

REDEFINING PROGRESS

THE SPEAKER: ALFONS CORNELLA



Founder of Infonomia and the Institute of Next , service companies to rethink the future of companies and organizations, with a special focus on business model innovation. It constantly explores international innovation ecosystems.

He has published 36 books, as well as hundreds of short articles on innovation, business, and technology from the perspective of organizational transformation. His latest books are “ *How to innovate without being Google* ” , an innovation manual based on what he has learned in 20 years of professional practice, “ *Educating humans in a world of intelligent machines* ” , a proposal of ideas and reflections on the new education that our society needs, and “ *How eat crab and not die trying* ” (with Mònica Alonso) about the transformation of China into an innovation powerhouse.

He is a consultant to large companies, and has directed more than 120 innovation projects in all types of organizations, especially in the private sector. More than 10,000 people participate in its presentations and workshops annually.

Alfons Cornella has a degree in Theoretical Physics from the University of Barcelona, Master of Science in Information Resources Management from Syracuse University in New York, and has a postgraduate degree in Senior Business Management from ESADE Business School .

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1. RE-DEFINE PROGRESS

ABOUT US?

My name is ALFONS CORNELLA, and I have been dedicated to developing innovation in the company for more than 25 years.



Right now, from our INSTITUTE OF NEXT project, our main interest is to help organizations think in the medium and long term, in an environment of greater complexity and acceleration, from the conviction that "*if they don't think 10 years ahead , they may not exist in 5 years .*"



REDEFINE PROGRESS

In this first block we are going to reflect on WHY it may be necessary to re-define what we understand by PROGRESS, and what a new version of the concept can consist of.



If something characterizes our social, economic and political environment, it is COMPLEXITY. A new situation, with new variables, agents, problems, but also with new resources, technologies and models, which will force, in our opinion, to RE-INVENT many organizations.



For many of them, the opportunity does not derive from adapting to the new situation in a merely contingent way, but rather the opportunity will consist in determining A NEW VERSION of the organization.



We believe that this new version can lead to fruitful results if the changes to be made in the organization ALIGN with the changes that are already taking place around us. Because society is changing, in many directions. But,

in our opinion, all the changes can be understood from a great transformation of what we understand by PROGRESS.

There is, then, to re-define PROGRESS. To begin we can review what we have considered as progress so far.



THE FOUR COMPONENTS OF PROGRESS

There are many ways to understand progress, there are many authors and more definitions. But our proposal in this presentation is that we consider that progress, as it has been understood until now, has had four main COMPONENTS:

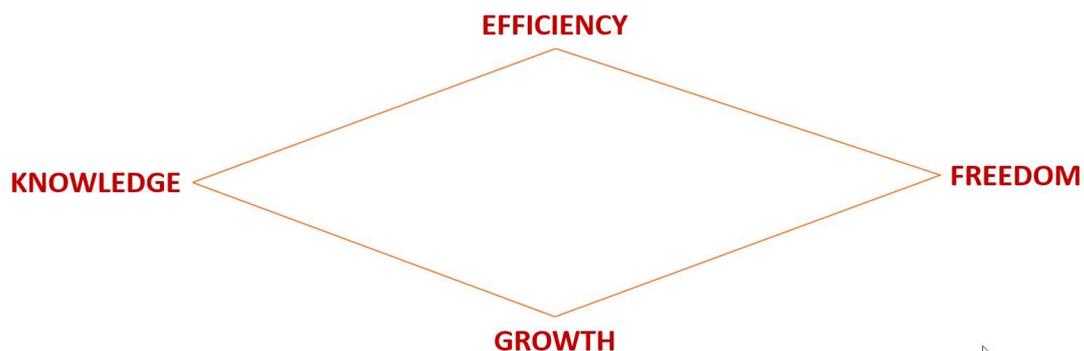


EFFICIENCY

GROWTH

KNOWLEDGE

FREEDOM



We are going to look briefly at each component, to propose that the conventional version of its meaning may have entered into crisis, and how four NEW COMPONENTS of progress are emerging.



EFFICIENCY

In the last two centuries we have deployed a combination of science and technology that allows us to conceive, produce and distribute thousands of products and services, with extraordinary efficiency.



Perhaps a good image to reflect it is that complex MACHINE that is a CHEMICAL PLANT, with its ingredients, mechanisms and processes.



Or perhaps a REFRIGERATOR so sophisticated that it will do the shopping on the Internet when it "feels" empty, making the decisions itself, which refrigerators like *Haier 's most recent ones* are getting closer to.



But this super -efficiency has its problems. First, everything is calculated to the millimeter, to achieve the highest productivity; but if something fails, everything fails, as we saw with the collapse of DISTRIBUTION in some moments of the pandemic.



And second, super -efficiency stimulates the emergence of a few big winners who totally eliminate any competition, so that they become a *de facto MONOPOLY* ; A good example may be found in the Dutch company *ASML* , which has 60% of the world market for the manufacture of the complex machines with which the most sophisticated chips in the world are manufactured.



Only two companies compete with it globally. If one day there is a devastating fire at the *ASML factory* in Eindhoven all that super -efficiency will be for nothing.

<https://www.economist.com/business/2020/02/29/how-asml-became-chipmakings-biggest-monopoly>

What can replace EFFICIENCY as a component of progress?

We will see later...



GROWTH

There is a macro reading of the progress achieved in the last two centuries that has to do directly with the growth of the ECONOMY.



World GDP has been growing steadily in many parts of the world, perhaps with the notable exception of parts of Africa. The evolution of PER CAPITA INCOME in the world from 1870 to 2016, shown in this graph, we believe is sufficiently evident.

<https://ourworldindata.org/economic-growth>

The idea of seeking economic growth as a form of progress has spread as a global mantra throughout the planet.



When one visits CHINA, one is surprised by the sights of dozens of new cities that appear in the windows of high-speed trains, as a sign of China's conviction that growth is the main objective of the economy to achieve progress.



But, at the same time that we "ENJOY" the benefits of that economic growth, it is increasingly evident that we do it by exploiting a natural environment as if it were free and infinite. The impact of our activities, of our economic growth, on the planet, is unavoidable. We ask ourselves if this uncontrolled growth makes sense, without curbing our ambition to grow for the sake of growth.

https://www.carbonbrief.org/analysis-why-scientists-think-100-of-global-warming-is-due-to-humans/amp?_twitter_impression=true

What can replace GROWTH as a component of progress?

