

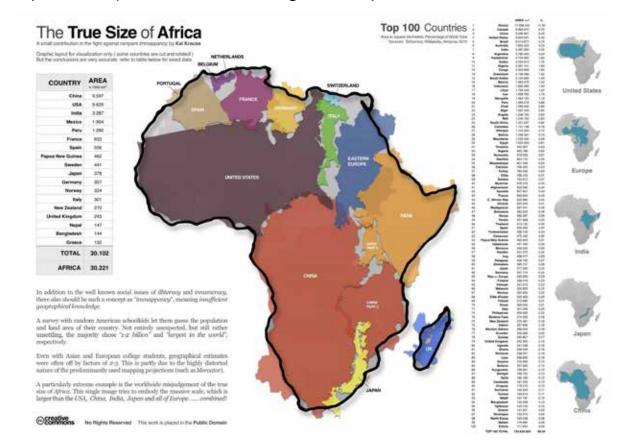
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Looking for new maps

During an episode of the TV series "The West Wing", a fictional group of cartographers, the Organization of Cartographers for Social Equality, visits the White House. They ask President Bartlet to aggressively support the enactment of a new piece legislation according to which every public school in America should teach geography using the Peters Projection map, instead of the traditional Mercator System. They bring their argument to press secretary C.J. Cregg and deputy chief of staff Josh Lyman, and they show how Greenland and Africa, which appear roughly the same size in the Mercator system, are actually very different: in terms of land mass, Africa is 14 times bigger than Greenland. After showing other examples, one cartographer argues that Germany's position in the map is also wrong. Josh Lyman is quite concerned: "You are telling me that Germany isn't where we think it is?" The cartographer for social equality answers quite satisfied: "Nothing is where you think it is".



The evolution of globalization requires us to discover new maps of the world. These maps are never finished, otherwise we would be unable to understand change. A March 2009 cover of the Economist depicted the world seen from China. Thanks to Calestous Juma's contribution, in the latest versions of our ranking of global thinkers, we tried to bring more attention to Africa. This has been a rough year for Africa, in which global attention has focused on the largest Ebola outbreak in history. It took place mainly in West Africa, in Guinea, Sierra Leone and Liberia. Ebola took many lives in 2014: at the beginning of December, more than 6700. The World Bank estimated a GDP cost for Ebola in 2014 of about 3%, which could unfortunately rise in 2015 for Liberia and Sierra Leone in case of difficulties in containment.

Thinking instability

Our choice of emphasizing Ebola's impact in 2014 does not have to do with a catastrophic narrative of West Africa's event. It is rather a way to highlight the challenges of global health policies. The Ebola issue is related with the geopolitical weakness of multilateralism. Nowadays, global problems (such as major environmental challenges and health crises) remain, but global solutions and resources are lacking.

The quality of institutions and the future of the State are big issues of our time. Particularly in 2014, the year of the rise of the so-called "Islamic State" ("Da'ish" is a more correct label), the Boko Haram threat in Nigeria and its state-like pretense, the risk of fragmentation of States at the borders of the European Union and within the EU itself. 1914-2014: it is difficult to avoid a comparison, given the escalation of conflicts and rhetoric, and the rise of institutional instability, between the current situation and the world a hundred years ago.





Pope Francis has effectively captured a general feeling of disorientation with his words: "Today we are in a world at war, everywhere! Someone told me: you know, Father, we are in a third world war, but it happens in pieces, in chapters". It was a way to describe the broad scope of instability that could be located from the African shores of the Atlantic to Pakistan. Certainly, this instability involves the Mediterranean area and the ambiguous impact of the 2011 uprisings. In 2014, in addition to the growing humanitarian tragedy in Syria and the near-collapse of Libya, we must also consider the positive experience of Tunisia.

Graham Allison has even proposed a more detailed comparison between the current situation and 1914. Allison identifies seven major analogies and seven major differences. Among the similarities, he points at the rise of a new power, interdependence, outbreaks of nationalism. Within the differences, he emphasizes the geographical distance between the contenders, the presence of weapons of mass destruction, and changed military balance. Finally, Allison wonders whether, by weighing the similarities and differences, history really does rhyme. He admits that, after this exercise in comparison, a war between the US and China in the next decade seems more likely, although still very difficult.

