Robotics and socio-political issues

Marita Carballo*

Abstract

The technological changes taking place around the world today are profound, accelerated and all-encompassing. Hence, they cut across all walks of life and cover many technologies being simultaneously developed and integrated between them. The characteristics of the change that is coming are so profound and unprecedented that we cannot find any comparison in human history. The neologism 'post-human', a term that has been coined in the last few decades[2], is indicative of the disruptive nature of this transformation, the question being how far or how close will the 'human being' stay at the end of this road? The consequences of these changes in politics, in the economy, in society, in biology and the environment are already creating heated ethical debates on what the future will look like. One of the technologies that bring together this wide array of techniques is robotics and artificial intelligence. It is gradually emerging to impact and transform almost all areas of everyday life, such as our households, the way we do business, how we protect ourselves, how we relate with each other, how we do our work, and it also has implications in areas as diverse as politics, education and health. In light of these trends both, robotics and artificial intelligence, as well as all of the new technologies, promise to offer advantages but also pose potential risks. In this presentation, we will examine how citizens anticipate some of these changes, what their attitudes and views are regarding these new technologies and how they think they will impact their lives. For that purpose, we will be supported by recent surveys undertaken with the highest scientific standards, including both national and international studies. At the local level (Argentina), we will rely on research studies carried out by Voices consultancy firm, in conjunction with INTAL/IADB, as well as on some research undertaken for the *Centro de Investigaciones Sociales* (Center of Social Research) - CIS-Voices-UADE. For regional and global comparisons, we will examine different Barometers, especially the *Latinobarómetro* and the World Value Survey (WVS), as well as data from international associations, WIN, GIA and Pew. We will present how people view the technology and future innovations, how they think their lives will be impacted, and what concerns they have regarding the nature of such changes. The analysis and knowledge of these perceptions is relevant to the design and implementation of future policies, and they contribute to formulating the questions we will need to answer in a very near future.

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[2] Rosi Braidotti. "Lo Posthumano". Gedisa Editorial. 2015

THE TECHNOLOGICAL REVOLUTION, BASIS OF THE 'FOURTH INDUSTRIAL REVOLUTION'

The Fourth Industrial Revolution, which we are already experiencing, is associated with the computerization and digitalization of production and the generation, integration and analysis of large amounts of data across the productive process and the life cycle of products, mainly enabled by the Internet.

The Fourth Industrial Revolution is defined as the transition towards new cyber-physical systems that operate in the form of more complex networks and are built on the infrastructure of the previous digital revolution (Klaus Schwab, 2016)[3]. Its main characteristic is the coexistence of a large variety of converging technologies (Digital Convergence), which blur the lines between the physical, digital and biological worlds, generating a fusion between these three realms and causing a true paradigm shift (World Economic Forum, 2016)[4].

Also, guided by the Internet, the digital transformation creates a new technological map in which all social stakeholders (consumers, businesses, governments, civil society organizations) are involved and connect with each other in real time through the use of different devices (smart cellular phones, computers, sensors) and digital platforms (e-commerce, e-government, social media networks), thus changing the way we produce, we work and communicate with each other. Hence, scientific advancements such as drones, robots or self-driving automobiles, which recently looked only possible in science fiction movies, are close to becoming common practice in production and in people's lives.

Within this framework, the key question we ask ourselves is: How are these new configurations of the real world expressed at the level of human subjectivities? How does all of this impact our habits and attitudes in society? And how do we project our lives in light of this new digital era?

Below, we attempt to show how some of these technological changes on different social dimensions are perceived by the citizens of our planet.

'AMBIVALENT VIEWS ON THE FUTURE': THE TECHNOLOGICAL REVOLUTION IN THE EYES OF THE CITIZENS OF THE WORLD

Within the 'Fourth Industrial Revolution', technological innovation penetrates all spheres of our societies. This means an impact on each and all of the spaces that make up the social fabric, from the most abstract or structural aspects –such as productive processes, tools, engineering, economic and biological models-, to the most simple and accessible things for the people, personalized and domestic aspects, such as the ways of communicating with 'the other', transportation, work activities, political attitudes, entertainment, etc.

According to data collected by the World Value Survey wave 6, 2010/14, which was carried out in 60 countries, the perceived positive impact of the new technologies for the planet as a whole are indisputable: 7 out of 10 citizens believe that the world is better

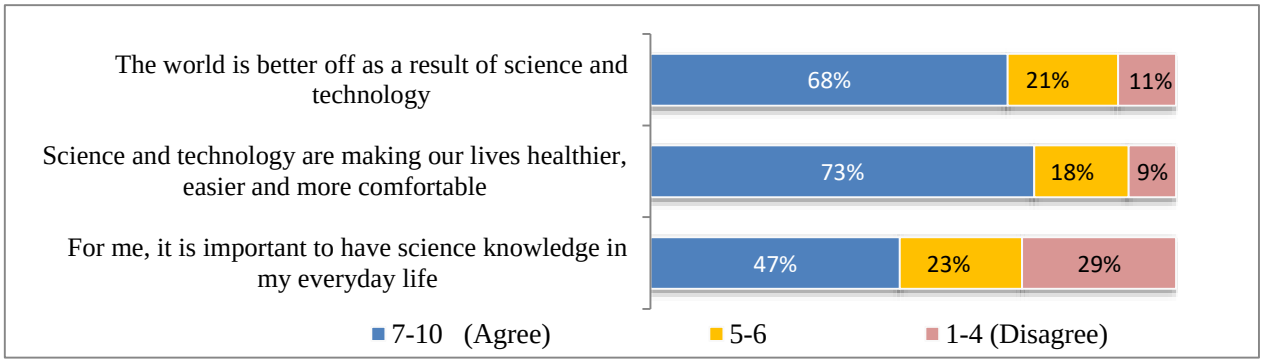
[3] Schwab, Klaus. (2016). The Fourth Industrial Revolution. Geneva: World Economic Forum

[4] Schwab, Klaus. (2016, 14 january). The Fourth Industrial Revolution: what it means, how to respond. Available at: https://www. weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/

off today as a result of the scientific and technological advancements. There is also high level of consensus regarding the benefits of the technological advancements on people's everyday lives: about 73% of interviewees believe that science and technology are making our lives healthier, easier and more comfortable, compared to only 9% who believe otherwise, and 18% whose opinion stands in the middle. Likewise, almost half of the world's population (47%) thinks that it is important to have the scientific knowledge to apply in everyday affairs.

IMPACT OF SCIENCE AND TECHNOLOGY IN EVERYDAY LIFE

Do you agree or disagree with the following statements? Please use a scale of 1 to 10, where 1 means "fully disagree" and 10 means "fully agree" ...

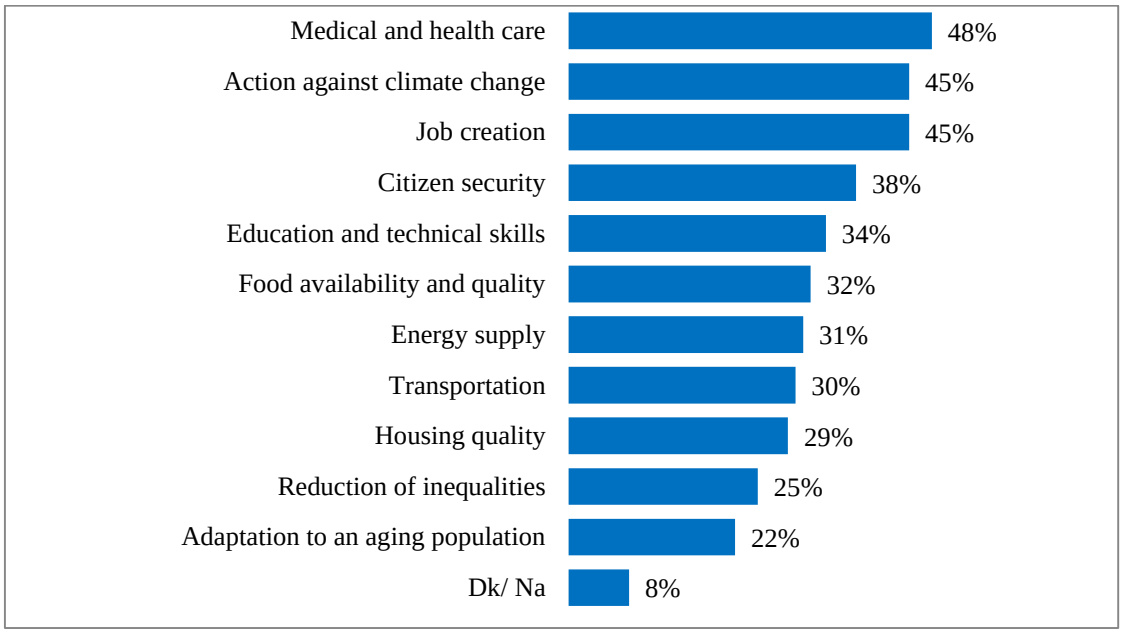


Base: Adult population, World total (60 countries) Source: World Value Survey (wave 6).

Also, according to Latinobarómetro 2016, based on 20,204 interviews in 18 Latin American countries, when asked about what areas they believe technological innovation will have a positive impact on in 15 years' time[5], people place the highest expectations in advancements anticipated for health-related matters, particularly personal care and medical care (48%). The second place, with 45% of mentions, is held by expectations regarding climate change and job creation.

EXPECTED POSITIVE IMPACT OF TECHNOLOGICAL INNOVATION

In 15 years, what areas do you think scientific and technological innovations will have a positive impact on?



