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Summary: This brief seeks to look into how innovation ecosystems in the Atlantic Basin may affect public policymaking, economic development, and the future of commercial and social interactions. It looks more specifically at enabling technologies, which generate networks and increase connectivity. It also explores the transformational role these technologies play on the evolution of strategic industries in the Atlantic. The digital revolution's full potential indeed lies in its capacity to significantly influence other sectors.

The Transformational Role of Technology in the Atlantic Basin

by Guillaume Xavier-Bender

Introduction

A *New York Times* editorial on Friday, October 9, 1903, titled "Flying Machines Which Do Not Fly" explained that "if it requires, say, a thousand years to fit for easy flight a bird which started with rudimentary wings, or ten thousand for one which started with no wings at all and had to sprout them *ab initio*, it might be assumed that the flying machine which will really fly might be evolved by the combined and continuous efforts of mathematicians and mechanicians in from one million to ten million years."[1]

That same Friday, Orville Wright wrote in his diary: "We started assembly today." Sixty-nine days later, he piloted the first powered, heavier-than-air machine 20 feet above the beaches of Kitty Hawk in North Carolina.

History is filled with stories like this one. Technological innovations often far exceed the realm of what seems possible at any given time and place. Some might succeed, and some might fail. But the power of technology is not a peripheral issue that should be left only to technologists; it takes a combination of factors for these innovations to contribute to economic, societal, and political development. They thrive in specific ecosystems. Indeed, technologies have the potential to transform our world and our way of life. It is in this sense that technologies, and especially enabling technologies, such as mobile devices and the Internet, play a transformational role. They dramatically change the way we live and work by introducing innovative, holistic, and catalytic possibilities that can result in greater wealth and well-being.

This resonates particularly in the current context of the digital revolution, as technologies are transforming the way policymakers govern, the way industries do business, the way consumers behave, and the way citizens interact. The impact of this transformation is cross-sectoral, cross-regional, and cross-generational. Across the Atlantic, new models of doing business and of doing politics are dramatically affected by these new technologies. How are policymakers and stakeholders dealing with these developments? Is technology a driver of change in the Atlantic, or a factor of consolidation of existing economic, political, and societal constructs? Are incumbents embracing or opposing these transformations?

1 "Flying Machines Which Do Not Fly," The New York Times, October 9, 1903, http://query.nytimes.com/mem/archive-free/pdf?res=9905E3DA1439E433A2575AC0A9669D946297D6CF.

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Generating Innovation Ecosystems

Not all technologies are transformational, disruptive, or enabling. But those that are have the potential to change the economic, social, and political status quo. It was the case with steam power, electricity, and internal combustion. It is the case with the Internet and information and communication technologies (ICTs). As these past examples have demonstrated, the technology itself often matters less than how it is used, and in which environment it is developed. Transformational change results from a combination of technologies, *circumstances*, and *context* that enable change. In other words, the ecosystem in which technologies evolve is instrumental for their economic, social, and political impact. Indeed, as Michael Schrage notes, "innovation ecosystems create virtuous cycles of external creativity, which drives internal adaptation. In turn, internal innovation enables and inspires external investment."[2] That constant interaction between innovations, the societal systems in which they emerge, as well as the regulatory environment that frames their development, are what drives technological evolution. As a result, the process of innovation is neither static nor linear. It evolves in "living" systems of rules, institutions, and cultures. In turn, by themselves, these systems generate internal and external interactions and linkages that allow innovation to foster and thrive; in the same way that ecosystems do.

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With that in mind, adaptability is critical in order to navigate the frictions that are generated by the process of innovation. Innovation disrupts what is already in place, whether that is a specific technology, an economic system, social rules, or political constructs. Managing these disruptions becomes crucial as systems transition from one paradigm to another. This often requires a combination of public policies and private initiatives, as well as the overarching trust of users and citizens.

Technologies constantly affect interactions between social, political, and economic actors. To some extent, the frictions and disruptions created by technological innovation define the degree of transformation at any given time and place. Within this idea, economies and societies evolve in ecosystems.[3] Such a process is increasingly apparent in the current rapid digitalization of technologies, but it is neither new nor unique. This process indeed implies that users and citizens realize the potentially disruptive effect of a single technology, which leads first to a progressive phase of adaptation, then absorption, and finally transformation.