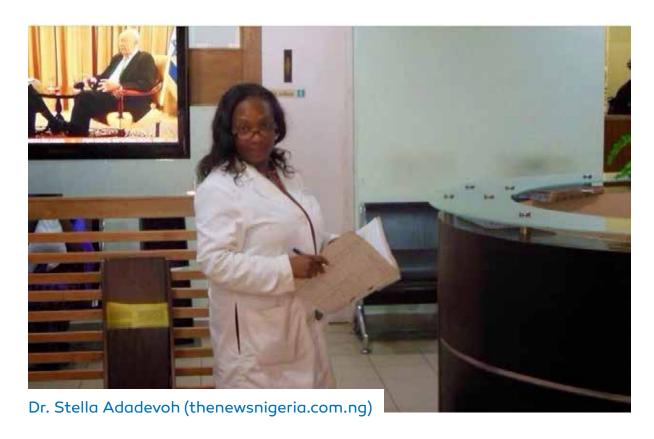
Ebola and health challenges

The order of our ranking is not particularly important. The aim of the list is to emphasize issues and to stimulate the curiosity of readers, also through the inclusion of objects, projects and a couple of unconventional choices.

However, we wanted to emphasize personalities related to Ebola and health challenges in significant positions of our ranking (in particular, the first and the hundredth place). Although in some cases this happens to be a posthumous recognition, these figures were really thinkers and doers of 2014.

In the first place, we chose Stella Ameya Adadevoh, the doctor who played a key role in containing Ebola in Nigeria, the most populous African state (and the first African economic power, after the 2014 GDP rebasing that placed it on top of South Africa).

Adadevoh, who was born in Lagos in 1956, dealt with Nigeria's "patient zero" and her determination in his isolation has made possible the liberation of his country from Ebola. The World Health Organization officially declared the end of Ebola outbreak in Nigeria on 20 October 2014. Stella Adadevoh died of the virus on 19 August, paying with her life and symbolizing Nigeria's heroic battle. These episodes help us to emphasize the African response to Ebola: reading the Western press often made it look like Africans were not doing much on Ebola themselves. Calestous Juma summarized the role of Stella Adadevoh and the Nigerian response: "Ebola is rolling back years of economic effort in Liberia, Sierra Leone, and Guinea. It is also exposing the limitations of development models that ignore the importance of building state capacity. A major lesson from the outbreak is that there is no substitute for effective public institutions in protecting the public interest".



In the September 12 issue of "Science", an article explains the importance of new genomic technologies to provide rapid information on the origins, dynamics of transmission and evolution of the Ebola virus. The article recalls the tests carried out in the Kenema hospital, Sierra Leone, since March. The hospital brought to fighting Ebola the experience developed against Lassa fever by the team led by Sheikh Humarr Khan, who succeeded Dr. Aniru Conteh, a renowned

expert in treating Lassa fever. According to a study published by "Nature", Lassa fever infects 300,000 to 500,000 people a year and kills between 5,000 and 20,000 of those: among them, the same Conteh in 2004, for an accident at work.



The "Science" article has more than 50 co-authors, as it happens with a true collective enterprise, but it includes also a sad "in memoriam": five co-authors (Sheikh Humarr Khan himself and other researchers and doctors from Sierra Leone, Mohamed Fullah, Mbalu Fonnie, Alex Moigboi, Alice Kovoma) paid with their lives the battle against Ebola. Pardis Sabeti, a computational geneticist of Iranian origin at the Broad Institute of MIT and Harvard, worked since 2008 with the Kenema team to trace the genetic path of the virus, thanks to the samples they provided. She was also waiting for Khan to visit in Boston, where he was supposed to go to collaborate for a new program. A brilliant article in the "New Yorker", probably the best article of 2014, tells the moving story of the relationship between the Sierra Leone team and the Broad Institute team: data transmission, samples, emails, then the sense of abandonment, the recovery attempts and the song that Dr. Sabeti dedicated to his African colleagues.

With our work, we wanted to emphasize that these networks and relationships are a face of globalization that too often we tend to underestimate: borders

that become links, instead of walls. Science is a collective and global enterprise. Its way of life is very different from the paranoia and racism that too often have influenced the public perception of Ebola during 2014: for this we recognize some of the personalities who have provided useful information and analyses on Ebola, as well as some relevant voices on the public perception of science, including the Italian Elena Cattaneo.



Scientific expertise in public policy is an increasing global issue. It has received recognition in Nigeria this year, where the Lagos governor appointed a Rumor manager to debunk Ebola myths and then a Chief Scientific Adviser, to help fill the information gap that was generating the rumors. The role of EU Chief Scientific Adviser, previously covered by Anne Glover, was instead axed by the new European Commission.