Base: Adult population, Total Latin America (18 countries) Source: Latinobarómetro 2016

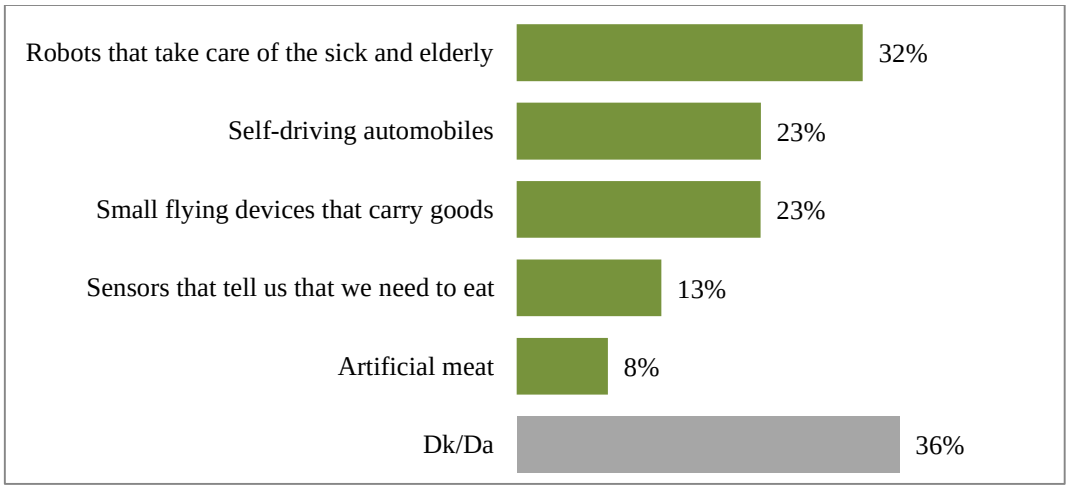
Moreover, when inquiring about the benefits that could be afforded by a series of specific technological breakthroughs in the future (such as robots, drones, self-driving automobiles, body sensors and artificial meat), the most frequent response selected by interviewees was the "no answer" (36%), thus revealing the doubts that still prevail in the region in relation to these matters.

Among interviewees who did respond, the first place referred to the use of robots for the care of children and elderly people, accounting for 32% of positive mentions and showing the concern of Latin American people over social issues.

[5] Basco, Ana Inés. Techno-integration of Latin America: institutions, exponential trade, and equality in the era of algorithms / Ana Inés Basco. p. cm. — (IADB Technical Note; 1340). Page 24

BENEFITS OF SPECIFIC TECHNOLOGICAL ADVANCEMENTS FOR THE FUTURE

Which of the following technological advancements do you think are good for the future?



Base: Adult population. Total Latin America (18 countries) Source: Latinobarómetro 2016

In socio-demographic terms, a greater receptivity of this type of innovation is observed among Latin American male respondents of younger age and higher socio-economic condition. Conversely, skepticism is reported in almost 4 out of 10 women older than 35 years old and among respondents of a low socio-economic level.

BENEFITS OF SPECIFIC TECHNOLOGICAL ADVANCEMENTS FOR THE FUTURE (Breakdown by segments)

	TOTAL	GENDER		AGE					SEL		
		M	W	18-24	25-34	35-49	50-64	65 and over	High	Medium	Low
Robots that take care of sick and elderly people	**32%**	**34%**	**30%**	**35%**	**33%**	**31%**	**31%**	**28%**	**36%**	**34%**	**30%**
Self-driving vehicles	**23%**	**25%**	**20%**	**27%**	**24%**	**23%**	**19%**	**15%**	**27%**	**25%**	**20%**
Small flying devices to carry goods	**23%**	**24%**	**21%**	**27%**	**24%**	**22%**	**19%**	**18%**	**27%**	**25%**	**20%**
Sensors telling us that we need to eat	**13%**	**13%**	**13%**	**15%**	**13%**	**14%**	**14%**	**11%**	**15%**	**14%**	**13%**
Artificial meat	**8%**	**9%**	**8%**	**11%**	**9%**	**8%**	**7%**	**6%**	**10%**	**8%**	**8%**
Doesn´t know	**36%**	**32%**	**39%**	**27%**	**32%**	**37%**	**41%**	**47%**	**28%**	**32%**	**40%**

Base: Adult population. Total Latin America (18 countries) Source: Latinobarómetro 2016

Skeptical views significantly vary depending on the country under consideration. For example, while 64% of Nicaraguan people and almost half of Salvadorian people (48%) and Uruguayans (46%) do not see any benefits in these technological breakthroughs for

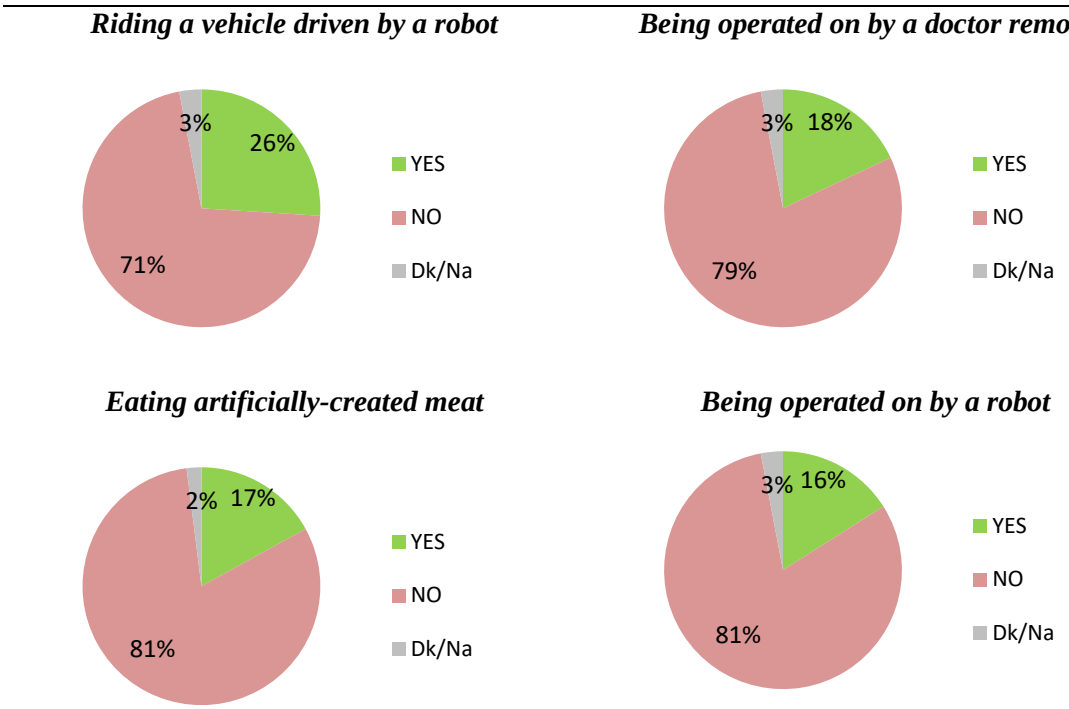
the future, in the Dominican Republic, Brazil and Mexico, these rates appear to be below 28%.

Although there is overall trust in the technological advancements, when people are inquired about their personal level, their opinions seem to be more cautious and they are less open to their use.

A study conducted by VOICES, jointly with the IADB/INTAL, among Millennials in Argentina[6], also shows lack of trust in the exponential technological change: only 25% of this group is willing to adopt the new technologies. Looking into the future, Millennials also show a cautious attitude vis-a-vis the possibility of boarding a self-driving automobile, being operated on by a doctor from a distance or by a robot, or eating artificially-created meat.

WILLINGNESS TO PERFORM CERTAIN ACTIVITIES

Thinking about the future, would you be willing to …?



Base: Millennial Population Argentina. Source: INTAL/VOICES 2017

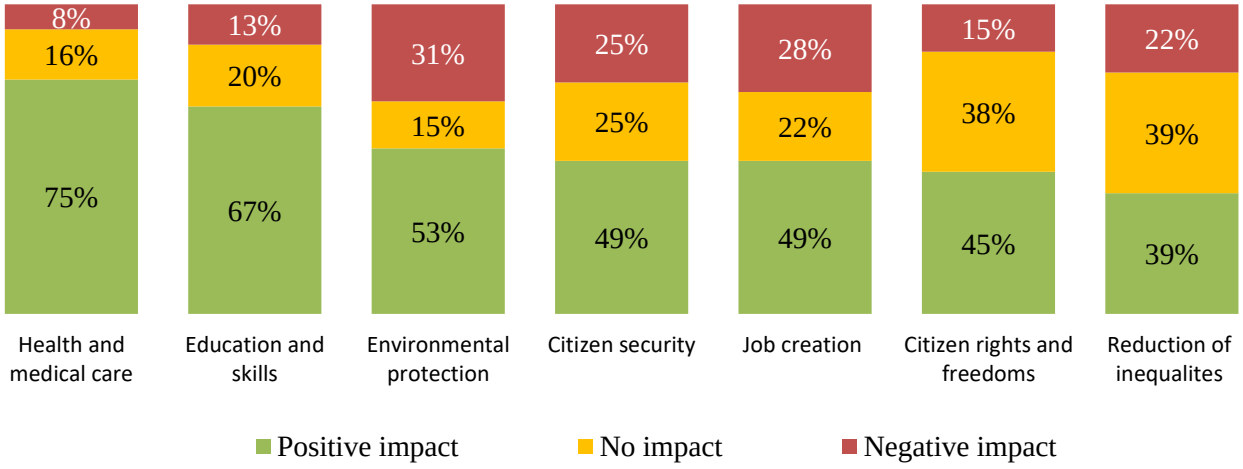
Argentine millennials are also reluctant to adopt other habits such as paying their bills over the Internet, using a credit card for payment, or voting through a computer.

[6] Ana Inés Basco, Marita Carballo. "*Compás millennial: la generación Y en la era de la integración 4.0*" ("Millennial compass: the Y generation in the era of 4.0 integration"), p. cm. — (IADB Technical Note; 1283). Pages 88-90 (2017)

Also, 75% of Millennials believe that science and innovation will have a positive impact on medical care and health. They appear a bit more pessimistic as regards the impact on the protection of the environment, job creation and security.

