TOWARDS A NEW DEVELOPMENT MODEL

STRATEGIC REPORT 2019/2020

Under the direction of Mohammed Tawfik MOULINE,
Director General of the Royal Institute for Strategic Studies

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ROYAL VISION

Since His accession to the Throne, His Majesty King Mohammed VI has endeavored to consolidate the foundations of an open and inclusive democratic society, which promotes citizen development and places citizens at the heart of the development process.

In order to fulfill this goal and remove obstacles to its implementation, on the one hand, and to harness and act on internal and external changes, on the other, a national endeavor is currently underway with the aim of rethinking Morocco's political, economic and social model on the basis of an integrated vision, devised according to a new approach and involving all of the nation’s vital forces.

This is a comprehensive and bold vision of development encompassing all areas, aimed at achieving social and territorial justice, providing youth with its rightful place to unleash its full potential and abilities, enhancing public sector efficiency and boosting private investment.

The ambition is to transform mentalities and to rethink development so as to formulate an innovative model for building the Morocco of tomorrow, and whose implementation will enable Morocco to join the ranks of advanced nations, in keeping with His Majesty King Mohammed VI's ultimate wish.

ROYAL VISION (2)

"... In recent years, **our development model has proven to be inadequate in terms of helping us meet the growing needs of a segment of the population, reduce social inequalities and tackle regional disparities**. For this reason, I have called **for revisiting that model and updating it**.

... I have therefore decided to set up an **ad-hoc committee for the development model**. God willing, I will inaugurate that committee in the autumn.

As regards membership, I have seen to it that the committee includes representatives from various fields of knowledge and intellectual currents, including prominent Moroccans from the public and the private sectors **who meet the requirements of competence and impartiality, who are able to feel the pulse of society, who understand its expectations and who have the nation's best interests at heart**.

... It will have to take into **consideration the major reforms introduced-as well as those to come**-in a number of sectors, such as education, health, agriculture, investment and taxation. The committee is expected to make suggestions on how to improve these reforms and increase effectiveness.

... This is not about a break with the past. Rather, we want to add a new building block to our development agenda, as part of a continuing process.

ROYAL VISION (3)

… Revamping the nation's development model is not an end in itself. Rather, **it is a gateway to a new era**-one into which, with God's help, I intend to take Morocco.

It is a new phase, whose distinguishing features will be r**esponsibility and the pursuit of a comprehensive take-off**.

Our main ambition is for Morocco to join the ranks of developed nations.

… Nevertheless, the new era we are about to enter is fraught with internal and external challenges to which we must rise. They include the following in particular :

- Firstly : **the challenge of enhancing trust and consolidating achievements.**
- … Secondly, **the challenge of avoiding isolation.**
- … Thirdly, **the challenge of accelerating economic development and enhancing institutional efficiency.**
- … Fourthly, **the challenge of social and regional justice."**

Excerpt of the Royal Speech delivered at the 20th Throne Day, July 29th, 2019.

ROYAL VISION (4)

"... By calling for a review of that model, we are seeking more than just isolated sectoral reforms, or a **reshuffle of certain economic projects and social programs**.

In fact, we are aiming f**or an integrated vision to shape not only a model for the achievement of the country's political, economic and social development, but also a system for full-fledged central and local governance**, including the legal system underpinning it. This vision should provide strong impetus for the new model, help overcome obstacles hindering its development and address weaknesses and gaps revealed by past experience.

In this regard, all stakeholders should take into account the societal changes occurring in Morocco and, as a result, place the **youth issue at the heart of the desired development model**.

... I firmly believe **that the success of any vision hinges upon a change in mentalities**. This is the only way to continue promoting the development the country is witnessing in various sectors and at the same time **to set the stage for a new culture** based on entrepreneurship, self-reliance and accountability.

ROYAL VISION (5)

With the same resolve, **we need to focus on reforming public administration**. No meaningful economic and social development is possible if public service institutions do not discharge their mission properly in terms of serving the citizen and promoting investment, especially as regions, local governments, investment centers and other parties are playing a growing role in spurring development.

At the same time, we should strive harder **to engage the public and private sectors in innovative, effective partnerships** to promote comprehensive development.

I must insist, once again, that **revisiting the Moroccan development model is an issue which concerns all Moroccans and all of the nation's forces**-individuals, institutions, political parties, trade unions, civil society and professional institutions.

... I expect this collective effort (...) signal **a real break** with practices in which time is wasted, development opportunities are lost, reforms impeded and creativity and innovation stifled."

Excerpt from the Royal Message addressed to the participants in the 3rd Parliamentary Forum on Social Justice, on 19 February 2018

ROYAL VISION (6)

"... I call upon the government, Parliament and all the institutions and organs concerned-each in its respective fields of competence-to reconsider our development model in order to keep abreast of changes in the country.

Using a participatory approach similar to the one we adopt on key issues, such as the amendment of the Constitution or advanced regionalization, I call for all national stakeholders, committed actors and the nation's driving forces to be included in this endeavor.

I also recommend objectivity and calling a spade a spade, without flattery or embellishment. I call for innovative, bold solutions, even if that means going into uncharted territory or causing a political earthquake.

I want this to be a collective national pause to address issues and problems that are troubling Moroccans. I want it to foster awareness of the need to change mindsets that stand in the way of achieving the comprehensive progress to which we aspire ...."

Excerpt of the Royal Speech delivered at the opening of the 1st session of the 2nd legislative year of the 10th legislature, October 13th, 2017.

FOREWORD

In 2015, the Royal Institute for Strategic Studies (IRES) launched a new series of strategic reports : "Morocco's Panorama in the World". The common feature of these annual strategic reports is that they showcase a given situation as a whole, thus providing a broad perspective.

The first in this series examined major transitions underway at the global level and their impacts on Morocco, in terms of opportunities to be seized, risks to be averted and disruptions to be anticipated. The second edition of Morocco's Panorama in the World was dedicated to the Kingdom's international relations, based on the Guidelines set out in the Royal Message of 30 August 2013, calling on the Institute to devote its efforts to Morocco's external relations and diplomatic matters.

The third Panorama (2017) addressed the crucial issues of climate change and ecological footprint*, in the run-up to Morocco's hosting of the United Nations Climate Conference "COP22". The fourth Panorama (2018) focused on autonomous development in Africa, a view in favor of which His Majesty King Mohammed VI has consistently advocated.

In keeping with IRES' interest in global competitiveness and intangible capital issues, the 2019/2020 strategic report focuses on global systemic issues and their relevance to the reflection on Morocco's new development model. This model, intended to promote the well-being of Moroccans, is a contribution by IRES to the thinking on this issue, in accordance with His Majesty's Guidelines.

In the Parliamentary Opening Speech of October 13, 2017, His Majesty King Mohammed VI called for the renewal of Morocco's development model in view of the "magnitude of (social) shortcomings" and means by which social and territorial justice is to be achieved. In the current context of change, a new direction for the Kingdom of Morocco is required to guide necessary transformations, while breaking with governance practices which have hindered the full implementation of strategic commitments.

FOREWORD (2)

According to the United Nations, a development model is "a blueprint to be followed in order to foster the progress of a people. It is a frame of reference for policy-makers in charge of developing a country's public policies. By formulating or implementing a development model, the government seeks to improve its population's economic and working conditions, ensure access to health and education and provide security, inter alia. The purpose of a development model is to improve quality of life" (1).

Devising a new development model is a major challenge, given the complexity of the matter and diversity of scales of analysis. **IRES' approach in the matter is singular** as the Institute's thinking is not merely national in scope but also reflects ongoing regional and international transformations.

The leapfrog* **strategy** is central to this reflection, given the urgency of addressing challenges such as climate change, increasing scarcity of natural resources, sharp demographic growth, particularly in Africa, and the severing of the link between economic growth and job creation, which means leapfrogging traditional steps and finding alternative paths ahead.

Several studies have shown strong convergence between purely economic and societal developments. In a volatile, uncertain, complex and ambiguous world, it is no longer possible to design an economic model that fails to meet people's aspirations. Otherwise, social peace could be jeopardized and the very sustainability of economic activity threatened.

FOREWORD (3)

Hence the expression **"generic development model*"** to describe a model built on new economic and human fundamentals and based on **four pillars** (two structural and two instrumental) :

- People at the heart of development ;
- Humankind's relationship to nature ;
- Planetarization, i. e. the combination of the local and the global from a new "glocalization*" perspective ;
- "Exponentiality" in which processes are not so much "adapted" to digitalization* but rather, rethought for the purpose of genuine "digital optimization."

Given the inherent nature of its pillars, the generic development model*, which could be adopted by countries seeking to renew their development model, is a post-globalization model.

Adapting it to the national context results in **a new development model for Morocco**, which incorporates achievements to be consolidated, weaknesses to be addressed and risks to be anticipated.

This new model must be rooted in the vision for the future embodied in the Strategic Guidelines set out in His Majesty King Mohammed VI's Speeches and Messages.

Rather than reproducing an outdated model which has become ineffective given the drastic changes of the past thirty years, it is time for Morocco to seek a new path, capable of ending its difficulties and triggering a new virtuous circle, which, once again, underscores the importance of adopting a leapfrog* strategy.

FOREWORD (4)

Any necessary changes should not solely rely on the identification of dysfunctions and constraints. Rather, the task is to spell out the content of reforms to be undertaken and devise appropriate solutions.

Far from constituting a business model, Morocco's new development model must be predicated on clearly stated philosophical assumptions, such as the importance of nature and the uniqueness of humankind.

The model is pragmatic and focused on implementing tangible solutions on the basis of an assessment of ongoing changes both nationally and internationally. Moreover, this model should be resolutely forward-looking, as it is rooted in a macro-historical analysis of current developments as a means of shaping the future and not reproducing the past.

In addition to a preliminary chapter which explores the macro-historical, global and national contexts in which the generic development model* is embedded, this report is divided into five chapters. The first chapter highlights the importance of governance, placing it at the heart of this model.

The other chapters outline the four pillars of the generic development model* and highlight how this model can be applied to Morocco in the **"Proposing"** section.

The methodology used in this report is a foresight meta-method (2) comprised of three stages : **Understanding, Anticipating** and **Proposing**, around which the report is structured.

This report contains a large number of graphical illustrations, special highlights and text boxes. It underscores some best practices in several countries around the world. A list of bibliographical references, a bilingual glossary of technical terms and a lexicon are attached. The lexicon provides a precise definition of the words and concepts marked with an asterisk.

Mohammed Tawfik MOULINE
Director General of the Royal Institute for Strategic Studies

PRELIMINARY CHAPTER

The proposed development model is built on the observation of different emerging movements around the world. It may serve as a reference framework for countries wishing to renew their development model. Its application to any particular setting, however, is contingent upon adapting it to the context, in time and space, of the place in question.

The current context presents a number of specific features which must be taken into account when considering a new development model.

1 MACROHISTORICAL CONTEXT

Since the turn of the 20th Century, great thinkers such as Pitirim SOROKIN (3) and Edgar MORIN (4) have heralded the imminent advent of a major new transition in the history of human civilizations. In the early 21st Century, the majority of intellectuals agree that this movement has already begun, probably since the 19th Century.

This Great Transition (5) from a world that is now well known to another still in the making is characterized by a set of phenomena, either emerging or resulting from exacerbated trends or structural change factors, blurring our grasp of current developments and significantly increasing their overall complexity.

The current period, which is very specific within a major transition, is described as volatile, uncertain, complex and ambiguous. It is a pivotal phase during which everything can change, including what is perceived as most stable, because forces of resistance to change are commensurate with aspirations for a new world. Moreover, the shift may affect natural balances through cumulative effects, which are currently overlooked : accelerated melting of ice and its impact on sea level rise, on the circulation of currents in the oceans, etc.

Against such a turbulent backdrop, it is important that all countries embark on an adaptation process to overcome this structural crisis with a minimal amount of damage. The first countries to adapt will be best equipped to transition successfully. Conversely, those who adapt late will run a high risk of not being able to survive this necessary transformation. Hence the importance of changing development models in time so as to mitigate the damage inflicted by this volatile, uncertain, complex and ambiguous period.

2 GLOBAL CONTEXT

These developments are currently visible on the international scene. China's rise to prominence in most economic sectors and the emergence of a global middle class (see Box No. 1) have disrupted the former international division of labor (see Figures 1 and 2).