The World Health Organization has been criticized with good reasons for its response to the virus, which was considered too slow and weak. At the same time, it is true that the biennial budget of the organization has suffered significant cuts, more than 20%, from almost 5 billion dollars in 2009-2010 to 3.98 billion dollars in 2014-2015. The controversy about the World Health Organization emphasized the importance of rethinking global health governance: on

this issue, the writings of Devi Sridhar are particularly interesting.

Among other global players, certainly MSF (Doctors Without Borders) played an essential role against the Ebola outbreak: we recognized it with the presence of Anja Wolz in our ranking. Among private donors, the contribution of Mark Zuckerberg was higher than that of many States, and the Gates Foundation, now directed by Gilla Kaplan on tuberculosis, has consolidated its role in international health policies. In this context, the historic donation of 350 million dollars by Gerald and Ronnie Chan to the Harvard School of Public Health will have a big impact for global health challenges. Gerald Chan's commencement address at Harvard in 2012, "The Idea of Public Health", will never become famous as the Steve Jobs speech to Stanford students, but it included some real challenges of our time. For example, the increasing difficulty to deal with chronic conditions such as obesity and diabetes, as well as the dichotomy between the growing ability to control the progression of AIDS patients and the inability to control the proliferation of the disease in certain populations, especially in Africa.



Among the countries which provided aid to nations hit by Ebola, it is important to remind Cuba's example. Cuba provided in a short time the most important



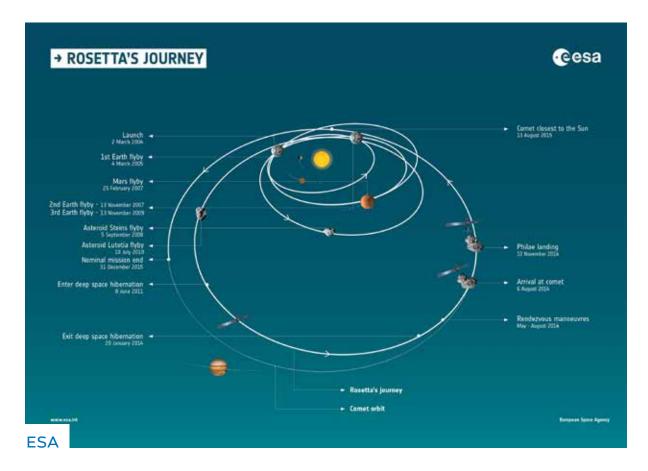
resources needed in the field: doctors and nurses, thanks to the team led by Jorge Delgado Bustillo September in Sierra Leone. Cuba's example was praised even by Samantha Power, US ambassador to the United Nations.

However, we should not stop to Ebola and consider it the only global health emergency. Its outbreak in 2014 should instead be an opportunity to broaden our vision on other personalities who address key challenges for humanity. Among them were many passengers on Flight 17 of Malaysia Airlines (MH17/MAS17) which crashed on July 17. They became innocent victims of the conflict between Russia and Ukraine. They were directed at the International AIDS Conference of July 20 in Melbourne, which took place anyway, in a mood of mourning, under the direction of Sharon Lewin and Nobel laureate Françoise Barré-Sinoussi. In our ranking we also include, among others, the Vaccine Confidence Project directed by Heidi Larson, who monitors public confidence in vaccines, young researchers such as Faith Osier and other personalities at the frontiers of medical research of the border, including the bioprinting of tissues.

Inequality on earth and Europe on the comet

Certainly, "the" book of 2014 was "Capital in the XXI Century" by Thomas Piketty, on which Lo Spazio della Politica will translate a review essay by David Singh Grewal. Piketty's book was published in 2013 in France, but it was his translation, released in April 2014 by Harvard University Press, that gave the author a "rock star" status and brought the issue of inequality at the center of a global debate. Including Piketty in the ranking would have been too obvious. We nominated instead the huge database on which the book's stands, the World Top Income Database, an international collaboration on the evolution of global wealth and income. We also included in our list the other ingredient of Piketty's success, Arthur Goldhammer, a translator from French since 35 years. He translated some books by historian Jacques Le Goff (who left us in 2014) and by the philosopher Pierre Rosanvallon, who led him to Piketty: in the networks of global thought, translators still play a key role.

Among the other books of 2014, it is certainly worth reading "China's Second Continent" by Howard French, an original research on the field on the Chinese presence in Africa, through a series of interviews and dialogues in Mozambique, Liberia, Mali and other countries.