EXPECTATIONS ON THE IMPACT OF SCIENCE AND INNOVATION

In the next 15 years, what impact do you think science and technological innovation will have in the following fields?



Base: Millennial Population Argentina. Source: INTAL/VOICES 2017

In Europe, when inquiring more deeply about the expectations into the future regarding the real impact of technological development in everyday life, qualitative studies carried out by Eurobarometer in the middle of 2015 have enabled to see optimistic views about the future but also real fears and concerns.

Specifically, in 15 countries from the old continent, interviewees attribute various improvements in their quality of life to the contribution of robotics and technology, which has been translated into more comfort and convenience, better means of communication, more secure and healthier lives and higher life expectancy. All this is the result of the scientific and technological advancements.

Meanwhile, however, many problems have also emerged as a result of innovation and artificial intelligence, which mainly impact areas related to privacy and data security, unemployment, growing dependence on the technology, job creation, worsening of relationships, social exclusion, sedentary way of life and the harmful effects on the environment. These results were consistent with the quantitative data gathered by the Eurobarometer.

In the different European countries, spontaneous forward-looking statements of their citizens for 2030 show similarities with those observed in Latin America, focusing mainly in two areas: **'life at home'** and **'health'.** They also spontaneously mention other fields in which they expect that significant scientific and technological advancements will be made, including **environment/energy, transportation and communications.**

When imagining an ideal scenario and the worst scenario, Europeans foresee the following:

- The ideal scenario would be one where scientific and technological innovations are really designed to help people in critical areas (such as providing support to people with disabilities and elderly people), ensuring more safety and energy saving, without being invasive or substituting human beings completely. They imagine that life will be even simpler, better, faster, healthier, more respectful of the environment, where a larger number of devices and appliances will lead to an extended automation of everyday life. People would have more time to socialize, dedicate time to pleasant activities and travel. They also believe that life expectancy would increase.

- In the worst scenario, machines would replace human beings, making people submissive and passive, taking away their privacy without any benefits provided in exchange, and creating social isolation and total dependence on technology; more control over people with less freedom; greater work automation, resulting in unemployment and loss of jobs. Also, a bigger gap expected between the rich and poor, as people will have unequal access to scientific and technological innovation as well as to its benefits. The most feared aspect is the lack of control (technology dependence, full automation, invoicing control), lack of human contact and privacy, and unemployment.

a) 'Social media networks': the hallmark of the technological revolution in the field of human relations

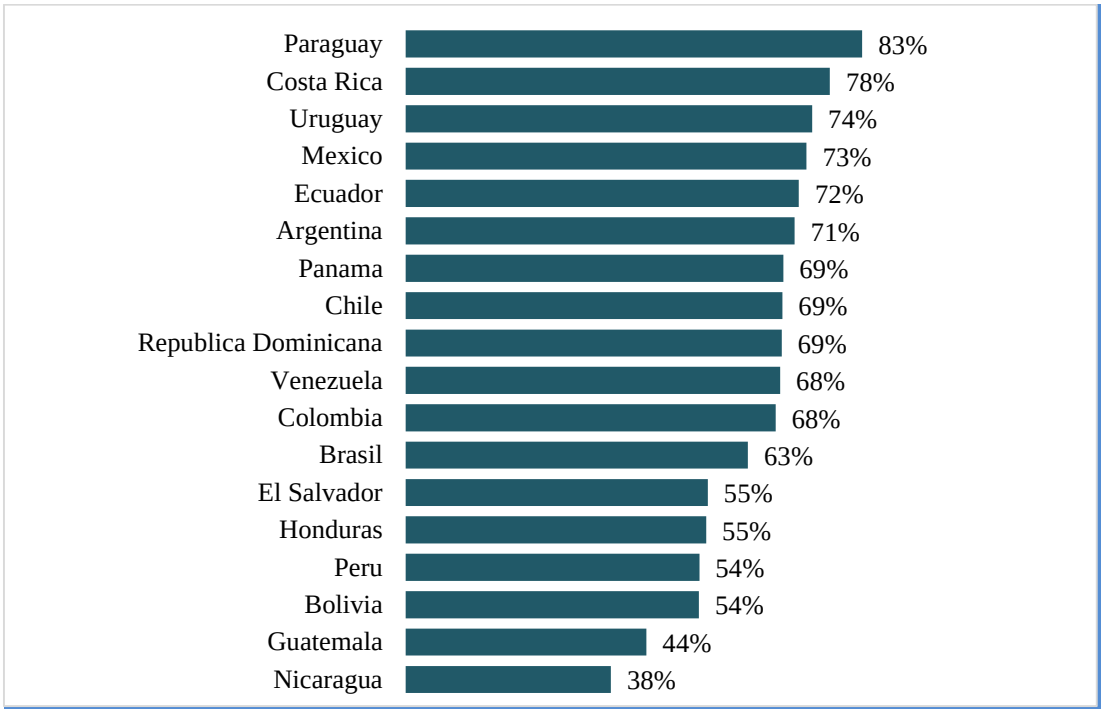
One of the major changes introduced by the technological revolution has been the use of the Internet and social media platforms, causing significant consequences on the set of values and attitudes in the different spheres of people's public and private lives. This is manifested every day in the interpersonal relations of individuals who live in a society.

In Latin America, according to data from Latinobarómetro 2016, about 65% of Latin American people have an active account in one of the social media networks, varying from country to country. Paraguay has the highest rate of social media's relative use (83%), followed by Costa Rica (78%) and Uruguay (74%).

In other countries from Central America, such as Guatemala (44%), and particularly in Nicaragua (38%), access is significantly lower.

It is important to note that Nicaragua and Guatemala are among the most skeptical countries in terms of the benefits that technological advancements could offer to society in the future, leading us to believe that there could be a direct relationship between access and use of social networks or web-based environments and the perception of closeness to scientific advancements and their implications on human beings.

USE OF SOCIAL MEDIA by country

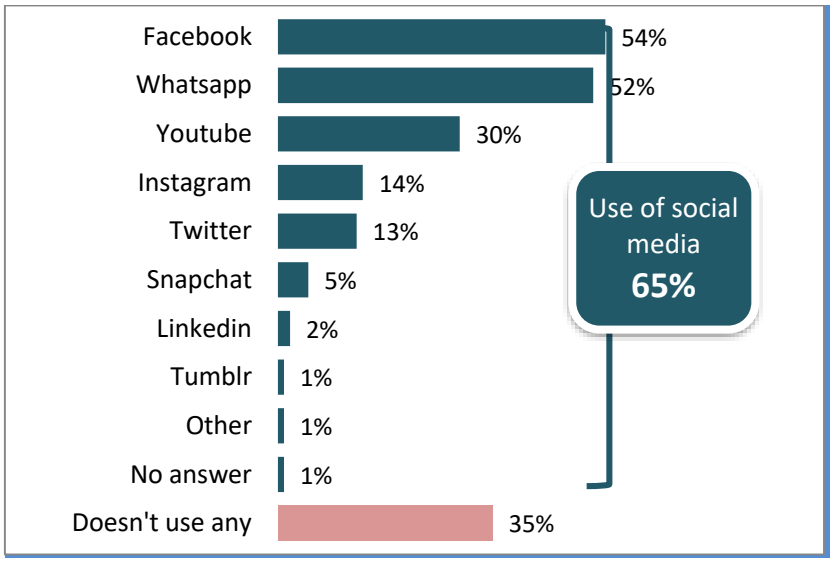


Base: Adult population, Total Latin America (18 countries) Source: Latinobarómetro 2016

Facebook (54%) and WhatsApp (52%) are the most mentioned social media networks. YouTube appears in the third place and is used by 3 out of 10 Latin American people (30%), followed by Instagram and Twitter (14% and 13%, respectively). A lower percentage of interviewees make reference to Snapchat (5%), LinkedIn (2%), Tumblr (1%) and other social networks (1%).

TYPES OF SOCIAL MEDIA USED

Do you use any of the following social media services?



Base: Adult population, Total Latin America (18 countries) Source: Latinobarómetro 2016

When analyzing the scope of the different social media networks by socio-demographic segments, the digital gap is clearly observed: overall, there is greater use of networks at a younger age and higher socio-economic level of respondents: between 8 and 9 out of 10 respondents younger than 35 use social media, as well as around 8 out of 10 people from the middle and middle-high segments of society.

In the case of the most popular networks (Facebook and WhatsApp), the tendency of a greater use of social media at a younger age is significantly increased: while only 1 out of 10 people older than 64 use social media platforms, the percentage rises to almost half of the population in middle-aged segments, and to 8 out of 10, among the youngest. Likewise, half of the people younger than 25 years old use YouTube (50%), which is clearly becoming the third most used social network of this segment in Latin America. In terms of purchasing power, while 4 out of 10 people from the lower classes use Facebook and WhatsApp, this figure rises to 6 out of 10 in middle-class sectors and it reaches 7 out of 10 people in high-class segments. For the rest of social media platforms, the rate of use in most of them is doubled in the higher classes compared to the lower segments of society.