We will see later...



KNOWLEDGE

We have more researchers, scientists and technologists in the world than at any time in history. Every day we are less surprised by the great advances in the form of solutions and responses generated by our ability as a species to produce new useful knowledge.

And the COMBINATION of knowledge drives multiplicative results: more science generates better science, which leads to better science, etc.



A simple example: the *FDNA company* proposes a way to detect genetic alterations in a person from the analysis of a photograph of their face. Thanks to the participation of thousands of doctors, who provide their photographs and diagnoses, an artificial intelligence tool can analyze the PHENOTYPE and suggest, in view of the patterns it has generated with the data, the existence of a possible genetic alteration.

<https://www.fdna.com/>



In another direction, thousands of professionals are working globally on the development of QUANTUM COMPUTERS, which, we are told, will transform our possibilities of solving complex problems, which until now were intractable with conventional computers.

<https://www.newscientist.com/article/2252933-quantum-computers-may-be-destroyed-by-high-energy-particles-from-space>



But at the same time, the appearance of "intelligent" machines, capable of doing tasks that until now only a human did, such as writing newspaper articles, or poetry, or determining the falsity of the authorship of a painting, begins to put into question the future participation of humans in the construction of progress.

<https://www.economist.com/science-and-technology/2020/08/06/a-new-ai-language-model-generates-poetry-and-prose>

The question is, what is the place of humans in an ultra - *efficient world* that *GROWTH* thanks to the action of intelligent machines that will be able to work on the *knowledge* previously accumulated by humans?



More specifically, how to reverse the current trend of labor market polarization into HIGH SKILLS jobs, which are growing, and very low SKILLS jobs, which are also growing, while all the middle mass, the majority of the population, sees How, year after year, do your job opportunities drop?

<https://www.mckinsey.com/industries/social-sector/our-insights/the-social-contract-in-the-21st-century>

In a world of intelligent machines, what can replace KNOWLEDGE as a component of progress?

We will see later...



FREEDOM

Finally, we Westerners find it difficult to separate the idea of progress from that of freedom. The history of our civilization is a history of progress of RIGHTS AND FREEDOMS.



Various books show how there is a direct relationship between the OPEN character of a society and its progress. The opening to trade, to exchange, to the movement of people with other ideas, with projects. In particular, societies open to IMMIGRATION have been nurtured by people with extraordinary energy who have put their talent to work to contribute to the progress of the societies that have welcomed them.

<https://www.economist.com/books-and-arts/2020/09/10/two-books-expound-the-virtues-of-open-societies>



We can cite, in particular, the text by Johan Norberg , in which he takes a very inspiring historical journey on the effects on progress of a society being more or less open or closed. For example, it shows how, by expelling Jews,

Muslims and heretics, the Spanish INQUISITION had the effect of significantly impoverishing the country, which led to a contraction of the economy between 1500 and 1750, something that perhaps explains the brake on progress experienced by the country in the two centuries that followed (especially the missed opportunity of the industrial revolution).

BOOK:

https://www.amazon.com/s?k=norberg+open&ref=nb_sb_noss_1



But doubt now arises about the capacity of open societies, especially that of Western democracies, to manage to maintain the PACE of progress that the new circumstances demand.

How to use the ideal of freedom as an engine of progress in a society in which economic INEQUALITY reigns, and in which pockets of poverty grow, with no solution in sight, in the main cities of the West?

<https://www.tellerreport.com/news/2019-06-03---ile-de-france-is-the-most-unequal-territory-in-france-.H1eb2e9fCV.html>



How will we convince the citizens of these "open" societies that freedom is a higher value than dignity? How do we explain to them that some of the major cities in CHINA, a fundamentally authoritarian society, have experienced the greatest economic development in history, far exceeding the historical standard of the industrial revolution in England in the 19th century?

What will the average European citizen say when he becomes more aware that a Chinese city like Shenzhen went from having a GDP of 200 million dollars in 1978 to a GDP of 240 billion dollars in 2018? Multiply your GDP by 1,200 in 40 years?

<https://www.statista.com/chart/19189/gdp-growth-in-chinese-cities/>

In short, what will happen when the citizen of the West sees that he has FREEDOM but with an increasingly precarious DIGNITY, while in China there are hundreds of millions of people with greater dignity without the freedom of the West?

Given this environment that calls into question the Western model, what can replace FREEDOM as a component of progress?



In the next blocks we will deal with the crisis of the CURRENT components of progress and we will introduce the NEW components of progress that we believe are emerging, and we will illustrate them with very diverse examples.



But just as a preview, let's say here that the NEW components that we propose are these:

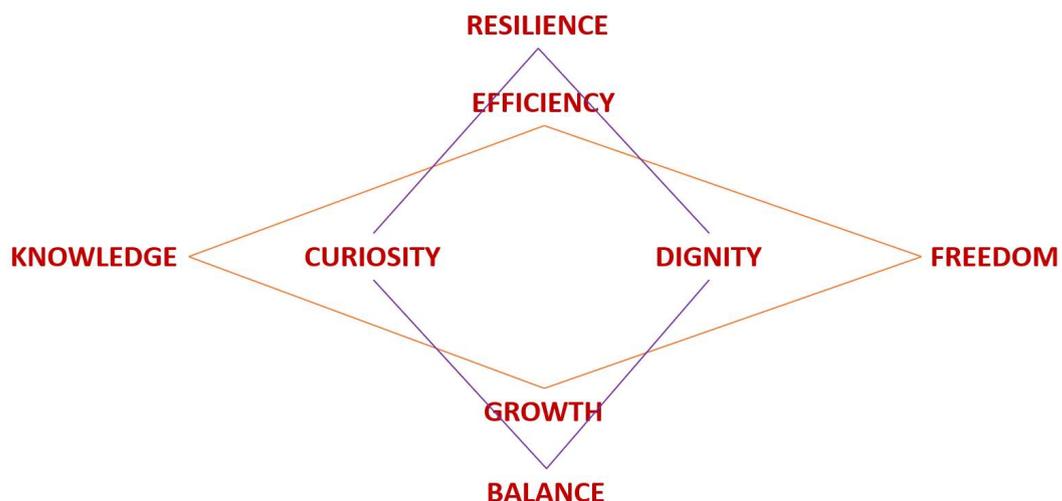


RESILIENCE versus current EFFICIENCY

BALANCE versus GROWTH

CURIOSITY versus KNOWLEDGE

AND DIGNITY versus FREEDOM



These are the four components that we propose

2. EFFICIENCY

MANAGEMENT = SCIENCE TO IMPROVE EFFICIENCY

Since the beginning of *management*, the main objective of this discipline has been to improve the efficiency of processes. Eliminate losses and increase productivity. In this sense, the main contribution of *management* to progress has been the constant increase in EFFICIENCY.