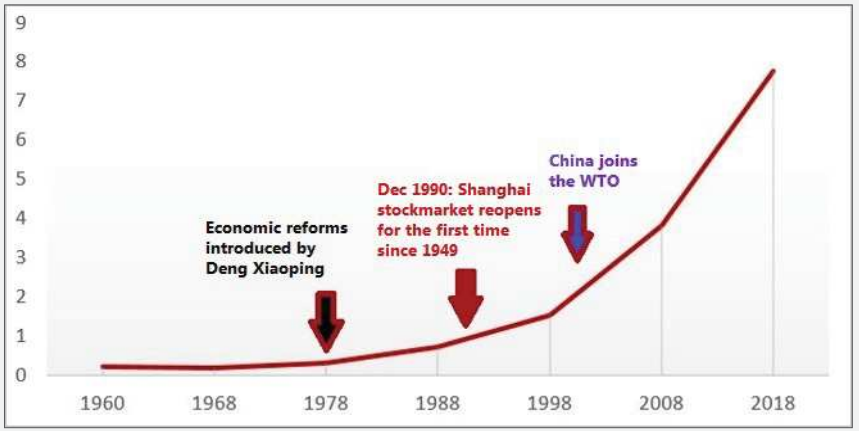
Box No. 1 : Definition of the middle class (6)

The middle class is a social class construct, based mainly on standard of living and for which there is no universal definition.
Some institutions distinguish between a lower middle class and an upper middle class.

According to the Organization for Economic Co-operation and Development (OECD) (7) the middle class is represented by people with incomes between 75% and 200% of the median income.

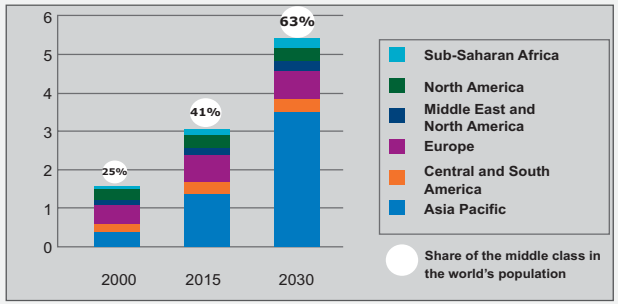
According to the French *Observatoire* des *inégalités* (8), the middle class is composed of the population between the poorest 30% and the richest 20%.

Figure 1 : Evolution of GDP per capita in China (in thousands of constant 2010 US dollars)



Source : IRES analysis based on IMF and World Economic Forum data _ _ https ://www.weforum.org/agenda/2015/07/brief-history-of-china-economic-growth/

Figure 2 : Size of the middle class (in billions of people) and its share in the world population



According to Homi Kharas, the middle class is comprised of people with incomes between $11 and $110 in 2011, in purchasing power parity.

Source : IRES processing _ Homi Kharas, The Unrecedented Expansion of the Global Middle Class, Global Economy a Development Working Paper, 100, February 2017. Brookings

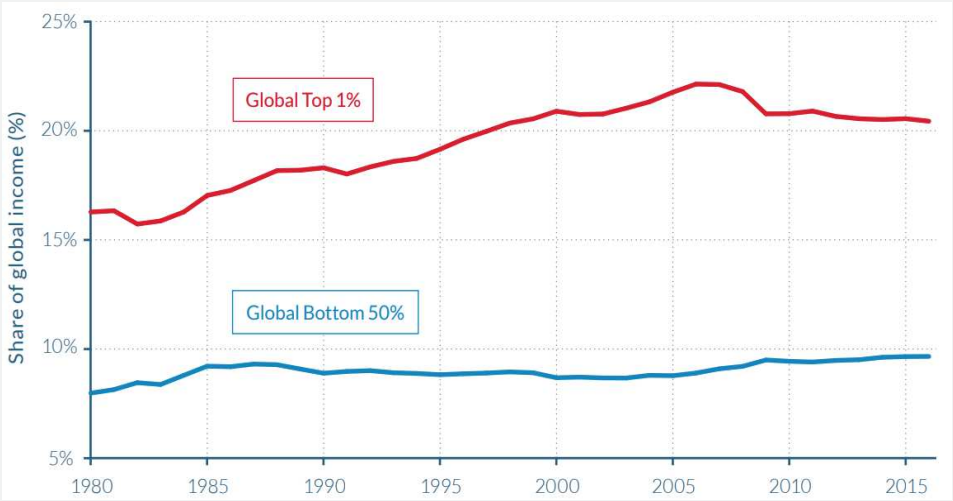
2 GLOBAL CONTEXT (2)

Social inequalities are constantly deepening (see Figure 3) as the number of "divides" -generational, digital, educational, territorial- grows. This trend is exacerbated by deteriorating natural resources (ecosystem services*, food, drinking water,...) which directly impacts citizens' purchasing power.

As the West gradually wanes, emerging countries are moving forward but remain nevertheless vulnerable. They are confronted with new challenges such as climate change, an aging population and an open economy. Meanwhile, international tensions are mounting, driven to varying degrees by three major regional powers : the United States, China and Russia, as the European Union seems increasingly fragile.

The rapid development of digital technologies, from smartphones to artificial intelligence*, is questioning the role of human beings in today's productive system. Forms of labor are becoming more diversified. The Fordist model is obsolete. From start-ups to one-man businesses, companies everywhere are on a quest for new forms of social and productive organization.

Figure 3 : The rise of the global top 1% versus the stagnation of the global bottom 50%, 1980–2016



Source : World Inequality Report, 2018, See wir2018.wid.world for data series and notes /

3 FOUR MAJOR DISRUPTIONS

Although built on structural macrohistorical fundamentals, the new development model put forth in this report reflects the need for adaptation to current major disruptions. Four clusters of disruptive trends underpin this model, drawing on the limits of the mainstream capitalist economy and ongoing societal and technological shifts.

3.1 From value to values

The discourse surrounding value is reaching its limits. Indeed, the societies of most major economies have transformed everything into value : value created, use value, exchange value, financial value, recyclability value, inclusive value, competitive value... The notion of value only serves to increase the commoditization of all human activities.

However, the commoditization of time by wage labor and of money by speculation has led to a stalemate in the current socio-economic system*. The omnipresence of work, to the detriment of family life, has considerably weakened social cohesion. The monetarization of all human activities and the means to achieve them, including soil and water, has led the poorest to increasingly rely solely on illegal economic activities.

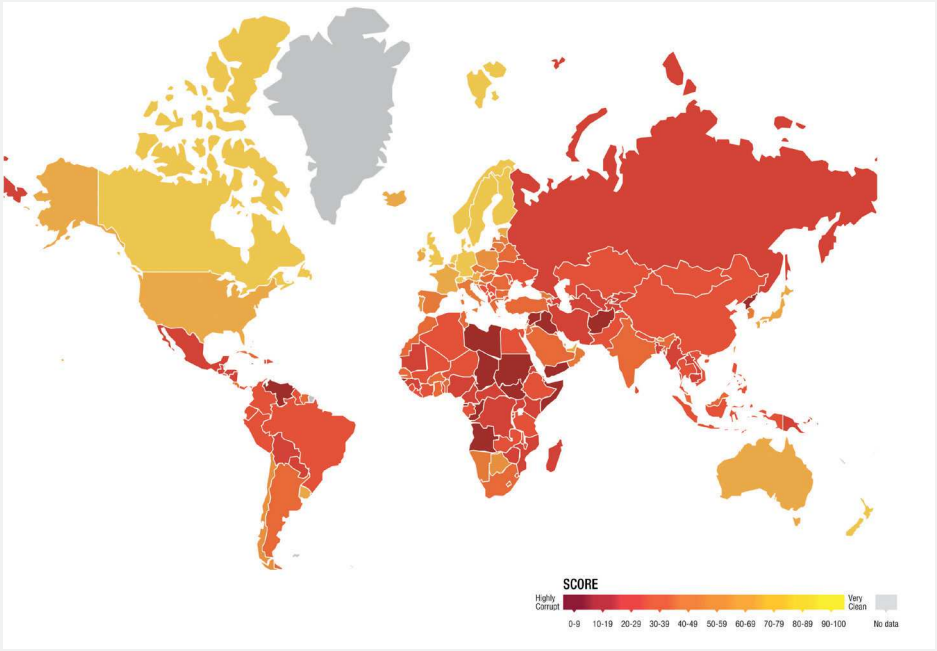
Source : https ://comeniusviolaproject.weebly.com/our-values2.html

3 FOUR MAJOR DISRUPTIONS (2)

Over the past few decades, the rise of community movements-from community spaces to local exchange systems* (LETS) - has been driven by an urge to reclaim other economic as well as moral foundations. Human values are once again central to the recruitment of employees, while ethical values are gaining momentum, particularly as a response to corruption (see Figure 4) and failures in social networks.

Concurrently, in contrast to identity-driven tensions manifested by the radicalization of certain movements (nationalism, sexism, fundamentalism, etc.), another trend is also emerging, fueled by the world's middle class, advocating a rejection of violence, respect for the human person-irrespective of their characteristics and choices so long as they respect others-tolerance, equal treatment and opportunities, transparency and justice, freedom and accountability....

Figure 4 : Corruption Perceptions Index*, 2018



Source : Transparency International, 2019

3 FOUR MAJOR DISRUPTIONS (3)

The prevalence of openness and tolerance values tends to curtail common practices based on hierarchical authority, compartmentalization, secrecy, unequal treatment or even injustice, aggressive behavior (incivility), in both organizations and human societies,... thus motivating the emergence of alternative forms of communities and organizations (start-up, self-employment).

Therefore, these human values, which are central to this new development model, supersede "value," in the economic sense of the word.

Source : http ://boostthyself.com/learn-human-value/

3.2 Ending the predatory economy

The unrestrained exploitation of nature by mankind has led to three major upheavals which will shape the 21st Century : large-scale climate change, the depletion of natural resources and related imbalances such as desertification. Putting an end to a production system based on the inexpensive acquisition of resources from the South by the North is a pre-condition for curbing the predatory economy.

Source : https : subliminalsensibility.wordpress.com/2018/12/06/alain-badiou-capitalism-is-the-sole-culprit-of-the-destructive-exploitation-of-nature/

3 FOUR MAJOR DISRUPTIONS (4)

Exploitation of nature

Source : Rediscovery of frogs belonging to the enigmatic microhylid genus Madecassophryne in the Anosy Massif, south-eastern Madagascar, October 2017

New forms of economic and social organization, which are more heedful of nature and of human beings, are emerging, albeit on a limited scale, such as permaculture*, short supply chains, recycling, the reduction of food waste that accounts for up to 30% of global food production..... Consumer boycotts, transparency requirements and civil society's demands for bans on certain products are a manifestation of the growing attention paid by individuals to what they consume, their concern for their health and nature, but also for ethical production conditions, such as banning child labor.

Source : https ://www.supplychaininfo.eu/piliers-developpement-durable/

3 FOUR MAJOR DISRUPTIONS (5)

While no one at present is able to outline the definitive form of the economic model to come as a substitute for the current one, some of its characteristics are nevertheless clear :

- **Strong ethical rules** to combat corruption, speculation and waste, measures to promote recycling, fair redistribution of natural and financial resources, reduction of generational and gender inequalities, etc.…
- Nationally, **a better balance between products stemming from global value chains**, which are the result of mutualized manufacturing, such as the automotive industry, for example, and **local products**, particularly agricultural goods, characterized by short supply chains and optimized through data analysis. This should contribute to reducing both soaring food prices and imports of consumer goods, the sheer volume of which is sometimes detrimental to local producers.
- **Greater autonomy** for small and medium-sized enterprises, access to sustainable business creation and self-employment, thanks in particular to better support from public authorities, direct market access through platforms and diversification of financing sources : crowdfunding (see Highlight No. 1), corporate patronage, local savings.
- **Restructuring of the entire production/distribution chain** due to the expansion of the outcome economy* (see Chapter 5-1.2.1), increased use of automation, data (*big data*, *data analytics**) and additive manufacturing and lastly, the expansion of the quaternary sector.

In summary, four key public policy areas constitute the main focus of action to end the predatory economy : governance (ethics), geopolitics (international trade), education (training, mentoring) and economics. Ultimately, the financial sector deserves particular attention given its significant role (see below).

HIGHLIGHT N°1

Crowdfunding (9)

Crowdfunding is a recent phenomenon in the world of market finance. It emerged in the wake of the 2008 financial crisis, in response to growing difficulties faced by start-ups and small businesses securing funds from the mainstream banking system. This funding mechanism is therefore still in its infancy, although it is growing exponentially. More tangibly, between 2009 and 2015, the overall volume of Crowdfunding increased from $0.53 billion to $34.4 billion.