USE OF SOCIAL MEDIA* (Breakdown by segments)

	TOTAL	AGE					SEL		
		18-24	25-34	35-49	50-64	65 and over	High	Medium	Low
Facebook	**54%**	**81%**	**72%**	**52%**	**27%**	**10%**	**68%**	**63%**	**43%**
WhatsApp	**52%**	**75%**	**69%**	**53%**	**28%**	**9%**	**68%**	**62%**	**40%**
YouTube	**30%**	**50%**	**41%**	**27%**	**13%**	**5%**	**44%**	**38%**	**21%**
Instagram	**14%**	**30%**	**20%**	**10%**	**3%**	**1%**	**25%**	**18%**	**9%**
Twitter	**13%**	**23%**	**19%**	**11%**	**6%**	**2%**	**21%**	**17%**	**9%**
Snapchat	**5%**	**13%**	**7%**	**3%**	**1%**	**-**	**9%**	**6%**	**3%**
Does not use any	**35%**	**12%**	**18%**	**34%**	**60%**	**80%**	**19%**	**26%**	**47%**

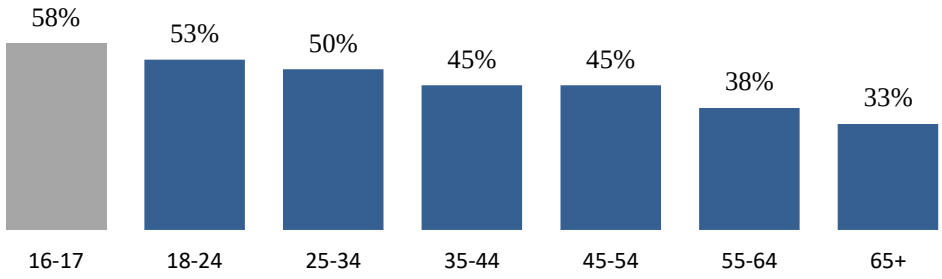
Base: Adult population, Total Latin America (18 countries) Source: Latinobarómetro 2016
(*It excludes mentions of 2% or less)

How does all this impact communication patterns and interpersonal relations?

Another study undertaken by WIN AMERICAS[7] reports that 6 out of 10 young internet surfers between the ages of 16 and 17 years old believe that it is easier to meet people in social networks than in person (58%). However, this percentage drops significantly as the age of respondents increases, down to about 33% of respondents older than 65. This reveals that the **access to internet implies significant generational changes in the realm of interpersonal relationships.**

[7] WIN AMERICAS 'Internet and politics: activism on social media', 2015.

“IT IS EASIER TO MEET PEOPLE ON THE INTERNET THAN IN PERSON”
(Internet users who agree with this statement - by age)



Base: Adult population. Total Americas (North America & Latin America -9 countries). Source: WIN, 2015.

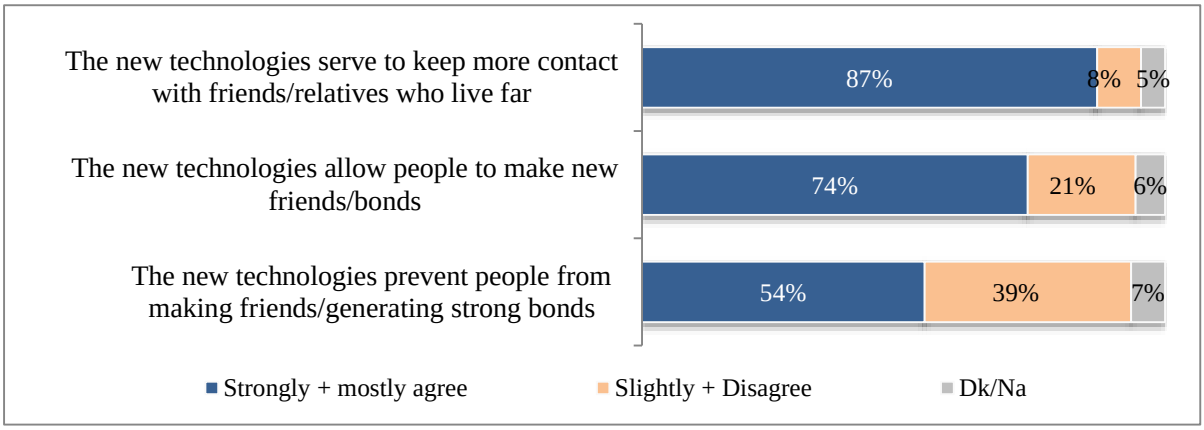
Likewise, other studies carried out by CIS UADE-VOICES![8] in Argentina have examined some of these matters more in depth, as they inquire how far these massive-use technological advancements, such as IT, mobile phones or robotics, have an impact on social aspects and personal relationships. The results were compelling, and the enormous majority of respondents mainly believe that the new technologies serve to “bring people closer” and keep contact with those who live far from them (87%).

Meanwhile, however, although 74% of respondents believe that technology is effective in creating new bonds and friendships, another 54% also thinks that the new technologies prevent us from establishing strong bonds of friendship (compared to 39% who believes otherwise), thus allowing us to infer that for a considerable portion of the population, **although the technological contribution to the field of relationships is a big catalyzer of “bonds”, these are actually seeing less profound than the ones created by face-to-face relationship.**

[8] Public Opinion Reports (i) “Technology: the use of socia media”. CIS UADE-VOICES! (2016). Page 9 // (ii) “New Technologies” (2017). Page 12.

VIEWS ON THE ROLE OF THE NEW TECHNOLOGIES IN SOCIAL RELATIONS

To what extent do you agree or disagree with each of the following statements on the new technologies such as IT, mobile phone technology, robotics, etc.: Do you strongly agree, slightly agree, slightly disagree or strongly disagree?

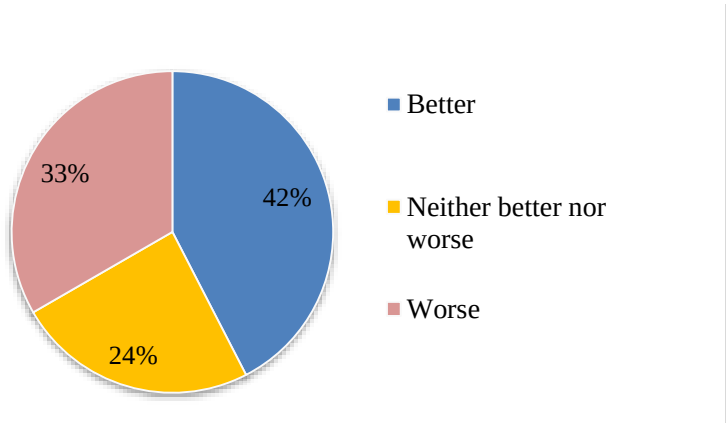


Base: Adult population. National total. Argentina. Source: UADE - VOICES! 2016.

This acquires even greater significance when inquiring whether the communication between people has improved or worsened as a result of technology, showing a divided opinion among the population: about 42% of respondents stated that communications between people have improved as a result of technology, around 33% expressed they have worsened, and about 24% thinks they are neither better nor worse.

TECHNOLOGY AND THE EVOLUTION OF COMMUNICATIONS

Would you say that communication between people is better or worse as a result of technology?



Base: Adult population. National total. Argentina. Source: UADE - VOICES! 2016.

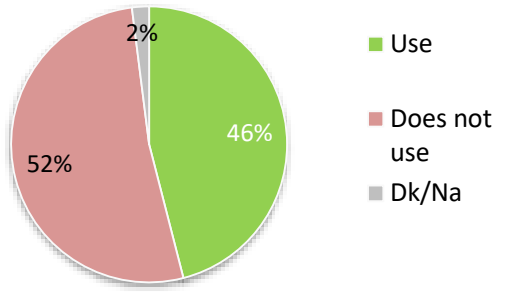
b) The digital environment as the new socio-political arena: Big data, online platforms and the reconfiguration of the information matrix

Today, social media platforms are a key source of political and social information. Six out of ten Internet users express that they have read about political or social matters in social media platforms during the last 12 months across all the American continent, and this proportion is especially intensified in Brazil, Colombia, Peru and Argentina, where more than half of the population declare to do so.

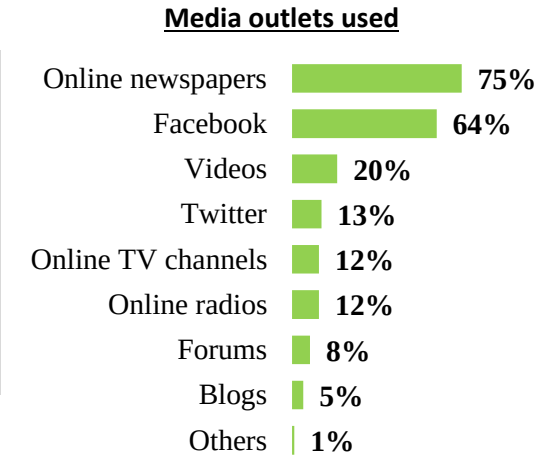
The latest study conducted by Voices! on Netactivism[9] in Argentina also revealed that almost half of the interviewees (46%) uses the Internet as a source of political information, mainly in online newspapers (75%) and Facebook (64%).

WHERE DO YOU GET INFORMATION ON POLITICS IN THE INTERNET

Do you use the Internet to get information on current political affairs? What media do you use?



Base: Adult population. National total. Argentina. Source: UADE - VOICES! 2015.



Base: They use the Internet to get information on current political affairs

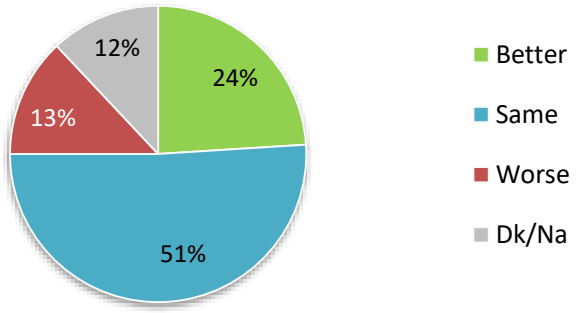
When evaluating people's perception on the quality of information received from social media, compared to that offered by traditional media, half of Facebook users believe that the quality is the same (51%). Another 24% thinks that the former is better and 13% that it is worse, thus showing a similar level of acceptance of social platforms as a medium of information.

[9] "Marita Carballo, Manuel Hermelo. "Netactivismo en Argentina. Redes sociales y política" ("Netactivism in Argentina. Social media platforms and politics") . 2015. Page 9.

QUALITY OF THE NEWS IN SOCIAL MEDIA VS TRADITIONAL MEDIA

How do you compare the quality of information you can find in social media and in traditional media? Compared to traditional media, are social networks…?

