

Artificial Intelligence in Government: creating a framework for transparency and accountability.

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ABSTRACT

The digital economy and the fast development of tech-solutions are stimulating the use of artificial intelligence (AI) in the public sector, with the aim of providing effective public services. With fast-emerging digital tools and automated decisions in government, there is a need to renew the parameters of the society's ability to counterbalance the government's power to implement ubiquitous technologies such as AI. Nowadays, the problem is not whether AI should be regulated or not; the question is how? This paper identifies some of the challenges of the implementation of AI in the public sector, and proposes measures, based on transparency, human rights, and accountability, for building a framework for the governance of AI in the public sector.

TRANSPARENT DIGITAL GOVERNMENTS

New technologies are progressing rapidly and reaching many aspects of society and our lives. In the same manner, AI will likely continue to develop and increase its uses and applications, both in the private and public sector. The use of AI by governments could increase in the following years with the aim of delivering effective public services to address its citizens' demands².

In general, governments should have the responsibility to show how the implementation of technology benefits the public interest. A transparent public administration shows the commitment to democratic values and the enforcement of

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² Banco Interamericano de Desenvolvimento. *Governos que servem: inovações que estão melhorando a entrega de serviços aos cidadãos*. P. 1-37

rights, and demonstrates a responsible and ethical government. Hence, adequate regulation and implementation of technology should be based on transparency and accountability processes. For example, governments should allow consumers and citizens to have access to information about the processing of their data; establish accountability measures to empower citizens against automated processes; and should let access to the terms of agreements signed between public and private entities in the use and implementation of AI³. That is, why transparency represents a means for citizen participation, monitoring, control, and access to information on innovation processes in the public sector.

In Brazil, governmental entities have set their eyes on AI; some even have already implemented it. Next, a summary list of examples of AI in the public sector in Brazil: a) the use of facial recognition systems at customs⁴ for efficiency in tax collection: 'SISAM', 'PGFN Analytics Tax assessment'; b) the use of AI in the Judicial System: 'Victor'⁵; c) 'Turmalina'⁶, a project that has the objective to use AI for government transparency and control of public revenue and expenditure; d) Facial recognition systems for policing⁷. However, there still is no policy or regulation for transparency and accountability of any of the implementation processes of AI in Brazil⁸. Why should this be a concern or an issue? There are many examples that prove that technology is not harmless, and is, therefore, susceptible to affect rights, democratic processes, reinforce preconceptions, and increase the social gap. In the absence of proper regulation, all of the latter will depend on how technology is created, implemented or used by governmental entities.

³ IEEE. *The IEEE Global Initiative for Ethical Considerations in Artificial Intelligence and Autonomous Systems*. Available : https://standards.ieee.org/content/dam/ieee-standards/standards/web/documents/other/ead_general_principles.pdf

⁴ Brasil, Receita Federal. Available: <http://idg.receita.fazenda.gov.br/noticias/ascom/2017/novembro/sistema-de-reconhecimento-facial-da-receita-federal-e-destaque-em-revista-internacional>.

⁵ 'Victor' is a robot that does the work of a judicial clerk, classifies all the court proceedings, and can even suggest to the justices a draft of a vote when there are precedents on the discussed subject matter. Brasil, Supremo Tribunal Federal. *Carmem Lucia anuncia o início de funcionamento do projeto Victor*. Available : <http://www.stf.jus.br/portal/cms/verNoticiaDetalhe.asp?idConteudo=388443>

⁶ 'Turmalina' is a robot that will use AI to evaluate the transparency portals of the states and municipal agencies. Brasil, TCE. *TCE expõe evolução de ferramentas para controle fiscal e social dos gastos públicos*. Available : <http://tce.pb.gov.br/noticias/tce-expoe-evolucao-de-ferramentas-para-controle-fiscal-e-social-dos-gastos-publicos>

⁷ *PM vai testar reconhecimento facial em blocos de carnaval de Copacabana*. Available: <https://extra.globo.com/noticias/rio/pm-vai-testar-reconhecimento-facial-em-blocos-de-carnaval-de-copacabana-23484138.html>

⁸ In Brazil, transparency and accountability are developed in different laws, such as the 'Access to Information Law', 'Marco Civil da Internet', and a Complementary Law no.101/2000. These laws do not address transparency and accountability measures in the implementation of AI.

