Emerging technologies:
What areas for EU-India cooperation?

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Executive summary

This paper examines current Indian and European strategies and approaches towards the development and regulation of Artificial Intelligence (AI). The main findings are the following:
- Norms underlying the development of AI are still being developed, especially at the international or multilateral level. There is room for the EU and India to shape them together in a mutually beneficial manner.
- Both partners will need to foster AI-specific expertise, as well as a more digitally-savvy workforce in order to compete in a future global economy which makes extensive use of AI.
- As India develops its approach to subjects such as data protection, while it is clear it perceives itself to be acting in India's interest, it is clearly cognisant of the EU approach. Similarly, when developing an approach towards AI in robots, it draws on, *inter alia*, the approach of member states. This provides an entry-point for dialogue.
- Both the EU and India lag the US and China in the development of AI. However, both are important consumer markets. Both, therefore, have a shared interest in consumer protection and issues regarding the regulation of technology companies. This is particularly the case with sensitive areas such as the regulation of online platforms, health care provision and data collected by private companies, all of which could provide some initial areas for greater discussion and cooperation.

Introduction

The purpose of this paper is to outline and compare current Indian and European strategies and approaches towards the development and regulation of Artificial Intelligence (AI). This is intended to highlight points of convergence that could be entry points for dialogue between civil society and/or regulatory authorities and policymakers in the two jurisdictions. As matters stand today, norms underlying the development of AI are still being developed, especially at the international or

multilateral level. That said, there has been some recent progress on this front, most markedly with the Organisation for Economic Co-operation and Development (OECD) Principles on AI.[1]

Such norms will invariably embed the underlying values of different states and jurisdictions. While neither India nor Europe are currently the leaders in AI innovation – China and the US dominate patents in this field –[2] – they are two of the largest potential markets for such technologies. Questions of whether control of AI and related fields lies with states, producers or consumers are currently in flux.

Broadly speaking, the two leading countries, China and the US have divergent approaches. The Chinese approach is state-focussed, while the US prioritises large technology companies. The EU has prioritised consumers, while India's position is not as easily identifiable. Meanwhile, China is pushing its own norms with regard to AI governance in international bodies such as the United Nations Educational, Scientific and Cultural Organisation (UNESCO). Given the lack of the US presence in this particular organisation, it could be an arena in which the EU and India can cooperate to prevent Chinese dominance of the AI agenda. For example, India dislikes safe harbouring but that means little incentive to report data breaches, meaning India is more insecure and vulnerable. So international standards matter.
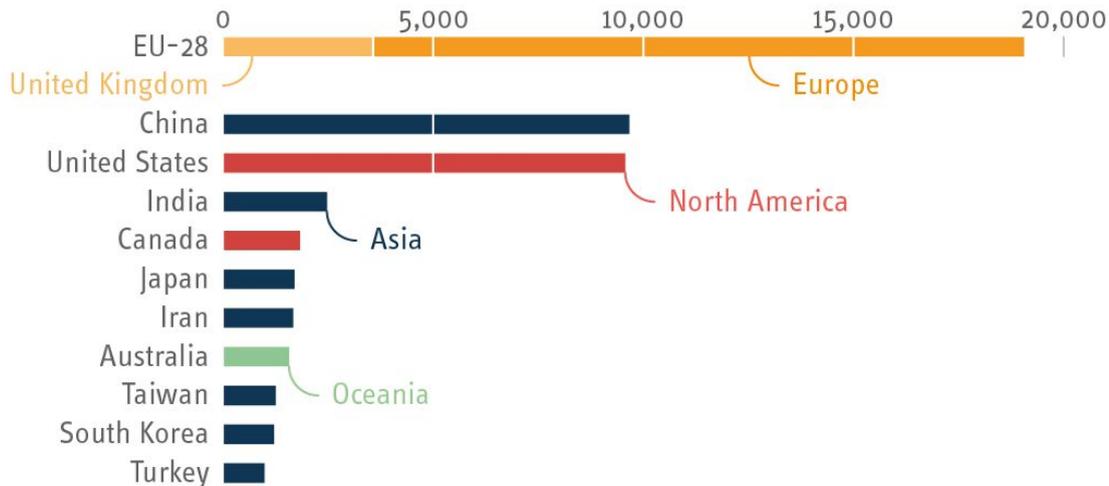