FACEBOOK USERS



Base: Adult population. National total. Argentina. Source: UADE - VOICES! 2015.

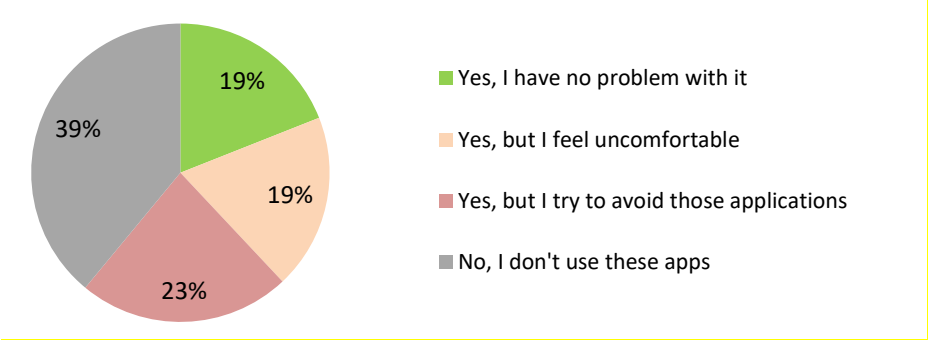
Regardless of the perceptions about the quality of information that circulates in the web, the reality is that the new era of communications has migrated from traditional data broadcasting platforms (radio, TV, paper) to digital platforms where, in addition to information pieces, personal data of all types flow, raising numerous questions about privacy and data confidentiality. All this leads to an analysis of the *undesired effects* of the new communications paradigm.

On one hand, there is the objective concern related to *privacy and safety of personal data* that circulate in digital environments and, on the other, the issue of *credibility or authenticity* of news disseminated, as well as their controls.

As to the former (personal data privacy), a recent study carried out by WIN International in 40 countries ending 2018 reported that people have reservations about this issue: almost 4 out of 10 people around the world express some level of uneasiness when using applications that request their personal data (2 out of 10 use those applications but feel uncomfortable, while 2 out of 10 try to avoid them), and 39% do not use these type of apps at all. Only 19% have not problems with it.

OPINIONS ON APPLICATIONS THAT REQUEST PERSONAL DATA

Do you use APPs (applications) that access or use your personal data?



Base: Adult population. Total: 40 countries. Source: WIN, 2018.

Tolerance to this type of application grows among women (21%), at a younger age (a quarter of those under 35 versus about 13% of the world's population over 55), and at a higher educational level, while rejection intensifies with age and in the less educated portion of society (reaching almost half of the population in that group).

OPINIONS ON APPLICATIONS THAT REQUEST PERSONAL DATA (Breakdown by segments)

	TOTAL	GENDER		AGE						EDUCATION		
		M	W	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Basic	Sec	High
Yes, no problem for me	19%	21%	17%	25%	23%	20%	17%	15%	11%	16%	18%	22%
Yes, but I feel uncomfortable with it	19%	19%	19%	22%	22%	21%	19%	15%	13%	11%	17%	23%
Yes, but I try to avoid this apps	23%	22%	24%	23%	22%	24%	23%	24%	22%	16%	23%	26%
No, I never use this apps	39%	37%	40%	30%	32%	35%	42%	46%	55%	57%	41%	29%

Base: Adult population. Total 40 countries. Source: WIN, 2018.

Data per country are shown bellow:

OPINIONS ON APPLICATIONS THAT REQUEST PERSONAL DATA PER COUNTRY

Do you use APPs (applications) that access or use your personal data?

	Yes, no problem for me	Yes, but i feel uncomfortable with it	Yes, but i try to avoid this apps	No, i never use this apps
TOTAL	**19%**	**19%**	**23%**	**39%**
ARGENTINA	33%	16%	32%	19%
AUSTRALIA	23%	22%	22%	33%
BRAZIL	35%	43%	13%	9%
CANADA	18%	18%	19%	45%
CHILE	19%	21%	35%	26%
CHINA	23%	37%	25%	14%
CROATIA	24%	14%	44%	19%
DENMARK	26%	12%	19%	43%
FINLAND	20%	22%	40%	19%
FRANCE	15%	18%	29%	38%
GERMANY	18%	13%	25%	45%
GHANA	19%	20%	15%	46%
GREECE	13%	18%	31%	39%
HONG KONG	12%	29%	34%	25%

INDIA	21%	36%	35%	9%
INDONESIA	7%	7%	5%	80%
IRELAND	19%	17%	22%	43%
ITALY	11%	9%	20%	60%
JAPAN	11%	17%	32%	41%
LATVIA	18%	13%	33%	36%
LEBANON	39%	14%	18%	29%
MALAYSIA	18%	21%	21%	40%
MEXICO	20%	24%	33%	23%
MOROCCO	14%	21%	20%	46%
NETHERLANDS	17%	13%	21%	48%
PALESTINE	15%	23%	22%	40%
PARAGUAY	11%	17%	33%	38%
PERU	6%	11%	12%	72%
PHILIPINAS	35%	13%	15%	36%
POLAND	12%	17%	31%	40%
SLOVENIA	23%	10%	44%	23%
SOUTH AFRICA	18%	21%	20%	40%
SOUTH KOREA	20%	30%	12%	38%
SPAIN	17%	29%	27%	27%
SWEDEN	24%	24%	29%	23%
THAILAND	15%	14%	9%	61%
TURKEY	37%	17%	19%	26%
UK	17%	20%	17%	46%
USA	20%	20%	18%	42%
VIETNAM	17%	6%	7%	70%

Base: Adult population. Total: 40 countries. Source: WIN, 2018.

In this regard, a resonating example is that of Mark Zuckerberg, Facebook CEO, who was questioned in 2018 for having exposed data from millions of Facebook users, which was used by Cambridge Analytica in Donald Trump's presidential campaign[10].

As to the problem of 'fake news', the debate has triggered endless criticism and analyses in the area. Neologisms such as 'post-truth', to define a "*deliberate distortion of reality that manipulates beliefs and emotions with the purpose of influencing public opinion and social attitudes"*[11], are a consequence and allude strictly to this issue, evidencing that the new technological paradigm and its revolutionary effects are still a matter of theoretical discussion and uncertain ramifications, triggering all sorts of ethical and legal questions.

Another recent study carried out by Gallup International Association (GIA) in 44 countries showed that almost 8 out of 10 people around the world receive some kind of

[10] El Universal.com (Mexico): https://www.eluniversal.com.mx/techbit/mark-zuckerberg-declara-ante-el-capitolio-sobre-la-filtracion-de-datos

[11] Diccionario de la lengua española (DLE). 2017

'fake news' at least once a month (76%) –and about 35% of the people receive fake news daily.

Among the countries with the highest rates of 'fake news' reported (daily or virtually every day), Hungary, Ukraine, Spain, Armenia, Albania, Argentina and Turkey lead the ranking (in all these cases, more than half of the population report this).

Conversely, Japan, Russia, Korea, Afghanistan, Vietnam, Czech Republic and Pakistan are countries where citizens report fake news less frequently, with rates lower than 20%.

HOW OFTEN YOU RECEIVE "FAKE NEWS"

How often do you come across news or information that you believe misrepresents reality or is even false (so called "fake news")?

	Every day or almost everyday	At least once a month	Several times a month	Seldom or never	Dk/ Na
Total	**35%**	**20%**	**21%**	**14%**	**10%**
AFGHANISTAN	16%	45%	25%	12%	2%
ALBANIA	56%	26%	13%	3%	2%
ARGENTINA	52%	13%	15%	13%	7%
ARMENIA	57%	11%	16%	11%	6%
AUSTRIA	43%	22%	21%	8%	6%
BOSNIA & HERZ.	40%	23%	25%	8%	5%
BULGARIA	23%	14%	23%	14%	26%
COLOMBIA	43%	14%	24%	16%	3%
CZECH REPUBLIC	17%	33%	19%	15%	15%
ECUADOR	34%	17%	20%	21%	9%
FINLAND	34%	30%	19%	10%	8%
FRANCE	35%	36%	14%	6%	9%
GERMANY	35%	24%	22%	10%	9%
GHANA	27%	41%	16%	13%	3%
HUNGARY	65%	4%	23%	3%	4%
HONG KONG	29%	21%	25%	12%	12%
INDIA	28%	14%	38%	15%	5%
INDONESIA	29%	13%	25%	22%	10%
IRAQ	42%	22%	22%	11%	4%
ITALY	24%	24%	23%	17%	12%
JAPAN	9%	9%	20%	17%	45%
KAZAKHSTAN	25%	15%	21%	26%	12%
KOSOVO	40%	20%	20%	11%	8%
MACEDONIA	41%	21%	15%	13%	11%
MOLDOVA	45%	8%	16%	20%	10%
NIGERIA	44%	19%	22%	11%	4%
PAKISTAN	18%	28%	12%	29%	13%
PARAGUAY	31%	19%	33%	14%	3%
PHILIPPINES	25%	20%	21%	29%	4%

POLAND	35%	18%	20%	14%	14%
REPUBLIC OF KOREA	14%	21%	22%	32%	13%
ROMANIA	44%	13%	22%	14%	6%
RUSSIA	14%	21%	22%	21%	22%
SAUDI ARABIA	40%	11%	25%	21%	3%
SERBIA	41%	28%	18%	5%	7%
SPAIN	60%	17%	8%	8%	6%
SWITZERLAND	38%	27%	22%	7%	6%
SYRIA	46%	12%	30%	9%	3%
THAILAND	39%	18%	30%	8%	6%
TURKEY	50%	5%	21%	12%	11%
UK	29%	25%	17%	11%	17%
UKRAINE	61%	14%	15%	5%	5%
USA	47%	14%	20%	10%	9%
VIETNAM	17%	16%	35%	24%	8%

Base: Adult population (44 countries around the world) Source: GIA 2018

As shown, information that circulates online is permeated by technological elements that belong to the world of robotics and may change the flow of information, or even distort it. For example, according to a study by Pew Research Center[12], based on a sample of 1,220,000 tweets obtained in 2017 in the United States, it is estimated that two thirds of the links tweeted and directed to popular news websites and communications media (66%) are posted by automated accounts, while about a third (34%) of them are posted by human accounts. In sum, a relatively small number of highly active robots seem to be responsible for the routing of many of these links.

