

HUMAN WEB

WORKING TO CONNECT HUMANKIND

STÉPHANE RICHARD



SPECIAL EDITION PUBLISHED FOR ORANGE GROUP

HUMAN WEB

3.9 billion. That's the number of people globally who are still without Internet access: more than one human in two. This little-known figure must act as a catalyst for an overdue debate and global mobilization. For Stéphane Richard, the challenge of Internet access is one that the 21st Century simply cannot duck.

What is at stake here is access to education, health, employment, and participation in economic and political life. How can we happily contemplate a future where half of the world's inhabitants would find themselves on the sidelines?

This book is a first-hand witness account. In Africa, in particular, popular demand for it is so great that the widening of Internet access is a given. This book is also a manifesto, a declaration of commitment aimed both at ordinary people and economic and political actors.

We urgently need to give more people access to the Internet. We've got to empower individuals to take control of their destiny. Those who are in a position to do so must work to bring about universal access to this technological resource. Good intentions are not enough.

Netizens of the world, the time for action has come. Let us build our digital future together.

Stéphane Richard has been Orange's CEO since 2011. He aspires to make the Group a leading force in the world of digital services: an electricity supplier in Poland, a money transfers and mobile payment platform in Africa (Orange Money), a caring mobile bank, with Orange Bank, launched in 2017. In 2018, the Group was 19th in a list of the 50 most innovative businesses in the world drawn up by The Boston Consulting Group. It was the highest-ranked European company.

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This special edition was meant
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This book is not marketable.

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WORKING TO CONNECT HUMANKIND

STÉPHANE RICHARD

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INTRODUCTION

This book is a reflection of my personal beliefs; it will leave you in no doubt as to where I stand. It is written for leaders from all around the world, in the sphere of business and of politics. I want to share with them my thoughts on a key way to improve our day to day lives: stepping up the pace of Internet access.

Too few people are aware of what is a striking figure. In 2017, around **52% of the global population – 3.9 billion individuals – were without Internet access.**¹

It is because I wanted to make the world aware of this state of affairs that I decided to write this text. It is for me more akin to a manifesto.

This figure of 52% should serve as a catalyst for a debate and a global mobilization.

Lack of access is not just simply about being unable to access the Internet. There is a growing divide. Some people run the risk of becoming increasingly marginalized when it comes for instance to education, health, the economy, employment, and democracy.

1. According to figures from the International Telecommunication Union (ITU).

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Internet access is undoubtedly a major issue in the global North where the digital divide is a reality. Sixteen percent of the French population has no Internet access. Ten years ago, twice as many people found themselves in this situation. The figures are 12% for the United States, 38% for Italy and 35% for Argentina. Digital exclusion makes people feel neglected, left behind. These feelings, in turn, have considerable economic, social and political consequences.

But let us look beyond the concerns of the wealthiest countries. Internet access represents a serious issue for the global South. Although the number of people online globally has more than trebled since 2005, it is the affluent, the skilled and the influential who are benefiting from rapid digital expansion. They are best placed to get the full benefits of new technologies. Meanwhile, four billion people are being left behind.

Connecting the majority of the world's population to the Internet would significantly boost development. It would lead to improvements in health, literacy and levels of education. It would stimulate the economy and result in a better alignment between supply and demand in the labor market. For an African farmer, accessing the Internet is not just about going online. It means knowing the price at which rice is being traded, tracking information about rainfall or endemic plant diseases, and finding out when is the best time to sow crops.

INTRODUCTION

1. Providing Internet access to the entire world: Looking beyond the Western experience.

The role of the Internet in developing countries should not be envisioned as the mere replication of what has taken place in the West. In developing countries, it is a matter of doing something about the fact there aren't many means of communication – in some cases there's even a complete lack of them. This is why the Internet should be viewed above all as a basic instrument of communication. It can be used as a lever for individual, educational, economic, social and political development. It is a tool that can help address deficits in the spheres of transport, health, logistics, communications and information infrastructures.