Peer-reviewed journal articles on AI

2008-2019

0	5,000	10,000	15,000	20,000

EU-28
United Kingdom — Europe
China
United States — North America
India
Canada — Asia
Japan
Iran
Australia — Oceania
Taiwan
South Korea
Turkey

ISS — European Union Institute for Security Studies

Data: Scopus/Elsevier, 2018

India has various major initiatives – Smart Cities, 5G, Smart Manufacturing and so forth – which benefit from AI. That the EU and India have a shared commitment to liberal democratic values suggests potential for some level of convergence separate to corporate-backed or statist norms that might be developed elsewhere. The paper will conclude with an examination of the geopolitical balance that makes co-operation, or at the least convergence, in the field of AI regulation a particularly powerful instrument at this moment in time.

The EU's approach towards AI is relatively well documented with a number of official communications setting out its position. The European Commission's 2018 Communication 'Artificial intelligence for Europe' provided a clear overview of the Union's desired approach under the previous leadership,[3] while the more recent (February 2020) White Paper on Artificial Intelligence,[4] as well as the Communication on a European strategy for data,[5] provide a clear roadmap for how the Union and its new leadership will approach the subject in the future. Moreover, a High-Level Expert Group on Artificial Intelligence presented their 'Ethics guidelines on trustworthy AI' in April 2019[6] and a Global Tech Panel was set up by then EU HR/VP Mogherini in June 2018.[7]

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[3] Communication From The Commission To The European Parliament, The European Council, The Council, The European Economic And Social Committee And The Committee Of The Regions, "Artificial Intelligence for Europe", *COM (2018) 237 final*, 25 April 2018, https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=51625.
[4] For the full document, see: https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf.
[5] For the full document, see: https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf.
[6] See: https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai.
[7] See: https://eeas.europa.eu/headquarters/headquarters-homepage/50886/about-global-tech-panel_en.

India's positions are less clear-cut, but through official papers and interviews with subject matter experts this paper sets out its emerging position to key issues. This paper will take as its structural baseline reference the European Political Strategy Centre's (EPSC) Strategic Note for a proposed EU strategy towards AI as broadly indicative of the EU position towards the issue.[8] While not to be equated with EU policy itself, the paper provides a useful and comprehensive structure with which to compare the comparatively more disjointed Indian AI landscape. The Strategic Note splits the EU strategy in four areas: 'support'; 'educate'; 'enforce' and 'steer', and the same structure will be used to explore the Indian position. Finally, this EU-India Think Tanks Twinning Initiative paper is populated on the basis not just of official strategy papers and secondary sources, but also of interviews conducted with subject experts in both jurisdictions.

I.   Support: boost AI development and uptake in Europe

The EU strategy in this case revolves around two poles. The first is to create, in essence, a 'fifth freedom' of movement for the EU, so that non-personal data flows freely across the Union. The second is to create 'data commons platforms' that would allow and incentivise European companies to share data with each other — indeed, on a platform available to small and medium enterprises as well, in order to ensure that innovation is not stifled by a lack of access to data. The German government has already moved in this direction, for instance.[9]

The Indian government's think tank, the National Institution for Transforming India or the NITI Aayog, is the nodal agency for the formation of AI-related policy in India. Its most current strategy for AI adoption and regulation in India is to be found in a 2018 publication titled 'National Strategy for AI'.[10] Its suggestions for adoption bear a broad similarity to the European strategy as outlined in the EPSC Note. There are three poles to its adoption strategy: data sharing, data annotation, and nation-wide adoption. On the first, it specifically calls for the government to ensure that the data it collects in the course of its duties is (presumably when not impinging on privacy concerns) 'available for open public use in machine readable form'. On the second, data annotation, it calls for partnerships to build 'large corpora of data across domains, as a means of laying the foundation for start-ups and enterprises to build applications and services tailor-made to the Indian context.' It finally calls for regulations and funding that would support the creation of a full 'data supply ecosystem' including a data marketplace.

What is worth noting here is that while in both the European and Indian strategies data platforms are specifically called for that would enable economies of scale and overall efficiencies for business, the European strategy goes further in suggesting that companies themselves also contribute to the open data platform. This is, *per se*, not impossible in an Indian context. Nor is it likely to be a major sticking point for further collaboration. However, it points to an underlying difference that will crop up throughout this comparison –the Indian strategy is much more protective of Indian companies' use of private data than Europe's, for instance.