Figure 5 : Crowdfunding industry by regions in 2015 ($ billion)

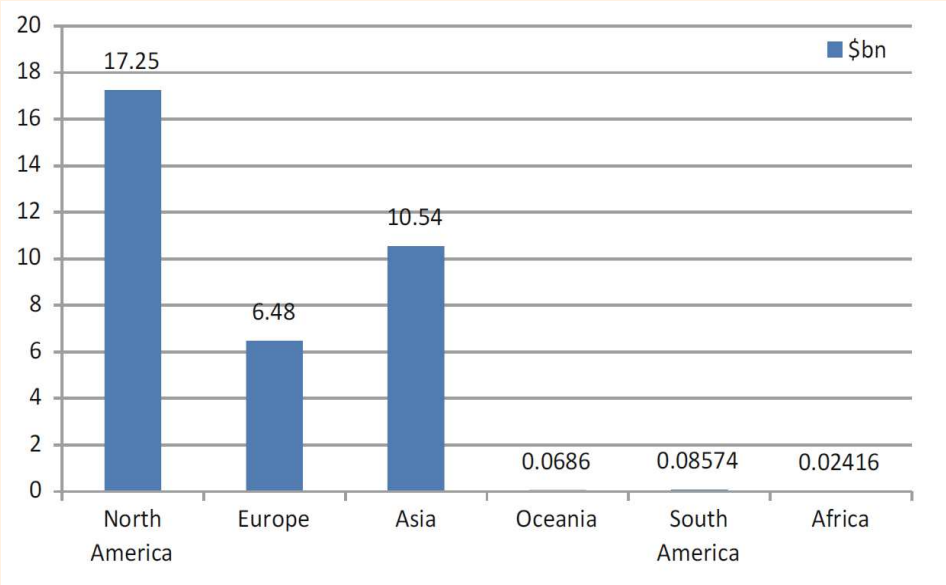
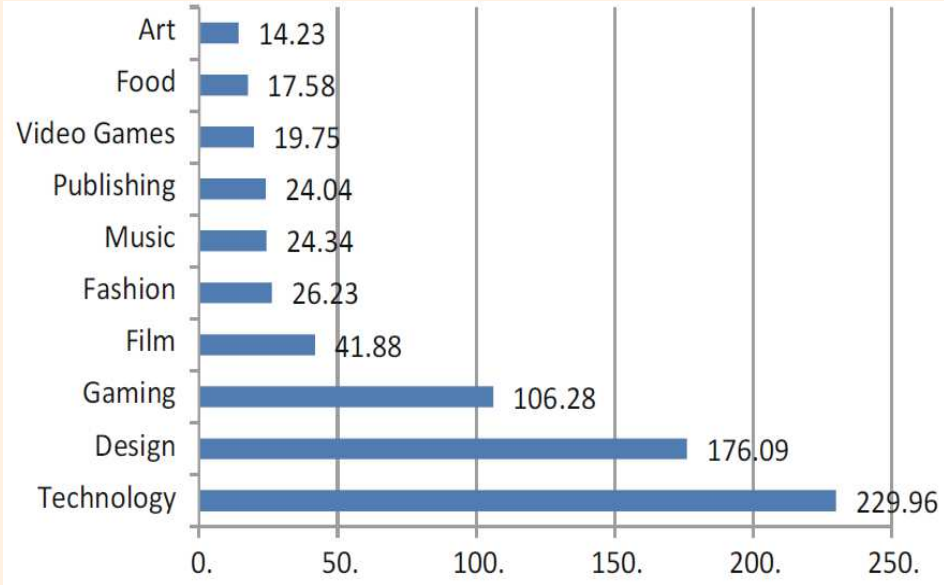


Figure 6 : Amount of money raised by crowdfunding globally, by sector, in 2016 ($ million)

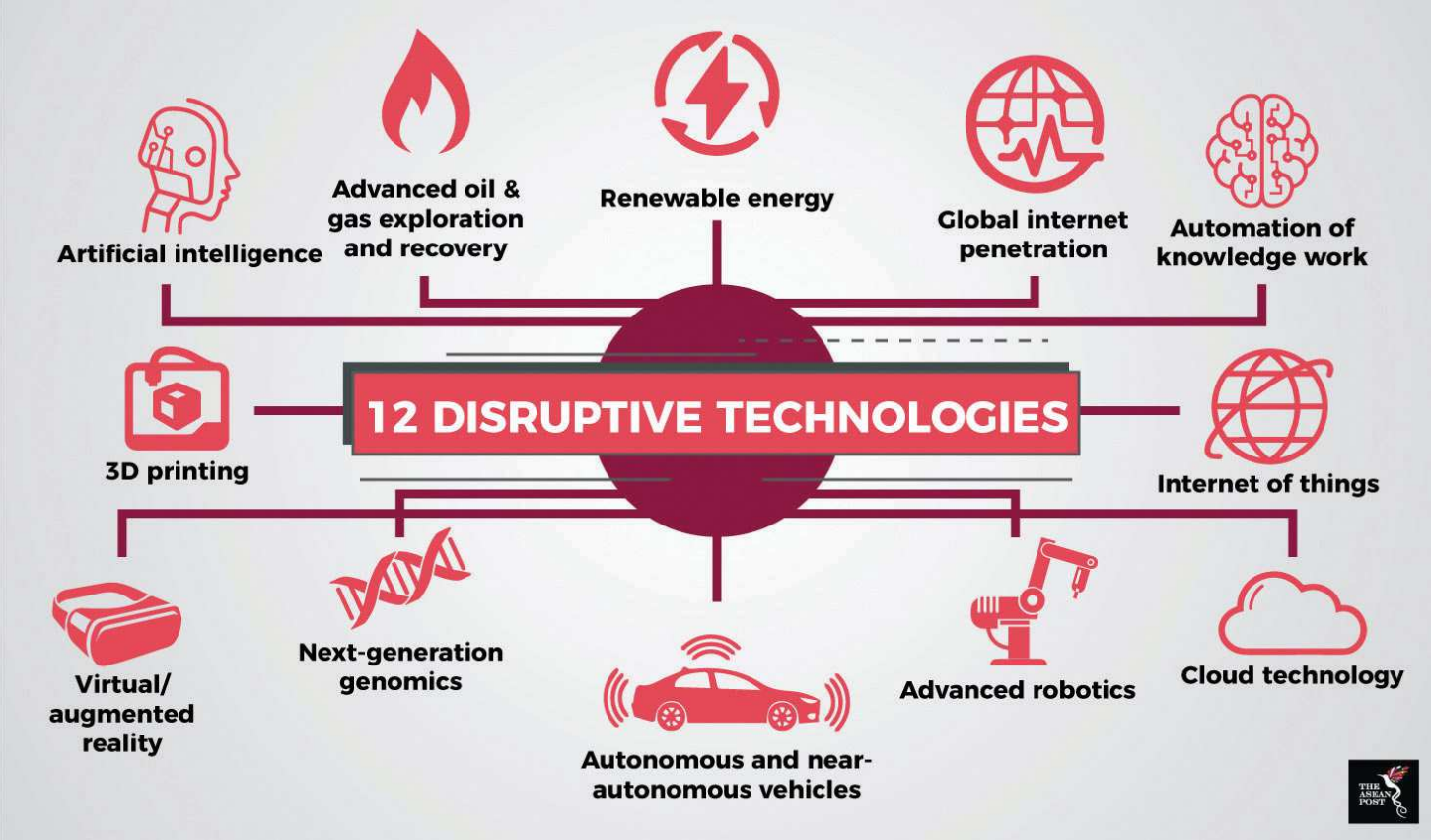


Source : Bishnu Kumar Adhikary, Kenji Kutsuna, Takaaki Hoda, Crowdfunding : Lessons from Japan's Approach, Singapour, Springer, 2018, pp. 21-37

3 FOUR MAJOR DISRUPTIONS (6)

3.3 Proper use of disruptive technologies

A disruptive technology is a new instrument, physical or virtual, whose use may bring about a major shift in current ways of doing, living and thinking (see Best Practice No.1).



Source : https ://theaseanpost.com/article/how-disruptive-technologies-are-transforming-southeast-asia

BEST PRACTICE N°1

Drones and genetics against drought (China, United Kingdom and Switzerland) (10)

"In 2050, more than 9 billion people will need to be fed in a context of shrinking agricultural manpower. To improve crop productivity, farmers have their sights set on the world famous Crispr-Cas9* molecular scissors, which enable DNA in living cells to be modified through the insertion of a gene or a mutation. Research is underway in China and the United Kingdom, where barley has been made more drought-resistant.

Another disruptive technology is the combination of agronomic modeling with artificial intelligence* and connected objects to better predict yields and optimize the use of inputs. Examples include Switzerland's AgroFly, China's Sinochip and France's Parrot. The latter is a partner of Airinov, a service provider that uses drones with multispectral sensors to detect plots in need of water or count the number of seedlings, using artificial intelligence algorithms*."

Source : DJI MG-1S-Agricultural Wonder Drone

3 FOUR MAJOR DISRUPTIONS (7)

A brief overview reveals the significance of several ongoing technological breakthroughs :

- **The transition from carbon-based energy to renewable energy,** particularly solar energy, from thermal power plants to micro-grids, from traditional engines to electric mobility (cars, planes, boats) and the effort focused both on power storage and on further reducing machine energy consumption.
- **The introduction of additive manufacturing,** which is now rapidly expanding in fields as diverse as medicine (prostheses and, soon, artificial bones and organs), construction (see Highlight No. 2), oceanography (underwater reefs) and automobiles (bodywork and engine).
- Advances in artificial intelligence* and sensor perception, including cobots (robots interacting with humans) drones, blockchains (see Box No. 2) and the Internet of Things (see Box No. 3), which enable inter-machine communication, have led to the **development of a vast and increasingly sophisticated virtual and physical field of "robotics"** (see Figures 7 and 8).

HIGHLIGHT N°2

Construction of buildings with 3D printing* (11)

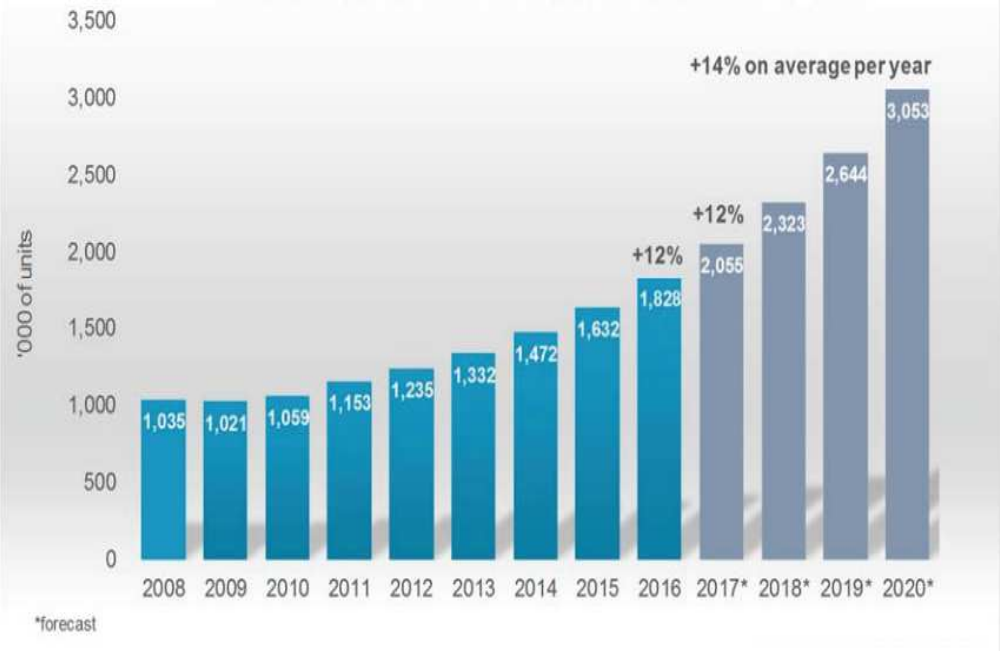
"According to *MarketsandMarkets*, 3D* concrete printing of building components, and even of houses and buildings, is expected to generate $43 billion in revenue by 2025. An average house is printed in three or four days instead of built in two weeks. In addition, noise and risk reduction on site are minimized. Similarly, additive manufacturing saves raw material and reduces environmental footprint."

