Consultation to the European Commission's AI Regulation Proposal

Nokia's submission

6 August 2021

Contents

1 Introduction

Nokia congratulates the European Commission on the impressive accomplishment of proposing on 21 April 2021 what effectively constitutes the first regulation on Artificial Intelligence in the world.

The proposal is clearly based on a significant amount of research, information rounds and consultations of numerous stakeholders. We regard it as a courageous first take on a topic that is highly debated by a wide variety of specialists.

Nokia is honored to have been given the opportunity to contribute to the debate through its participation in the High-Level Expert Group. We are equally keen to continue to play a part in clarifying the legal and regulatory regime applicable to Artificial Intelligence systems.

The present position paper represents Nokia's initial feedback to the Commission's public consultation on the proposed package and touches upon a limited number of issues which we consider need urgent clarification.

2 Remarks on the Commission's approach

Nokia considers that the proposal for a "Regulation laying down harmonized rules on Artificial Intelligence" (the "Regulation") is a reasonable first attempt to tackle this topic given the enormous complexity of the technology. Nokia particularly welcomes the explicit acknowledgment that Artificial Intelligence represents a source of good for citizens, businesses and public interests. This is an approach that demonstrates the trust that European legislators have in the potential of this technology to help humanity solve significant societal and individual challenges and may prove useful in tackling skepticism regarding AI.

Nokia also acknowledges the Commission's inventiveness in employing original regulatory processes and techniques to future-proof the regulation.

This approach will hopefully result in relatively quick adaptations and updates of the regulation as the technology evolves, particularly as we are of the opinion that the text will require several alterations not only before it can be implemented into practice, but also post-ante, as its shortcomings become obvious through practice.

3 The scope of the proposed regulation

We take note that a definition of **Artificial Intelligence** per se is not included in the text of the proposal (rather, the explanatory memorandum is referring to it as "a family of technologies"). Nokia considers this a thoughtful approach, given the lack of consensus in the scientific community on the exact meaning of such a complex technology and its evolving nature. However, we also point out that the mere absence, at the time of the proposal, of a clear definition of what exactly constitutes the object of the regulation raises questions as to whether Artificial Intelligence should be regulated specifically at this point in time.

The fact that the Commission opted to define **AI systems** in a manner aligned with the OECD is commendable as an attempt to ensure consensus, but may not help clarify what exactly needs to be regulated (that is not already regulated).

Nokia considers the definition given to AI systems in Annex I of the draft Regulation to be complete in that, by taking this approach, the Commission acknowledges the evolutive nature of AI and declares the aim of the Regulation to cover all currently known techniques and approaches to develop them. However, the definition itself is overly broad. It attempts to include both approaches which have been around for decades (i.e. the statistical approach and a good part of the machine learning approach), as well as an approach that has been used with relative success only in the very recent past. That particular approach represents a very small part of what the Regulation is referring to as “AI system”, namely deep neural networks (“DNNs”) and it brings about the most concerning aspects of the technology from an EU human rights and values perspective, given the capability of DNNs to mimic certain key human cognitive functions.

From this perspective, Nokia is of the opinion that the draft Regulation is casting too wide a net, capturing too much subject matter and, as a result, becomes difficult - if not impossible - to implement in practice. To demonstrate why this generality is unenforceable, we ask the Commission to consider a hypothetical legislative proposal which aims to deal with "any computational technique that is harmful to humans and society". While the legislator’s intention might be good, as it stands, the proposal will undoubtedly be too broad to be useful in practice. In such circumstances, a less ambitious legislative approach with the intention of enabling enforceability is preferable to an approach that is much too general and thus ineffective.

4 Assessing Applicability

4.1 Achieving trustworthiness

The draft Regulation introduces a set of rules, following a risk-based approach, to establish the conditions for “an ecosystem of trust”. The rules are referring in particular to the placing on the market, putting into service and use of AI systems in the EU.

While Nokia considers that “trust” is an extremely important element in a modern technology context such as the one created by AI, given the impact AI is expected to have on society, we also are of the option that individual trust represents an impractical, if not unreachable target as a legal concept.

Nokia sincerely commends the Commission’s effort to move away from the purely ethical aspects of AI and trust, towards the legal aspects of risk, safety and human rights. In this regard, we noted that the Commission took the approach to regulate high-risk applications and uses of AI in particular, rather than the technology itself – which would have been premature, given the consensus on a definition, as described above.

