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Priorité stratégique de la prospective



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THE ANALYST'S ROLE WITHIN INTELLIGENCE SERVICES WITH THE ADVENT OF ARTIFICIAL INTELLIGENCE (AI)

Recognising that the strategic autonomy enabled by intelligence activities is intrinsically linked to information superiority, Florence Parly, then Minister for the Armed Forces, predicted in 2019 that "*AI would give our data mining resources an immeasurable boost*"¹. Faced with this surge in capabilities embodied by AI, what are the prospects for analytical work? What role does the human analyst now play in the data mining process? How are the duties of analysts within intelligence services changing with the rise of algorithms, whilst "*the variety of applications is set to be considerable*"²?

In addition to the issues linked to the use of sovereign tools³, AI undoubtedly represents a major development. The latter is no longer just technological, but also financial, organisational and institutional⁴, meaning that the implementation of AI tools within services can have multiple effects that transcend the sole aspect linked to analytical skills.

I) Will AI mark the demise of human analysts in intelligence services?

AI can be defined as "*any algorithmic solution that performs sophisticated, multi-parameter, scalable tasks, adaptable to specific conditions*"⁵, and is as much a source of fascination as it is of concern. In 1990, the victory of the Deep Blue computer over Garry Kasparov in chess and, in 2017, the victory of an AI over the world Go champion, raise questions about the superiority of AI over human intelligence. Computer science researchers and legislators are concerned about the ability of AI to replace humans in all tasks, including in decision-making. This paradigm would turn human beings into slaves to the machine, as they remain limited by their biological weaknesses⁶. The issue is therefore not just limited to technical and security aspects, but also concerns the social question: "*Will the eruption of artificial intelligence in the world of intelligence make satellite imagery analysts and interpreters obsolete?*"⁷. The question of the alleged obsolescence of human beings and their intellectual capacities is highlighted here as a reflection of the mercantilisation of individuals and their skills.

- 1 PARLY, Florence, Minister for Armed Forces. Speech on "Artificial intelligence and defence" at Saclay on 5 April 2019.
- 2 VILLANI, Cédric. Les enjeux de l'IA pour la défense de demain. *Revue de la Défense Nationale*, n° 820, 2019, p. 25.
- 3 "*Services are also called upon to develop partnerships with the private sector to design the tools they need. We are seeing this with Palantir in France and abroad. In the long term, we obviously need sovereign tools to reduce dependency. [...] Even beyond industrial interests, there is the issue of confidence in the tool if it is not sovereign.*" In : MARTIN, Pascal. *Le renseignement en France face au cyberspace et aux nouvelles technologies de l'information et de la communication*. Doctoral thesis in modern and contemporary history, under the supervision of Professor Sébastien-Yves Laurent, Université Bordeaux-Montaigne, defence held behind closed doors at the École de guerre, 2022, p. 391.
- 4 MESURE, Sylvie, SAVIDAN, Patrick (dir). *Le dictionnaire des sciences humaines*. Paris : éditions PUF, 2006, p. 633.
- 5 VILLANI, Cédric, *op. cit.* note 2, p. 23.
- 6 MAZZUCHI, Nicolas. Les implications stratégiques de l'intelligence artificielle. *Revue internationale et stratégique*, n° 110, 2018, p. 148.

Indeed, despite fears that AI's capabilities will supplant human intelligence, and thus kill off the analyst's role, one thing is clear: the use of AI by human analysts is now vital to deal with the growing amount of data to be processed, particularly in OSINT⁸. And so, despite the sometimes alarmist rhetoric (including from well-known figures such as Stephen Hawking⁹ and Bill Gates¹⁰), the use of AI technologies is above all meeting an operational need within intelligence services. In 2018, General Ferlet, the former director of French military intelligence, described this paradoxical situation as a *"tsunami of data"*, in which investment was being made in ever more effective data collection resources, but no capacity was being developed to make the most of the data¹². He felt that recruiting additional operators and analysts was not a viable response and that *"we must instead find more innovative solutions, based on artificial intelligence tools. This is where we need to focus our efforts in the coming years. After all, there's no point in collecting more and more data and intelligence if we can't exploit it by extracting the right information from our databases at the right time"*¹³.