The lack of adequate governance of technology could harm the efforts of implementing governmental digital agendas for the delivery of public services. For example, the implementation of facial recognition systems, and the automation of public decisions implemented by the government, many times, lack the necessary counterweights and the adequate multidisciplinary discussion regarding its ethical and legal effects. The absence of regulation of AI means that there is also the absence of the checks and balances over the government's powers. Therefore, it is fundamental to create the mechanisms that will determine the limits and responsibility in the implementation of AI as input for trust in innovation, and as a mechanism of participation and counterbalance of society. The latter could help to promote open, transparent and accountable digital governments; and help build confidence in AI as a tool for the delivery of better public services, without infringing human rights.

This paper considers it urgent to discuss the challenges and necessary measures, for building a framework for the responsible implementation of AI in the public sector. Without the intention of being exhaustive, this paper will address next some of the challenges and measures for the implementation of AI systems in the public sector for building a regulatory framework based on transparency, human rights, and accountability for AI governance.

AI FOR GOVERNMENT EFFECTIVENESS: CONCERNS AND CHALLENGES

Governments are increasingly interested in using big data and AI systems to deliver effective public services and better policy. A key aspect is the collection of data of its citizens. Estonia represents one of the best examples of countries that are collecting data to improve their public services (i.e., tax collection, health services, voting). For example, improving public services by building e-governments could favor the indexes of a country's competitiveness and economic growth, fight against corruption and bureaucracy. Other countries in Latin America are also implementing a digital agenda, as a strategy to improve the competitiveness and performance of their governments⁹.

⁹ Brazil is in the fourth place in the e-government rankings per region (Latin America) and in forty-fourth place, globally. *UN e-government knowledgebase*. Available: <https://publicadministration.un.org/egovkb/en-us/Data/Compare-Countries>

The use of AI-driven solutions in government can help to alleviate the burden of managing, collecting and analyzing large amounts of information. AI-solutions adapted to a government's needs can improve the efficiency of public services better than if they were carried out by a human, especially repetitive tasks such as the processing of large amounts of data. Also, there is a higher probability of the accurateness of the results processed by AI. In simple words, AI can contribute to lessening the workload in the public administration and improve public services.

AI surpasses human performance and capacities in many tasks. Nevertheless, some of these tasks still require a 'human approach'. Technologies should allow humans to dedicate to other jobs that were not solved before due to the lack of time or resources. In other words, the automation of tasks - that is to say those that are repetitive, and that can be executed flawlessly and more effectively by an AI system - will allow a person to dedicate their time to more complex tasks, or to tasks that require human intervention. For example, issuing judicial or administrative decisions go beyond the mere processing and analysis of great amounts of data; these type of decisions require a holistic approach (social, legal, human), and will still require human supervision or intervention. In other words, although the automation of tasks and decisions represents an advantage for the delivery of effective services, it is still necessary to verify some of the results given by AI, to certify that they follow human values.

Well designed, regulated and properly implemented AI tools, may contribute to improve the effectiveness of public services and to produce more neutral and transparent public decisions. However, it is necessary to understand how the technology works; its learning capacities; how these capacities can improve in time; how information is processed; what type of data feeds AI systems, and how this affects the results it produces. The accuracy and quality of the data; bias and opacity of algorithms; surveillance and oppression; data protection and information security are some of the challenges that this paper identifies and considers fundamental in the discussions regarding regulation and implementation of AI systems in governments.

The information that serves as input for AI could be biased, unreliable or inaccurate. This could also be the data helps train AI. AI systems execute a probabilistic activity, where they collect, classify, evaluate and predict results. That is to say, although it can produce results more accurately than those of a human, there could be situations where AI will not have a better solution than that given by a human,

or it may produce unexpected or unreliable results. Therefore, if the data that train the AI is not accurate or reliable, there is a likelihood that the results will lack quality, reliability or even fairness. In these cases, human intervention may be necessary to determine whether the solution given by AI systems represents human values. Therefore, regarding data automation processes and predictions, it is essential that AI systems use adequate, relevant and accurate data to provide the proper and desired solutions or predictions. That is to say, that the quality and precision of the data that serves as input to the AI is fundamental to determine the quality of the probabilistic results. The latter could determine the quality, trust and effectiveness of the solutions sought to solve in governments.