All around the world, in Asia, in Latin America, in Africa, people are reinventing Internet usage in a form that is adapted to their own needs. Innovative and determined local actors are taking initiatives. They are developing ground-breaking services, applications and content that meet the needs of the economic and social players and the people of their region as a whole.

The Internet gives each person the opportunity to take control of their own fate. Let's make this technological tool available everywhere, so that everyone can develop their potential, and ultimately have greater autonomy and more control over their own lives.

2. Digital access as an accelerator of development

Yes, digital technology is the solution of the future to bring about development in countries that are without natural resources or banking services and which have to cope with exponential demographic growth.

We need to be ready for the population explosion that is on its way. By 2050, a quarter of the world population will be African and 40% of the world's children under the age of five will live on the African Continent. The challenge of development is, therefore, a major one. The Internet can be part of the solution.

Digital technologies facilitate the flow of information, create opportunities for the poor and the middle classes, transform the business world, the world of work and the world of public administration. The cost of lost opportunities is enormous. What's more, if the wealthy, the skilled and the influential people of the world are almost the only ones to benefit from the rapid expansion of the digital sphere and make the most of it, global inequality will remain on the rise.

Hence the need to connect the world. This view is the product of years of working in the field. In Africa in particular, I have been able to see the impact of Internet access on development issues, through the work of the Orange Foundation in several African countries and projects such as Open Data in Côte d'Ivoire.

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3. How can we do this? With actions, not words

We're all tired of hearing calls for global interventions. How about actually doing something?

One way of addressing the connection divide would be to form a group of determined world leaders who would work together with a "non-profit" ethos. This group, which would be both a political and an economic instrument, would also be a proposal-generating body, a lobbying organization and a means of promoting fundraising.

Connecting up the planet will require mobilization by not just private operators, politicians and states, but also international bodies such as the United Nations, the World Bank and the African Union.

This group's mission will be both to alert world opinion to a major issue and to prompt decision-makers to take action.

Connection to the Internet can change everything. Access represents the first building block in the fight against the digital divide. You can change the world by getting people online. In fact, the Internet can save the world.

Connecting all of humankind to the Internet would lead to rapid and overwhelmingly positive systemic effects.

The collective benefit to humanity of enabling several billion people to use the web and of disseminating data would be well worth the investment required to achieve it.

CHAPTER 1

One human in two is without Internet access

There is simply no point in discussing the future of the economy, or indeed of humanity, without acknowledging a basic fact: half of the global population has no Internet access.

There is not enough awareness of this connectivity divide which is a fundamental issue in the age of the intangible economy.

As economic globalization gathers pace, the industrialized countries have entered a new era. Access to information and the dissemination of knowledge are at the heart of it. In tomorrow's world, research and innovation will take on increasingly prominent and key roles.

We can't stand by and allow the inhabitants of developing countries to remain on the margins of this new world because of an ICT deficit. In a new, more intangible, economy the challenge of development lies in the capacity of the different players to share and to organize the flow of "aggregated" data. And that's dependent upon Internet access.

The large-scale dissemination of new information and communications technologies and the spread of the Internet in particular will be of vital importance to the future of developing countries. This issue must be high priority.

If the existing digital divide isn't bridged, developing countries would find themselves even more isolated from existing economic circuits. Their prospects for growth would once more be heavily compromised.

Of course, taking a global perspective on these divides does not mean we shouldn't pay attention to other divides, of a social and cultural nature, that are in evidence in developed economies. They should also be dealt with.

A world of glaring inequalities

At the end of the 20th Century, the world went into fast forward mode. It seemed to go without saying that everyone was going to be able to access the Internet – this new means of communication that would transform the lives of individuals and be a factor of innovation, productivity and competitiveness for businesses. The initial hopes however came to nothing. The reality of the world of 2018 is one of non-existent, inadequate or excessively expensive networks. Sure, the Internet exists right across the world. But it's not part of everybody's world.

The figures paint a stark picture of a global divide.