However, the use of AI within intelligence services would lead to a dual analysis based essentially on human intelligence, despite the significant improvements in the tools used over the years. For Jean-Louis Dessalles, a lecturer and researcher at Télécom ParisTech, AIs *"[...] know nothing. All that a computer equipped with AI can show is an intelligence that understands nothing - reflex without reflection. Some of our cognitive mechanisms, patiently perfected by biological evolution, such as the ability to simplify and give structure to phenomena, are still beyond the reach of machines, which are forced to come as close as possible to our modes of reasoning without ever really reproducing them"*¹⁴. Ultimately, *"AI has no will of its own"*¹⁵.

What's more, while AI needs to evolve to move from reflex to reflection, it is not yet capable of reproducing the instinct that is so characteristic of living beings, and which is exploited by analysts. It is this observation in particular that is leading the GCHQ¹⁶ to evolve its training processes in order to recruit people who are dyslexic, as they show unique abilities to apprehend and analyse a large amount of data, as well as to solve complex problems¹⁷. A 2018 report by the Anglo-Saxon consulting firm EY suggests that the reflexive qualities of dyslexic people will be all the more appreciated as low value-added tasks will be handled by AI¹⁸.

II) Analysis hybridisation: the duality of man and algorithm

A trend is emerging: while human analysts still have their rightful place in intelligence services, analysis is increasingly based on a hybrid approach. This approach stems from a "human-algorithm" duality that allows human beings to see their capabilities increased tenfold. In this context, the aim is not to pit the capabilities of the human intellect against those of AI, but to consider the latter *"as a support for humans rather than as their adversary. It is therefore, for the moment, a kind of cyberprosthesis for humans, giving them extended capabilities for action"*¹⁹.

So, in order to identify events of interest within large volumes of data of different kinds, or to extract useful information about adversary structures, the French Ministry of Defence believes that human analysts can benefit from AI in various types of mission²⁰:

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- 7 Série « Les nouveaux corsaires ». Earthcube, vigie des données des services de renseignement français [podcast online]. In : *France Culture*, 22 août 2020 [58'51"]. Available at : <https://www.radiofrance.fr/franceculture/podcasts/le-monde-des-espions-saison-2-les-nouveaux-corsaires/earthcube-vigie-des-donnees-des-services-de-renseignement-francais-5027630>
 - 8 ELDRIDGE, Christopher, HOBBS, Christopher, MORAN, Matthew. « Fusing algorithms and analysts: open-source intelligence in the age of 'Big Data' ». *Intelligence and National Security*, Volume 33, Issue 3, 2018, p. 398.
 - 9 DE GANAY, Claude, GILLOT, Dominique. Rapport au nom de l'office parlementaire d'évaluation des choix scientifiques et technologique pour une intelligence artificielle maîtrisée, utile et démystifiée, Tome I, 2017, p. 97.
 - 10 ROBERT, Pierre. Pourquoi Stephen Hawking et Bill Gates ont peur de l'intelligence artificielle [online]. *France Culture*, 8 juillet 2015. Available at : <https://www.franceculture.fr/sciences/pourquoi-stephen-hawking-et-bill-gates-ont-peur-de-lintelligence-artificielle>
 - 11 Hearing of General Jean-François FERLET, Director of Military Intelligence, Committee on National Defence and the Armed Forces, Report No. 52, Thursday 8 March 2018.
 - 12 TV show « Les nouveaux corsaires », *France Culture*, *op. cit.* note 7.
 - 13 Hearing of General Jean-François Ferlet, *op. cit.* note 11.
 - 14 DESSALLES, Jean-Louis. *Des intelligences très artificielles*. Paris : éditions Odile Jacob, 2019, 204 p.
 - 15 HOURS, Henri. L'intelligence artificielle, principes et limites. *Revue de la Défense Nationale*, n° 820, 2019, p. 54.
 - 16 The Government Communications Headquarters (GCHQ) is the UK's technical intelligence service, which is also responsible for information systems security.
 - 17 HALL, Rachel. « People with dyslexia have skills that we need, says GCHQ » [online]. *The Guardian*, 29 avril 2021. Available at : <https://amp-theguardian-com.cdn.ampproject.org/c/s/amp.theguardian.com/uk-news/2021/apr/29/people-with-dyslexia-have-skills-that-we-need-says-gchq>
 - 18 EY, « *The value of dyslexia* », EY & Made by dyslexia, 2018, 28 p.
 - 19 MAZZUCHI, Nicolas, *op. cit.* note 6, p. 143.
 - 20 MINISTÈRE DES ARMÉES. *L'intelligence artificielle au service de la défense*. Rapport de la Task Force IA, 2019, p. 20.