The learning capacity of algorithms helps improve its analysis, precision, and prediction capacities. Nevertheless, AI can still get 'confused or make mistakes'¹⁰. The technology is a work-in-progress, not only because the technology developed fairly recently but also because its algorithms continue to improve in time. Since AI can produce results that do not represent human values; imprecise or biased outputs; or that produce negative consequences in society, it is vital to regulate AI accordingly to the applicable legal frameworks, policies or judicial decisions.

The use of facial recognition systems in the private and public sector is increasing; however, its regulation has not been developed yet. Although the technology is capable of creating patterns and processing large amounts of data, it can be imprecise even in the simple analysis or tasks. Facial recognition systems already produced inaccurate or erroneous results¹¹. Dealing with imprecise and unregulated systems that use sensitive biometric data is a concern. As this paper mentioned before, Brazil is already using facial recognition for inspection and security in airports, customs, and cities. Regulating and creating mechanisms to correct potential failures of the technology should be a priority in the implementation of AI in the public sector.

It is essential to understand the limitations of this technology, especially when its effects may hinder civil rights and liberties. For example, in the *State v. Loomis*

¹⁰ *Machine learning confronts the elephant in the room*. Available : <https://www.quantamagazine.org/machine-learning-confronts-the-elephant-in-the-room-20180920/?fbclid=iwar3ht37tplrfcwuz2xpceif0gitsiaanpwhosca7x4phlxo2noqjhh0o80s>

¹¹ *Face recognition tech presents a surveillance issue and Amazon is running amok*. Available : <https://www.usatoday.com/story/opinion/2019/01/20/face-recognition-surveillance-issue-amazon-google-microsoft-column/2581992002/>

case¹², the court sentenced Eric Loomis using a commercial AI-tool to determine the risk of reoffending. Mr. Loomis lost his liberty, and could not challenge the automated decision due to proprietary rights of the risk-assessment algorithms. The limitation of civil rights by AI systems leads to the need to create measures to contest public decisions that rely on the results produced by this technology. In other words, the use of algorithms in decision-making processes can affect, unfairly, the rights of citizens; therefore, citizens should have the right to contest and access the necessary information related to automated public decisions to guarantee due process.

Information security and privacy is also a great challenge for the implementation of AI in the government. There should be more information on the cybersecurity measures used for protecting the systems itself, and for protecting the integrity, quality and confidentiality of the data; especially personal identifiable information, and sensitive information. On another hand, when discussing privacy and data protection, it is crucial to obtain legitimate consent for the collection and processing of personal data. In other words, a legitimate and specific consent represents the authorization of the owner of the information to have its information processed by third parties. To comply with that, there should be enough information to the public about the collection and handling of such data to legitimize the government's use of the data to feed AI systems. In other words, governments should inform the public the purposes or rationale of using the data; and create the measures to allow access to, the analysis, and challenge the information processed by AI systems.

Finally, the major challenge is to create mechanisms to inform the public about the use and implementation of AI systems, and the measures that will promote accountability in the public sector. This is even more important when considering that these technologies can potentially affect civil rights and liberties. As this paper will address next, AI Governance measures based on transparency and accountability could help to build trust in governments and build trustworthy AI systems.

¹² Liu, H.W., Lin, C.F., Chen, Y.J. *Beyond State v. Loomis: Artificial Intelligence, Government Algorithmization, and Accountability*. International Journal of Law and Information Technology, Forthcoming. Available: <https://ssrn.com/abstract=3313916>

TRANSPARENCY-RELATED REFLECTIONS

Discussions about AI ethics need to move forward to regulation, accountability, and transparency. The efforts in making AI less biased do not lessen some of the challenges discussed before, such as the dangers of the use of AI as “*oppressive and continual mass surveillance*”¹³ systems; or the inherent risks regarding the collection of mass amounts of information and sensitive information such as biometrics¹⁴.