THE PANDEMIC HAS STIMULATED AUTOMATION

The data seems to indicate that the pandemic has increased the automation of processes in many companies. Some have done so by repatriating industrial activities, unable to depend on production in other countries, and have had to automate processes to compensate for the higher price of local labor.

<https://singularityhub.com/2020/11/30/is-the-pandemic-spurring-a-robot-revolution>



AUTOMATION IN AGRICULTURE

One of the sectors in which we will see automation for efficiency is the agri-food industry. The PRODUCTION of food must be increased to respond to a growing number of global population, and it must be done by increasing PRODUCTIVITY (that is, the *outputs* generated with the same or even less *inputs*). We will see robots that monitor the conditions of the soil, the state of the crops, and thereby allow PRECISION AGRICULTURE.

<https://www.economist.com/science-and-technology/2020/02/06/using-artificial-intelligence-agricultural-robots-are-on-the-rise>



SPECIALIZED, COORDINATED MACHINES

SPECIALIZED robots will each do their job, and will coordinate with each other. Even more interestingly, the farms will be able to contract the

services of these advanced systems on time, when they need it, through SUBSCRIPTION models, in an *AS A SERVICE model* , which, we believe, will facilitate the rapid penetration of automation in many sectors.

<https://www.smallrobotcompany.com/>



VERTICAL FARMS

Without leaving the agri-food sector, we must also comment on the progress of VERTICAL FARMING, such as this one developed in Denmark: fourteen vegetable production floors, which grow thanks to hydroponic technology and LED lighting . With a capacity to generate 15 crops a year, so that the equivalent of only 20 football fields would produce enough vegetables to satisfy the annual need of all of Denmark.

<https://www.nordicharvest.com/>

<https://www.fastcompany.com/90582905/this-vertical-farm-in-denmark-will-grow-1000-tons-of-local-greens-a-year>



LONG TERM BATTERIES

In particular, this will require new ways of storing energy "in the long term" (for months), for later use; research in this direction is one of the most relevant at the present time, and announcements of "disruptive" results abound, such as this one advanced by the *University of Lancaster* , based on previous Japanese research, and consisting of a "revolutionary" material CRYSTALLINE. A system that would allow the storage of excess solar energy captured in summer so that it can be used in the following winter.

<https://www.universal-sci.com/headlines/2020/12/8/extraordinary-new-material-will-enable-us-to-store-solar-energy-for-a-long-time>



DIAMOND NANO BATTERIES

NDB company DIAMOND NANOBATERIES , which uses nuclear waste to convert them into "diamonds" (carbon crystals), which function as batteries that promise to last thousands of years in some cases.



INCREASE EFFICIENCY IN ALL ACTIVITIES

In short, in the coming months and years we can see an effervescence of new proposals that come to increase efficiency in processes and activities, sometimes RADICALLY changing how they were being carried out, from, to give some unconventional examples, how to REHABILITATE old buildings, or how to BUILD ROADS.

<https://www.fastcompany.com/90610030/old-buildings-are-inefficient-this-prefab-kit-makes-it-easy-to-retrofit-them>

<https://www.mckinsey.com/industries/public-and-social-sector/our-insights/road-work-ahead-the-emerging-revolution-in-the-road-construction-industry#>

3. RESILIENCE

WHAT IS RESILIENCE?

One of the most used “emerging” words during the covid-19 pandemic has been the term “resilience”. It has been applied to organizations and people, in the sense of OVERCOMING difficulties. We are especially interested in its application to organizations, in the sense that EFFICIENCY in the short term, which we have discussed in the previous point, may not guarantee survival.

THE VALUE OF DECENTRALIZATION AND ECOSYSTEMS

Perhaps one of the most relevant lessons learned in terms of what guarantees the resilience of an organization is the evidence that DECENTRALIZED companies, which function as a coordination of units strongly connected to their respective local markets, obtain better results than their rivals in TURBULENT situations. (like crises).

This is the subject of a recent article published in *Insead Knowledge* . I dare to suggest that the result would also be evident in companies that function in a fertile relationship with their natural business ECOSYSTEM.

<https://knowledge.insead.edu/economics-finance/in-bad-times-decentralized-firms-outperform-their-rivals-15856>



ORGANIZATIONS “READY FOR THE FUTURE”

Ultimately, it is about building organizations that can respond to the challenges that come in the future; a future that, everything seems to indicate, will be more *accelerated* and *complex* . In this sense, many interesting proposals appear, among which we can highlight the *McKinsey report* with the title *Organizing for the future* , in which nine capacities to be developed are provided, among which I would like to highlight three: define and defend a clear PURPOSE, treat TALENT as a scarcer resource than capital, and function, as we have already pointed out, from a perspective of ECOSYSTEM.

<https://www.mckinsey.com/business-functions/organization/our-insights/organizing-for-the-future-nine-keys-to-becoming-a-future-ready-company>



FUNCTION AS AN ECOSYSTEM

Companies that work by leveraging their relationship with hundreds, or even thousands of companies, and professionals, collaborators or suppliers, with whom they can quickly provide new responses to new market needs, thanks to the "multiplication" of the capabilities of all agents.



An outstanding case of operating from an ecosystem is the Chinese company *Haier*, a leader in the home appliance sector, whose ecosystem called *HOPE* is being studied as a reference throughout the world, and to which we have dedicated, by the way, the first issue of our observatory of innovation in innovation at *UPF-BSM*.