On this matter, the Edelman Trust Barometer 2018, conducted in 28 countries around the world, examines people's perceptions on the difference between "information provided by automated platforms, search engines or applications" versus "concrete traditional or online communications media".

First, the study shows that although 65% of people receive information via online platforms, their trust in these sources is falling, while their appreciation of the media/journalists themselves has somewhat improved.

Retrospectively, the report also shows that in 21 out of 28 countries, people's trust in online platforms has fallen, and the United States is the country that exhibits the deepest decline (-11%).

Also, 6 out of 10 interviewees expressed that people in general are incapable of distinguishing between good journalism and rumors or fake news (63%), and also that it has become increasingly harder to figure out if a piece of news was produced by a reputable news organization or not (59%).

[12] Stefan Wojcik, Solomon Messing, Aaron Smith, Lee Rainie, and Paul Hitlin, on 'Bots in the Twittersphere': http://www.pewinternet.org/2018/04/09/bots-in-the-twittersphere/ Pag. 2 (2018)

¿How does the web impact political attitudes and willingness?

As regards the influence of the Internet in political participation, there are different lines of thought:

On one hand, there is the argument that claims that the Internet will not only not change the logic of participation, but will also have a negative effect on it. As stated by Robert Putnam in 'Bowling Alone' (2000), this thesis upholds the idea that the Internet does not promote the creation of social capital, because its use replaces interpersonal relations in the first place, and secondly, because it is used mainly for entertainment activities.

Conversely, among those who believe that the Internet will have a positive effect in people's participation, we can distinguish between different views which can summarized into two most relevant ones:

- On one hand, some believe that the Internet will be mainly limited to intensifying the involvement of those who already participate; these authors have been included in the so-called ***normalization or reinforcement thesis***. Such arguments claim that after an exceptional period, at the beginning of it, when the use of the Internet created expectations of change in social behavior, now the activity of the Internet has been normalized and individuals have gradually devoted to performing in this platform the activities they already did in person (Margolis and Resnick, 2000). Applied to participation, this normalization thesis argues that the Internet, far from mobilizing new people who did not participate in politics before, has actually served as reinforcement for those who have traditionally participated in democratic life. (Norris, 2001; Bimber, 2001).
- On the other side, other authors uphold the thesis that the Internet will not only have a positive effect on participation, but will also mobilize individuals who were inactive until now and did not have a profile of the traditional participant. In other words, this thesis provides evidence that supports the ***thesis of the new mobilization***. (Delli Carpini, 2000; Ward, Gibson and Lusoli, 2003).

The empirical information taken from the Latinobarometro 2016 has shown that the Internet and use of social media platforms have clear effects on the perceptions and the subsequent attitudes related to social, political and cultural matters. In fact, the study reveals, for example, that Internet users and users of social media support the most a regional integration of their countries (81% versus 65% respectively)[13].

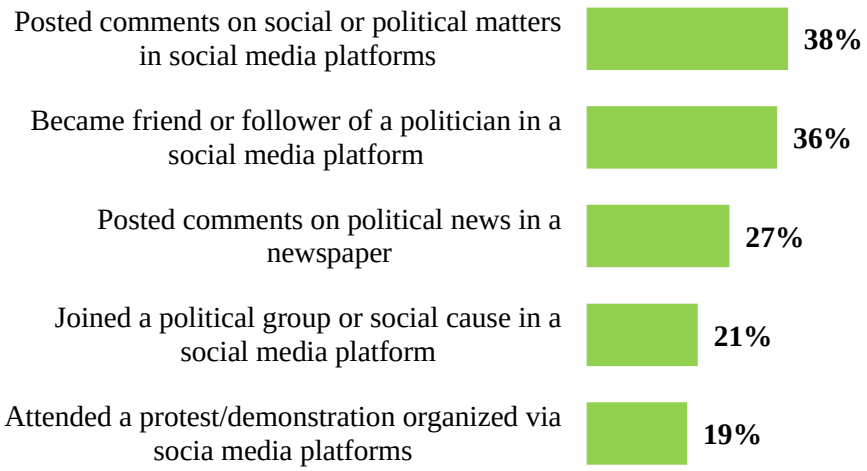
Significant differences are also found in the desire to live in 'heterogeneous' societies and in terms of the tolerance to diversity from the socio-cultural viewpoint (58% compared to 38% respectively), showing higher levels of awareness regarding the environment and climate change (72% percent versus 61% in each case).

As to 'e-government', it is also interesting to underscore that in countries with greater development in these instruments, people are more attached to democracy as a system of government, there is greater preference for a representative democracy, and less tolerance to corruption.

[13] Basco, Ana Inés. Techno-integration of Latin America: institutions, exponential trade, and equality in the era of algorithms / Ana Inés Basco. p. cm. — (IADB Technical Note ; 1340). Pag. 21

Within this framework, a WIN study shows 'Political Activism' in social media is an extended practice in the American continent, covering a wide range of actions, including the following:

ACTIVITIES CARRIED OUT IN SOCIAL MEDIA IN THE LAST 12 MONTHS



Base: Adult population. Total Americas (North America & Latin America -9 countries). Source: WIN, 2015.

A concrete and very clear example of the impact of social media platforms on the socio-political domain can be observed in Brazil, where the high level of conflict is strongly expressed in the social media with 34% reporting they have joined a social or political cause and 24% declaring they attended a protest or demonstration organized and posted in a social media platform in the last 12 months.

In this regard, a study undertaken by Voices! in Argentina in 2015[14] attempted to clarify exactly on what factors online participation depends. The analysis included the application of correlations and logistic regression, considering the different 'dependent' variables (political, instrumental and socio-demographic) to explain 'Political participation':

The results obtained in all the analyses illustrate that the variable that best explained online political participation was that of skills in the use of the Internet. Actually, the use of the Internet does not eliminate the effect of motivation over participation, but having skills in the use of the Internet has a positive effect on participation, regardless of motivation.

In conclusion, the study by Voices! determined that the use of the Internet can mobilize new people to participate politically: the Internet changes the logic of participation by mobilizing individuals and new groups who had been so far in the margins of the participatory process, thus reaffirming the thesis of the new mobilization.

[14] Marita Carballo, Manuel Hermelo. "Netactivismo en Argentina" p. 11-18

c) Robotics, the future of work and social inclusion

Will more jobs be created than those destroyed? Will 'traditional' professions and jobs be eliminated? Will new occupations emerge? These are some of the main questions posed by the new technological era, characterized by the introduction of robotics and artificial intelligence around the world.

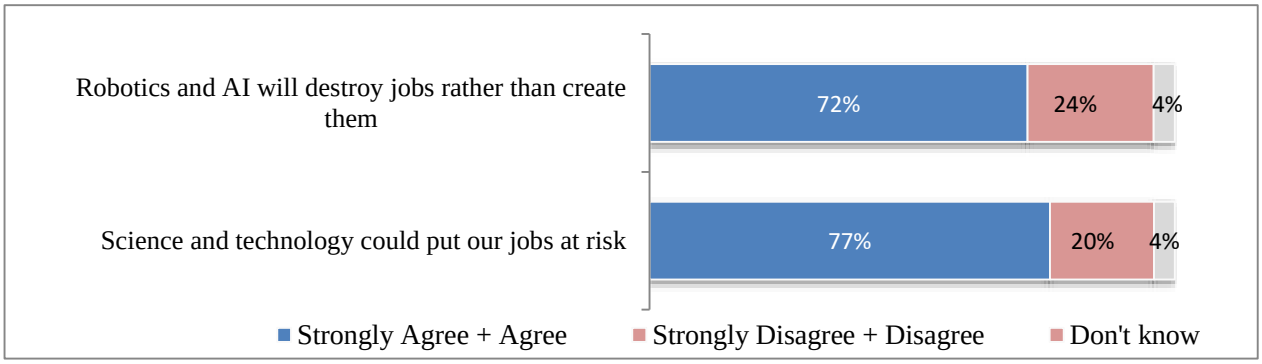
As shown, the automation of production and decision-making processes are remarkable characteristics of the Fourth Industrial Revolution. Although in some sectors, such as the automobile industry, the use of robots has been a common practice for more than fifty years, in this new phase of robotization, the merging of technologies, such as big data, artificial intelligence, sensors and smart controllers and machine learning, facilitates the production of a new generation of robots capable of performing all types of tasks, from the most repetitive to the most creative ones, even showing some learning capacity. The global trend now is to advance in the development of collaborative robots that may facilitate a safe interaction between human beings and machines.

The impact of these trends on the labor market in the future is still a matter of debate. On one extreme we can find the pessimists who foresee that the digital transformation will necessarily lead to the destruction of jobs, in line with the theory of the economist Jeremy Rifkin, who proclaimed in the mid 90's "the end of human labor" and the rise in structural unemployment of post-modern economy". On the other extreme there appear the enthusiasts who argue that more jobs will be created and risky and repetitive jobs (those nobody can perform) will be eliminated, and thus people will be devoted to creative and qualified jobs, i.e. performing tasks that machines will never be able to execute. In other words, intelligent machines may be able to support and multiply human skills and, at the same time, new jobs will be created[15].

Social perceptions about this matter in Latin America have been compelling: **4 out of 5 Latin Americans believe that science and technology pose a threat to employment**. Artificial intelligence and robotics arouse strong resistance. Only one fourth trusts that these technologies would allow the creation of more jobs than those to be destroyed. Guatemala is the country with the highest level of trust (44%) and Uruguay records the lowest (9%).[16]

EXPONENTIAL TECHNOLOGY POSES A THREAT TO EMPLOYMENT

To what extent do you believe that exponential technologies pose a threat to employment?