The EPSC paper argues that high-speed connectivity and next-generation computing infrastructure are jointly essential if AI is to be widely adopted within the EU within a reasonable timeframe.[11] In general, of course, Europe's broadband infrastructure continues to be some distance ahead of India's, though in terms of plentiful cheap high-speed mobile data, India is now a world leader. India's own strategy, as expressed though the NITI Aayog paper, included a proposal for the creation of

[8] "The Age of Artificial Intelligence", European Political Strategy Centre (EPSC), March 2018, https://ec.europa.eu/epsc/publications/strategic-notes/age-artificial-intelligence_en.

[9] See: Boris Otto et al, "Industrial Data Space: White Paper", Fraunhofer-Gesellschaft, 2016.

[10] "National Strategy for Artificial Intelligence: #AIFORALL", NITI Aayog, 2018.

[11] "The Age of Artificial Intelligence", European Political Strategy Centre (EPSC), March 2018, https://ec.europa.eu/epsc/publications/strategic-notes/age-artificial-intelligence_en.

AIRAWAT (AI Research, Analytics and knoWledge Assimilation plaTform); AIRAWAT is conceptualised as a cloud-based platform for the analysis of big data, where the computing infrastructure will use cutting-edge AI processing.

The EPSC Note calls for the creation of a Europe-wide network of research institutions working in AI and related fields, together with a scaling up of public spending on such institutions to the tune of several hundred million euros. To date, no equivalent national-level structure is proposed in India. However, there are other similar initiatives being created on a smaller scale. The government of the southern state of Karnataka – home to India's tech capital, Bengaluru —is collaborating with the Indian software chamber of commerce, NASSCOM, to set up a 'Centre of Excellence for Data Science and Artificial Intelligence', with the acceleration of AI ecosystem development a clear and stated goal.[12] In addition, NITI Aayog itself, in co-operation with the academic institute the Tata Institute of Fundamental Research (TIFR) and Intel, is creating a centre for AI-based transformation (ICTAI).[13]

It is also suggested to create of a pan-European platform that would bring together all the relevant stakeholders and serve as an advisory body for European policymakers, with a particular focus on the barriers to adoption faced by entities such as small and medium enterprises (SMEs).[14] There is no exact analogue being planned in India, but there is a similar platform that is being operationalised currently, also located at the NITI Aayog: called the 'AI Garage', it was given funding permission by the Union government cabinet in India in October 2019.[15] This is to be an incubator, think tank, and platform all in one, where AI-based solutions that have been evolved in one Indian geography or by a particular company or government department will be studied, and possibly scaled up or replicated. What these two approaches have in common is the belief that there are questions of scale in AI adoption that will not easily be overcome without government assistance and that SMEs in particular will need enabling institutions if they are to compete in an AI-rich world.

II.   Educate: focus on individuals to build AI skills and educate users

The EU is creating digital-savvy workforce through a number of initiatives and plans (including the 'New Skills Agenda for Europe' and projects which will benefit from support by the European Structural and Investment Funds). A focus on life-long learning (especially in sectors which are likely to be hardest hit) and emphasising the key responsibility of member state governments to educate their populations has been made clear in official EU communications.[16] In India, skills will have to be expanded to include AI and the Internet of Things (IoT). The NITI Aayog report also included a two-pronged approach to prepare India to be AI-ready:

- Workforce: Re-skilling of the current workforce will require integration with relevant existing skilling initiatives, building of new platforms that can enable improved learning, and novel

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methods of allowing large scale employment generation through promotion of AI. There is also the possibility of building on European initiatives to create the next-generation in AI talent.

- Students: Platforms such as SWAYAM, India's national MOOC platform, can be leveraged to address the lack of qualified faculty available in India. The Central Board of Secondary Education (CBSE), in collaboration with Microsoft India & IBM, has plans for an AI curriculum in schools, as well as digital reskilling for teachers.[17]

India continues to remain focused on improving digital literacy, under the Digital India scheme and the Pradhan Mantri Gramin Digital Saksharta Abhiyan programme (PMGDISHA).[18] But there has been no explicit effort to improve literacy to equip the users for the age of AI.

III.   Enforce: modernise traditional institutional and policy tools

Apart from tightening the screws on e-commerce companies through stronger foreign direct investment (FDI) guidelines, the Indian government is also in the works of implementing an e-commerce policy. The key areas that have been covered in the rules include preventing price influencing, addressing counterfeit, improving integrity of reviews as well as increasing transparency of terms e-commerce have with sellers and disclosure of seller information.