What about Europe in 2014? The headlines, as usual, concentrate on the weak recovery, Mario Draghi's role, Germany and the future of austerity. In recent years, we often considered the UE's economic crisis and European politics, making room for central bankers, political leaders (including separatists Artur Mas and Alex Salmond, who have also marked 2014) and economists. This year, however, we consider most important to "give space to Space". Sure, Europe in 2014 is also composed by new players, like Emmanuel Macron (a thirty-something at the top of weakening French economy, one decade after being a teaching assistant to the philosopher Paul Ricoeur) and Martin Selmayr, the German head of the Juncker campaign and his current chief of cabinet, who brought a certain "House of Cards" spiciness to Brussels, even with the track changes of the statements of the trade Commissioner Cecilia Malmstrom on TTIP. But we also need a new perspective. The European Space Agency's Rosetta mission, which lasted more than ten years, led for the first time humanity on a comet. The landing, albeit problematic, of the lander Philae on the comet 67P / Churyumov-Gerasimenko on November 12, also thanks to a "Made in Italy" drill, brought a much-welcomed different feeling in Europe from the pessimism, the fragmentation and division we are used, since the beginning of the debt crisis.



The challenges of the Chinese emerged world

2014 opened with the crisis in the category of "emerging markets", with rising interest rates in countries like Russia (of course, even more at the end of 2014, also for the turmoil related to the conflict with Ukraine), Brazil (for which the World Cup has not been a success, although Rousseff has won re-election) and Turkey (where economic and political uncertainties remain). With the rise of Narendra Modi, but especially with the heavy defeat of the Congress Party, India has sought change.

China is a separate topic. Apart from the episodes in Hong Kong this year, there are three main medium-term and long-term challenges for the world's most populated country and for the leadership of the Chinese Communist Party. First, a challenge of environmental sustainability, which for the Chinese power is much more profound and urgent than it appears from the climate change agreement with the United States. Energy supply, environmental security, sustainable urbanization, water purification: this is a long list of issues that will increasingly affect economic growth and the legitimacy of the Chinese Communist Party.



The "airpocalypse" of large cities in China is now a factor that negatively affects Beijing's soft power and also prevents China from attracting global talents: regardless of economic conditions, China's quality of life is not competitive. Also for this, Li Keqiang has often spoken of "declaring war to pollution" and systems and apps of air monitoring are becoming increasingly popular.

For President Xi Jinping, the key "cleaning" challenge regards the fight against corruption, which has characterized his tenure since 2012. One of the greatest Chinese statesmen, Zhu Rongji, the electrical engineer who was mayor of Shanghai, governor of the Central Bank and prime minister, once said: "Prepare 100 caskets and leave one for me. I'm ready to perish together in this fight if it brings the nation long-term economic stability and the public's trust in our government".

Zhu Rongji is still alive, but one of his disciples, Wang Qishan, known and recognized internationally just like the master for his economic competence, leads the government's task force against corruption. According to the Financial Times, Wang suggested his colleagues in the party leadership to read Tocqueville's "The Ancien Regime and the French Revolution", in order to know what can happen to an elite which is unable to keep up with the need for reform.



In December 2014, the long-awaited news became official: the former security czar, Zhou Yongkang, has been expelled from the Party and arrested. Among its allegations, "serious violations of Party discipline", "accepting large sums of bribes" and "disclosing Party and State secrets". After the Cultural Revolution, Zhou Yongkang is the first former member of the Standing Committee to be put under investigation.

Looking at 2014, a third challenge for China relates to Christianity and its expansion in Asia. This issue also gathered some attention at the last Conclave, with Philippine Cardinal Luis Antonio Tagle, Archbishop of Manila, included among the outsiders. "In this great continent, we remain a little flock", said Tagle with understatement, commenting on Pope Francis' visit to Asia. During that trip, Francis was the first Pontiff to fly over China, and he sent two telegrams to the Chinese government. To date, it is still early to assess whether the diplomatic action of a more proactive Catholic church – which played a key role in historic US-Cuba deal – will be able to really influence the Asian world. Certainly, the rise on Christianity in China is already a fact, as a report by the Financial Times showed in November. According to Fenggang Yang, director of the Center on Religion and Chinese Society at Purdue University: "By 2030, China will almost certainly have more Christians than any other country and the Communist party is very alarmed. Chinese officials often cite the experience of Poland".