[15] "Industria 4.0. Fabricando el futuro" ("Industry 4.0. Manufacturing the future"). Ana Inés Basco, Gustavo Beliz, Diego Coatz, Paula Garnero. IADB + INTAL and Argentine Industrial Union (UIA). July, 2018

[16] Basco, Ana Inés. Techno-integration of Latin America…" (IADB Technical Note ; 1340).

Base: Adult population. Total Latin America (18 countries) Source: Latinobarómetro 2016

It is important to note that the technological progress is perceived as a threat to employment regardless of people's current employment status (no correlations were found with the occupational status of interviewees or with the unemployment rate of the countries under study).

This is consistent with the findings of similar research work performed in other countries: in the United States, a recent survey conducted by Pew Research Center revealed that 76% of US citizens believe that economic inequality will get significantly worse with automation, and 75% of US citizens think that the economy will not create new or better paid jobs for human beings.

This is also in line with the views of Argentine Millennials, according to a study by IADB-INTAL called "Millennial Compass", which showed that 7 out of 10 of those interviewed in 2017 believe that robots will be capable of carrying out many of the tasks currently done by human beings in the next ten years.

Lastly, a recent survey by WIN reported that 30% of current workers around the world fear losing their job in the next ten years as a result of automation or Artificial Intelligence.

The fear of losing jobs as a consequence of artificial intelligence increases at younger ages (reaching 38% among the youngest), and the lowest educational strata (34% versus 25% among those with high levels of education).

FEAR OF LOSING YOUR JOB IN TEN YEARS AS A RESULT OF AUTOMATION AND ARTIFICIAL INTELLIGENCE

Are you afraid of losing your job in the next ten years as a result of automation or Artificial Intelligence?

(Breakdown by segments)

	TOTAL	GENDER		AGE						EDUCATION		
		M	W	18 - 24	25 - 34	35 - 44	45 - 54	55 - 64	65+	Basic	Sec	High
Yes	30%	29%	32%	38%	36%	31%	28%	22%	12%	34%	31%	25%
No	70%	71%	68%	62%	64%	69%	72%	78%	88%	66%	69%	75%

Base: Adult working population. Total 40 countries. Source: WIN, 2018.

Philippines and Malaysia are the countries where the impact of technological advances on employment is most feared, with figures reaching 6 out of 10 workers, followed by Lebanon and Mexico with almost half of the working population afraid of these effects, while in Scandinavian countries (Sweden, Finland and Denmark, to which Slovenia and Germany are added), they register the lowest values of concern.

FEAR OF LOSING YOUR JOB IN TEN YEARS AS A RESULT OF AUTOMATION AND ARTIFICIAL INTELLIGENCE

Are you afraid of losing your job in the next ten years as a result of automation or Artificial Intelligence?

	Yes	No
TOTAL	**30%**	**70%**
ARGENTINA	43%	57%
AUSTRALIA	25%	75%
BRAZIL	38%	62%
CANADA	21%	79%
CHILE	43%	57%
CHINA	42%	58%
CROATIA	16%	84%
DENMARK	9%	91%
FINLAND	8%	92%
FRANCE	29%	71%
GERMANY	12%	88%
GHANA	27%	73%
GREECE	38%	62%
HONG KONG	28%	72%
INDIA	41%	59%
INDONESIA	34%	66%
IRELAND	18%	82%
ITALY	20%	80%
JAPAN	29%	71%
LATVIA	19%	81%
LEBANON	48%	52%
MALAYSIA	58%	42%
MEXICO	46%	54%
MOROCCO	28%	72%
NETHERLANDS	16%	84%
PALESTINE	15%	85%
PARAGUAY	34%	66%
PERU	38%	62%
PHILIPINAS	62%	38%
POLAND	16%	84%
SLOVENIA	11%	89%
SOUTH AFRICA	42%	58%
SOUTH KOREA	37%	63%
SPAIN	38%	62%
SWEDEN	10%	90%
THAILAND	32%	68%
TURKEY	33%	67%

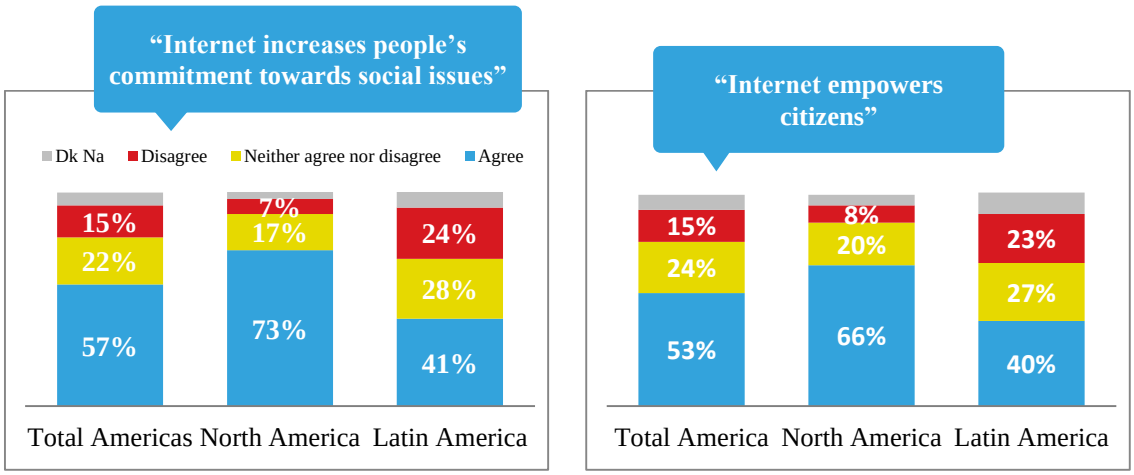
UK	16%	84%
USA	22%	78%
VIETNAM	32%	68%

Base: Adult working population. Total 40 countries. Source: WIN, 2018.

These social reconfigurations inherent to the future of work are directly linked to social inclusion: What can be seen in the horizon?

As regards the Internet and hyper-digitalization, there is a tendency to think that the digital environment empowers citizens, fostering commitment and social inclusion (especially in North American countries).

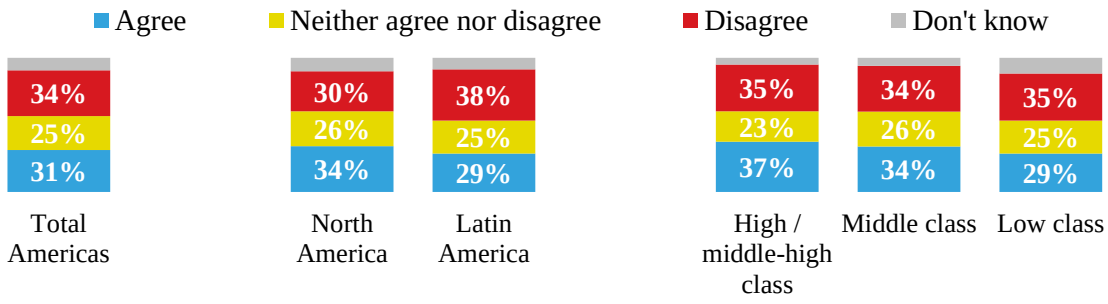
Agree/disagree with different statements



Base: Adult population. Total Americas (North America & Latin America -9 countries). Source: WIN, 2015.

However, when inquiring people specifically if the access to the Internet would serve as a tool to mitigate social inequalities, there are highly divided opinions, a trend that cuts across the American continent. It is worth noting, due to its relevance, that the biggest fear is expressed by the lower-income sectors, compared to the rest of the population. They are also the segment that holds most jobs being automated, easily replaceable by technology and robotics.

Agree or disagree with the following statement: "Internet reduces inequalities between the rich and poor"



Base: Adult population. Total Americas (North America & Latin America -9 countries). Source: WIN, 2015.

d) Robotics and health… Are you prepared?

One of the dimensions where the biggest expectations are placed in relation to technological breakthroughs is that of health and human care. In Europe, there is strong recognition of the contributions made by science in this area, although people also point to the negative impacts. According to a qualitative study carried out by Eurobarometer, there are two perspectives about this:

POSITIVE IMPACT	NEGATIVE IMPACT
✓ Better preventive medicine and disease diagnosis ✓ Better disease treatment: better medical teams, better and less invasive medicine ✓ New drugs and vaccines	✓ Genetic diagnosis/cloning ✓ New ethical dilemmas ✓ Impact of technical innovations on public health

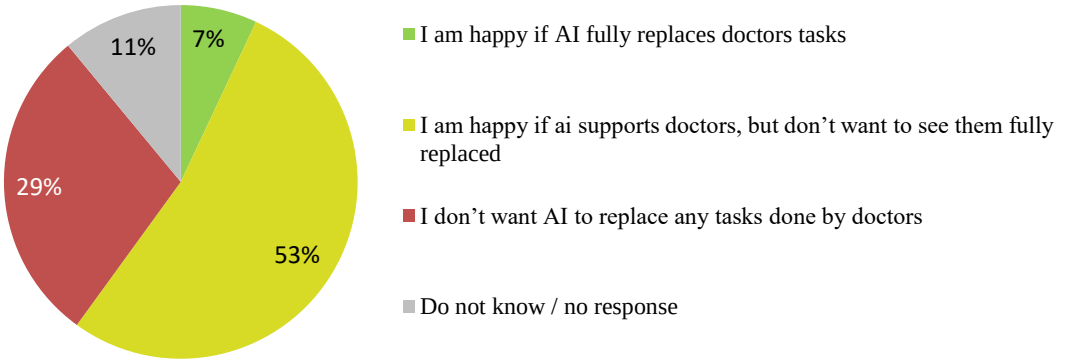
The acceptance of artificial intelligence applied to domestic or everyday life would seem to increase when it serves as 'support' to the activities of human beings, though not replacing them completely. For that reason, for certain tasks, the introduction of robots arouses uncertainty in the areas that were traditionally performed by humans. Health care, where the deliberative quality would seem to be irreplaceable, is a clear example of that.