The Locomotives Act of 1865 in the United Kingdom, also known as the "Red Flag Act" offers a striking example of how transformational technologies affect existing systems:

> "Every locomotive propelled by steam or any other than animal power on any turnpike road or public highway shall be worked according to the following rules and regulations: First, at least three people shall be employed to drive or conduct such locomotive (…) Second, one of such persons, while any locomotive is in motion shall precede such locomotive on foot by not less than sixty yards, and shall carry a red flag constantly displayed, and shall warn the riders and drivers of horses of the approach of such locomotives, and shall signal the driver thereof when it shall be necessary to stop, and shall assist horses, and carriages drawn by horses, passing the same (…) Sixthly, any person in charge of any such locomotive shall provide two efficient lights, to be affixed conspicuously, one at

2 Michael Schrage, "How Innovation Ecosystems Turn Outsiders into Collaborators," *Harvard Business Review*, April 30, 2014, https://hbr.org/2014/04/how-innovation-ecosystems-turn-outsiders-into-collaborators/.

3 Robert Atkinson, president of the Information Technology and Innovation Foundation, even recommends "a 'meso-economic' evolutionary policy focus that examines how innovation systems and institutions are organized to drive evolution." See Atkinson, "An Economics for Evolution," *Inside Sources*, January 28, 2015, http://www.insidesources.com/economics-evolution/.

each side on the front of the same, between the hours of one hour after sunset and one hour before sunrise."[4]

This regulation, which might today seem unnecessarily burdensome for an automobile driving through a city, lasted 13 years before being amended in 1878. Some of the regulations that nowadays frame and constrain the use of new technologies might similarly seem obsolete in the next decade.

Beyond its specific provisions, the Red Flag Act reflects how an enabling and transformational technology can affect the ecosystem in which it evolves. Under the act, not only were steam locomotives forced to operate under specific conditions, but the mere fact of their use also changed the conditions under which other already existing vehicles had to behave. In other words, the use of any new technology directly affects other social and economic behavior that utilizes older technologies. Societal interaction is transformed as a whole. In the same way that steam locomotives generated new behavioral rules in societies dominated by horse-drawn vehicles, smart phones generated new constraints and opportunities in societies that until then only knew of the possibilities of landlines.

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The challenge for legislators and regulators in addressing technological innovation has not changed much since 1865. Whatever the technology, the task remains the same: to maximize the societal and economic benefits that its use might generate while simultaneously assuaging the concerns expressed by citizens and consumers alike. At the same time, policymakers must try to anticipate and minimize potential negative externalities generated by newly adopted technologies. Whether motivated by precaution or protection, these initial decisions may also dramatically affect the evolution of innovation ecosystems. Governments, businesses, and individuals therefore are continuously engaged in the incremental development and acceptance of technological innovation. The circular interaction that guides their relationship with technology acts as a dynamic system of checks and balances. The case of digital technologies is no different than with other technologies. These interactions, checks, balances, and feedback loops differ from one country to the other. They are intimately linked to history, culture, and social contracts. But the underlying questions fundamentally remain the same everywhere as different societies embrace digital technologies at varying rates, all of them seeking to create a favorable ecosystem for their own development.

Throughout the Atlantic Basin, governments are increasingly dedicated to using innovation and new technologies to create jobs and growth. Initiatives such as the EU's Horizon 2020 Framework Program, the U.S. Strategy for American Innovation, the New Technological Innovation Act in Brazil, the creation of the South African Technology Innovation Agency, or the establishment of the Colombian iNNpulsa agency are all intended to provide an environment in which technological innovation can thrive. Throughout the basin, national strategies for science, technology, and innovation (STI) indicate a willingness to encourage and benefit from the current digitalization of economies and societies. In a time where data is seen as the new enabler of development, providing the appropriate tools to businesses, innovators, and entrepreneurs throughout the "innovation chain" is seen as a necessity.

Mobility, Connectivity, and Governance in the Atlantic

Harnessing the Potential of the Digital Age

The fast-paced and global development of mobile technologies, combined with the expansion of the Internet has led to a common assumption that any discussion about technology is necessarily about "tech." This assumption is misleading, and unfortunately tends to sideline innovations in other strategic industries such as agriculture, energy, and transportation, which also affect systems as a whole. Yet the development of ICTs and of the Internet has the capacity to durably affect connectivity throughout existing social, economic, and political systems.