Governments should be assessed by the effectiveness, quality, publicity, accessibility, and legitimacy of its actions and initiatives. Transparency allows social participation and accountability as a counterbalance of a government’s power. Broadly, there are two ways – or ‘categories’- for governmental transparency and access to information: through proactive and demand-driven¹⁵ instruments. Governments can be proactive by making available to the public and disseminating, information about a government’s activity; while “demand-driven” refers to the institutional commitment of responding to a citizen’s requests of information that is not available or accessible. In this sense, there should be a counterbalance from the public to challenge the criteria –ethical, legal- considered in the process of implementing AI in the public sector. Consequently, proactive and demand-driven transparency measures could “humanize” the processes where AI intervenes. In other words, creating these measures represents an opportunity to explain AI in a “human way” so that it encourages the participation and control of civil society.

The lack of regulation could limit due process, and generally, leads to insecurity in automated decisions, and in AI. A way of approaching AI regulation is by discussing the challenges and limits on the use of these systems, and by creating the mechanisms for transparency and accountability of governmental entities. Previously, this paper presented some of the challenges of AI systems; this paper lists below some of the transparency and accountability measures that could contribute to a responsible implementation of AI in the public sector. The measures that this paper presents aims

¹³ After a year of tech scandals our 10 recommendations for AI. Available : <https://medium.com/@AINowInstitute/after-a-year-of-tech-scandals-our-10-recommendations-for-ai-95b3b2c5e5>

¹⁴ Victory! Illinois Supreme Court Protects Biometric Privacy. Available : <https://www EFF.org/deeplinks/2019/01/victory-illinois-supreme-court-protects-biometric-privacy?fbclid=IwAR07cKAROUVphILRKITqHcGHi3q6OlzK5CxFU63GdszFNbSHBDmgBLgJayc>

¹⁵ Fox, J. The uncertain relationship between transparency and accountability. DOI 10.1080/09614520701469955

to promote publicity, accessibility, and legitimacy of the actions and initiatives of governments in the implementation of AI through a) cross-sector collaboration; b) consented, necessary and reliable data; c) waving trade secrecy: auditable and explainable AI; d) contesting automated public decisions; e) security and accountability.

Cross-sector collaboration

The implementation of AI in the government should be a discussion, as far as possible, open to the public and based on democratic, multidisciplinary procedures and according to standards based on human rights. The latter could encourage participation, control, and access to information on innovation processes in the public sector. It is important to view cross-sector collaboration as a virtuous governance model, such as the Internet Governance multistakeholder model. The multisectoral or cross-sector models help overcome regulation challenges of new technologies. For instance, it requires the participation of parties that represent different sectors and interests, and that contribute with their experience to create a holistic approach for this type of processes.

In the delivery of public services, governments should ally themselves with all the stakeholders to achieve full and trustable integration of AI, as is the case of the UK Government Industrial Strategy¹⁶, which takes a cross-sectoral approach to integrate AI into the public. This approach encourages compliance of regulations and observation of the public and therefore is crucial in AI regulation.

In general, encouraging cross-sector collaboration in the use, creation, and implementation of AI in the public sector could serve for two purposes: to overcome challenges that require a multisectoral approach; and second, to democratize the integration of AI by including the public interest as a counterbalance for government power.

¹⁶ Mikhaylov, S.J.; Esteve, M.; Campion, A. *Artificial intelligence for the public sector: opportunities and challenges of cross-sector collaboration*. Available : <https://doi.org/10.1098/rsta.2017.0357>

Consented, necessary and reliable data

Governments should not collect unconsented, unnecessary data or unreliable data. More importantly, governments should not implement unreliable automation systems or AI that has the potential to limit or restrict rights and liberties. As stated previously, one of the challenges of AI implementation is that over time, these systems, and particularly algorithms, reflect the inputs – the training data- used to develop such systems. For example, if the system's inputs are biased (regarding gender, race, class¹⁷) the outputs will probably reflect such problematic. How can it be assessed the reliability of the data used in AI that has already been implemented by governments? In other words, what are the actual measures to access to such information, to try to solve the issue of algorithmic opacity and data reliability of AI systems in the government?