In the world, more than half of the population (53%) would prefer for robotics and artificial intelligence to be used "to help doctors but not replace them completely (in other words, they continue to value the presence of the human professional). Three out of ten are even more reluctant to these innovations and reject the idea that artificial intelligence may replace any type of medical tasks (29%).

Conversely, only 7% would be willing to accept robotics to replace doctors completely and about 11% does not have any concrete opinion about it.

AGREEMENT WITH ARTIFICIAL INTELLIGENCE REPLACING PHYSICIANS IN THE FUTURE

Artificial Intelligence is increasingly used in medicine. To what extent would you be satisfied if artificial intelligence were to replace the tasks performed by doctors in the future?



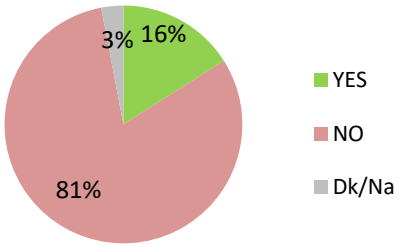
Base: Adult population. Total 40 countries. Source: WIN, 2018.

Among Argentine Millennials[17], although this segment was born in the middle of the new technological paradigm and breakthroughs, the same caution towards radical changes that could eliminate human intervention is also evident. While 75% of millennials believe that science and innovation will have a positive impact on health and medical care, only 18% would be willing to be operated on by a doctor from a distance and 16% would accept to be operated on by a robot.

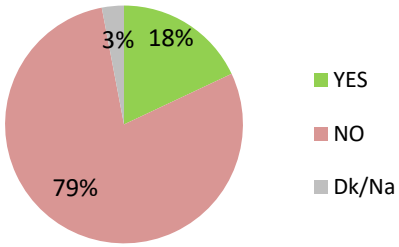
ATTITUDES TOWARDS DIFFERENT ACTIVITIES

Thinking about the future, would you be willing to…?

Be operated on by a robot



Be operated on by a doctor remotely



Source: Intal/Voices. Total sample 2016

Base: Millennial Population Argentina. Source: INTAL/VOICES 2017

[17] Ana Inés Basco, Marita Carballo. "Compás millennial…" pages 88-90

CONCLUSIONS

The technological revolution within the framework of the 'Fourth Industrial Revolution'

- The Fourth Industrial Revolution involves a transition towards new cyber-physical systems that operate in the form of more complex networks. Its unique characteristic is the coexistence of a large variety of technologies (Digital Convergence), which blur and dilute the boundaries between the physical, digital and biological realms, thus generating a true paradigm shift in the everyday lives of human beings.

¿How do these reconfigurations impact the human perceptions' sphere?

World consensus on the benefits of technological advancements for humanity

- The benefits of scientific/technological advancements to improve the lives of the people have been recognized worldwide (around 7 out of 10 citizens of the world have expressed this).
- The largest social expectations are supported by the idea that the technological advancements should be aimed at improving health (48%), creating jobs (45%) and acting on climate change (45%).
- Studies in Europe reveal that the benefits brought about by technological innovation have been mainly related to the domestic sphere. Higher comfort and convenience, better communications and information, more secure and healthier lives and higher life expectancy are all highly appreciated aspects of the technological revolution.
- The Internet and use of social media also impact the perception and behavioral stance on social, political and cultural matters. Among Internet and social media users, there is higher support to the regional integration of their countries, more desire to live in heterogeneous 'societies' and a higher level of tolerance towards social and cultural diversity. Their awareness on the protection of the environment is also higher.

However, there are ambivalent views as well as caution regarding the possible impact of the technological revolution, especially looking into the future and, more in particular, in the domestic sphere.

- Robotics in everyday life: The introduction of robotics in areas inherent to everyday life arouses resistance: about 36% of Latin American citizens have shown to be skeptical vis-à-vis the benefits that could be afforded by robots, drones, self-driving vehicles, body sensors and artificial meat in their everyday lives.
- Reservations towards the exponential technological changes are cross-cutting, depending on the geographies, and are evidenced in most of the social segments: the Millennials in Argentina, for example, a '*technological generation per se*', born in the midst of these advancements, also express mistrust: only 25% are willing to adopt the new technologies. And looking into the future, they are also cautious about the possibility of boarding a self-driving automobile, being operated on by a physician from a distance or by a robot, or eating artificially-created meat. In addition, they are reluctant to adopt habits such as paying their bills on the Internet, using a credit card or voting from a computer.

- In general, men younger than 35 and with a good economic position are the most willing to introduce disrupting technologies.
- In an ideal scenario, advancements in science and robotics are seen as support designed to assist people in critical areas (such as caring for people with disabilities and taking care of the elderly), thus ensuring greater safety and energy saving, with high levels of automation, but not replacing human beings completely. The benefits would aim at facilitating and improving the lives of the people, while protecting the environment. However, there are some aspects that arouse fear related to lack of control (dependency on the technology, full automation, invoicing control), the lack of human contact and privacy, and unemployment.
- Social media and the revolution of communications: opinions are divided as to the contribution of social media to improve communications between people: on one hand, we observe a strong consensus that new technologies serve to 'bring people closer' and create 'new friendships'. However, it is perceived that these bonds will not have the 'strength' or profoundness of those generated 'face to face'.
- The digital environment as the new socio-political arena: Today, social media platforms are a key source of political and social information. Six out of ten Internet users state that they have read about political or social issues in social media platforms in the last 12 months across the Americas, and only about 13% of the people in this continent perceive that the quality of information received from social media platforms is worse than that provided by traditional media, showing a high level of acceptance. However, almost 8 out of 10 people worldwide admit to have received some type of fake information or 'fake news' at least once a month (76%) –around 34% of people receive fake news daily, and the trust in information that flows across automated platforms and applications has fallen. Likewise, a Pew study in the United States reveals that a relatively small number of highly-active robots seem to be responsible for the routing of many links to popular news and media websites: it is estimated that two thirds of the links that are tweeted and directed to these sites (66%) are posted by automated accounts, while almost one third (34%) of them are posted by human accounts.
- In this context, the issue of privacy and safety of personal data that circulate in digital environments, as well as the question of credibility or authenticity of information and its controls, has become a key matter: almost 4 out of 10 people around the world express some level of uneasiness when using applications that request their personal data (2 out of 10 use those applications but feel uncomfortable, while 2 out of 10 try to avoid them), and 39% do not use these type of apps at all. Only 19% have not problems with it.
- "Political Activism" in social media has become a widespread practice. The use of the Internet can mobilize new people to participate politically, modifying the logic of participation through the mobilization of individuals and new groups who had so far been in the margins of this participatory process.
- Robotics, the future of employment and social inclusion: the impact of robotics and future automation in the labor market is still a matter of debate. On one hand, pessimists anticipate that the digital transformation will necessarily lead to the destruction of jobs (the end of human labor). On the other extreme, enthusiasts argue that more jobs will be created, while risky and repetitive jobs will be eliminated, and people will therefore be devoted to creative and qualified

jobs, i.e. tasks that machines will never be able to execute. Within this context, people's fear of losing their jobs is notorious: in Latin America, 4 out of 5 believe that science and technology are a threat.

- Artificial intelligence and robotics arouse strong resistance. Only one fourth trusts that these technologies will allow the creation of more jobs than those to be destroyed.
- There are also divided opinions regarding the possibilities that the Internet may serve as a tool to mitigate inequalities between the rich and poor, as well as on the issue of the new digital technologies and their positive impact on education.
- Robotics and health: health care is a clear example of an area where the deliberative quality of the human being would seem to be irreplaceable: acceptance of artificial intelligence increases when it serves as 'support' to human action, but without replacing humans completely. Robotics and artificial intelligence are 'useful to assist physicians, but not substituting them completely' (in other words, people continue to value the presence of the human professional).

Some concluding thoughts

In the universe of robotics, we can find two large types of clearly-differentiated technological instruments: on one hand, there are the robots, exclusively controlled by the human being. In these cases, the full deliberative capacity depends on the people, and the machine's scope of action is limited to 'executing' the orders of its owner.

On the other end, there are other robots with greater sophistication which have their 'own intelligence' and are capable of making decisions based on algorithms and programmed variables. This second set of robots may learn to perform tasks without human direction or supervision, and are called "autonomous". These systems may manifest themselves as high-technology robotic systems or as intelligent software, such as the 'bots'. Many of these are released to the world without supervision and perform things that have not been planned even by their designers or human owners. This opens up an endless number of questions and ethical concerns which need to be considered. Therefore, it is necessary to implement ethical codes for robot's programmers and set up ethical committees for the investigation in robotics which may facilitate the interdisciplinary debate between experts, scientists and legal specialists.

The technological revolution needs an interdisciplinary analysis of the impact of robotics on society (and on labor in particular) the big positives it brings and the negatives and fears to be considered and controlled .A special focus on the psychological and social consequences is required as well as the implementation of strategies to advance in the big potential AI can bring to mankind neutralizing excesive dependence on autonomous robots which need to be controlled and directed by humans.

Lastly, we wish to underscore that it is key to consider technological inequalities and avoid the gap between those 'included' (people who already live in a technological and robotic society) and those 'excluded' (because of the lack of necessary skills), promoting ways to help people in "technological vulnerability" conditions (individuals with lower income and education levels, the elderly, etc.)

In sum, the question that constantly underlies the analysis on the impact of artificial intelligence on the socio-political sphere in this new era is the following: **What values**

do we wish to build our societies on? Dialogue is critical and must be multistakeholder-based. A big collaborative effort is necessary including governments, business, academia and civil society to ensure that as AI progresses, its future is aligned to human values and that is safe for humanity in all respects – its people and their planet.

***NONE OF THE CONTENTS OF THIS PAPER CAN BE MADE PUBLIC BEFORE February 25TH**

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