Indeed, digital technologies have the potential to transform other sectors, in the same way that steam technology not

4 "The Locomotives Act, July 5, 1865, Rules for the Manner of Working Locomotives on Turnpike Roads and Highways," in Alexander Glen and William Nethersole, *The Highway Acts, 1862-1878, the Locomotive Acts, 1861-1878, and the General Provisions of the Turnpike Continuance Acts, 1863-1878*, Fifth Edition (London: Knight, 1879), p. 237-238, https://archive.org/stream/highwayactsloco00nethgoog#page/n269/mode/2up.

only affected the steam engine sector but entire industries as well. The digital age introduces a new dimension of connectivity, whereas mobility allows unprecedented opportunities in transcending physical and geographical constraints. As such, this "second machine age," as coined by Erik Brynjolfsson and Andrew McAfee, is concomitant with evolutions in the innovation and tech ecosystems everywhere.[5]

Most countries have developed national ICT strategies and have identified the Internet as a key driver for growth. The greatest potential seems to be for developing and emerging economies. According to a 2013 report on the Internet's transformative power in Africa, "mobile telephony has already had an outsized effect in Africa as it connected people who previously had little or no access to telecommunications due to the scarcity of fixed-line infrastructure. If the Internet matches or exceeds that level of impact, the result could be a leap forward in Africa's economic growth and development. Assuming a similar multiplier effect, the Internet could contribute some $300 billion to Africa's GDP by 2025."[6] On the other side of the Atlantic, in Latin America, the mobile industry was estimated in 2013 to have contributed to over 4.1 percent of the region's GDP. With smartphone penetration rates expected to reach 70 percent of total connections in Latin America by 2020, economies with a strong ICT sector have entered a new phase of development.[7]

But the devil is in the details, and while sub-Saharan Africa may have had the lowest rate of mobile penetration in 2013, it is seeing the fastest subscriber growth of any region.[8] Mobile penetration should therefore not be the sole criteria to evaluate the implication of a given country or region of the world in the digital revolution. Broadband services are also on the rise. Considered by the Inter-American Development Bank (IDB) as "the key ingredient of the public policy agenda for speeding up economic growth and reducing inequality," the development of broadband access to the Internet still faces a number of bottlenecks including high costs and uncertain regulatory frameworks.[9] According to the International Telecommunication Union (ITU), "between 2000 and 2015, Internet penetration has increased almost seven-fold from 6.5 to 43 percent of the global population," with mobile-broadband being the most dynamic market segment (boasting a 12-fold increase since 2007).[10]

Connecting innovators to investors, academics, and policymakers remains one of the greatest challenges to nurture innovation.

Looking at the Atlantic space, a number of new dynamics are revealing of this pattern. According to the World Intellectual Property Organization (WIPO) 2014 Global Innovation Index (GII), sub-Saharan Africa "is the region that sees the most significant improvement in GII rankings in 2014." Out of the 33 countries that make up the region, 16 of them climbed in the rankings that year, with Côte d'Ivoire showing the biggest improvement, gaining 20 places. Entrepreneurs in Abidjan are increasingly looking for inspiration in Senegal and Ghana, and in 2012 the Ivoirian government launched an initiative to improve network infrastructures in the country.

When looking at the multiplication of innovation hubs in Africa, namely in Senegal, Nigeria, South Africa, and Ghana, one can only note the fundamentally global nature of digitally driven innovation. Connecting innovators to investors, academics, and policymakers — locally and globally — remains one of the greatest challenges to nurture innovation. Global businesses understand this well and initiatives such as IBM's Innovation Centers, or Orange's incubator partnerships are part of this transformation.

5 Eric Brynjolfsson and Andrew McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies* (New York: WW Norton, 2014).

6 James Manyika et al., *Lions Go Digital: The Internet's Transformative Potential in Africa*, McKinsey Global Institute report, November 2013: 1, http://www.mckinsey.com/insights/high_tech_telecoms_internet/lions_go_digital_the_internets_transformative_potential_in_africa.

7 GSMA Intelligence, *Mobile Economy Latin America 2014*, GSM Association report, 2014: 2, http://www.gsmamobileeconomylatinamerica.com/GSMA_Mobile_Economy_LatinAmerica_2014.pdf.

8 GSMA Intelligence, *Mobile Economy Sub-Saharan Africa 2014*, GSM Association report, 2014, http://gsmamobileeconomyafrica.com/GSMA_ME_SubSaharanAfrica_Web_Singles.pdf.