Small house printed in 24 hours

Source : https ://www.lesimprimantes3d.fr/maison-imprimee-24h-russie-20170308/

3 FOUR MAJOR DISRUPTIONS (8)

Figure 7 : Evolution of estimated worldwide operational stock of industrial robots



Source : IFR World Robotics 2017, Executive Summary

Box No. 2 : Blockchain (12)

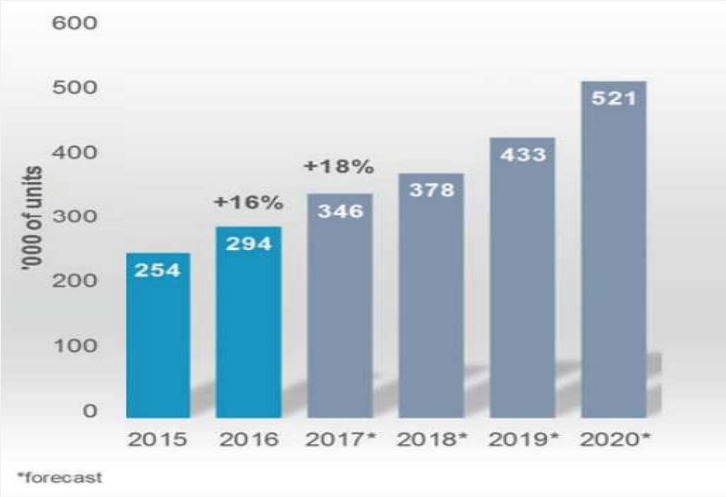
Blockchain, is a distributed and secure ledger containing a record of all exchanges since its creation. It is shared between its various users, called nodes, without any third party or central authority, allowing everyone to access transactions.

Each transaction is recorded in blocks and each block is linked to the previous one. Transactions of blocks are unchangeable : modifying one of them requires modifying all approved blocks.

Blockchain is a peer-to-peer system* whose reliability, in the absence of a central authority, depends on its number of users and their willingness to preserve the system. Blockchain networks produce crypto currencies such as Bitcoin to encourage as many users as possible to use blockchains and thus create a viable and resilient community, albeit somewhat at the expense of the collective as embodied by the State.

3 FOUR MAJOR DISRUPTIONS (9)

Figure 8 : Evolution of estimated worldwide supply of industrial robots



Source : IFR World Robotics 2017, Executive Summary

Box No. 3 : The Internet of Things (13)

The Internet of Things is a network of objects that are clearly identified, equipped with intelligent software and sensors, and constantly connected to the Internet.

It allows these objects to exchange information with the manufacturer, operator or other devices connected to the Internet. It makes physical objects detectable and allows them to be controlled remotely, via the Internet, thus accelerating integration between the physical world and computer systems.

Both the world of business and technical experts agree on the exponential increase in the number of objects connected to the Internet. According to Gartner, 20 billion devices will be in use by 2020. Cisco estimates this number at 26 billion.

The notion of object in this context must be interpreted broadly. Such objects include devices, sensors and machines, but also living beings, whether human, animal or plant. The main idea is to reach all these objects, monitor or control their functionality and collect as much data as possible in order to improve service and product efficiency.

3 FOUR MAJOR DISRUPTIONS (10)

- **Dematerialization technologies** (e-commerce, music, books, television, data media, etc.) such as voice-over-IP, cloudification*, 5G and fog *computing** to meet the needs of mass connectivity, data storage, *spatial computing*, etc.

Source : https ://medium.com/@victoragulhon/what-is-spatial-computing-777fae84a499

In response to these emerging disruptions, ***the leapfrog** **strategy** is a way of bypassing the need to learn techniques that will soon be obsolete, and focusing on those of the future. Hence the importance of clearly establishing the way forward and defining a development model in order to set some key priorities, particularly in the area of key technologies.

It is indeed crucial not to underestimate **the acceleration of technological evolution** (miniaturization, embedded intelligence, machine self-learning, etc.) resulting from the combined effect of open data and the growth of a global educated population.

3 FOUR MAJOR DISRUPTIONS (11)

3.4 Re-valuing mankind

Faced with the threat of a **jobless world** posed by increasing automation and the deployment of capabilities in ever-widening fields of artificial intelligence* and, more broadly, material and virtual robotics, the question of humankind's place in this world has suddenly become of paramount importance.

In fact, the matter had already been raised in social sciences in both northern and southern countries in the early 2000s : in the North, in view of population ageing and **declining social cohesion** and, in the South, in particular, given younger generations' break with traditions of community solidarity and more broadly because of **widening social inequality**. As a result, a perception of the state of world and its operating processes which are increasingly diverted from the well-being of human beings has become dominant.

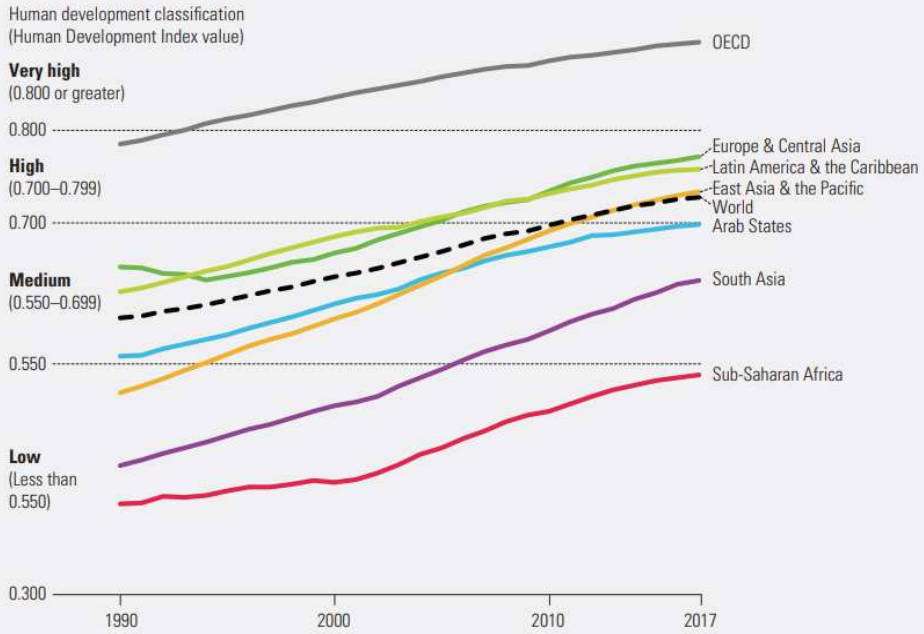
Against this background, how can we reassess the value of human beings in the current economic system ? Hyper-competitiveness based on labor cost as an adjustment variable offers few sustainable solutions. Large companies have the means and, above all, the will to refocus their human resource policies on "well-being at work" and "customer experience" as well as on corporate social responsibility* (CSR), unlike the vast majority of SMEs and mid-cap companies.

3 FOUR MAJOR DISRUPTIONS (12)

In addition, despite the pleas made by economist Amartya SEN since 1999, the progress of freedom (14) and human development (see Figure 9) in most nations remains slow. Nevertheless, **the ethics of care** are gradually gaining ground, although not rapidly enough to meet the growing needs of the elderly and the poorest in particular.

Hence **the rise** on all continents **of so-called alternative movements** including renouncing the security provided by wage labor and embracing the constraining freedom of independence (*gig economy** - see Figure 10), the development of the so-called-bottom-of-the-pyramid economy, alter-globalization communities, Positive Planet* or Make Sense* projects, and the reorganization of corporations along fundamentally new principles, such as in the case of Buurtzorg (see Box No. 4).

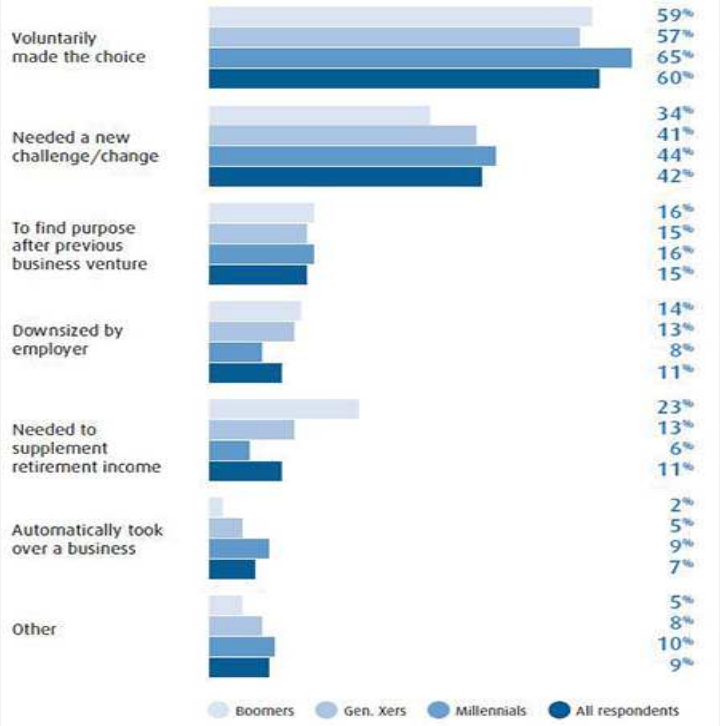
Figure 9 : Human Development Index, 1990-2017



Source : Human Development Indices and Indicators : 2018 Statistical Update
http ://hdr.undp.org/sites/default/files/2018_human_development_statistical_update.pdf

3 FOUR MAJOR DISRUPTIONS (13)

Figure 10 : Top 10 reasons for joining the GIG *economy



Boomer (15) : A person born in the West during the baby boom period after the Second World War. A baby boomer is generally considered to be born between 1946 and 1964.
Generation X (16) : refers to the group of Westerners born between 1966 and 1976, as classified by William Strauss and Neil Howe. Other specialists define it as the period from 1961 to 1981.
Millennials (17) : also known as Generation Y, includes, in the West, all people born between 1980 and 2000.

Source : Traitement IRES_ https ://bmogamviewpoints.com/the-gig-economy/

Box No. 4 : The Buurtzorg example (18)

"Buurtzorg is a Dutch home nursing company. Founded in 2006 by Jos de Blok, the non-profit organization now has nearly 10,000 employees and manages 70% of home care in the Netherlands. Buurtzorg has become known as an example of a free holacratic enterprise*".

Putting people back at the heart of political, economic and social systems therefore requires a commitment by States to genuinely undertake **a multifaceted review of their public policies** in terms of governance, education and training, health and fundamental freedoms... but also to effectively **encourage economic and social** stakeholders to embrace such transformation by means of specific measures.

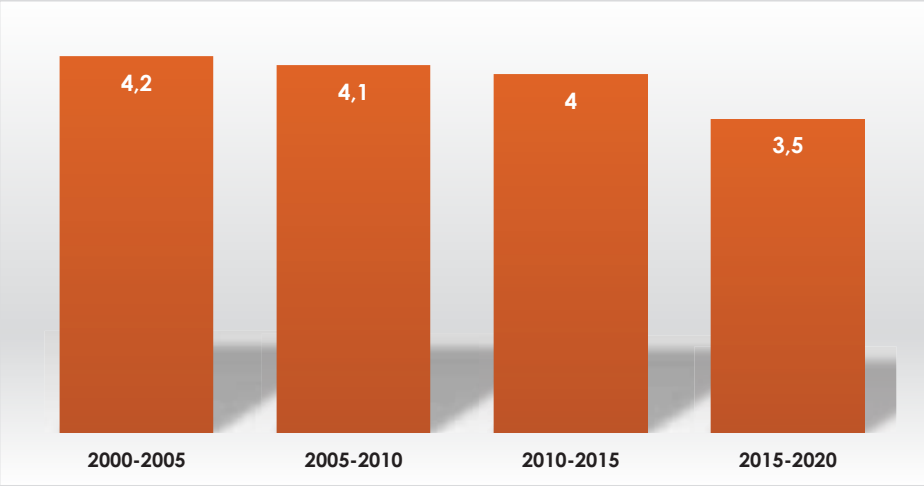
3 FOUR MAJOR DISRUPTIONS (14)

In light of these major disruptive trends, it has become obvious that the current development model, which is predatory and unconcerned with the well-being of humans, can no longer be sustained.

The slowdown in global growth (see Figure 11) had the effect of a wake-up call. Combined with the risk of renewed financial crises in the future, this downturn raises questions about the current development model, based on hyper-competitiveness on a global scale, achieved at the expense of people (increasing inequality, rising unemployment) and unsustainable natural resource predation.

The emerging countries model has shown its limitations. Its success is linked to both cultural and economic factors. It cannot therefore be applied universally with the same results.