<http://hope.haier.com/>

<https://alfonscornella.com/wp-content/uploads/2021/01/CASE1-OBSERVATORY-v8-20210114.pdf>

4. GROWTH

IS PROGRESS GROWTH?

From the traditional economic perspective, it seems clear that progress is clearly linked to growth. In fact, as we have seen in another point, it is more linked to PRODUCTIVITY, to generating more value with the same, or even less, resources. But we can accept that if the economy grows, there are more job opportunities for people, and, in principle, better opportunities for their progress.



But it may be that this is not so clear, that is, that in reality for a few decades (since the 1980s), there has been a DECOUPLING between the growth of the economy and the average income of families.



The economy as a whole is growing but the average income of families has stagnated, as this graph shows.

<https://hbr.org/2015/06/the-great-decoupling>



THE ROSY 20, AGAIN?

Some predict that the 2020s will be an era of great growth, as was the corresponding decade of the last century: *The Roaring 20s*, Los Felizes 20. There are different coincident elements: a pandemic, growing economic inequality of the population, rural-urban distancing, financial bubble, isolationism of countries, etc.

<https://marker.medium.com/will-the-2020s-really-become-the-next-roaring-twenties-5a05ce995499>

<https://www.ft.com/content/3f3fd905-92a4-4361-ba4d-11bf222b2c33>



But the question that many ask is: will they really be?

Are there good reasons to justify it?



THE TECHNO-OPTIMISTS

In favor of this invigorating optimism are the self-styled TECHNO-OPTIMISTS, who consider that the combination of multiple new technologies derived from the most sophisticated science creates an environment of opportunities for productivity growth.

<https://noahpinion.substack.com/p/techno-optimism-roundup>

<https://www.economist.com/leaders/2021/01/16/why-a-dawn-of-technological-optimism-is-breaking>



DRY POWDER AVAILABLE TO INVEST

On the other hand, it is estimated that private investment funds around the world have more than 1.5 trillion (European) dollars to INVEST (in what is called " *dry investment*"). *powder* ", dry powder, ready to be fired at any time).

<https://www.bloomberg.com/news/articles/2020-01-02/private-equity-is-starting-2020-with-more-cash-than-ever-before>



THE CLEAR ROLE OF R&D

To ensure new quality growth in Western economies, there seems to be a consensus on the relevant role of public and private investment in R&D, which entails the generation of "general purpose technologies" that develop their transformative power in the whole of society.

Among them may be candidates such as artificial intelligence, m-RNA (which has allowed some of the vaccines against covid19), all "green" technologies, such as new batteries, fuel cells, etc. We will have to see what its final effect is on the generation of GDP.



We must expect a positive COMBINATION of public investment capacity in R&D (which has been decreasing in recent decades) with private investment, which has been progressively increasing.

<https://www.economist.com/briefing/2021/01/16/the-case-for-more-state-spending-on-r-and-d>

Finally, to ensure GROWTH, we will have to develop new ways to generate new and BETTER IDEAS more quickly, as we will see in a later point.



5. BALANCE

OUR IMPACT ON THE PLANET

The impact we are having as a species on the planet is already unquestionable. As a simple example, in 2020 an important line was crossed: for the first time, what is produced by humans (cement, asphalt, metals, plastics, etc., what is called the ANTHROPOGENIC MASS) already weighs more than all living matter of the planet (animals and plants).

<https://www.theguardian.com/environment/2020/dec/09/human-made-materials-now-outweigh-earths-entire-biomass-study>

Our tendency as a species to take advantage of what Nature offers us (something we have done systematically since the Neolithic), has led us to OVER-EXPLOIT the resources available on a limited planet. It is true that we impose laws, but we act within their limits to continue extracting as much as we can.



This is well illustrated by a satellite photograph, taken in August 2020, over the Galapagos Islands, which shows how an "army" of hundreds of Chinese fishing boats acted on the border limit of the exclusion area of Ecuador (administrator of the islands), in which they worked some 73,000 fishing hours during a single month, extracting thousands of tons of squid and fish.

<https://www.theguardian.com/environment/2020/sep/17/chinese-fishing-armada-plundered-waters-around-galapagos-data-shows>

<https://www.economist.com/international/2020/10/24/illegal-fishing-fleets-plunder-the-oceans>



A SCIENCE FICTION PRESENT

Our excessive exploitation actions are combined with natural DISASTERS generating images that we had only imagined in science fiction, such as those experienced in the California fires of 2020, in which there was no

difference between the images taken in San Francisco and those imagined in the movie *Blade Runner* .



<https://project-nerd.com/2020/09/11/wildfires-have-the-bay-area-looking-like-blade-runner-2049/>

That were deeply captured in this video by Terry Tsai :

https://www.youtube.com/watch?v=x_m9TUP_t_Y&t=9s



UNSTOPPABLE THIRST FOR ENERGY

Our appetite for energy is also unstoppable.



In 2030, we will demand 40,000 TWh annually in the form of electrical energy. In particular, the ELECTRICITY that we dedicate to digital activities does not stop growing. It is estimated that in 2030, in the worst of several possible scenarios, the electricity needed to keep our digital world running (servers, networks, computers, etc.) will be 9,000 TWh , triple the current 3,000 TWh . It will then be 21% of the total electricity consumed.



An important reason for this increase in electricity consumption can be found in the evolution of TRAFFIC on the Internet, which in 2017 was already more than 1 Zettabyte (10^{21} bytes).

<https://www.nature.com/articles/d41586-018-06610-y>



TWh per year are currently being used , according to the *Center for Alternative Finance* from the *University of Cambridge* . This represents 0.6% of global electricity consumption.

<https://cbeci.org/>



BUT WE ARE GETTING BETTER...

The response of people and organizations to the challenge of achieving a greater BALANCE with the planet is increasing.



There are millions of entrepreneurs around the world who launch initiatives to make our economy more SUSTAINABLE and balanced.

<https://startupill.com/94-best-cleantech-startups-of-2020/>

DECOUPLING RESOURCE USE GROWTH

In line with what has been said in the point on EFFICIENCY, a fundamental change consists in decoupling the use of resources from economic growth.

Something that according to the economist Andrew McAfee is already beginning to be achieved, as he explains in his book *More from Less* .