Under this assumption, the key question that needs urgent answering before submitting an AI system to any further regulatory requirements is: what represents “high risk”? Nokia considers that, in the light of the broad definition assigned to AI systems in the Regulation, the Commission's definition of what constitutes “high risk” needs to be further elaborated upon as Article 6 is currently ambiguous.

Providing a clear and explicit list of criteria that serves as a useful instrument for assessing whether an application or system qualifies for the processes described in the draft Regulation is imperative. A great portion of this draft Regulation refers to high-risk AI systems, yet the most critical element – that referring to clarity of eligibility and assessment criteria is missing. This will not only result in uncertainty for manufacturers and producers, but also in unclarity for users, regulators and judicial actors. Simply providing a limitative list of high-risk applications (as in Annex III), even if such a list can be appended with relative legislative ease, is simply not sufficient, given the complex and rapidly evolving nature of AI systems.

As a provider of communications equipment and technologies, including AI-based solutions, Nokia wishes to particularly highlight the ex-ante uncertainty caused by these gaps of the proposal. Hence the urgent need for the Commission to clarify this aspect.

4.2 Transparency

4.2.1 Data and Data Governance

The level of algorithmic transparency required in the draft Regulation seems reasonable and plausible at first sight. However, Nokia is of the opinion that these requirements – as simple as they may seem – are effectively impossible to meet with present-day technologies, including AI itself and thus lacks merit if required on a wide scale. One example of the level of complexity is afforded by a database with tens of millions of images of thousands of categories of items in a data set provided through crowdsourcing, with thousands of samples for each category. The items include images of cats, dogs, doors, windows, trees, pots, pans, etc. These images include no highly specialized items such as electronic circuit boards. The demands on time and resources to check whether these images are representative of the categories they are supposed to represent are immense. Moreover, in the future there will be numerous and larger datasets for specialized tasks, such as collections of images of wounds for medical diagnosis, examples of paragraphs for writing contracts and legal documents, etc. As some AI systems require millions of data points, massive resources will be required to check the suitability or unbiasedness of the data (as required by Article 10.2 points e and f) and companies will be required based on Article 10.2.g to guarantee that there are no gaps or shortcomings in those datasets. Irrespective of whether these tasks are to be performed by humans or AI itself, the costs are significant.

Nokia maintains that as of today there are no reliable classification methods that work on encrypted data without using source data. In spite of attempts having been made at this, and some are more promising than others, no classification methods that can meet such legal requirements exist at the moment. Among the best attempts, please refer to InstaHide, that was awarded the Bell Labs Award in 2020 and shortly afterwards was shown to have information leaks for small data sets. It is thus our opinion that it is highly unrealistic to expect even the most well-funded regulators to be able to identify potential non-compliance instances and to demand the system developers to do this prior to placing systems on the market.

4.2.2 Source Code Disclosure

Closely related to the issue of data disclosure is the requirement to allow access to the source code. It is a known fact that, with only a few exceptions, the review of any source code is complex, and AI systems are on the more complex end of the spectrum of systems. The estimate number of lines of code used in AI systems currently is in the millions, and regulators would require massive resources (financial and others) to achieve even rudimentary understanding.

Moreover, a company's source code is usually highly guarded, and disclosed generally only on an as-needed basis. It contains sensitive and often trade secret information, which if not properly protected may result in competitive damage to the company. Putting in place appropriate security measures (physical and electronic) is a significant responsibility for any undertaking. Breaches in that security (detected or undetected) may render deployed code vulnerable to attack or to further breaches. This requirement alone will have the potential to reduce the companies' incentive to invest in developing AI systems. Nokia urges the Commission to re-examine this requirement.

Nokia acknowledges that AI systems that have the potential to cause harm to individuals and their fundamental rights should be subject to an appropriate level of scrutiny. Such scrutiny should be based on controls at the level of the AI system operator, to ensure that the systems act as intended, to identify and potentially rectify unwanted outcomes that have the potential to cause harm. In many cases, such accountability frameworks are already in place and are functioning well, without particular requirements regarding the disclosure of the source code or of the ways software that is being used works.

Nokia cautions against the use of overly simple disclosure and transparency requirements which will likely be ineffective in preventing harm, in addition to having the potential to disincentivize investments in further innovation in AI in Europe.