Among the most effective traditional tools is competition policy and one recommendation could be to amend the Competition Act (2002) with a deal-value threshold for merger regulation. There are also plans to regulate competition in the fintech space that is dominated by a few major players with deep pockets: PhonePe and Google Pay will have to limit market share under new National Payments Corporation of India (NPCI) rules, for example.

The EPSC Note assumes here that many governmental bodies, including the European Union itself, will as a matter of course adopt supportive AI techniques as they become available,[19] but warns that this will require both transparency and 'thorough restructuring of internal processes and hierarchical structures'. In contrast, no explicit effort has been taken for this in India. The location where AI is most likely to be used within the Indian public sector in the coming years is the judicial branch of government, which in India is vastly overburdened, with some high courts having case backlogs that would take years or even decades to complete.[20] There are a large number of AI-powered start-ups that intend to support contract writing and legal research; but the bench itself remains untouched by these innovations so far. However, the Indian Supreme Court's e-Committee has already held a meeting to explore the use of AI, in particular as support for the research that goes into the writing of judgments. The Indian judiciary can certainly be trusted to set an example in terms of ethical underpinnings for AI use.

IV.   Steer: Guarantee a human-centric approach to AI

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[17] "Microsoft, IBM to train CBSE teachers in Artificial Intelligence, Information Communication Technology", Indian Express, 6 September 2019, https://indianexpress.com/article/education/cbse-partners-with-microsoft-ibm-to-train-teachers-in-ai-ict-5968775/.

[18] "All about PMGDISHA: The programme to make the poor digitally literate by 2019", India Today, 11 October 2017, https://www.indiatoday.in/education-today/gk-current-affairs/story/pmgdisha-digital-literacy-programme-1062308-2017-10-11.

[19] For more information, see the EEAS Global Tech panel: https://eeas.europa.eu/headquarters/headquarters-homepage/50886/about-global-tech-panel_en.

[20] Vidhi Doshi, "India's long wait for justice: 27m court cases trapped in legal logjam", The Guardian, 5 May 2016, https://www.theguardian.com/world/2016/may/05/indias-long-wait-for-justice-27-million-court-cases-trapped-in-a-legal-logjam.

The EPSC Note suggests the creation of statistical indicators to track the uptake of AI in the private sector. This is somewhat forward-looking at this point. Certainly, no explicit effort in this direction has been made or suggested in India. Given that AI uptake is still at a very nascent stage, it is likely that it is still considered easy to track. However, it cannot be ruled out that an unwillingness to track AI use directly is part of the somewhat more respectful approach to corporate privacy that tends to be taken by development planners in India than in Europe.

It is clearly important that stakeholders of all kinds, including academic experts, businesspersons and so on all contribute to an open and transparent assessment of the effects of AI, including questions of community impact and hidden biases. This is an ambitious goal that is not easy to convert into a concrete institution with concrete policy. It is also not clear how this would be different in effect from the public consultations carried out by the European Commission before drafting new regulations, or even from the pan-European AI platform suggested above. Certainly, there is no equivalent being planned in India. However, it is important to see this is as a further example of the EU's commitment to ensuring that the use of AI is subject to standards and norms set by various affected communities.[21]

The European Union strategy indicates that two principles should be embedded into the design of AI going forward. First, that they should be 'lawful by design', in other words that the constraints on the AI should be designed to incorporate existing law, minimising the damage that could be done by machine learning escaping legal controls. Second, that they should include a 'human in the loop'; in other words, that AI should always be seen as providing additionality to human judgment rather than substituting it. The latter is perhaps difficult to ensure going forward but is an important statement of the EU's continuing determination to ensure that AI development is bound by existing ethical and legal principles, particularly in the defence realm.[22] Indeed, as a 2018 Brief by the EU Institute for Security Studies (EUISS) notes, ' much of the concern generated by AI centres on whether such intelligence may eventually lead to post-human systems that can generate decisions and actions that were not originally pre-programmed.'[23] Ongoing discussions (for example, within the Convention on Certain Conventional Weapons (CCW)) also include the possibility of having a 'human *on* the loop' to ensure some control over AI for systems such as air defence that require rapid response times. The CCW, in which EU member states participate, is active concerning the ethical considerations of LAWS (Lethal Autonomous Weapons Systems).[24]

The question is the degree to which there is a commonality on this, crucial principle between India and the European Union, or the degree to which a common approach to norms and principles underlying AI development can be derived. (It is important perhaps to think of these underlying principles not simply as ethical requirements but also as 'quality standards'. This rhetorical shift permits the discussion to take place not in the realm of theory, but in terms of standards and norms for the new digital economy — precisely the sort of area in which India and the European Union may be able to develop a consensus.)