Data protection laws establish the purposes, limits, quality, and types of uses allowed of the data that is collected. The collection of data through this type of technology should require the express, informed, current, unequivocal consent of the owner of the data. For instance, the 'mere public notice' that personal data is being treated is not enough. Thus, given the dangers of mass surveillance, and on another hand, considering the duty of governments to ensure due process and the rule of law, bypassing the requirement of getting the consent to process information by AI systems is questionable and should not be the rule. On the contrary, there should be a "*right to reject the application of these technologies in both public and private contexts*"¹⁸. For instance, Brazil recently approved its general data protection law. Consequently, the Brazilian Government should implement adequate measures for the treatment of personal data, such as the restriction on the collection of unnecessary, unconsented or unreliable data through AI systems implemented by governmental entities. How to determine if these measures have been created and implemented for an adequate treatment of personal data? Through public instruments that allow access to information on the operation of these systems, and on the data collection process.

¹⁷ According to a study from the MIT Media Lab, Amazon's system, Rekognition, "had much more difficulty in telling the gender of female faces and of darker-skinned faces in photos than similar services from IBM and Microsoft." *Amazon Is Pushing Facial Technology That a Study Says Could Be Biased*. Available : <https://www.nytimes.com/2019/01/24/technology/amazon-facial-technology-study.html>

¹⁸ AI Now Institute. *AI Now Report 2018*. Available: https://ainowinstitute.org/AI_Now_2018_Report.pdf p. 4

Waving Trade Secrecy: Auditable and explainable AI

There is a real concern about opacity and biased data that may exacerbate discrimination or contribute to unreliable results. A government agency should be capable of understanding the possible outcomes of these technologies before implementing them. More importantly, governmental entities have the responsibility to create all the measures needed to ensure that technologies do not produce adverse effects on society, and does not infringe human rights.

Auditing algorithms could help overcome the issue of opaque, discriminatory and biased AI¹⁹. However, algorithm auditing is not a simple task. To audit an algorithm, it requires understanding how algorithms work; how they are designed, and more importantly, acknowledge their capacity to improve or learn in time.

Auditable and explainable AI requires compliance of all the applicable regulations, and consideration of how private and public interests are weighted, to have access to the necessary information of interest to the public, without unprotecting private interests that may be affected. In that sense, another significant challenge is ownership rights and trade secrecy of algorithms. In that sense, there are several issues that still need to be analyzed and answered. For example, who owns the rights over these technologies, and therefore can authorize an audit? Who is responsible for correcting the undesired outcomes of algorithms? What should be the limits on such audit? Who should conduct such an audit? What type of access will the auditors have? What type of information will the public have access to?

Understanding and having access to the ways AI processes information and predicts or delivers outcomes is challenging²⁰. How can a solution to this problem be addressed? Algorithmic transparency, accountability, and disclosure of code²¹ can contribute to the solution. The latter measures demand the waiver of trade secrecy and other legal claims²² to audit AI systems, and assess potentially biased algorithms or contest public decisions.

¹⁹ AI Now Institute. *AI Now Report 2018*. Available: https://ainowinstitute.org/AI_Now_2018_Report.pdf

²⁰ Kroll, J. A., Huey, J....*Accountable Algorithms*. University of Pennsylvania Law Review, Vol. 165, 2017 Forthcoming; Fordham Law Legal Studies Research Paper No. 2765268. Available: SSRN: <https://ssrn.com/abstract=2765268>

²¹ *Technology Is Biased Too. How Do We Fix It?* Available: <https://fivethirtyeight.com/features/technology-is-biased-too-how-do-we-fix-it/>

²² AI Now Institute. *AI Now Report 2018*. Available: https://ainowinstitute.org/AI_Now_2018_Report.pdf

Contesting automated public decisions

As presented before, the mathematical and probabilistic results of AI systems are not always perfect. Perhaps, there will be times when human decision-making will be better than the decisions made by technology. Unexpected scenarios should open the door to human intervention to audit AI and to contest automated public decisions.

On the other hand, a full exercise of the right to due process requires access to information. A government that practices active transparency, and creates an infrastructure that allows access to information regarding automated public decisions will be fundamental in a transparent and accountable digital government. In other words, it is consistent with due process to open the possibility of exercising a right to contest automated public decisions.

The possibility of challenging automated decisions opens up the possibility of remedying civil rights. It is not the intention of this paper to infer mistrust in all automated decisions. As presented before, many times, AI systems are capable of producing results more effective, faster and more accurate than a human produces. However, having access to information to challenge an algorithmic output that resulted in the restriction of civil rights or liberties is a matter of public interest. Having such access allows the exercise of the right to defense, and consequently the right to due process. Consequently, in order to contest automated decisions and guarantee due process, it is compulsory the creation of the proper judicial and procedural mechanisms to audit AI systems and allow human intervention when necessary.