4.3 Human Oversight Requirements

Nokia considers that the European Commission's proposals regarding human oversight as described in Article 14 of the proposed AI Regulation reflect an ideal view of humanity's capacity to control acts of intelligent machines. Implementing human oversight is a risk mitigation measure that may prove, at least theoretically, successful, from the perspective of avoiding harm and fundamental rights infringements linked to the use of AI. However, Nokia believes that for purposes of enabling further development of AI technology, it is imperative to understand that these requirements, in their present form, are unfeasible and their transposition into law provides a false and unrealistic sense of safety and may actually legitimize .

The whole point of AI is to automate fairly simple cognitive tasks that humans perform with relative ease and for which automation has not existed a decade ago. The idea is that AI will then be able to perform these tasks at scale. For example, whereas a human can label an image as a cat, a dog or a frying pan in 1 second, AI will do this in 1 microsecond and thus label 10^9 as many images in the time a human does it. It is thus unclear at this point how can humans maintain oversight over a system that is that much faster than themselves.

The efficiency of AI systems come to the fore when replicating tasks that previously required human cognitive abilities at scale. At present, this can be done in an exceptionally small number of cases but maintaining humans in the loop defeats the purpose of automation.

The current requirements, as formulated, imply a binary choice between implementing AI and assuming the risk that undesirable outcomes may occur, or not implementing AI due to awareness of the possibility that such tendencies of AI systems cannot be previously checked as required by, for example, article 14.4. point b) of the present draft AI Regulation. This choice should not, however, need to be made and should definitely be re-examined and rephrased in a way as to avoid conflicts of priorities or a false sense of legitimacy.

Similarly, the requirements contained in article 14.4 points c) and e) are practicable only if the output of the AI system is sufficiently small for human experts to have the time to interpret each of the recommendations of an AI system before their being implemented – which in certain situations may prove either inefficient in terms of volumes of output, although conducted in accordance with existing practice, as required by existing legal provisions (e.g. the GDPR), or unrealistic in terms of implementation due to technical or time limitations.

Moreover, some of the requirements foreseen in Articles 14 and 15 are already part of normal procedures in many companies; however their accuracy depends on the parameters defined for those processes, such as for the so-called training-validation-test ("TVT") cycle, and on the feasibility of the requirements for the training data. However, any particular situation could be right or wrong only with the probabilities derived from the TVT cycle. Moreover, it is currently unclear how new data (as per paragraph 3 of article 15) are labeled for new learning under these conditions, given the lack of efficiency caused by the involvement of a human in the cycle. And otherwise, if AI is used for this purpose, then errors can be easily propagated, and the system can be made even less transparent and understandable.

Overall, Nokia feels compelled to caution the European Commission that while some requirements may seem theoretically appropriate, in practice, they may prove either meaningless due to their generality, or impossible to achieve or implement in practice, if efficiency is the goal of the use of an AI system.

5 Measures Supporting Innovation

Nokia welcomes the proposed measures for supporting innovation. We are particularly pleased with the introduction of regulatory sandbox schemes as an instrument that can be established by national regulators, as the AI regulation contains the possibility of the use of regulatory sandboxes at member state level. Inclusion of regulatory sandboxes is clearly done with the aim to create future proof instruments which enable the implementation of innovation-friendly measures, and to increase resilience.

Nokia recognizes these instruments as enablers of innovation, which explains why this is one of the key areas of our interest, given the need for the present legislative act to accommodate future developments of a very complex technology. However, the idea of regulatory sandboxes needs to be implemented with great care. While in principle regulatory sandboxes can be great innovation enablers, their success depends on several factors. Typically, regulatory sandboxes open the way to advancing new regulatory measures while making sure that innovators have the opportunity to experiment with their ideas, testing them in a real-world environment, observing

effects and impact in a safe area. As the proposal currently stands, Title V of the AI Regulation only introduces general measures, which Nokia is concerned that member states will supplement with detailed measures which in turn will give rise to fragmentation of the European approach. From this perspective, Nokia sees as imperative the creation of a European-level, coordinated approach, following consultation with all stakeholders. Therefore, Nokia recommends that clear eligibility criteria for participation in a regulatory sandbox, including the modalities and the conditions applicable to experiments taking place in regulatory sandboxes are introduced in the final version of the act, allowing both for safe innovation, as well as for guidance in the implementation of the AI Regulation itself.

Nokia also welcomes the proposed process for assessing product and market conformity and the use of harmonized standards for self-assessment for AI systems that are embedded in already regulated products. However, Nokia considers that there still is a stringent need for harmonization of conformity assessment processes, to avoid the need for recurrent or multiple reporting in front of several regulatory authorities.