PUT THE “ECO” IN THE ECONOMY

It is also becoming clear that the great change occurs when we understand that Nature is not an INFINITE resource, but that it is a finite but indispensable resource for our economic activities.

This change consists in thinking that Nature is offering us its SERVICES: it offers us the air with which we can manufacture oxygen industrially, there are plant or animal species that clean the water or recycle nutrients, etc.



A recent study commissioned by the *British Government* emphasizes the importance of Nature's contribution to the human economy.

<https://www.gov.uk/government/publications/final-report-the-economics-of-biodiversity-the-dasgupta-review>

<https://www.economist.com/finance-and-economics/2021/02/06/how-should-economists-think-about-biodiversity>

In other words, we must introduce NATURAL CAPITAL (the action of Nature as a resource for our activities) in the PRODUCTION FUNCTION.



In such a way that if we misuse or destroy natural resources we are creating an economic problem for ourselves. If we overlook the importance of natural resources for our economy, we are underestimating the RISKS that damaging Nature has for our growth and well-being.

There are economists who propose that only by introducing the ecological vision in the economy can we conserve the Nature of the planet. Because, among other things, the COST of restoring a natural system is much higher than the benefit that its overexploitation may have given.

In short, that the valuable SERVICES that the environment provides to our economy must be valued economically.



THE COST TO HUMANS OF DAMAGE TO NATURE

But regardless of the purely economic discourse, it is becoming increasingly clear that destroying BIODIVERSITY diminishes Nature's ability to protect humans from many pathogens.



In other words, as Eric Sala states in his fantastic book *The Nature of Nature* , “ a healthy nature is our best antivirus .”

BOOK:

<https://www.amazon.com/Nature-Why-We-Need-Wild/dp/1426221010>

6 - KNOWLEDGE

A WORLD OF SCIENTISTS

There have never been so many people in the world dedicated to science, research and technology.

The *OECD* defines RESEARCHERS as “ *professionals dedicated to the conception or creation of new knowledge, products, processes, methods and systems, as well as to the management of the projects in question* ”.



In 2017, it estimated that, on average, about 9 out of every 1,000 workers in OECD countries was a researcher (that is, about 1% of workers). In 2018, the highest figure was in Denmark, with almost 16 researchers per 1,000 workers. Korea followed with just over 15.

<https://data.oecd.org/rd/researchers.htm>



According to *UNESCO* , the GLOBAL number of researchers was 7.8 million people in 2013, or 0.1% of the world population.

<https://en.unesco.org/unesco-science-report/figures#:~:text=There%20were%207.8%20million%20full,0.1%25%20of%20the%20global%20population>

In the EUROPEAN UNION, between 2008 and 2018 the number of researchers went from 1.27 to 1.79 million people.

Of them, 55% did so from private companies.

https://ec.europa.eu/eurostat/statistics-explained/index.php/R_%26_D_personnel#Doctoral_students



MORE AND MORE DOCTORS...

In the world tens of thousands of people get their doctorate every year and the number grows year after year.

The leader on this issue in the West remains the United States.

It is relevant to note that in 2017, 53% of doctorates in the United States were WOMEN, compared to 47% of men.

<https://www.weforum.org/agenda/2019/10/doctoral-graduates-phd-tertiary-education/#:~:text=When%20it%20comes%20to%20sheer,next%20with%20around%2028%2C000%20each.>

<https://www.statista.com/chart/7272/the-countries-with-the-most-doctoral-graduates>



The thousands of PhDs in the West are now joined by the tens of thousands who do so in Asia, especially in CHINA. In 2017, there were an estimated 362,000 doctoral students in that country, 55% in science or technology disciplines.

http://www.china.org.cn/opinion/2019-05/25/content_74818144.htm



TOO MANY WELL TRAINED PEOPLE?

The most relevant question on this topic is whether the world economic system can ABSORB this flow of doctorates, offering them jobs that are appropriate to their preparation and ambitions. In many countries, supply is far below demand, leading many young researchers to be seen as 'cheap labor' in academia.



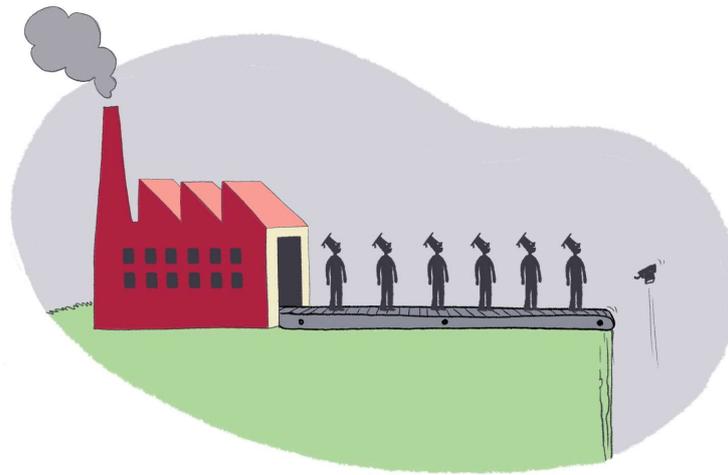
Furthermore, according to Peter Turchin , the OVER-PRODUCTION in the West of young graduates with advanced training may trigger a decade of social instability. It is as if highly educated elites are competing with each other to share in the benefits of being at the top of the economic and political system.

Put succinctly: TOO MANY highly educated people can be a problem, according to Turchin .

<https://www.economist.com/finance-and-economics/2020/10/22/can-too-many-brainy-people-be-a-dangerous-thing>

BOOKS:

https://www.amazon.com/Ages-Discord-Peter-Turchin/dp/0996139540/ref=sr_1_1?dchild=1&keywords=TURCHIN&qid=1615484403&sr=8-1



KNOWLEDGE FOR PROGRESS

In any case, it is obvious that the progress experienced by the world in the last two centuries owes much to the development of scientific and technological knowledge.

Something that will probably occur more rapidly in the future because more scientists generate more and better science. And what ends up being produced is a virtuous circle of knowledge creation.