- Initial filtering of the most relevant data;
- To pre-process them (automatic translation, detection of people in an image, etc.);
- To detect anomalies, recurrences or patterns of suspicious activity;
- To cross-check public information with military sources to detect attempts of disinformation.

Although human analysts are irreplaceable for the time being, the use of artificial intelligence technologies is proving to be essential if we are to fully exploit and put into perspective the large volumes of data collected²¹. This observation is leading to a hybrid approach to analysis in which humans play a central role in the analytical process, thanks to their expertise, knowledge and judgement²². The use of algorithms makes for more efficient analysis, saving substantial amounts of time and resources. For example, the company Preligens, which has a contract with the French armed forces²³, estimates that it took an analyst a full day to monitor a port with 500 ships, whereas their solution reduces this processing time to just 25 minutes²⁴. A study conducted by McKinsey in 2018 estimated that around 30% of activities in 60% of all professions could be automated²⁵.

Service analysts can therefore delegate the performance of repetitive and time-consuming tasks to AI, allowing them to refocus on their core functions: rather than calling into question the need for human analysts, AI is emerging as a powerful tool to assist analysis, performing a large number of time-consuming and low value-added tasks that were initially assigned to human analysts. The latter can then rely on tools that can be configured and adapted to their needs according to the tasks entrusted to them, by themselves determining the nature of the tasks entrusted to the algorithm. The algorithm then returns the results, which the analyst may or may not use as a basis for their own conclusions²⁶. In addition to saving time, AI also helps to combat the fatigue caused by carrying out uninteresting and repetitive tasks, and thus to limit errors of assessment. The analyst function is refocused on its core business, and analytical capabilities are increased tenfold²⁷.

III) What is the relationship between humans and algorithms?

The use of AI in the field of intelligence, and more broadly in defence, brings with it certain particularities, such as the need for reliability, extreme sensitivity to ethical conditions, and the complex balancing act between confidentiality and openness that characterises AI research. In fact, unlike civilian uses (with the exception of medical applications), the use of AI in the defence sector "*will almost systematically involve critical systems*"²⁸. The opportunities opened up by AI offer a wide range of uses, including imaging (particularly satellite, hyperspectral and drone-based), and the analysis of sound, video and electromagnetic signals (radar)²⁹. This raises the question of the nature of the human-algorithm relationship: how can AI help the analyst?

The evolution in the design of analysis tools reflects an intellectual maturity where the human being is now at the heart of the concerns: a growing integration of tools is therefore necessary. This integration enables a better understanding of complex situations³⁰, but has required tools to be designed using two approaches: "*human-machine teaming (HMT)*" and "*human-centred*".

21 ELDRIDGE, Christopher, HOBBS, Christopher, MORAN, Matthew, *op. cit.* note 8, p. 401.

22 *Ibidem*.

23 BAUER, Anne. Contrat à 240 millions pour Preligens, la start-up du renseignement [en ligne]. *Les Echos*, 12 octobre 2022. Disponible sur : <https://www.lesechos.fr/industrie-services/air-defense/contrat-a-240-millions-pour-preligens-la-start-up-du-renseignement-1868366>

24 Statement by Ségolène HUSSON, Director of Operations at EarthCube. In: LAMIGEON, Vincent. Où s'arrêtera Earthcube, la nouvelle pépite de la défense française? [en ligne] *Challenges*, 19 novembre 2020. Available at : https://www.challenges.fr/entreprise/defense/earthcube-la-nouvelle-pepite-de-la-defense-francaise_738098

25 MANYIKA, James, SNEADER, Kevin. « AI, automation, and the future of work : Ten things to solve for » [online]. *McKinsey Global Institute*, 1^{er} juin 2018. Available at : <https://www.mckinsey.com/featured-insights/future-of-work/ai-automation-and-the-future-of-work-ten-things-to-solve-for>

26 TV show « Les nouveaux corsaires », France Culture, *op. cit.* note 7.

27 "*Today, our product can alert the analyst by saying 'There's a drone on this site, this is atypical behaviour, an analyst needs to take a look'. And that's where the interesting task for the analyst begins. Given the type of drone it is, which countries are equipped with it? Where could it have come from, given its range? [...] What are the capabilities of this drone? [...] Is it a reconnaissance drone? Can it carry weapons? And that's the job of the photo interpreter. The job of the photo-interpreter is not to put dots on cars.*" *Ibid.*

28 VILLANI, Cédric, *op. cit.* note 2, p. 23.

29 VILLANI, Cédric. *Donner un sens à l'intelligence artificielle. Pour une stratégie nationale et européenne*. Mission parlementaire du 8 septembre 2017 au 8 mars 2018, p. 219.