Figure 11 : Global economic growth rate (in %)

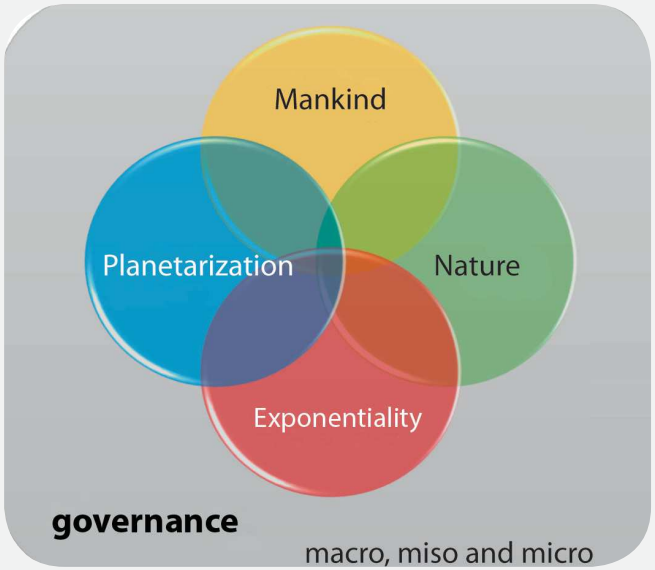


Source : IRES analysis and processing_ IMF data

3 FOUR MAJOR DISRUPTIONS (15)

Consequently, the new **so-called** generic development model* must be premised on four interrelated structural pillars, which address the disruptions mentioned above :

- **Humans** and the impact, in particular, on basic education and vocational training, citizenship and civility, urban planning and development, work (employment and income)...
- **Nature**, towards a non-predatory, even restorative economy, sustainable adaptation to climate change, a carbon transition (more renewable energy, less pollution), polluter-pays* schemes and so on...
- **Planetarization**, with an emphasis on glocalization*, local economy, migration and mobility, sustainable development*, geopolitics...
- **Production organization**, with all the transformations brought about by the digital revolution as well as by changes in companies ("openness", human capital, governance), experimentation (living labs*), reflection (think tanks), the production of goods and services of the future, the impact of digitalization*...



4 MOROCCAN CONTEXT

At the crossroads of three major regions, Africa, Europe and the Arab world, Morocco has recently undergone a fundamental strategic shift, as a result of recent regional developments. Facing a politically weakened, increasingly reclusive and economically declining Europe and an Arab-Muslim world torn apart by internal wars and domestic tensions, Morocco has chosen to turn to Africa.

For Africa is increasingly aware of its tremendous potential and its own ability to exploit this potential on its own rather than conceding it to foreigners. Regional and continental integration is growing, despite economic and climate-related risks and some governance challenges. Morocco is gradually emerging as an essential partner in Africa.

Domestically, Morocco has undertaken significant reforms such as those relating to the Family Code in 2004 and the 2011 Constitution, which underscores the Kingdom's plural identity.

His Majesty King Mohammed VI's visionary policy has put Morocco on the path to emergence, with advances in both individual freedoms and civil and political rights as well as in economic and social sectors. Inertia, however, and even resistance to change, has remained strong, as young people's hopes for a better future have faded and resulted in considerable brain drain.

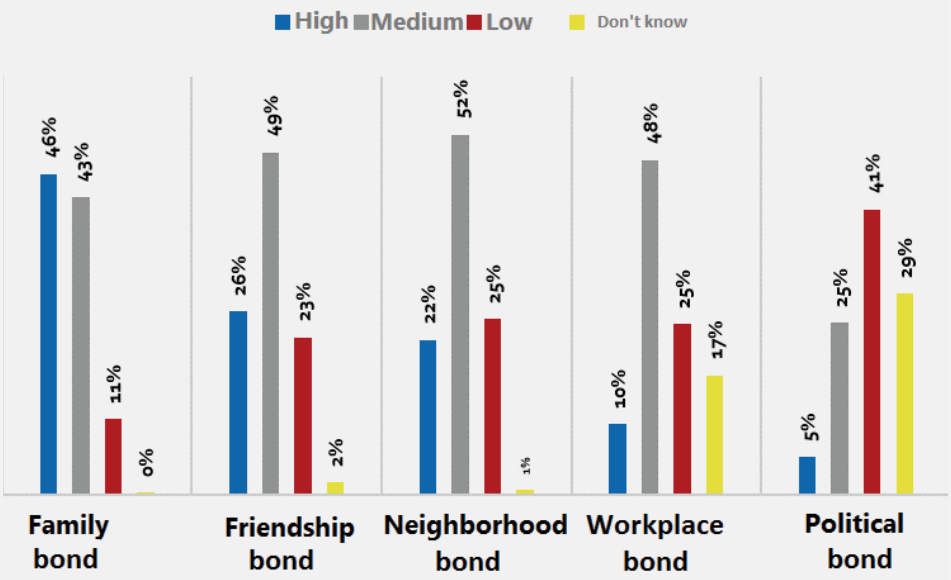
4 MOROCCAN CONTEXT (2)

4.1 Advances

In addition to the Kingdom's political stability and its commitment to reform, which lend it an edge compared to its neighbors, Morocco also boasts a number of strengths that must be leveraged :

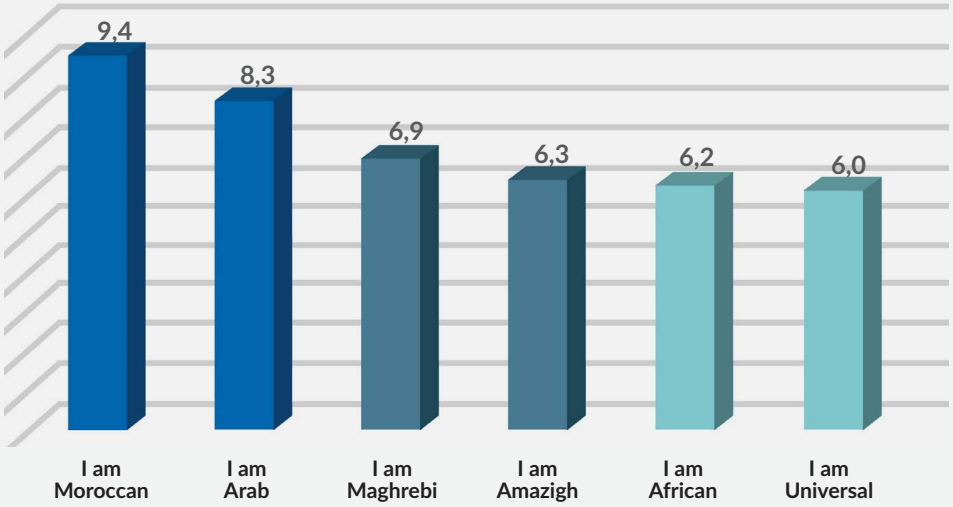
- **Social cohesion** rooted in a strong attachment to the Monarchy and Islam, as well as in a multifaceted identity that is nowadays the shared heritage of all Moroccans and resilient and supportive family bonds (see Figures 12 and 13).

Figure 12 : Intensity of social ties in Morocco in 2016



Source : IRES

Figure 13 : Prominence of various identities in Morocco in 2016



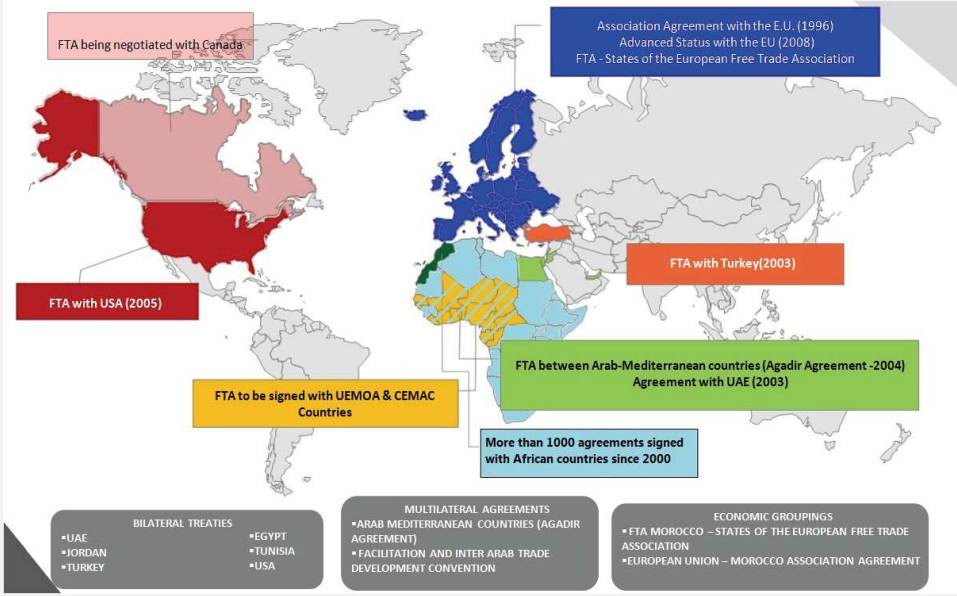
(Mean score ; (1) indicating a low level of prominence and (10) a high level of prominence)

Source : IRES

4 MOROCCAN CONTEXT (3)

- High potential **relational capital** (see Figure 14), from which Morocco should draw sufficient benefit in the future to boost the pace of its economic growth.

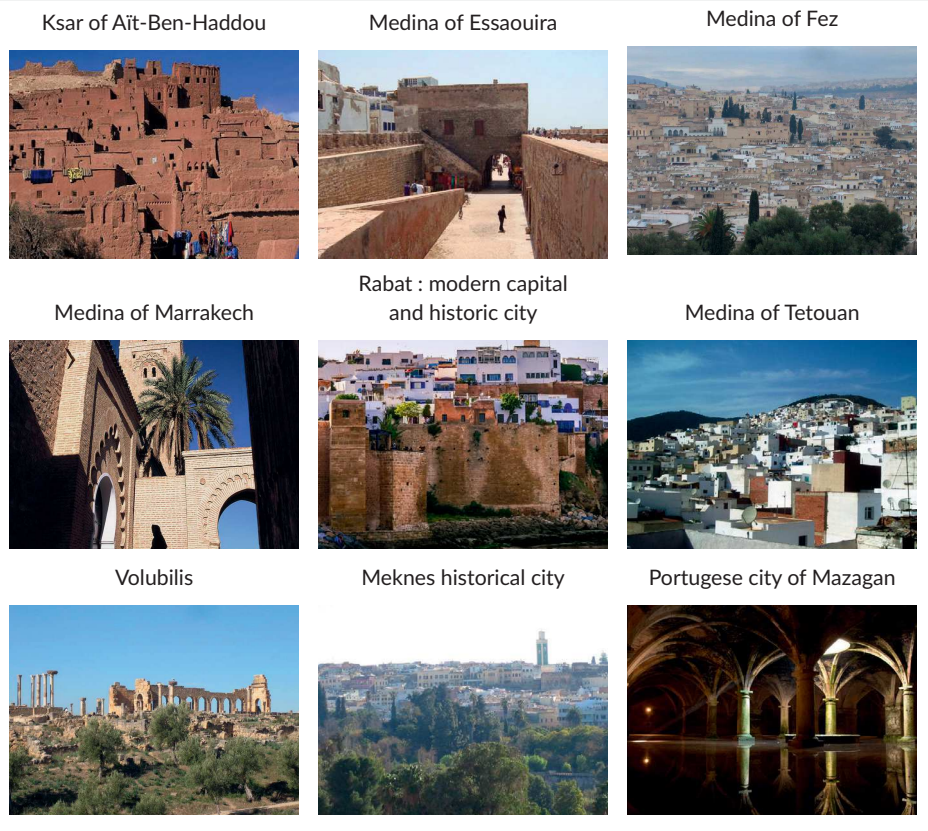
Figure 14 : Morocco's relational network



Source : IRES processing of data from the Ministry of Foreign Affairs and International Cooperation

- Highly valuable **cultural heritage** that Morocco can leverage to generate wealth and raise its international profile.