To give some examples, we can expect revolutions derived from advances such as SEMICONDUCTORS at room temperature...

https://singularityhub.com/2020/10/19/scientists-just-achieved-room-temperature-superconductivity-for-the-first-time/?fbclid=IwAR367XrBMhFYTEgv6umYqqKz_hUIktMO3EM_H5qv9nvaC6uvcl5AEJD83d8



or hundreds of innovations in medicine and health, such as the simpler and earlier detection of ALZHEIMER, and perhaps its cure in the future...

<https://www.nytimes.com/2020/07/28/health/alzheimers-blood-test.html>



MORE AND MORE INNOVATION IN EVERY DAY

Apart from these innovations from the purest science, we will see the application of new ideas and technologies to practically everything, because objects, processes, techniques, methods will be reinvented...



For example, we will reinvent WOOD, to be able to build tall buildings with them, as they propose with the idea of *engineered timber* .

<http://www.timbmet.com/uk/products/range/engineered-timber/>



And we will deeply reinvent well-established concepts, such as what an AUTOMOBILE consists of, as proposed by the Israeli-based company *REE* , with its autonomous mobile chassis.

<https://ree.auto/>



7. CURIOSITY

A DISTINCTIVELY HUMAN CAPABILITY

Curiosity is one of those terms that suddenly become fashionable. But curiosity is especially relevant at this time because it is a particularly HUMAN ability.

Because in an environment of increasingly “intelligent” machines, which can replace humans in more and more activities, the clearest opportunity for humans to progress lies not in competing against machines, but in taking advantage of, leveraging, those distinctively human characteristics. And one of them is, clearly, curiosity.



A DEFINITION OF CURIOSITY

Looking in the dictionary for the DEFINITION of curious and curious we find this meaning that interests us in particular:

I find the definition given in ENGLISH by the *Merriam-Webster dictionary* *much more inspiring* , which translated would be:

“Curiosity: desire to know”

I think this is exactly the definition we are interested in. Because it illustrates why curiosity has become a fundamental element for the redefinition of PROGRESS: curiosity is the energy that leads humans to ask questions, in a world in which machines will increasingly find the answers.





A human capacity that will be increasingly sought after, as illustrated by the search that IKEA has initiated for a child, a curious human by definition, to act as the company's first *CHIEF PLAY OFFICER* .



HUMAN CURIOSITY AS AN “ANTIDOTE” TO INTELLIGENT MACHINES

We have advanced *software* , such as *GPT-3* , which is capable of writing like a human... as was demonstrated a few months ago with an article written by "him" (the system) and which was published without corrections in *The Guardian* (in fact, only a couple of tiny mistakes made it clear that the author was not an intelligent human).

<https://amp-theguardian-com.cdn.ampproject.org/c/s/amp.theguardian.com/commentisfree/2020/sep/08/robot-wrote-this-article-gpt-3>



We have *software* , more reliable than human experts, to determine, for example, the authenticity or falsity of the authorship of a painting.

<https://www.economist.com/books-and-arts/2021/01/09/new-tools-are-making-it-easier-to-authenticate-paintings>



Perhaps these machines are destined to become ultra-intelligent "beings". That we can CONTROL them in time begins to be desirable.

Although some relevant serious study, such as this one carried out in one of the German *Max Planck institutes* , concludes that we will not be able to

devise *software* that can control a SUPER-INTELLIGENT agent based on artificial intelligence. An intriguing result, and worrying.

<https://www.mpg.de/16231640/0108-bild-computer-scientists-we-wouldn-t-be-able-to-control-superintelligent-machines-149835-x?fbclid=IwAR2ZF6uQ-Ig0PF3K81u2qPvBFX2MYB7qYBQ5BXZLmqK7oySTc4gqCW-ug9Y>



COMBINE INTELLIGENCES

The future possibly passes through a COMBINATION of intelligences, the natural (human) with the artificial.

For going from trying to FIGHT against the machine to prospering COLLABORATING with the machine.

And the machine may " love *us* " because we give it something that it will not have: those DISTINCTIVELY human characteristics...

We may feel smarter than the machine...

YET...

<https://www-nytimes-com.cdn.ampproject.org/c/s/www.nytimes.com/2020/11/25/technology/ai-gpt3.amp.html>

But in any case, our best bet in a world of increasingly intelligent machines is to FINE our differentially human skills.



WHAT DISTINGUISHES A HUMAN?

This is a profound question, which cannot be answered precisely. But to point out THREE of the differentially human abilities, we can underline the following: CURIOSITY, which we are talking about here, EMPATHY, and TENACITY.



A very illustrative example of this creative capacity of the human mind can be found in the *Bee -Elephant project* in Mozambique.

To solve the problem of the destruction of crops by hungry ELEPHANTS, an environmentalist realized that these animals' fear of swarms of BEES could become a tool to prevent them from entering the fields, by placing hives on the fences that protected the fields.

An idea that, today, it is hard for us to imagine that an "intelligent" machine could generate.

<https://www.pbs.org/wgbh/nova/article/predators-fear-elephants-bees-gorongosa/>



Or, a second example, is it not that innate human curiosity that leads an engineer to ask himself the somewhat bizarre question of how to generate electrical energy in a solar panel... at NIGHT?

<https://www.cleantechconcepts.com/2020/03/solar-cells-to-generate-energy-at-night>

<https://pubs.acs.org/doi/10.1021/acsp Photonics.9b00679>



RE-EDUCATE BILLIONS OF HUMANS

In the coming years, we will change education to meet the challenge of the emergence of "intelligent" machines. Some say that the challenge is enormous, because we will have to "re-form" billions of people around the world.



In this sense, what happens in places like China, with its goal of turning tens of millions of workers into "lifelong learners", can radically transform what we mean by EDUCATING a human.

<https://www.mckinsey.com/featured-insights/china/reskilling-china-transforming-the-worlds-largest-workforce-into-lifelong-learners?cid=other-eml-alt-mgi-mck&hdpid=18c005a5-1fe8-4b79-b6f9-d35d7aeec891&hctky=1166133&hlkid=291e54339f334be1a4c8cc870f30228c>

8. FREEDOM

BAD TIMES FOR DEMOCRACY

These are bad times for democracy, all over the world.

The state of democracy has worsened in 2020, coinciding with the worst pandemic in a century.

The predominantly reddish color of this graph shows that most of the world is LESS FREE in 2020, in terms of democracy and human rights.