We welcome the new Coordinated Plan on AI outlining the necessary policy changes and investment at Member State level to strengthen the EU's leading position in trustworthy AI.

We are equally keenly awaiting the Commission's proposals on the other legislative acts that are linked to the current draft regulation, as those could be a determining factor in the success of this proposal. Given the broad impact of AI in the digitization of society at large, Nokia is of the opinion that the current proposal needs to be seen in context and cannot be finalized separately from the new legislative framework, lest the high risk of discrepancy between the various legal instruments.

6 Standardization efforts

The importance of standardization for the practical implementation of the AI Regulation is clearly expressed in the proposal and Nokia agrees with the European Commission about the key role it plays from technical, scientific, research, ethical, governance and policy perspectives. Given the expected impact of AI on society, the involvement of all stakeholders in standardization activities is necessary for governmental actors, along with the private sector and academia, to address societal and ethical issues, governance, and privacy policies and principles. These AI standards-related efforts include:

- Supporting and conducting AI research and development;
- Actively engaging in AI standards development;
- Procuring and deploying standards-based products and services; and,
- Developing and implementing supportive policies, including regulatory policies where needed.

Nokia is involved in standards creation at all these levels and ready to contribute its expertise by working with the Commission in its efforts to adopt common specifications if standards for publication are not available, deemed insufficient or if there is a need to address specific safety or fundamental rights concerns as provided by Article 41.

While the AI community has agreed that the issues mentioned above must factor into AI standards, many decisions still need to be made about whether there is yet enough scientific and technical basis to develop those standards provisions. From this perspective, Nokia believes that in formulating common specifications, the European Commission should involve experts from both member states as well as industry stakeholders, to ensure viewpoints of different sectors and stakeholders are taken into account. Good examples of such approach exist in current legislation and implementation thereof, such as for example the ecodesign requirements on material efficiency aspects of energy-related products.

Industry stakeholders that are involved in collaborative research and innovation play a crucial role in standards setting for the development and implementation of new technologies. By involving them, the European Commission will ensure that the EU maintains a leading role in the development of international, globally recognized, common standards into the Digital Decade.

7 Competitiveness of European Union Innovators

Nokia applauds the Commission's ambition to establish a European model for the development and use of AI systems which ensures an EU market for AI systems that balances related benefits and risks based on European fundamental rights and values.

However, caution is recommended given the effects this type of approach could have on innovation and the setback that European companies could suffer when competing with US or Chinese companies. Most jurisdictions considering regulatory intervention on AI are adopting a light posture, by opting for the development of national AI strategies and action plans and most of these jurisdictions regard AI as a positive development.

As highlighted under section 4 above, the unfeasible requirements related to human oversight and transparency could also discourage investment in the development of AI systems which could end up becoming prohibitively expensive to deploy.

Furthermore, looking simply at the magnitude of the sanctions proposed in the draft AI Regulation, one could be tempted to simply hold back on any type of innovation that could potentially fall under the broad definition given to AI systems in this regulation proposal, for fear of being fined if processes are not followed to the letter – which, as explained above, would turn out to be an impossible task.

Nokia believes that the current proposal could diminish any company's appetite towards R&D in the AI field, thereby hurting EU competitiveness in the long term, certainly by comparison to the US and Chinese markets and actors.

Nokia is prepared to engage in debate with all stakeholders and the European Commission in supporting the creation of a feasible risk assessment process for AI systems and appropriate mechanisms to assess compliance, avoiding an obstructive effect on European technological innovation and progress.

8 Enforcement

We note that the draft AI Regulation foresees the delegation of most enforcement powers to Member States, who are to designate competent EU Member State authorities and determine the penalties applicable to infringements of the AI Regulation. Given the complexity of AI as a technology, caution should be applied in selecting the competent authority, bearing in mind that certain areas tackled by the regulation will need specialized knowledge in order to assess compliance levels. Equally, in order to ensure competitiveness and an innovation-friendly environment, duplicative processes should be eliminated and avoided, communication between authorities involved in connected areas should be increased and coordination with specialized bodies prioritized. The extensive powers granted member states in enforcement of the regulation is a risky approach which could also result in fragmentation of the application of the AI Regulation, which is to be avoided.

9 Closing remarks

Nokia thanks the European Commission for the opportunity to participate in this consultation. We are available for further discussions and would be honored to contribute our expertise for purposes of clarifying the issues highlighted above.