In 2017, the world was populated by 7.476 billion inhabitants, 3.773 billion of whom (in other words 50% of the population) were Internet users.² Thirty-seven percent use social networking sites, 66% use a cell phone, and 34% access social networking

2. We are social, "Digital in 2017 Global Overview" (<https://wearesocial.com/fr/blog/2017/01/digital-social-mobile-les-chiffres-2017>).

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sites using their phone. The number of Internet users is constantly growing (2017 figures show a 10% increase on 2016). Global take-up is uneven though. Twenty-nine percent of people in Africa go online. It's 33% in South Asia, 48% in Central Asia, 53% in South East Asia, 57% in the Far East, 60% in the Middle East, 66% in South America, 67% in Eastern Europe, 84% in Western Europe, and 88% in North America.

France's figure is above average: 88% of the population is connected. The United Arab Emirates have the highest rate (99%), ahead of Iceland (98%) and Norway (97%). There are also considerable differences in terms of connection speeds: the average around the world is 6.3 Mbps, compared to 9.7 Mbps in France and 26.3 Mbps in South Korea.

People also access the Internet differently from one country to the next. Worldwide, 50% of web traffic is by means of cell phone, 45% by computer and 5% by tablet. In many parts of the world, Internet users choose their cell phone over a computer, as is the case in Saudi Arabia and Nigeria for example (81% cell phone traffic). It's the opposite in countries like Russia (16%). In France, more than two thirds of Internet browsing takes place on computers and a quarter on cell phones, with the remainder being accounted for by tablets.

The list of the 10 most-visited sites in the world is also revealing when it comes to understanding variations in Internet access: Google.com, YouTube, Facebook, and Baidu take up the first four places. They are followed by Wikipedia, Yahoo, Google.co.in (the Indian version of Google), Amazon, QQ (China's number one

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messaging service), and finally Google.co.jp (Google for Japan).³ In France, if you look for example at the month of October, the top ten sites for unique visitor numbers in order of popularity were: Google, Facebook, Microsoft, YouTube, Orange, Leboncoin, Wikipedia, Skype, PagesJaunes [YellowPages] and Amazon.⁴

The figures are just staggering when it comes to usage. On the Internet, every minute, 7 million snaps are shared on Snapchat, 350,000 tweets are posted, 216 million photos are liked on Facebook and 2.4 million on Instagram, 110,000 calls are made using Skype, 830,000 files uploaded on Dropbox and 400 hours of videos uploaded on Youtube.

But all of this is the work of just half of the world's population.

The Internet is a vast universe, a window on the world, a global network, as the phrase World Wide Web implies. But in fact, it is hardly universal. It's a window on the world that only one human in two gets to look through. It's a whole universe to which only half of the population has access. We should really be talking about a semi-global network or a semi-worldwide web...

You often hear people say that this infrastructure lag could represent an opportunity. The "advantages of backwardness" argument suggests that the countries of Africa could leap forward by benefiting directly from current innovations in the developed countries. The idea is that they would experience something like

3. Source: Alexa, "The top 500 sites on the web" (<http://www.alexa.com/top-sites>).

4. Source: Médiamétrie (<http://www.blogdumoderateur.com/top-50-sites-desk-top-france-octobre-2016/>).

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the ultra-rapid growth observed in the so-called Asian dragons – South Korea, Hong Kong, Singapore and Taiwan – in the latter part of the 20th century.

This is highly likely in the case of banking: Africa will go straight to mobile banking, skipping the stage of using a network of branches. But Africa's main handicaps are the lack of infrastructures (road and electricity networks), corruption and poor governance. In these areas, there is no advantage to be derived from being behind.

The Internet: Not such a global network after all

A few years ago, two Oxford University researchers constructed a world map showing the distribution of Internet users.⁵ Each country is depicted in proportion to its number of Internet-users. You are immediately struck by the distorted representation of the world that this creates. It is a striking illustration of global inequalities when it comes to Internet access.

What do we see?