<https://www.economist.com/graphic-detail/2021/03/11/democratic-institutions-continued-to-weaken-in-2020>

<https://freedomhouse.org/report/freedom-world/2021/democracy-under-siege>



If we take into account the *Democracy Index* that publishes each year *The Economist Intelligence Unit*, the year 2020 was the WORST for democracy since they began to publish it, in 2006. Obviously, the limitation of rights that the pandemic has brought about has had its effect.



According to this index, 36% of the world's population lives under an authoritarian regime, 41% in democracies (*democracies*), and only 8% live in FULL democracies. In this classification, countries like France or the United States, usually put as the origin and example of democracy, are defective democracies.

The top five countries are Norway, Iceland, Sweden, New Zealand and Canada.

<https://www.eiu.com/n/campaigns/democracy-index-2020>



Despite this, it seems that democracies can still be saved, although they should not be trusted. As someone said at the time: “ *Freedom is not free* ”. Freedom has to be earned, and you have to work hard to KEEP IT.

<https://www.economist.com/leaders/2020/11/26/democracy-contains-the-seeds-of-its-own-recovery>



A QUESTION OF TRUST

In other editions of the Radical we have commented on the results of *Edelman 's annual global survey of citizen trust (its Trust Barometer)*.

In this survey, in which some 33,000 people from 27 countries participate, grouped into two large blocks, "informed" citizens and the "general population", the TRUST of citizens in governments, the media, companies is measured. and the NGOs .

<https://www.edelman.com/sites/g/files/aatuss191/files/2021-01/2021-edelman-trust-barometer.pdf>



In the 2021 edition, there are several relevant results. One is that there are few GOVERNMENTS that the citizens of the world trust. Germany is one of them; instead, only 30% of those surveyed, from 28 countries, trust that the Chinese government is “ *doing the right thing* ”.



The MEDIA is seen as unreliable (in fact, this year's study bears the suggestive title *Information Bankruptcy*, the "information bankruptcy"). 59% of those surveyed believe that the media seeks to confuse readers with information that they know in advance to be exaggerated or FALSE.



In this line, we must highlight different studies on how an INFODEMIC (a pandemic of incorrect or false information) has spread rapidly on a global level. It will have to be studied in detail to prevent it from happening in future health pandemics that may come to us.

<https://www.nature.com/articles/s41562-020-00994-6.pdf>



Going back to the *Edelman report* , another result is that in 18 out of 27 countries, citizens have more trust in COMPANIES than in governments.

Furthermore, 68% of those surveyed believe that companies, and especially their top DIRECTORS (CEOs), SHOULD cover, do, what governments do not do.



REINVENTING DEMOCRACY

But we can also expect a great deal of activity to re-think, transform our societies to achieve a higher QUALITY democracy.



Thousands of people all over the world are working in this direction. Ultimately, it is about restoring confidence in politics.

<https://www.youtube.com/watch?v=6UcFQ-eDhTk>



On the one hand, there are the CITIZEN LISTS, without affiliation or dependency on established political parties, and which for now are aimed especially at municipal elections in different European countries, especially France.

Although there are those who doubt its REAL effectiveness in giving citizens the answers they need, thus being able to become a real alternative to conventional parties.

<https://theconversation.com/listes-citoyennes-municipalistes-une-reelle-alternative-politique-140496>

https://www.wedemain.fr/dechiffrer/les-molieres-ville-laboratoire-de-la-politique-citoyenne_a4395-html/



We are also talking about CITIZENS' ASSEMBLIES (or councils), made up of citizens who are not elected but COMMITTED to solving specific problems in their local communities, as is already happening in cities and regions of France, for example, to try to resolve specific issues such as the covid-19 pandemic, or the local impact of climate change.

<https://www.france24.com/en/france/20210301-macron-s-direct-democracy-to-be-tested-as-citizens-panel-on-climate-wraps-up>

<https://www.theguardian.com/world/2020/nov/20/it-gave-me-hope-in-democracy-how-french-citizens-are-embracing-people-power>

Some citizens' assemblies in which its members are not elected by vote, but are chosen AT RANDOM, like the members of a Jury.

A model that is being seriously considered in some countries, even as proposals to reform the electoral system.

<https://www.electoral-reform.org.uk/what-is-a-citizens-assembly/>



For example, an interest is emerging to radically rethink the political system, to move from ELECTED parliamentarians to RANDOMLY CHOSEN parliamentarians. To avoid, they propose, that the elected leaders are completely distant from the people whom, in principle, they represent. It is not a new idea, the Greeks already applied it...

<https://www.ofbyforall.org/our-story>



9. DIGNITY

FREEDOM OR DIGNITY?

Dignity is also one of the words whose use is increasing. In the context of this Radical, the idea that we are interested in highlighting is that more and more people may demand DIGNITY, being willing to sacrifice their freedom for it.

Because in our Western society, with serious economic problems after the pandemic, and which will be compared with Asian success, especially with the Chinese, the population may not understand what FREEDOM is for if it does not guarantee DIGNITY.



We can ask ourselves if in the coming years we will see a decline in the ideal of freedom of democratic societies that favors the emergence of more authoritarian systems, which focus on ensuring a certain ECONOMIC dignity to the population.

In effect, it is about seeing how freedom and dignity coexist.

BOOK:

https://www.amazon.com/Economic-Dignity-Gene-Sperling/dp/1984879871/ref=sr_1_1?crid=1352XSTEOSREN&dchild=1&keywords=economic+dignity&qid=1615559144&sprefix=economic+dignit%2Caps%2C269&sr=8-1



BUT DO WE LIVE WITH DIGNITY?

The big question is whether we really live with dignity. Or better yet, who is TODAY guaranteed to live with dignity?



Is a society where RACISM has been the norm, for centuries, a society that guarantees human dignity?

<https://www.nytimes.com/2021/02/18/learning/what-students-are-saying-about-race-and-racism-in-america.html>



Is a society worthy that legally allows CHILD ABUSE, hiding behind a norm that reduces the age of sexual consent to 12 years, as has happened so far in the Philippines? Or at 13, like in South Korea (yes, that country admired for its innovation and economy); or at 14 like in China?