9 "IDB Launches DigiLAC, a New Platform for Measuring Broadband Penetration in Latin America, *Inter-American Development Bank News Release*, May 14, 2014, http://www.iadb.org/en/news/news-releases/2014-05-14/index-that-measures-broadband-penetration,10816.html.

10 *ICT Facts & Figures: The World in 2015*, International Telecommunications Union report, May 2015, http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf.

On the other side of the Atlantic, the adaptation of Costa Rica's ICT cluster to new technological and economic realities, and the emerging Colombian tech hubs that are Bogota and Medellin, are great examples of these new dynamics. Collaborative initiatives in the Caribbean are also telling of the greater opportunities that ICT offers in connecting and developing the region — such as those led by the Caribbean Association of National Telecommunication Organizations (CANTO). Everywhere in the Atlantic, policymakers and businesses see the potential of an increasingly connected society and economy.

With more than 7 billion mobile subscriptions worldwide and 3.2 billion people using the Internet, 2 billion of which are from developing countries, the potential of digital technologies is immense. But in order to fully reap the benefits of these technologies, infrastructures need to be in place, regulatory frameworks need to be updated, education and incentive systems need to be reformed, etc. In all, it is innovation ecosystems that need to be nurtured for these technologies to fulfill their transformational role.

Innovation ecosystems need to be nurtured for these technologies to fulfill their transformational role.

Governing New Economies and New Societies

By their very nature, transformational technologies require a certain degree of oversight. Their disruptive — often also destructive — effects mean that they can also widen gaps between winners and losers, whether in economic or social terms. To address this phenomenon, governments often design global strategies for innovation and technology (such as STIs), invest directly in specific technologies by "picking winners" and creating "prizes," or adapt regulatory frameworks to technological and economic circumstances. In doing so, they make the policy choices they believe will best allow them to manage and control a technologically driven evolution of their societies.

But the role of governments in contributing to innovation and technological development remains a topic of friction. Some argue that governments should simply "get out of the way," whereas others defend that "across the entire innovation chain, from basic research to commercialization, governments have stepped up with needed investment that the private sector has been too scared to provide."[11] Others argue that "government should play a key role in marshaling resources for innovation, not just traditional funding for basic science, but through incentives like prices, funding of public-private research consortia, and more robust funding for technology transfer."[12]

In many regions of the Atlantic, making these choices means reforming fundamental structures of the economy and of society. In other places, low technological penetration in the first place may allow leap-frogging and the creation of regulatory frameworks fit to absorb these new technologies from the start, without having to struggle with the entrenched interests of legacy infrastructure. For example, many developing countries do not have to worry about managing a transition from landlines to mobile phones or national grids to micro-grids because the older infrastructure is sparse or non-existent.

These two differing realities nonetheless often translate into the same global strategies. It is at the level of implementation that differing levels of disruption can be felt. Recent examples of this include the reform of the telecom sector in Mexico through the pro-competition federal telecommunications law of July 2014; the Brazilian Civil Rights Framework for the Internet, or Marco Civil, approved in April 2014, and which consecrates the principle of net neutrality; and the Innovation Morocco Initiative, which openly horizontally addresses the economic, industrial, and social opportunities of innovation.

In the United States, the move by the Federal Communications Commission (FCC) to "propose new rules to preserve the Internet as an open platform for innovation and free expression"[13] might be a game changer in how regulators approach technological innovation vis-à-vis users and innovators. Beyond the controversies and the visible divides that it has created between industries in the United States, and while the FCC could have certainly found other technical ways to address the issue, its political stand is revealing in the much needed debate in the United States to strike the right balance between the openness and

11 Mariana Mazzucato, "The Innovative State: Governments Should Make Markets, Not Just Fix Them," *Foreign Affairs*, vol. 94, no. 1 (January/February 2015): 61, http://www.foreignaffairs.com/articles/142496/mariana-mazzucato/the-innovative-state.

12 Atkinson.

13 Tom Wheeler, "This Is How We Will Ensure Net Neutrality," *Wired*, February 4, 2015, www.wired.com/2015/02/fcc-chairman-wheeler-net-neutrality.

resilience of the network to benefit both the users and the providers of Internet services.