As matters stand, the Indian government's policy strategy on AI focuses on 'responsible' AI. In particularly, there are three buckets around which the Indian framework revolves: first, fairness and

[21] See: "Communication: Building Trust in Human Centric Artificial Intelligence", European Commission, 8 April 2019, https://ec.europa.eu/digital-single-market/en/news/communication-building-trust-human-centric-artificial-intelligence.

[22] For more, see: "European Parliament Resolution of 12 September on Autonomous Weapon Systems", 2018/2752(RSP), 12 September 2018, http://www.europarl.europa.eu/.
sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2018-
0341+0+DOC+XML+V0//EN&language=EN.

[23] Daniel Fiott, Gustav Lindstrom, "Artificial Intelligence – What implications for EU security and defence?", EU Institute for Security Studies (EUISS), 8 November 2018, https://www.iss.europa.eu/content/artificial-intelligence-%E2%80%93-what-implications-eu-security-and-defence.

[24] For more on this discussion, see: https://www.unog.ch/80256EE600585943/(httpPages)/5535B644C2AE8F28C1258433002BBF14?OpenDocument.

transparency; second, privacy; and third, security. The fairness and transparency bucket is the least impressive at this point, and the one where most direct collaboration with the EU might be helpful. Fairness — the elimination of hidden biases in how AI might operate — is seen at best as being reactively regulated on a per-case basis. Instead, perhaps what is needed is to examine ways in which biases in the underlying data would not warp the decision-making of the AI; in other words, convergence towards the EU's standard of being 'lawful by design', or precisely, in this case, 'ethical by design'. There is a clear advantage at this stage to sharing with India developments that will permit the pre-emptive management of bias.

On transparency, the Indian strategy revolves around 'Explainability' as a short cut to direct openness or transparency. Explainable AI would 'enable human users to understand, appropriately trust, and effectively manage the emerging generation of artificially intelligent partners'. In other words, AI should not stay a "black box", but should be comprehensible if not completely transparent to its end users.

The second bucket, privacy, is a possible area of disagreement and will need to be carefully managed going forward. The Indian approach is broadly more comfortable with closed datasets being in the hands of large companies that obtain a first-mover advantage thereby. However, the official strategy from India does make three important benchmarking comments about privacy. First, it specifically refers to the German (and Japanese) frameworks for sectoral regulation of AI in robots (and self-driving cars). Second, it argues that national data protection laws should be benchmarked to EU regulations, and particularly the General Data Protection Regulation (GDPR). In fact, it argues that the French Republic's 'right to an explanation' for AI-based administrative decisions is well worth considering for Indian regulations.[25] Finally, it name-checks broader international standards, including those being framed by the Institute of Electrical and Electronics Engineers (IEEE), as possible self-regulation metrics for AI producers in India. What is clear is that, in spite of open questions about the differing approaches to privacy between the Indian state and Europe, there is considerable appetite within the state for the benchmarking to European standards that centre the rights of the consumer and the individual.

The third bucket, security, focuses on management of the legal consequences of broader use of AI. Here the Indian recommendations for future legal frameworks are particularly useful. Making an explicit comparison to how aircraft are regulated, it makes an argument for negligence-based damages as opposed to strict liability. In other words, the producer of an AI should be shown to have been actually negligent to be held culpable for actions of the AI. Further, there should be a 'safe harbour' clause so that producers are protected if they can show they have taken all required and reasonable steps to ensure the safety of their AI product.

It is worth noting, however, that Indian civil society has been famously hostile to safe harbour provisions, especially where transnational companies are involved. In nuclear policy, for example, cross-border investment into India has suffered because the liability clauses in the nuclear power law do not follow these principles. It is possible, however, if a clear statement of intent can be elicited from the Indian government this early in the AI game that such problems will not be faced by AI producers in the future. Thus, there is a need to collaborate at this nascent stage to evolve a joint approach to AI liability and its ethical underpinnings.