China has the most Internet users – 600 million of them. The United States (270 million), India (190 million) and Japan (110 million) are in its slipstream. Even if you add the numbers in these three countries together, the total is still smaller than the number of Chinese Internet users. And yet, the Internet is still uncharted territory in more than half of China. It is also the

5. Source: Oxford Internet Institute. The figures date back to 2013, but illustrate an ongoing trend (<http://www.ox.ac.uk/news/2015-07-13-where-do-most-internet-users-live#>).

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case that approximately the same number of Internet users are found in the United States as across the whole of Latin America and the Caribbean.

So, in this representation, the respective sizes of the countries are considerably skewed. The whole of Africa is barely bigger than Japan. The Netherlands and Australia are more or less the same size. China is eight times the size of Russia.

There are few countries where over 80% of the population is online. If we leave out nations with less than ten million inhabitants, these are, in descending order, the Netherlands, the United Kingdom, Japan, Canada, South Korea, the USA, Germany, Australia, Belgium and France – mainly European and North American countries. If we leave the micronations to one side, countries that have an Internet penetration rate higher than 80% are mostly located in Europe, North America and Oceania. Japan, South Korea, Bahrain, Qatar and the United Arab Emirates are the exceptions to the rule.

If we look at how things have evolved, there is real progress, notably in relation to the number of countries where more than 80% of the total population is online. Thus, in 2011, two years prior to the study in question, Qatar and South Korea were the only countries outside Europe and North America to feature among the group of countries with the highest Internet penetration rate.

The most striking figure related to Internet penetration rates pertains to Africa. It is the least connected continent: 18% of Internet users out of a population of 1.1 billion in 2014. There has been rapid change there too since 2013, but much of the

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progress has been made in South Africa, Kenya, Nigeria, Egypt and Morocco. In 29 of the 47 countries of sub-Saharan Africa, the proportion of the population connected to the Internet remains below 10%.

According to the Oxford Professor Mark Graham: “With these findings in mind, it is important to realize and remember that despite the massive impacts that the internet has on everyday life for many people, most people on our planet remain entirely disconnected. Even today, only a bit more than a third of humanity has access to the internet.”⁶

This international imbalance is also apparent if you look at the world map of underwater cables used by the Internet.⁷ These cables, the arteries of the World Wide Web, are used for the bulk of international communications (they account for 99% of traffic) even though the general public believes satellites are the future in terms of transmitting data. Cables can process much more information and are much less expensive than satellites, which are used mainly to connect rural communities and very isolated locations. When time is measured in milliseconds, going via a satellite just slows things down.

Here too, inequality between countries is in evidence. Most Western nations have several cables serving their territory (there are 13 cables cross the Atlantic Ocean). Nobody is concerned about establishing whether Internet access is secure or unreliable: it's like it goes without saying. On the other hand, in some countries this is a real problem. This is the case in Bangladesh for

6. This quote dates back to 2013. (Ed.)

7. TeleGeography, Submarine Cable Map 2014 (<http://submarine-cable-map-2014.telegeography.com/>).

instance and in the other countries or regions that have a single entry point, such as Tonga and French Polynesia. Several towns in New Zealand are in the same situation.

Incidentally, it is interesting to note that this map of cables more or less overlaps with that of early 20th century maritime routes, with identical points of connection (e.g. Philadelphia, Panama, the Canary Islands, and Brest in Western France). The trading powers are no longer quite as dominant, and Asia is now the world's workshop, but the investors and trade partners are still mainly to be found in the same centers.

Once we have taken note of these inequalities in Internet access, what conclusions should we draw? The contrast between the initial optimism and today's gap is impossible to ignore.

Optimism and political will at the outset

When the Internet began to take off, few people anticipated the problems that would need to be overcome, even simply in practical terms, to make the World Wide Web a reality. There were deployment problems and differences in services between rural and urban areas. The Internet did away with the idea of space as such. It was everywhere and nowhere at the same time, while Internet users, clicking away at the computer in their office or their living room didn't give a second thought to the cables that made it all possible. The Internet – this electronic and digital network – was considered to be an invisible network that could free itself from the restrictions of land-based physical factors, with existing disparities rapidly becoming residual. Communications would no longer be restricted by distance, as

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was always the case for transportation reliant on trucks or shipping containers.