Moroccan cultural sites listed as UNESCO World Heritage Sites



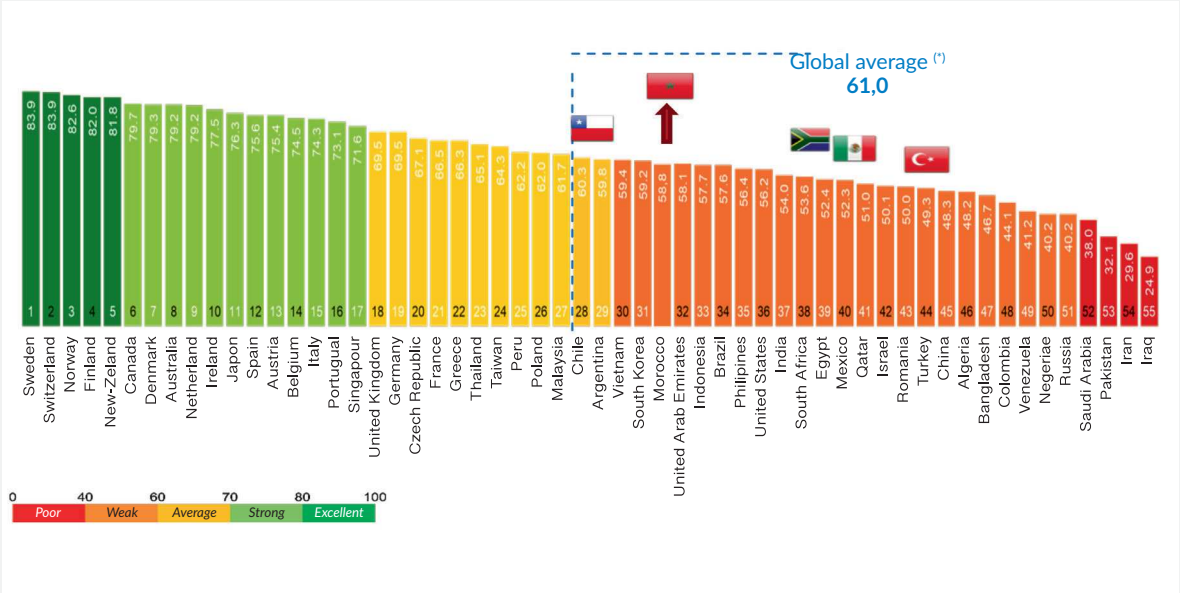
Source : Composite images, UNESCO World Heritage Site, https://whc.unesco.org/fr/etatsparties/ma

4 MOROCCAN CONTEXT (4)

- A generally **positive international image** in line with the progress made by the Kingdom's efforts to gradually establish itself as an attractive country (*soft power*). The Kingdom's reputation with the G8 Group (see Figure 15) outperforms that of all other African and Arab countries and even exceeds that of emerging countries.

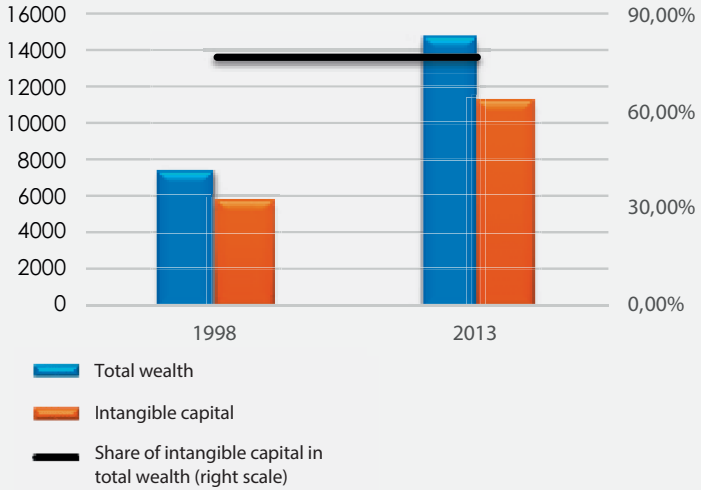
- **A national reconciliation process** that has made it possible to compensate human rights victims and uncover the past in order to better prepare for the future.
- **Total economic wealth** which nearly doubled between 1998 and 2013, according to IRES assessments. The share of intangible capital in total wealth was 77%, a level close to that of developed countries (see Figure 16).

Figure 15 : Reputation in the G-8 countries, Morocco and 55 countries with the highest GDP, 2019



Source : Reputation Institute / IRES, 2019

Figure 16 : Evolution of total wealth and intangible capital (in constant 2010 MAD billion)

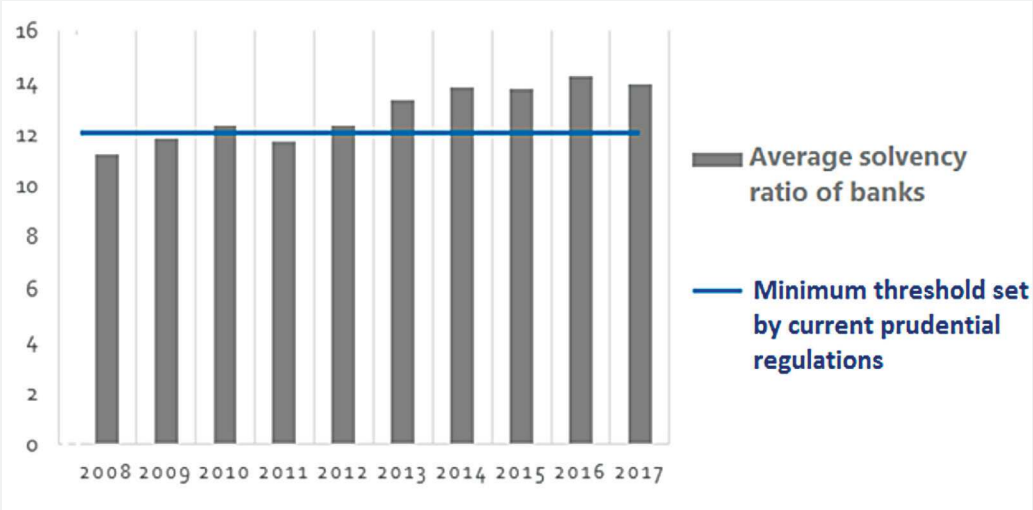


Source : IRES, Total wealth and intangible capital of Morocco, May 2015

4 MOROCCAN CONTEXT (5)

- **Sectoral strategies** that have led to growth in Morocco's global sectors (offshoring, electronics, automotive, aeronautics, agri-food and textiles and leather) and to diversification of Moroccan companies internationally, particularly in Africa, with the aim of positioning Morocco as an economic hub.
- **Financial sector** reform that has consolidated the banking sector's solidity (see Figure 17) and contributed to its international expansion, as well as the promotion of Casablanca Finance City as an international financial center, which has enabled Morocco to gradually establish itself as a financial hub.
- **Infrastructure development** (see Highlight No. 3) has progressed rapidly with denser highway network, port and airport expansions and, recently, the launch of the high-speed rail line linking Tangier to Casablanca.

Figure 17 : Changes in banks' solvency ratios* in Morocco between 2008 and 2017



Source : IRES analysis and processing of Bank Al-Maghrib data

4 MOROCCAN CONTEXT (6)

- **Urban upgrading**, with the implementation of major projects designed to elevate several Moroccan cities to the rank of metropolises.

The transformation of Rabat

Source : https://abc24.ma/rabat-la-metamorphose/

- **Ongoing energy transition to renewable energies**, whose share in installed electrical power will exceed 42% in 2020, reaching 52% in 2030. With a capacity of around 600 MW (19), the Noor solar power plant in Ouarzazate is currently the largest solar complex in the world in terms of concentrated solar technology (CSP).

The Noor solar power plant in Ouarzazate

Source : http : //www.medi1tv.com/fr/masen-passe-%C3%A0-la-vitesse-sup%C3%A9rieure-dans-le-m%C3%A9ga-projet-de-de-noor-midelt.-infos-77941

HIGHLIGHT N°3

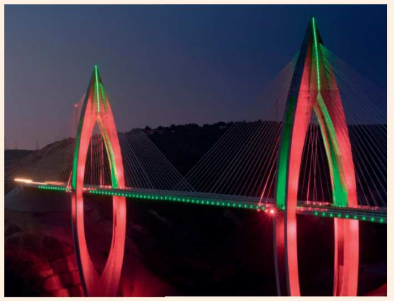
Infrastructure for a new era

Tangier Med Leading port capacity in the Mediterranean

An integrated port platform dedicated to transshipment, import/export, value-added logistics and maritime and port services.
Implemented with an investment of 88 billion dirhams, it is a logistics hub connected to 186 ports in 77 countries around the world and through which 100,000 ships pass each year, enabling Morocco to move from 76th to 17th place over the period 2004-2008 according to the maritime connectivity index.
The capacity of the port will reach 9 million containers per year thanks to the extension, Tangier Med 2

Al Boraq, the first high-speed train in Africa

In 2018, Morocco launched the High Speed train line (200km dual-track) to meet the growing need for mobility on the Tangier-Casablanca axis and the freight and logistics demand generated by Tangier Med port.
This 320km/h line is the latest addition to the 3,815km rail network, 64% of which was electrified in 2018.
Built to European standards, it is the first step in a medium- and long-term development master plan to support Morocco's socio-economic growth.



Mohammed VI Bridge, the first cable-stayed bridge in Morocco

An infrastructure characterized by a linear length of 57,334 km of roads, more than 1800 km of highways and two cable-stayed bridges, the first in Rabat of 42 km and the second in Casablanca of 224m.
Morocco is committed to providing multimodal mobility for its population, 85% of which can integrate a highway less than one road away from their place of residence. All cities with more than 400,000 inhabitants are connected to an expressway.
Since 2010, four sections of highways have been built: Berrchid-Beni Mellal (172km), Fez-Oujda (320km), ElJadida-Safi (140km) and Marrakech-Agadir (180.5km)

Source : IRES processing _ Official websites of the National Railways Office, Tangier Med Port Authority and the Ministry of Equipment, Transport and Logistics. Data 2018-2019

4 MOROCCAN CONTEXT (7)

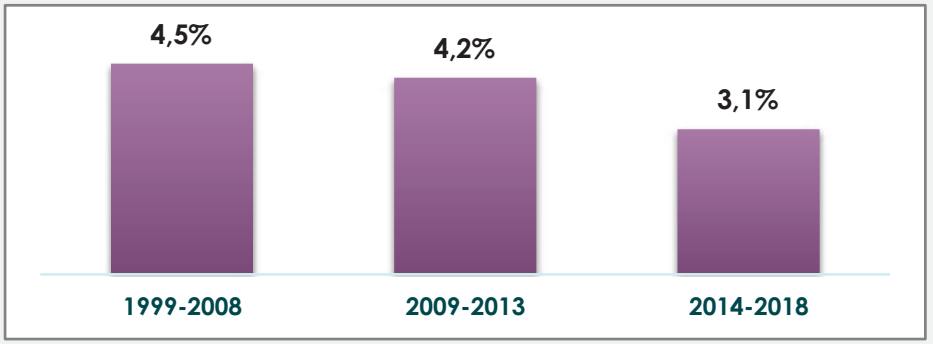
4.2 Shortcomings

- Despite the many advances outlined above, the current development model has failed to fully meet growing public expectations and regional and international challenges. Persistent shortcomings keep holding back Morocco's development.
- **Public governance which hinders the achievement of sustained development** : this is, in part, due to a lack of public policy coherence, poor coordination of public action, administrative dysfunctions, particularly in sectors directly related to citizens and alarming levels of corruption. Deficiencies also subsist in the implementation, monitoring and evaluation of public policies and in the regional implementation of public programs.
- **Significant human capital deficiencies** : Despite universal primary education, the present human capital situation is characterized by persistently high levels of adult illiteracy (32%) and by an average educational level of the Moroccan population aged 15 years and over, estimated at 5 years of schooling, as against 7 years in emerging countries and 11 years in developed countries. Education and training reforms have in the past mobilized significant public financial resources, with results that have fallen short of expectations.
- In the health sector, despite a number of new public and private hospitals, the current supply has not kept pace with rapidly growing demand. Demand is associated with population growth and the need to factor in serious diseases related to population ageing. The expansion of medical coverage, currently at 60%, is expected to further increase the demand for care.

4 MOROCCAN CONTEXT (8)

- **Deterioration of natural capital** : economic development is damaging the environment despite rapid expansion of renewable energies. In addition to water stress, which could potentially turn into a water shortage, Morocco suffers from the deterioration of its natural capital, the cost of which was estimated at 3.5% of GDP in 2014 (20).
- **Modest economic performance** : Economic growth has decelerated in recent years from an average of 4.2% per year over 2009-2013 to an average of 3.1% per year over 2014-2018 (21) (see Figure 18). It is mainly driven by household consumption and is fueled by significant public investment, the profitability of which has yet to be proven. In addition, economic growth is creating fewer and fewer permanent jobs and remains a source of inequality.

Figure 18 : Trends in the economic growth rate of Morocco



Source : IRES analysis and processing of data from the Ministry of Economy and Finance

Although inflation is under control, the macroeconomic framework (see Figure 19) remains sensitive to exogenous shocks and climate change. The budget deficit continues to exceed 3.5%, which translates into a direct Treasury debt above 60% of GDP. The trade balance is in sharp deficit: domestic market dynamics are more beneficial to imports. On the export side, diversification in terms of products and countries of destination has been insufficient.