While much has been written about the EU's GDPR, India's Personal Data Protection Bill (PDPB) provides for the establishment of a Data Protection Authority (DPA). The DPA is empowered to (i)

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[25] Gianclaudio Malgieri, "Automated Decision-Making in the EU Member States: The Right to Explanation and Other 'Suitable Safeguards' for Algorithmic Decisions in the EU National Legislations", 17 August 2018. Computer Law & Security Review, 2019 Forthcoming. https://ssrn.com/abstract=3233611.

draft specific regulations for all data fiduciaries across different sectors, (ii) supervise and monitor data fiduciaries, (iii) assess compliance with the Bill and initiate enforcement actions, and (iv) receive, handle and redress complaints from data principals.

There have been many questions raised in India about aspects of the PDPB that seem to privilege state control in matters of national security and also disadvantage both Indian consumers and transnational companies. This is increasingly a sensitive area in Indian external negotiations, with matters related to data localisation in particular — which is promoted for certain 'sensitive' data sets in the Indian PDPB — causing tension with the United States. In the Indo-US trade negotiations, the PDPB and associated data localisation efforts are being seen as efforts to minimise the power of US-based tech companies in advance of AI developments that may use large data substrates gathered offshore. However, it is clear that India and the EU share a similar scepticism about US-based big tech, and therefore such efforts by India should not be taken as immediately disqualifying future co-operation on AI and machine learning norms. Indeed, given the overlap now being seen between data enforcement issues and trade, it is worthwhile to note that one of the major stumbling blocks to forward movement on the long vexed Indo-European free trade agreement and bilateral investment treaty was India's demand for upgraded status as a 'data secure' location. While the European Commission has traditionally argued that data issues should be separated from trade talks, this view perhaps needs updating in a world in which both the EU and India have overall data protection laws and authorities to implement those laws. Earlier rigid positions on both sides may need to be revisited.

The limited regulation on the use of drones is the only example of enforcement on AI-based technologies in India thus far. The first instalment of the drone rules, published in end 2018, were notably different from European standards as they 'missed out on the privacy issue' according to experts. A second instalment has been announced, but no details have yet emerged on its enforcement. It is worth noting here that the principle underling this second instalment of drone policy, as stated by Union Minister for Civil Aviation Jayant Sinha, is "personal data protection by design". Again, there is clear scope for convergence between India and the EU on this issue.

Conclusions and potential action plan

A number of potential actions present themselves as a result of the exploration of the respective Indian and European positions.

- An EU-India joint working group on AI could be established to work out which of the various other ideas/focal points offer greatest traction for EU-India engagement;

- To start with, relevant topics to be explored could be centred around the sectors mentioned in the Niti Aayog Discussion Paper on AI: health, education & skilling, agriculture, retail, manufacturing, Smart Cities, Smart Energy etc.;

- Both India and the EU would benefit from the establishment of a national (in the case of India) and European (in the case of the EU) Centre of Excellence on AI. This could lay the basis for further EU-India cooperation and exchanges in the field of AI;

- India could develop 'ethics guidelines' around AI as has been done in Europe. Data privacy, especially consent management, is an especially import aspect. The EU could share its experiences in this regard. This could also apply to the security and defence realm, both *vis-à-vis* defence capabilities and emerging threats: the efforts undertaken by the likes of the

Joint European Disruptive Initiative (JEDI),[26] which goes beyond AI but represents a clear effort by some European countries to move forward with respect to disruptive technologies, could provide the basis for further discussions about the use of AI and the deeptech ecosystem to safeguard the resilience of democracy within (and beyond) both partners.

- India could also consider setting up an association of AI players active in India; likewise, the EU would profit from the establishment of a pan-European association of AI players active in Europe. The creation of these two associations could provide the two partners with more opportunities for cooperation and exchanges on AI;

- Indian research initiatives such as Indian Urban Data Exchange (IUDX) and Indian Urban Observatory (IUA) combining Smart Cities data could be promoted and supported as they will provide very valuable data for AI work in India. This could then be of use to European counterparts'; Programmes such as 'Digital India' have a direct links with Europe's 'Digital Single Market' initiative. A joint research programme could therefore be established between India and Europe for a research project around AI under the umbrella of the EU's Horizon 2020 and India's Horizon Industry.

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