However, although the network is global, work still needs to be done to connect all computers to it. The flow of data requires an infrastructure and channels that are subject to regional or national factors and determined by the relevant authorities. We are very far from the general optimism of the very early days. We've reached the point where the spatial dimension of the Internet needs to be looked at afresh.

Because it was a new phenomenon, leaders, investors, entrepreneurs and analysts often harked back to what they had known previously when looking for parallels. So, the Internet was originally designed in an identical way to other networks that were familiar to them: the transport networks, the road and rail networks, the energy (electricity, gas etc.), water and sewage networks, and even the fixed-line telephone network. Reality turned out to be far more complex.

Two examples of deployment strategies

Different approaches to deployment can be taken. Two models are emerging: in broad terms, the French model and the Chinese model. While France opted for high-speed Internet for all, everywhere, and as rapidly as possible (although without fully delivering this), China went for what is unambiguously a two-speed strategy.

In 2013, Beijing launched an Internet 2020 plan, to initiate its conversion to broadband and superfast Internet. The aim was to

get close to the developed countries, in terms of infrastructures, innovation and competitiveness, by 2020.

It has set itself a number of goals: full coverage across urban and rural areas, 70% of households should have access to a fixed high-speed connection and 85% of Chinese citizens will have access to mobile Internet (high-speed 3G and superfast 4G). The government hopes to have 400 million Internet subscribers using fixed connections and more than 1.2 billion mobile subscribers using high-speed or superfast Internet.

A three-step plan was drawn up to meet these objectives. The initial priority was to speed up the deployment of the Internet network. Stage two involved encouraging take-up and commercially promoting the Internet and its uses. The final phase is about making fiber broadband available in major urban areas. Access for the population on the one hand, and access for public services (such as schools, libraries and hospitals) on the other, are treated separately, with two different levels of priority.

It is quite obviously a two-speed Internet: high speed access for the rural areas and superfast Internet (along the lines of what developed countries are doing) for the big cities. There are no changes when it comes to censorship, or the extensive monitoring of social networks, the blocking of many sites and even the temporary denial of Internet access to whole regions, as occurred during the Xinjiang riots.

France, on the other hand, has employed a different strategy, aiming for superfast Internet coverage across the whole country. The goal is to provide everyone with high-speed, then superfast Internet by 2022. It's an ambitious target.

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The Internet: A network like no other

Most of the comparisons made between the Internet and other types of network are misleading: the Internet has specificities and dynamics all of its own.⁸

Firstly, because unlike “traditional” networks, the Internet has barely 30 years of history behind it. When it comes to networks and infrastructure the time during which it has been possible to accumulate equipment, investment and expertise is a decisive factor and it is counted in decades.

Then there is the fact that it came into being in very particular circumstances, shaped both by the market and globalization. This has produced specific characteristics that have a significant impact on local policies. An Internet provider operating in a French region cannot make decisions without taking account of the international context. It also operates in other countries, it has to meet general technical standards, it is in competition with other international operators and it relies on a global financial market.

Another difference is that the Internet is not simply going to naturally turn into a widely-used network, as a result of the progressive disappearance of gaps, along the lines of what happened with fixed-line telephones, for example.

Resolving issues around Internet access involves complex factors. Geography has to be taken into account, and overcome, in

8. Gabriel Dupuy, “Internet: une approche géographie à l’échelle mondiale”, *Flux*, n° 58, October-December 2004, pp. 5-19 (<http://olegk.free.fr/flux/Flux58/pdf58/03Dupuypp5-19.pdf>).

order to look at this question from a political and economic point of view. Decisions must be taken, not at regional level, but at a national and international level. Most of the current approaches are still unsatisfactory in that they continue to ignore the fact that the Internet has been designed to be a worldwide network, at least since it became a commercial venture, in other words since the early 1990s. Trying to undo that would be a major challenge. The main actors are stumbling forward, nations are offering a partial response to the demands of local officials and private individuals, hesitating between a regulatory approach (aimed at integrating the Internet within the existing telecommunications service) and a more hands-off policy (entrusting the role of operator to the local authorities). Ultimately, they seem to be avoiding taking a clear line.