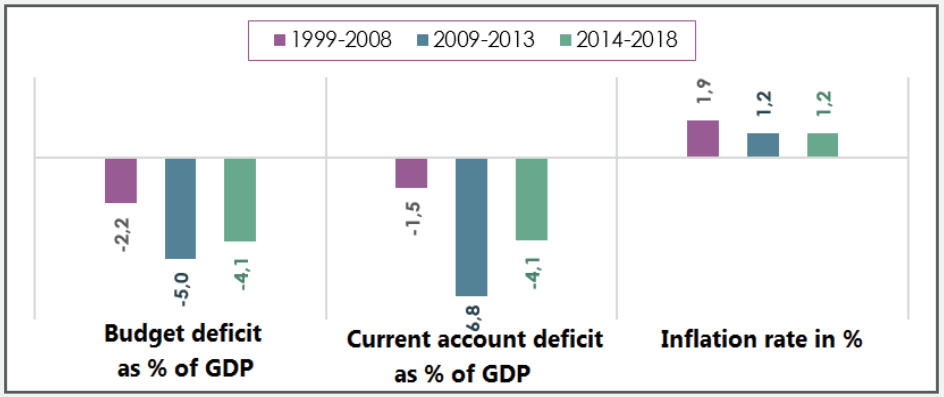
4 MOROCCAN CONTEXT (9)

An annuity economy continues to flourish. Morocco's industrialization is proceeding at a slow pace despite the expansion of global businesses, which tend to be driven by international private capital. The domestic private sector - which is competing with the informal sector - has been decreasing its contribution to the national investment effort.

- **Growing inequalities of various forms** : despite the eradication of absolute poverty and a sharp reduction in relative poverty, inequalities are still on the rise amidst a decline in traditional forms of solidarity. Thus, wealth remains concentrated: the total expenditure of the richest 10% of households was 11.8 times that of the poorest 10% of households in 2014 (22) (see Figure 20). Inequalities are perceived by citizens as a major obstacle to living together according to the 2011 and 2016 IRES surveys on social cohesion. This could threaten the cohesion of society.

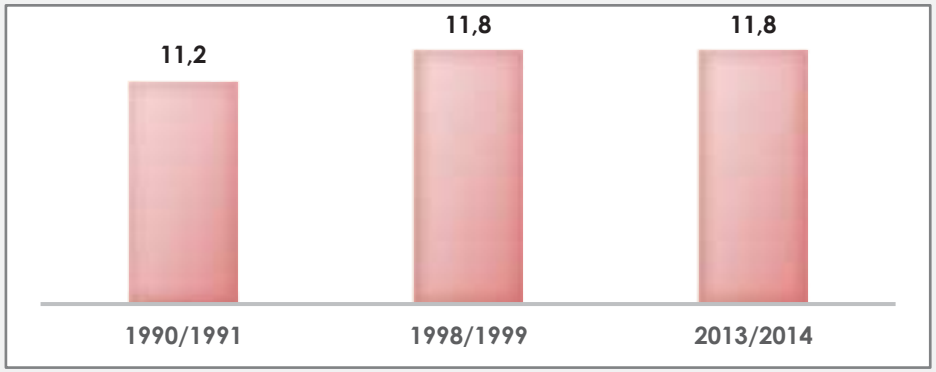
  Inequalities extend to education, health, access to housing and financial services... They impact rural areas more than cities and women more than men.

Figure 19 : Evolution of the budget deficit, current account deficit and inflation rate in Morocco



Source : IRES analysis of data from the Ministry of Economy and Finance and the High Planning Commission

Figure 20 : The ratio between the average consumption expenditure of the 10% of the richest households and that of the 10% of the poorest households



Source : IRES processing Data from the High Planning Commission (National Surveys on Household Consumption and Expenditure)

4 MOROCCAN CONTEXT (10)

4.3 The imperative of rethinking Morocco's development model

It is therefore clear that Morocco's entire development model needs to be rethought, to move away from the intent of aligning itself with the performance of Western countries and, instead, to truly address the needs of local populations, Morocco's integration in the world and the challenges that lie ahead in terms of climate change, resource scarcity... The transformation to be achieved under the new development model should therefore be sufficiently far-reaching to radically change the situation. It must also encompass recent positive developments while guarding against potential threats.

In October 2017, His Majesty King Mohammed VI called for a review of Morocco's development model. In fact, an analysis of Royal Speeches (see Royal Vision section) indicates that Morocco should not follow the now obsolete path adopted by Western countries. Like the rest of Africa, Morocco is ready to choose a new and fairer model, consistent with its diverse culture and its commitment to the world, and more specifically to Africa.

Adapting the generic model* to the specific context lays the foundations for a new development model for Morocco, which addresses the country's specific needs, capitalizes on its strengths and champions a ***leapfrog**** **strategy requiring undeniable courage** : it is easier to follow the recommendations of major international institutions, particularly financial institutions, than to impose the country's own development choices upon them.

The implementation of Morocco's new development model depends first and foremost on State action, which can set the example by leading the way and guiding the transformation of Morocco's socioeconomic* system. In addition to reflecting on the country's new choices, it is important to **break with certain forms of governance that have prevailed so far** and have prevented Morocco from achieving sustained development.

Within this context of transformation, one of the primary missions of public authorities is to support Morocco's ongoing and future global economic, social, environmental, technological and institutional development... This is the purpose of the actions suggested in the **PROPOSING** section of each of the following chapters.

CHAPTER 1

GOVERNANCE, AT THE HEART OF THE DEVELOPMENT MODEL TO BE BUILT

The new development model draws on a temperance approach that aims to put an end to the predatory economy which caused such damage during the Anthropocene*. Many solutions to existing problems are known and both financial and technological resources are often available ; what is generally lacking is government action. That is why the cornerstone of this development model is governance: without it, it is not possible to lead, or even complete, the revolution in human activities that is already underway.

1 UNDERSTANDING

Governance is a fundamental prerequisite for the successful implementation of any development model, regardless of its components. World political history continues to prove this. The best intentions and the most technically perfect model are useless if the system in charge of its implementation does not take ownership of it, regardless of whether this governance is public or private.

For this model to be implemented, a comprehensive but clear governance framework is required. It could be deployed through four axes, according to two main principles :

- **Justice and ethics**, because worsening inequalities lead to a breakdown in the social ladder*, exacerbated sense of injustice and increasing abuses of all kinds, including corruption.
- **Flexibility and adaptation**, in order to facilitate the evolution of this model, which is essentially transitional. Hence the importance of governance that is both smart, sensitive to varying contexts and nimble, i.e. seeking to minimize hierarchical structures and bureaucratic red tape.

2 PARADIGM AND VISION

2.1 Axis 1 : Enhance collective intelligence

Source : IRES processing _ https://www.ekilium.fr/blog-coaching/entreprises-liberees-et-agilite-organisations/intelligence-collective-en-entreprise-comment-ca-marche/

A manifest desire to **participate*** in the decisions impacting them has emerged among stakeholders around the world, from Brazil to Hong Kong, including in non-democratic countries. Indeed, two distinct visions of democracy now seem to be emerging :

- Formal democracy, which allows citizens to choose their governments ; this choice does not however necessarily imply that citizens are involved in public authorities' decisions.
- De facto democracy, involving stakeholders (citizens or not) in the decision-making process, through various consultative mechanisms : from conference-consensus* to Etats Généraux (Estates General*) or the development of territory-specific projects*, for example.

2 PARADIGM AND VISION (2)

Consultation*, another collective intelligence process, is becoming increasingly crucial, whether to resolve conflict situations between the State and civil society, for example, or between companies and trade unions, or to coordinate the pooling of resources between managers or partners.

Collaboration*, which is a form of closer collective intelligence, is expected to develop not only in the fields of economics (coopetition*) and public policy* (public-private partnership for example), but also in the social and environmental fields in which some situations, such as poverty, depletion of natural resources and natural disasters are so dire, that close collaboration between various stakeholders is essential, whether for purposes of pooling efforts or coordinating action.
Thus, however much exchange it involves, collective intelligence is proving to be both a governance tool in its own right (23) as well as a prerequisite for dealing with the increasing complexity of situations.

2.2 Axis 2 : Streamline resources and uses

The world that lies ahead promises to be less hospitable than that of the 20th Century. Nowadays, a slow energy transition is already compelling countries that rely the most on hydrocarbons to slow down their consumption before another, cleaner, cheaper and more abundant energy is available. Many natural resources are at the center of bidding wars which limit access to them, such as fine wood, sand and copper. Drinking water is starting to move along that path, as are some food products. By 2050, the growing global middle class and the sharp increase in the world's population will put increased pressure on least available goods. The 7.5 billion human beings already consume in 7 months each year what nature regenerates in 12 months.

2 PARADIGM AND VISION (3)

Likewise, current production and consumption practices generate quantities and types of waste that nature can no longer absorb on its own. Contamination is spreading to soils and subsoils, groundwater, rivers and oceans, and even to the air we breathe.

In order to address this global situation, several good governance rules are urgently required, such as **the pooling** of equipment and infrastructure, for example, the **streamlining** of uses (reducing waste generated, limiting packaging, reducing water and energy consumption, etc.) as well as **community-based management of commons*** such as in the case of self-administered neighborhoods in Brazil (see Best Practice No. 2), local water management systems in Spain, etc....

2.3 Axis 3 : Pursue decentralization

The development of collective intelligence mechanisms, such as the need to streamline resources and uses, clearly demonstrates that many solutions are local in scale.

Therefore, **the principle of subsidiarity*** - i.e. assigning responsibility for public action to the entity closest to those directly concerned by it - established, in particular by the European Union, should systematically apply so that the most competent authority for the matter at hand, be it public or private, is entrusted with it.

BEST PRACTICE N°2

Participatory democracy*: The Experience of Porto Alegre, Brazil (24)

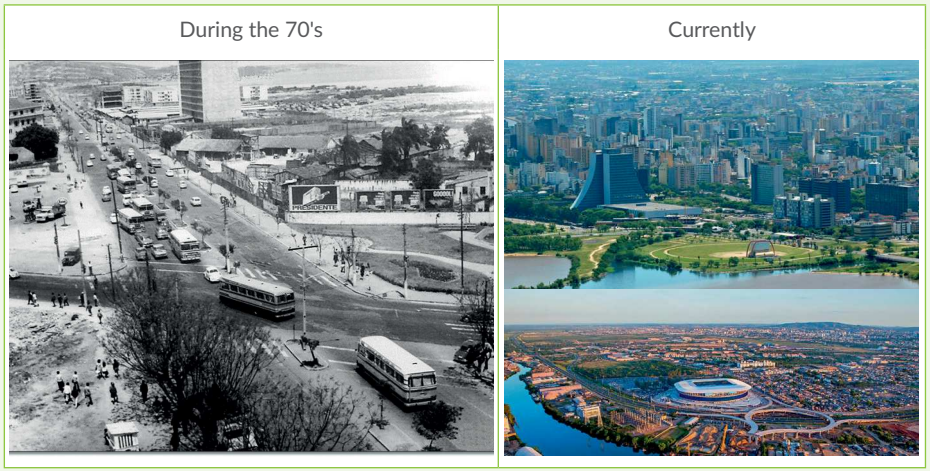
In the late 1980s, Porto Alegre introduced a new concept of participatory democracy*, focused on boosting citizens' participation in local political decision-making.

In 1989, the city launched its "participatory budget" and supported the development of neighborhood associations, placed under the aegis of the Union of Residents' Associations of Porto Alegre. In close consultation* with the party that had won the municipal elections in 1988, these associations designed a system putting the public in charge of the municipal budget.

Neighborhood associations participate annually in regional and thematic plenary sessions during which they are instrumental in determining strategic investment priorities for the development of their neighborhoods.

Porto Alegre

Porto Alegre, a medium-sized city with nearly 1.5 million inhabitants, is the capital of the State of Rio Grande do Sul



Source : IRES processing _ Composite series of images _ https://fr.wikipedia.org/wiki/Porto_Alegre / http://www.brasilbresil.com/porto-alegre/

2 PARADIGME AND VISION (4)

This reliance on local authorities presupposes a sufficient level of **decentralization** for such authorities to have the powers and resources, both legal and material, to solve problems without resorting to higher echelons of authority, with the support of multi-level governance*.

While a broad decentralization movement erupted in the second half of the 20th century around the world, opposing forces, from autonomists to nationalists, are currently attempting to hold it back. Decentralization must, however, be expanded and intensified to best prepare for future crisis management. This requires not only legal mechanisms but, above all, qualitative intellectual, individual and collective capacity building.

2.4 Axis 4 : Develop factual knowledge

Public policy decisions are in most cases made according to ideologically-based assumptions, obsolete knowledge or preconceived ideas. This sometimes leads to a lack of understanding on the part of those concerned by such decisions. However, the effectiveness of any governance depends first of all on the following triptych :

- **Actual and up-to-date knowledge** of the matter at hand, through quantitative and qualitative data (surveys, polls, surveys) from representative samples.
- **Precise and systemic identification** of the specific issue raised, based on scientific investigation...
- In situ validation of proposed solutions, through **experimentation and evaluation** before, after and during implementation.