<https://www.economist.com/asia/2021/01/14/sex-with-12-year-olds-is-legal-in-the-philippines>



Is a society worthy with 22% of children at risk of SOCIAL EXCLUSION, as is the case in the European Union, and also in the United States, with the same figure of 22% curiously? And in both cases, they are OFFICIAL FIGURES, recognized by governments.

https://ec.europa.eu/eurostat/statistics-explained/index.php/Children_at_risk_of_poverty_or_social_exclusion



Is a society worthy in which LONELINESS becomes an epidemic? Where many people are not alone because they want to be but because they can't help it?

BOOK:

https://www.amazon.com/s?k=the+lonely+century&ref=nb_sb_noss



Is a society worthy in which BEING ELDERLY can become the worst of punishments, with deep loneliness guaranteed, although perhaps with minimal pensions that allow survival? With a loneliness that carries with it a low state of HEALTH, physical and mental.

<https://www.phillyvoice.com/elderly-americans-aging-dignity-and-meaning/>



Does this show the decline of ECONOMIC DIGNITY?



More harrowing still is the chronicle by Deaton (Nobel Prize winner in economics in 2015) and Case on the epidemic of middle-aged white workers who turn to drugs, alcohol and suicide in America, and now also in the United Kingdom, DESPERATE and without instruments that allow them to survive in a society that multiplies inequality.



In the United States, it went from 65,000 DEATHS OF DESPERATION in 1995 to more than 158,000 in 2018.

<https://www.economist.com/britain/2019/05/14/deaths-of-despair-once-an-american-phenomenon-now-haunt-britain>

<https://www.ifs.org.uk/inequality/united-states-of-despair/>

<https://www.ifs.org.uk/publications/14109>

BOOK:

https://www.amazon.com/s?k=deaths+of+despair&ref=nb_sb_noss_1



IMPROVING DIGNITY IS POSSIBLE

We know, therefore, of the thousands of deaths that are caused by the desperation that probably derives from the “evaporation” of the dignity of these people. Different studies that analyze this “epidemic” aim to determine its CAUSES in order to find ways to SOLVE IT.



In a more collective line, we can improve dignity by reducing isolation, that SOLITUDE that we have mentioned before. One way of doing this is by reinventing the HOME: going from living alone, or with the closest family nucleus, to living in larger groups.

<https://www.economist.com/international/2020/12/05/the-pandemic-may-be-encouraging-people-to-live-in-larger-groups>



In particular, this idea of group life makes special sense to attack the loneliness of the elderly. It is about SEVERAL GENERATIONS living in the same building, with shared activities, as is being explored in various countries, such as Sweden.

<https://www.theguardian.com/world/2020/sep/15/its-like-family-the-swedish-housing-experiment-designed-to-cure-loneliness>



But TECHNOLOGY will also help. For example, allowing people with some type of dementia to go 24 hours a day to a digital AVATAR of their most beloved family members (an avatar that responds with the voice of the family member, and is trained to hold elementary conversations).

<https://www.elovee.com/>



BIOCHEMISTRY will also contribute, with substances that slow down the deterioration of the mind, and that help us maintain, or even recover, lost memory.

[https://medicalxpress-com.cdn.ampproject.org/c/s/medicalxpress.com/news/2020-12-drug-reverses-age-related-cognitive-decline.amp](https://medicalxpress.com.cdn.ampproject.org/c/s/medicalxpress.com/news/2020-12-drug-reverses-age-related-cognitive-decline.amp)



But it is also necessary to develop actions at the COLLECTIVE level. To guarantee the dignity of people, a new SOCIAL CONTRACT will be required.

As well as reinventing the SOCIAL PROTECTION NETWORKS (pensions, health system, job opportunities at all ages, etc.) to radically rebuild the WELFARE STATE that we have been lucky enough to know (and that perhaps we will see die...).

<https://www.economist.com/leaders/2021/03/06/how-to-make-a-social-safety-net-for-the-post-covid-world>



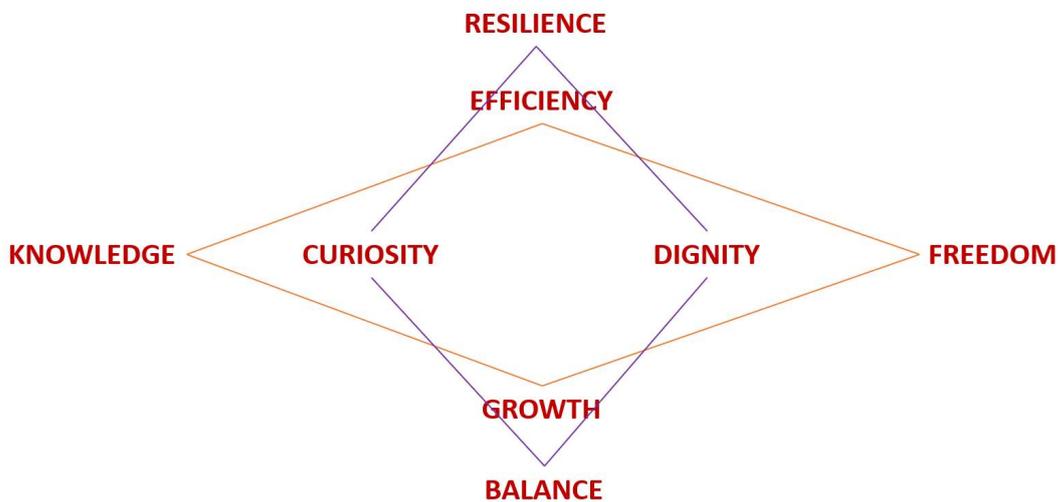
10 . HOW TO REDEFINE PROGRESS

THE NEW COMPONENTS OF PROGRESS

So we have commented on how what we had considered up to now as four main components of progress (efficiency, growth, knowledge and freedom), may give way to, or be complemented by, four other NEW components



resilience , balance , curiosity and dignity.



CONCLUSIONS

This, then, is our vision of how progress will be able to MOVE FORWARD in the near future (in what we have called elsewhere “ *Future Present* ”), thanks to these new four components of PROGRESS that we have proposed in this RADICAL8.

I hope that these ten blocks of ideas and examples from RADICAL8 will be useful to you.

And remember that there is no more future than the one that EACH ONE OF US works, day by day, with our own hands.

THANKS A LOT