Up to now, the policy that has prevailed is based on a recognition of the global context we are dealing with. Seeing as the Internet exists on a global scale, efforts to widen access must involve global action. What's more, most countries have established principles of free competition in this sphere and promoted openness to the rest of the world.

This position comes with disadvantages – witness the weakness of European regulation in dealing with global Internet giants such as Google or Facebook.

The Internet: The network, the market, proximity

How was the current network built? Essentially, by the public authorities to begin with, based on an infrastructure originally created for telephone communications and computing. Internet

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access started out dependent on the existing “backbones”, routers and nodes, which initially ran alongside available public rights of way – rail lines, freeways and so on. Then, in the mid-1990s, the Internet stopped being in the hands of government organizations – ARPANET in the United States, RIO in West Africa and RENATER in France – and was taken over by operators who had more or less long-term profitability goals. The first clients were businesses, administrations, universities, research centers, Internet providers and web hosting services. The first places to be connected were the major metropolises, the big capital cities, then smaller towns, after which the networks spread out from established centers.

In fact, the criteria for service were population density, level of development, level of income, the presence of economic and research activities and the promise of an indirect customer base. The downside was that these principles also determined which areas were sidelined during this process. There was one computer for fewer than three people in the USA in 2003 whereas in Africa the figure was one for every 3,700 people. This is not purely to do with geography, and considerations like the area of land covered. Just try comparing Iceland in Northern Europe and Benin in West Africa. And there are also differences within the same continent. For instance in Africa, South Africa has hardly been left on the sidelines. In Latin America and in Asia the big metropolises are well served, but the expansion of hub and spoke networks has been limited.

The market has been the main determining factor in shaping the construction of the network. That doesn't mean we should neglect the proximity factor. The building of the infrastructure is determined by a simple operational principle: distance has a cost.

Proximity therefore becomes the key factor, along with connectivity, which is concerned with building the infrastructure around regional nodes and favoring the links between network nodes as far as possible. This helps explain the current form of the network. It is polarized and hierarchical: a reflection of the global market. This is because it is responding to demand and ignoring more difficult areas – areas that are poorly equipped, with a low concentration of people and activities. The concentration of routers and backbones is not uniform even in developed countries (and as a result, there are significant differences between urban and rural areas) but it more or less reflects the concentration of the population.

At the beginning of the new millennium, the network looked pretty similar to how it is today. The population of developed countries is covered, whilst developing countries are left behind. The actors driving development are still local: there is no international developer. In fact, there has never been a goal to provide uniform and universal coverage.

That needs to change.

Restating these facts is not a license to be fatalistic. Nor should it constitute an excuse for the lack of a targeted effort to help disadvantaged geographic or economic areas.

The conclusion we should draw is that there is no justification for global inequality in Internet access, whether it be caused by political, economic or geographic factors. Moreover, it would be a great injustice if we let this situation continue. At the dawning of the information age, it has become a development issue.

ONE HUMAN IN TWO IS WITHOUT INTERNET ACCESS

There is nothing inevitable or impossible to address when it comes to the inadequacies of telecommunications infrastructure or the lack, the obsolescence or the saturation of existing networks. The increasingly rapid advance of technological progress offers hope of new and cheaper means of developing networks and reducing access costs.

Two particular features of the Internet may incidentally assist us in doing this. During the past 20 years or so, developments in the international network have been very rapid. It's as if the system itself had a considerable capacity for adaptation, which could in fact help bring about a paradigm shift. Furthermore, this network, which may have appeared to be anarchic, is clearly capable of organizing and reorganizing itself.

There is therefore cause for optimism.

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