The Nanjing-based Amity Foundation plant, the NGO whose main customer is the government-controlled China Christian Council, printed in 2014 year the 125 millionth copy of the Bible in China. According to Chinese officials, as Wang Zuoan, director of the State Administration for Religious Affairs, the future is the "Christianity with Chinese characteristics", a Chinese Christian theology that should adapt to China's national condition and integrate with Chinese culture, compatible with the path of socialism. On the other hand, the construction of ideology, particularly in religion, can always provide challenges and surprises. And the growing importance of Christianity is also evident in other areas of Asia: consider for example Basuki Tjahaja Purnama, who is a breaking of barriers in Indonesia, considering that he is the first ethnic Chinese to govern the capital, Jakarta, and also of Christian religion in a country where nearly 90 per cent of the population consider themselves Muslim.

The future of innovation

The impact of the mid-term elections in the United States and the positioning for and against Obama or Clinton are not such a global issue in our understanding of 2014 for the United States.

The ability of the US economy to drive economy and innovation is much more relevant. The immediate example, with its geopolitical implications extending also in 2014, is the shale gas and shale oil revolution that we analyzed in the previous year. The impact of shale is undeniable. According to some analyses, for the US the fall in oil prices since the beginning of 2014 could be equivalent to a tax cut of 75 billion dollars and could contribute up to 0.4% to GDP growth in 2015. So far the "shale pessimists" have been dead wrong: just consider the average increase in productivity of the wells, the change of the US position in the geopolitics of US energy and its implications on manufacturing (thanks to re-shoring, Antoine Van Agtmael, the inventor of the formula "emerging markets", defines the US the new emerging market).





On innovation in a global stage, we emphasize three main aspects: artificial intelligence (AI), the Jugaad approach and a broad view on the evolution of finance.

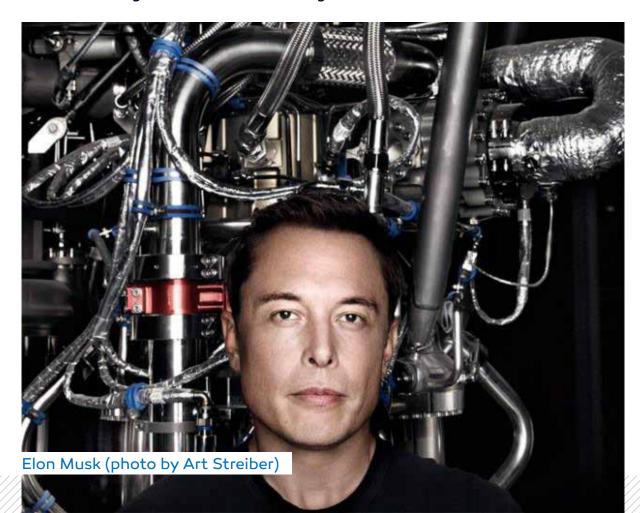
Considering AI, in 2014 there was a rise of an "apocalyptic" approach, also related to the debates on the impact of new technologies and robotics on jobs (see for example books such as "The Second Machine Age" by Erik Brynjolfsson and Andrew McAfee). On this issue, the lessons of the past can inspire confidence: humanity has been able to overcome technological unemployment before. The technological capacity of humanity has been and must be also now an ability to evolve, and it is crucial to rethink education with this evolutionary framework. At the same time, the past is not always able to explain the magnitude of the challenges of the present and the future: today's technological change (notably in IT) occurs at an exponential rate. It is all but easy to manage the transition, particularly for Western indebted powers close to "secular stagnation".

In this uncertain horizon, there is an increasing attention to the opportunities

and threats of artificial intelligence. Consider also the growing interest for deep learning by the major powers of the web, as shown by the January 2014 acquisition by Google of the UK startup DeepMind, and later by the partnership of Google DeepMind with Oxford University and the researchers of Dark Blue Labs, particularly on image recognition and natural language understanding by machines.

While the economic potential of AI grows, concerns are rising as well. Elon Musk is a leading entrepreneurial innovator, often mentioned in our rankings. As CEO of Tesla Motors and CEO and CTO of SpaceX, the aerospace company which re-branded the "Mars race", he is certainly not a Luddite, but he said during a Q&A at MIT:

"I think we should be very careful about artificial intelligence. If I were to guess at what our biggest existential threat is, it is probably that, so we need to be very careful with artificial intelligence. I am increasingly inclined to think that there should be some regulatory oversight, maybe at the national and international level just to make sure that we do not do something very foolish. With artificial intelligence we are summoning the demon".



Stephen Hawking, in a BBC interview, reiterated his fears about AI:

"The primitive forms of artificial intelligence we already have, have proved very useful. But I think the development of full artificial intelligence could spell the end of the human race. Once humans develop artificial intelligence it would take off on its own, and re-design itself at an ever increasing rate. Humans, who are limited by slow biological evolution, could not compete and would be superseded".