30 TONIOLO, Alice, GERUTTI, Federico, NORMAN, Timothy J., *et al.* « Human-machine collaboration in intelligence analysis : An expert evaluation ». *Intelligent Systems with Application, Journal Elsevier*, 2023, 35 p.

In the first conception, the analyst and the AI interact according to an egalitarian approach in which the latter is the analyst's teammate. HMT thus refers to a relationship based on cooperation and subsidiarity, where the human and the AI work together: each performs the tasks in which it is more efficient than the other³¹. However, this perception presupposes that the analyst has full confidence in the tool, and that the latter has a large degree of autonomy to be able to set its own objectives³². In this context, some of the analysts interviewed felt that HMT tools should enable them to ask questions, rather than simply presenting information, but also to present working hypotheses or arguments in order to encourage the analyst to consider contrary hypotheses and mitigate cognitive biases, without this leading to a system that systematically calls into question the avenues of work, at the risk of people not using it: the challenge therefore lies in the way in which the results and suggestions are presented to users in order to optimise the analysis processes³³.

The HMT approach, based on dual analysis, seems to be gradually giving way to "*human-centred*" ways of working with AI, where humans are at the heart of the analysis process, but with AI backup adapted to their needs. This support enables them to concentrate on high added-value functions, while the AI handles repetitive and time-consuming functions. In this context, a real complementarity is created, because AI is not capable of reflection, but it can quickly carry out massive data processing that would take a human being a lifetime. However, this employment doctrine presupposes a profound rethink of the way in which systems are or should be designed around analysts: making technology work for the benefit of humans, rather than making them work in a way that puts AI in the foreground³⁴.

The "*human-centred*" way of working with AI seems to be leading to greater integration of AI into the analyst's work, because it means putting the analyst back at the heart of the intelligence process: the aim is to identify the problems and provide a response according to an appropriate process, defined by the human and comprising several stages, some of which can be delegated to the algorithm. This concept brings us back to the observation made by Cédric Villani: "*The alliance of human and machine is, on the contrary, often the most relevant and the most effective*"³⁵. However, limiting the role of AI to supporting human beings does not make its role any less critical: the assurance of continuing responsibility remains the central element of any ethical foundation for the use of AI. Indeed, "*humans and commanders must ALWAYS be responsible for its deployment, its use and the rules of engagement that apply to it. This is the best safeguard we have, positioning humans as the guarantors of ethics*"³⁶. Despite the autonomous operation of AI, it is essential for the armed forces and intelligence services to retain human responsibility for the action³⁷.

Ultimately, when it comes to intelligence, the volume and diversity of data to be processed are constantly increasing: the challenge is to exploit them more effectively despite limited human resources. The ultimate aim is therefore to refocus analysts on high added-value functions by exploiting the capabilities of AI to automate processing and optimise the cross-referencing of multi-domain and multi-source data.

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31 BRIANT, Raphaël. La synergie homme-machine et l'avenir des opérations aériennes. *Études de l'IFRI. Focus stratégique*, n° 106, 2021, p. 13.

32 KNACK, Anna, CARTER, Richard J., BABUTA, Alexander. « *Human-Machine teaming in Intelligence Analysis* ». Centre for Emerging Technology and Security, Research Report, 2022, p. 33.

33 *Ibid.*

34 UK GOVERNMENT. « Human-centred way of working with AI in intelligence analysis » [online]. 26 juillet 2023. Available at : <https://www.gov.uk/government/publications/human-centred-ways-of-working-with-ai-in-intelligence-analysis/human-centred-ways-of-working-with-ai-in-intelligence-analysis>

35 VILLANI, Cédric, *op. cit.* note 2, p. 25.

36 *Idem*, p. 26-27.

37 MINISTÈRE DES ARMÉES, *op. cit.* note 20, p. 9.