On the other side of the Atlantic, the EU's digital agenda endeavors to put in place a connected digital single market with the explicit aim "to make Europe a world leader in information and communication technology, with all the tools to succeed in the global digital economy and society."[14] The proposed Digital Single Market (DSM) strategy may still fall short of providing concrete answers to Europe's dilemmas when it comes to combining privacy, security, and prosperity through the digitalization of economies and societies. Yet the DSM is a step forward toward a more coordinated approach to regulating digital technologies and their role among the 28 EU countries.

Cross-Sectoral Innovation

The combination of more connectivity and more mobility does not only benefit the ICT sector. Innovation in "tech" is indeed following the path of all major technological advances by spilling over into other sectors and systems. Paradoxically, no single innovation is transformational in itself. It is the combination of multiple technologies that generate transformation. The success of the Internet, for instance, is irremediably linked to the development of personal computers and mobile technologies.

The development of digital technologies and data-driven economies foster new opportunities across sectors. Almost everywhere, the letter "e" or the word "smart" is becoming the norm: e-commerce, e-vehicles, e-banking, e-government, e-services, e-health, smart grids, smart cities, smart phones, etc. These concepts allow for greater ambitions and prospects in more traditional industries and services by increasing efficiency, accessibility, scale, and integration across the board.

In 2014, according to MasterCard, mobile money users in Africa made up 77 percent of the world's mobile money transfers.[15] The technology brings an efficient solution to the barriers of geography and underdevelopment in parts of the world that do not have access to efficient transportation infrastructure or brick-and-mortar retail banking services.

It is the combination of multiple technologies that generate transformation.

Paying a bill from a mobile phone has a multiplier effect in changing everyday life. It is also the case when mobile farming apps allow farmers in remote areas of the Atlantic space to anticipate weather and prices. Despite the inherent risks that still exist with the development of these technologies in certain markets (such as those posed by corruption, security of data, regulatory uncertainty, upfront costs of infrastructure, etc.), innovative new platforms slowly penetrate and transform economies, reassuring domestic and foreign investors as they demonstrate their viability.

Technological developments are also bringing other strategic industries along in this transformation. Cumulative spillover effects of innovations are creating new opportunities for inclusive green growth, renewable energies, food security, and the general mobility of goods and people. Aviation, a more traditional expression of connectivity, is a wonderful example of how technological evolution in a sector driven by a systems approach can benefit from increased digitalization. Progress in aircraft efficiency, airport management, air traffic management, passport control, automation, and passenger experience are some of the more visible changes that innovation in software and hardware are bringing to the aviation sector in Africa, Latin America, and the Caribbean. Moreover, these changes are producing a wide range of externalities that contribute more generally to economic and social development in the region. The greenfield investments of Canadian manufacturer Bombardier in Morocco, the discussion over an African Single Sky, and the tax rules and airline fees in Latin American and Caribbean countries, as well as the Boeing-Embraer partnership in the São José dos Campos research center on biofuels, are among the many initiatives attesting to the growing role of the aviation industry in the Atlantic. And it is the combination of technologies, digital and non-digital, that enables this transformation to take place across sectors.

The role of technology in the Atlantic Basin is also one of greater political and democratic accountability. By increasing access to information, and by creating new

14 Jean-Claude Juncker, Mission Letter to Andrus Ansip, Vice-President for the Digital Single Market, European Commission, November 1, 2014: 4, http://ec.europa.eu/commission/sites/cwt/files/commissioner_mission_letters/ansip_en.pdf.

15 Richard Walker, "Africa: Innovation Hubs Galore," *African Business Magazine*, July 21, 2014, http://africanbusinessmagazine.com/sector-reports/technology/innovation-hubs-galore/.

means for better governance, digital technologies are affecting relations between governments and their citizens. Whether it is through e-government strategies such as in Mexico and Morocco, electronic voting in Namibia, online petition platforms and e-visas, technology can bring governments and citizens closer, increase accountability, and contribute to economic and social development.

How to deal with the Internet and with data at a local, regional, and global level brings together communities that seek to understand the linkages between the technology, and its economic, social, and political repercussions. The future of Internet governance, and of how nations address the growing challenge of data worldwide, will mark a milestone in economic and political construction. The digital revolution — or evolution — is transforming existing paradigms beyond traditional national borders.