Security and accountability

When implementing AI, governments should have an ethical and legal responsibility to inform the public about the origins of the technology. For example, information such as the legality and legitimacy in obtaining the data to train the algorithms; the human or economic resources and burdens that contributed to the development of the technology, and information that allows the public to understand the purpose for which the technology was created. Learning about the history of the systems, the functioning details, and the structure of all the components of technologies such as AI is essential to delivering a better audit for full accountability.

This is known as a "*full stack supply chain*"²³. Having access to information or details about AI systems could be relevant to understand the origin of the data that feeds the algorithms; learn the operation of structural components and levels of protection; understand cybersecurity measures that will prevent unauthorized access to systems and data.

Overall, having access to the history and the details on the operation of AI systems could contribute to accountability by facilitating the measures to determining the degree of government compliance with applicable regulations²⁴, in either the creation, implementation, or use of the technology. At the end, an efficient and responsible public administration is not only the one that modernizes its services and carries out tasks in less time; but also one that improves the lives of its citizens, and improves the efficiency of public services through the use and implementation of tech tools such as AI, through proper accountability mechanisms.

CONSIDERATIONS

Governments have the responsibility of guaranteeing and protecting rights at all times. Innovation and modernization of the public sector through the implementation of AI requires the determination of transparency and accountability measures in all the stages and processes from the creation, use, and implementation of such technology. The use of AI in the government can help improve the efficiency of public services, but regulation before the implementation should be mandatory.

Ethical debates regarding the use of AI need to move forward to regulation, accountability, and transparency for its implementation in the public sector. For many years, the discussion on AI focused on the establishment of ethical parameters to address the problems related to this type of systems. Also, governments should promote publicity, accessibility, and legitimacy of the actions and initiatives regarding the implementation of AI in the public sector through cross-sector collaboration; waving trade secrecy of algorithms; creating measures to contest automated public

²³ AI Now Institute. *After a Year of Tech Scandals, Our 10 Recommendations for AI*. Available at: <https://medium.com/@AINowInstitute/after-a-year-of-tech-scandals-our-10-recommendations-for-ai-95b3b2c5e5>

²⁴ *China's tech giants want to go global. Just one thing might stand in their way*. Available : <https://www.technologyreview.com/s/612598/chinas-tech-giants-want-to-go-global-just-one-thing-might-stand-in-their-way/>

decisions to enforce due process, and creating accountability measures based on human rights standards.

Although AI surpasses human capacities in many ways, it also has limitations. Policymakers and governments should acknowledge the latter, and create the necessary measures to respond to these limitations. That is why regulation and the implementation of AI in government requires cross-collaboration, to allow cooperation between stakeholders.

Proper regulation of AI is fundamental so that governments can seize the advantages of such technologies. That is where transparency and accountability can play a significant role. Transparency and accountability serve as a counterbalance for the government's power on decision-making, which could contribute to the enforcement of rights.

Creating barriers to transparency²⁵ could harm trust in AI. It could also hinder the participation of civil society, and naturally, contribute to the lack of trust in governments. Unregulated disruption of technology²⁶ can harm societies and civil rights. That is why it is crucial creating transparency measures for the implementation of AI, to ensure the technology is not used to harm civil liberties. A transparent regulation and implementation of AI in government will help build trust. Establishing clear parameters for AI governance helps to build trust in these technologies; trust in the government, and contributes to the effectiveness in the delivery of services and policy.

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²⁵ In Brazil, the decree 9.690/2019, proposed to expand number of authorized persons who can impose secrecy on public information. Although the decree was suspended, these type of initiatives reduce and contradict the general rule for the transparency of public information required by law, and hinders the possibility of the population to participate in the governmental decisions, such as the implementation and use of AI in public services. Available: http://www.in.gov.br/materia/-/asset_publisher/Kujrw0TZC2Mb/content/id/60344275

²⁶ *The era of move fast and break things is over.* Available : <https://hbr.org/2019/01/the-era-of-move-fast-and-break-things-is-over>

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China's tech giants want to go global. Just one thing might stand in their way.

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