the focus of this discussion, but AI/ML is certainly up to the challenge of prior art identification, and helping patent attorneys to improve strategies for increasing grant rate, how to respond to an office action, etc
- systems that can compare documents. This sits at the heart of many of the successful solutions. There are some detractors who resolutely believe that the only trusted solution is eyes-on, but this misses the point. AI/ML has to be sufficiently accurate for the task it is being asked to perform. A key point is that AI/ML is seeking to replicate the human process and in situations where there is no consensus among humans, then these are not areas where machines should be expected to perform.

Many of the breakthrough approaches such as GPT-3 and Google's Birch focus on being document agnostic and can handle keywords, abstracts or whole articles, and you can expect significant improvements over the next few years. Elementai also described its use of NLP for improved text summarisation.

There was near consensus on the view that AI/ML was augmented intelligence, in that there is still a significant role for the human expert, with algorithms adding huge efficiencies in both time and cost. It is all about narrowing the gap between the search result and what you are looking for.

"We are trying to get people to the target, not necessarily trying to hit the bullseye"

Participants also agreed that the information that is now more readily available means that it can be fed into strategic decision making, which linked to the next topic.

Topic 2: How has access to better intelligence helped and is patent data sufficient?

"Looking forward to the day that IP doesn't need to be taught or explained in order to have a business strategy discussion"

The view from participants responsible for IP strategy, is that access to improved intelligence, such as automated patent to technology mapping, is a game changer. With technology moving so quickly the business needs to keep track in real time of what's going on in the patent landscape - being able to reclassify patents without manual intervention turns something that was practically impossible to readily achievable. AI/ML adds efficiency to communications with the business - effectively creating a common language.

Another theme was the need for AI/ML to solve real issues such as predicting technology trends. In this context, there was a word of caution around the "black box" nature of AI. This can go to the heart of trust, which is sometimes an obstacle to adoption. This is perhaps not surprising, and not uncommon with all disruptive technologies. What sits at the heart of AI is algorithms that can perform tasks that were previously thought to be the exclusive domain of humans. What some participants emphasised is the reality that humans are also a "black box" in that you can't always document the bias and judgment in a human decision-making process.

"Trust thresholds vary - there is basically no downside for the Netflix recommendation engine getting it wrong"

There was agreement that "trust" and "explainability" are not the same thing. The thing to avoid is designing AI in an area where humans would not agree. One example was "quality" scores for patents. The challenge is that humans measure quality in so many different ways (and from different perspectives, and times) that it is always going to be hard to design an algorithm that can resolve

fundamental differences of opinion. While there is often no such thing as “ground truth” in the area of patents, there are many processes where AI can substantially reduce the amount of manual effort.

The corporate IP perspective reinforced the huge value derived from AI powered analytics. It enables the testing of assumptions, the identification of options, the choice of direction - the systems are not marketed as decision making tools, but to assist decision making.

Many participants commented on the need to combine patent intelligence with other non-patent data, and also market, product and revenue data. Patents suffer when isolated from context.

Key takeaways

The discussion concluded with final observations:

- *“AI is very useful, there’s no doubt about that, but you have to consider carefully the model, the training data and the solution you want to achieve”*
- *“Diffuse the cyborg attitudes to AI, and focus on augmenting human tasks - this will help with trust which is key to adoption”*
- *“Don’t skip steps - start with things that are easy to measure, get comfortable with a data driven culture. You can move too quickly, only to experience backlash”*
- *“When it comes to accuracy and explainability, the thresholds vary depending on domain and the importance of the answer”*
- *“Focus on where to use not AI, not whether to use AI”*
- *“Embrace the opportunities - the alternative is a big miss for the business”*

This was a high-quality discussion, and Cipher would like to thank all participants. Thanks to Nigel Swycher for acting as raconteur.

“Implementing AI/ML solutions to augment human tasks can be challenging in the same way as all technology revolutions - you simply have to reflect on the issues with the printing press. The benefits are both real and now, but only if trust is earnt and not expected”
Nigel Swycher, CEO, Cipher

3 October 2020