Digital connectivity and networks are affecting relations between peoples and countries to an extent that may recall the transformational effects of other "connecting technologies" such as the steam engine, the telegraph, and the airplane. Indeed,

> "To take just a few examples, advances in artificial intelligence are helping doctors diagnose disease; new sensors are making it possible to drive cars more safely; digitization is delivering knowledge and entertainment more widely than ever; and mobile networks are interconnecting the planet's population for the first time ever. The digital revolution is the best economic news on the planet. But the evidence is clear that this progress is accompanied by some thorny challenges."[16]

Conclusion: Looking Ahead Beyond Borders

Eleven years passed between Orville Wright's 12-second flight at Kitty Hawk and the first ever scheduled flight with a paying passenger, a flight lasting 23 minutes. The profitable commercialization of this amazing technology was not immediate, as it rarely is with new technologies. Its development also far exceeded the intentions and ambitions of its creators. Every enabling technology has to face resistance and must undergo adaptations. It is also why they are as much elements of a revolution as of an evolution, with hardly any predictability. In the end, in this current technological age "if individuals, businesses, and governments understand what is going on, however, they can at least try to adjust and adapt."[17]

Every enabling technology has to face resistance and must undergo adaptations.

In the Atlantic Basin, where technological advancements vary to such large extents between countries, adjustment and adaptation are underway at very different paces. Regulatory frameworks differ considerably. Innovation ecosystems, cultures of entrepreneurship, and talent empowerment also vary considerably from one region to the other, from one country to the other, and even from one city to the other. Nonetheless, a certain number of elements should be taken into consideration as policymakers address the growing challenges of digitalization.

- Emerging and developing economies in the Atlantic Basin can potentially leap-frog technological innovations. Not only would this apply to the technology itself, but to building infrastructures that allow it to function and the regulations that frame its use. Leap-frogging would also contribute to refining innovation ecosystems in areas that did not traditionally embrace innovation as a driver of wealth and well-being. However, leap-frogging should be a means, not an end in itself — many areas in the Atlantic space still require the development of traditional "medium-tech" infrastructure in order to absorb and benefit from "high-tech."
- Governments should not only play the role of regulator, but should also actively participate in shaping the technological future of their economy and society. The transformational dimension of the digital revolution means that existing systems will evolve. Strategic and political decisions could be linked to technological choices, especially in sectors that directly affect the every-day life of citizens.
- Private and public investment in research and development (R&D), as well as in education and training (E&T) should be considered integral parts of prosperity.

16 "Open Letter on the Digital Economy," http://openletteronthedigitaleconomy.org/.

17 Erik Brynjolfsson, Andrew McAfee, and Michael Spence, "New World Order: Labor, Capital, and Ideas in the Power Law Economy," *Foreign Affairs*, vol. 93, no. 5 (July/August 2014): 51, https://www.foreignaffairs.com/articles/united-states/2014-06-04/new-world-order.

Increasingly, the capacity to innovate and to create is moving the needle of global influence. The long-term benefits of these investments in talents and ideas outweigh their immediate costs. Public-private partnerships in R&D and E&T would maximize and diversify those benefits.

- Cross-sectoral approaches to technology offer immense opportunities, especially in strategic industries such as agriculture, energy, telecommunications, and transport. Moving toward the "Internet of Things" for instance, opens a realm of possibilities to connect networks and machines. These combinations of technologies, and the entrepreneurial creativity that surround them, would also require rethinking existing legal and regulatory frameworks.
- Transformational technologies can strengthen governance and public accountability. The digitalization of economies and societies increases the circular interaction between governments, citizens, consumers, and businesses.
- Automation, from 3-D printing to Big Data and data analytics to artificial intelligence, is the next frontier of technological innovation. Its implications are far reaching and could potentially bring into question the fundamentals of economic and social development. If not channeled properly, automation could also challenge existing political and societal constructs.

Recent technological developments and initiatives in the Atlantic Basin tend to confirm that approaches to economics and international relations that put ecosystems and the evolution of interactions at the heart of decision-making might increasingly be useful tools for policymakers.

Looking ahead, there is a role to play for Atlantic partners in addressing these issues. In an age where technological innovations increase connectivity and reduce — if not eliminate — borders (both physical and non-physical), there is a case to be made for greater interactions between all sides of the Atlantic. With the intensification of exchanges in the medium term, further cooperation on innovation and technology could facilitate these relations. This evolution could dispense much-awaited economic and political gains everywhere in the region.

About the Author

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