On the other hand, not everyone has the necessary money for these investments. Indeed, nowadays innovation should be pursued with fewer resources, trying to "do more with less". The lessons of "frugal innovation" (Jugaad innovation), emphasized in our list, may become increasingly relevant for everyone, and they are related with one of our research fields, the makers movement. Makers, like Jugaad entrepreneurs, innovate in a context of scarce resources and with a flexible approach, thanks to practice and experimentation. Western makers work based on simplicity and can lead firms to change their mindset, switching to a less expensive research process, dedicated to providing intelligent and sustainable products. Even many innovations of the past were born in a Jugaad perspective: in Italy, the "Pendolino" tilting train was a brilliant way to go fast without having yet the appropriate infrastructure, while the MPEG system was invented to compress a digital signal in order to transmit it with the technology available at that time. The example par excellence of 2014 Jugaad innovation is the Indian probe Mars Orbiter Mission (MOM), designed and launched by the India Space Research Organisation (ISRO), which successful reached on September 24 the orbit of the Red Planet. India became the fourth power to put a satellite into orbit around Mars, after the United States, Russia and Europe, and in this field was able to "beat" China (Japan failed its attempt in 2003), spending less than Hollywood did for the movie "Gravity", as Narendra Modi recalled with pride.



Another essential field of innovation concerns finance: one of the main trends of change in the financial system is the hacker approach: "dismantling the box", going beyond the instructions, re-arranging the pieces in unexpected ways. This transformation, for the first time, is not driven by big players such as investment banks, governments and central banks, but rather by hundreds of independent projects and startups. Bitcoin is just one example. There are many other ongoing initiatives, concerning the management of payments, money transfer, asset management, transparency and decentralized and algorithmically –based contracts. What is happening is that a number of new projects are exploiting the decentralization potential of the blockchain, the technology behind Bitcoin, for other civil, economic and social purposes.

One of the most promising initiatives is Ethereum, a project inspired mainly by the young programmer Vitalik Buterin, a Russian-born who lives in Canada. Ethereum is a platform for constructing decentralized and cryptographically secure applications. A new set of ideas is now unleashed: from "smart contracts" - contracts between parties who have the ability to self-validate and self-enforce with no third-parties involved - to the generation of entire organizations and legal/financial systems based on the principles of decentralization, autonomy and independence.



The Ethereum project, started between late 2013 and early 2014, began operating in July of 2014 through the first release of the Ether, a crypto currency that will serve to manage computational resources from the system. The initiative immediately attracted a lot of attention at the global level, leading to the gathering of dozens of meetups around the globe, often on the basis of existing Bitcoin meetups. The interest raised by Ethereum, which attracted many investors but until now chose not to accept venture capital funds, is also highlighted by the appointment in June 2014 of Buterin himself among Thiel Fellows. Thiel Fellows are a network of entrepreneurs under 20 financially supported by Pether Thiel, founder of Pay Pal and first investor in Facebook. In our ranking, we include "From Zero to One", the book of Thiel's lectures at Stanford, already edited online by his students, Blake Masters, promoted to co-author.



The process of financial innovation, for example the disintermediation angle promoted by blockchain-related technologies, is not without risks and specifically generates challenges in terms of regulation. First, radical decentralization carried out by projects like Ethereum clashes directly with the rationale of many of legal and financial systems, by definition embedded with centralized control systems. Secondly, there is an issue of user accessibility. The lack of a good user experience and the presence of a large "gray area" between illegal and legal applications prevents the participation of unsophisticated users to these platforms.



In the near future we could experience a new layer of decentralization, in addition to the first two waves developed in the recent years. The first one involved contents: from Napster to BitTorrent, online file sharing has been able to revolutionize whole industries such as the publishing and the music ones. A second wave brought disintermediation to the physical layer, through services such as Airbnb, Couchsurfing and Uber. The new generation of platforms supported by the blockchain, inaugurated by Bitcoin and now in development through projects like Ethereum, goes to a third level of disruption, focused on radical decentralization and disintermediation of political and financial structures. This process will not necessarily lead to the utopian scenario assumed by many. On the other hand, it is surely a technological trend that will lead to a fundamental change in the way in which people organize and communicate with each other, just like the advent of the Internet and then the chance to write the social web (the so-called "web 2.0") has generated significant effects, from new business models to new forms of social interaction.