2 PARADIGME ET VISION (5)

The new governance must impose the principle of factual knowledge in order to avoid seeing bad decisions, ignorance and litigiousness gain ground in society :

- Organizations and companies must put an end to "purely declarative" statements, such as lofty objectives which are known in advance to be impossible to achieve, mere advertising of major projects never completed, or wishful thinking on corporate social and environmental responsibility*, Marketing and advertising agencies shall refrain from misleading or deceptive ads or wordings intended to mislead the consumer into believing things that are false or unfounded,
- Under penalty of prosecution, the media shall double-check information provided with other independent sources, refrain from tarnishing reputations without legal evidence and ensure objective communication of the information..

In this regard, big data must be the focus of particular attention : do the "profiles" generated by mass data processing really reflect the behavior of multifaceted and increasingly complex individuals ? Are they not only producing ideal characters, whose reality is only statistical ?

The new governance must therefore be concerned with deploying and enhancing collective intelligence in order to better address a range of issues and adequately streamline processes and resources. This is consistent with a decentralization approach that allows subsidiarity* to improve the quality and speed of decision-making. In addition, it relies on high-quality information to provide the most effective and relevant solutions and to promote a greater level of knowledge among citizens.

The new governance can only be able to tackle future challenges by forcing the necessary leap forward *(leapfrog*)*, towards more freedom, modernity, responsibility and enlightened vision.

3 PROPOSING

In matters of governance, the central question is no longer "what to do ?" but "how to do it and do a better job ?" How can we make sure that the reforms identified are implemented in conditions that significantly improve the social well-being of Moroccans ? This generally involves raising awareness and enforcing the "rules of the game" or adopting and implementing new rules where necessary.

In this respect, particular attention should be paid to strengthening institutional capital, which, given its cross-cutting dimension, shapes the expected outcome of choices made in terms of intangible capital (human capital, social capital, relational capital, brand capital, etc.).

Laying the foundations for a new form of governance in Morocco, which breaks with previous practices, requires the implementation of the principles and four axes outlined above.

In addition to stepping up decentralization (see Chapter 4 - 4.4.1) and deconcentration, there are three main guidelines stemming from this governance, whether it is public or private :

3.1 The principle of honesty

Honesty is based on three explicit postures : ethics, transparency and accountability.

As an ethical measure and a way of curbing the annuity economy, Morocco should **ban speculation** (on land, raw materials, food products, permits, etc.) in general, and more specifically, that affecting citizens' living standards, while pursuing and intensifying **anti-corruption action**.

The Kingdom of Morocco should also prohibit e**nvironmentally damaging practices**, and support alternative approaches.

Transparency requires accountability and widespread access to data produced by the State and the public sector, whenever such data is not of a truly sensitive nature.

Being held accountable at all levels leads, on the one hand, to more extensive evaluation and, on the other hand, to ensuring that no one is exempt from a justice system which is independent of political power.

3 PROPOSING (2)

3.2 New approaches to action

The key three-pronged approach that Morocco must adopt is based on : agility, to enable continuous adaptation, experimentation, to promote innovation and pragmatism, to respond as effectively as possible to needs identified.

Agility is demonstrated in multiple ways :

- **New project management methods** such as SCRUM (see Box No. 5), for example, which enable projects to evolve during implementation : applied to public authorities*, they can accelerate transformations underway and foster a more entrepreneurial mindset, while preserving the spirit of public good.
- **New organizational structures**, for example, project-based (project teams) or reconfigurable cross-cutting clusters.
- **Continued training** of employees whose skills must be regularly updated, particularly in the context of digitalization*.
- **Shortening the command chain** and promoting participatory subsidiarity*.

3 PROPOSING (3)

Agility is only possible if it is coupled with an enabling and **flexible legislative framework** and public administration reform in both in terms of operating procedures and human resources management system.

Public administration must be rehabilitated so that it can once again attract high profiles, as well as eliminate the dysfunctions which characterize it, particularly in sectors in direct contact with citizens. To successfully complete its transformation, Moroccan public administration must seek inspiration from private management rules and capitalize on the opportunities provided by digitalization* (see Best Practice No 3), while prioritizing the general interest.

Box n°5 : The SCRUM methodology (25)

"The term SCRUM first appeared in 1986 in a publication by Hirotaka Takeuchi and Ikujiro Nonaka (26). It describes a new, faster and more flexible approach to developing new products or services.

The SCRUM approach is not intended for all types of projects. This is an approach that is easy to understand, but difficult to master. It follows the principles of the agile* methodology, i.e. active involvement and participation of the client throughout the project.

Considered as a project management framework, SCRUM consists of several fundamental elements: roles ; events ; artifacts ; rules.

It is an empirical, dynamic and participatory approach to project management. A synchronization meeting, called a daily "melee", is planned to monitor the project's progress."

3 PROPOSING (4)

To this end, it is advisable to :

- to provide public administration (central and regional) with the same tools as the private sector (chart of accounts, strategic planning and umbrella projects, results-based culture, etc.) ;
- provide better service to the public : move from a user, taxpayer and citizen culture to a customer culture ;
- reason in terms of intangible capital and establish it as a criterion for evaluating public policy decisions ;
- shift from personnel management to human resources management, with a focus on a skills-based rather than a degree-based approach ;
- prioritize public services that are closest to citizens as part of administrative reform.

Morocco must capitalize on the opportunities that advanced regionalization provides to improve the efficiency of central administration and establish the foundations for a territorial governance of public policies.

Furthermore, this new governance must seek greater public policy coherence and closer coordination between stakeholders. It must cement the exemplarity of the State and consecrate its role as a visionary to the benefit of the general interest, in the long term.

The reform process must be separated from political and electoral contingencies. Reforms must be deployed on the ground and the allocation of budgetary resources must be systematically conditioned on the achievement of objectives assigned to public services.

BEST PRACTICE N°3

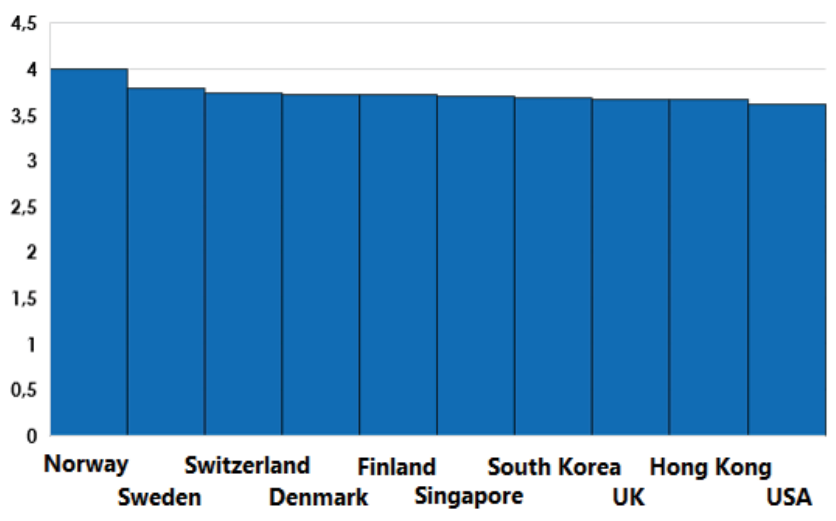
The Agency for Public Management and E-Government in Norway *(Difi)*

Nicknamed the El Dorado of the digital nomads, Norway ranked first in the world in 2017 in the Digital Transformation Index* (see Figure 21). It is one of a few countries in the world with high levels of digital trust among its citizens.

Norway set up the Agency for Public Management and e-Government (Difi) in 2008 with the main objective of strengthening government action and improving the organization and efficiency of public administration.

Difi is dedicated to ensuring that Norwegian public administration is characterized by the values of excellence, efficiency, citizen focus, transparency and democracy. It aims to develop public sector organization and leadership, while coordinating public authorities and services to citizens (27).

Figure 21 : The top 10 countries according to the Digital Evolution Index*



Source : IRES processing _ The Fletcher School and Mastercard, Digital Planet 2017

3 PROPOSING (5)

3.3 New leadership

To bring about change, Morocco must foster the development of new forms of leadership (see Best Practice No. 4), in which general skills - soft skills (see Box No. No. 6) are essential.

Box n°6 : Soft skills or broad competencies (28)

Soft skills refer to a broad set of skills, competencies, behaviors, attitudes, and personal qualities that enable people to effectively navigate their environment, work well with others, perform well, and achieve their goals. These skills are broadly applicable and complement other skills such as technical, vocational, and academic skills.

Source : Workforce connections: Key soft skills that foster youth workforce success, Child Trends, June 2015

Three sets of specific skills characterize future leaders :

- Develop a vision which is compelling (guidelines, goals), meaningful (sense-making) and communicate it clearly.
- Treat everyone equally, promote participation* and take responsibility.
- Build bridges by valuing diversity, openness and inclusion, while promoting experimentation.

A leader who is guided by these principles must not only focus on the present to manage change, but also visualize the future to set out a roadmap to prepare it. These values constitute the bedrock of the leader's ability to drive change in his/her organization, regardless of its size or industry.

BEST PRACTICE N°4

The "1Malaysia" strategy in Malaysia (29)

"1Malaysia" is a management philosophy adopted in Malaysia, at the initiative of Prime Minister Najib Tun Razak, elected in April 2009. *"People First, Performance Now"* is its slogan. Focused on a culture of high performance, precision, innovation, integrity, will, loyalty and wisdom, this strategy is underpinned by three key pillars :

- Pillar one refers to the principles of national unity, namely : respect for others regardless of ethnicity, respect for the nation's founding principles, enshrined in the Federal Constitution, and the promotion of social justice.
- Pillar two focuses on incorporating the notion of citizenship and wisdom in decision making.
- Pillar three focuses on improving the effectiveness of the public governance system. To this end, a program called *"Government transformation"* was launched in 2009. It relies on :
  - Using a private management style and a performance and results-based management culture ;
  - Promoting competition between various public sectors and resorting to subcontracting and near-privatization ;
  - Implementing a cohesive and comprehensive public policy evaluation framework, through an array of key performance indicators, managed by the Ministry in charge of monitoring the performance and quality of public services.

CHAPTER 2

PILLAR 1 : PLACING HUMANS BACK AT THE HEART OF DEVELOPMENT

The new development model must take into account recent developments in society on a global scale in order to address emerging needs and aspirations. A genuine change of mindset is required in order to regain strong societal cohesion, but one that is different from the one that has been eroded on a global scale over the past half-century.

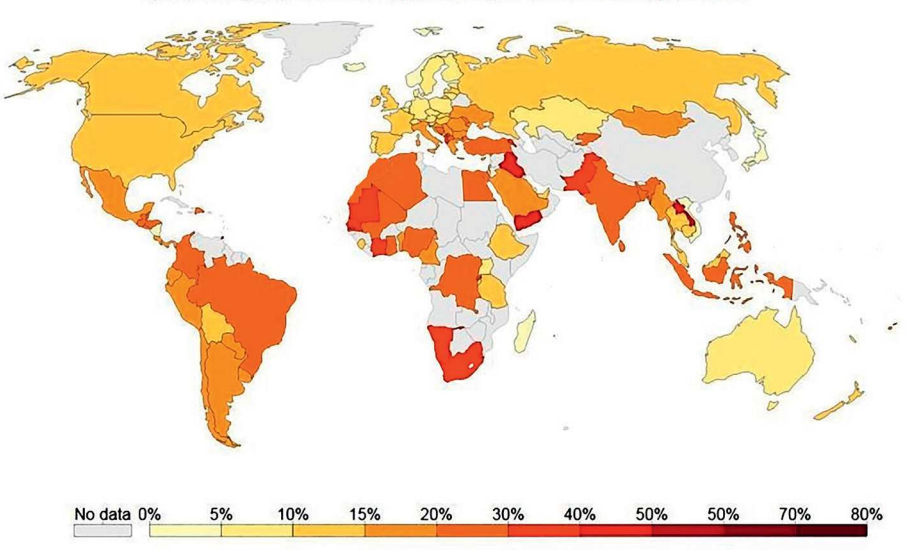
1 UNDERSTANDING

A new segmentation of the population

The population of most Western countries, but also that of a growing number of countries in the South, can nowadays be divided into three categories of people with an increasingly different mindset :

- ***NEETs**-Nor Education, Employment or Training* - (see Figure 22) are a marginalized population with little education. They are therefore poorly equipped to understand current changes, lack training and are generally doomed to unemployment and squat in urban centers. Living on government subsidies or illegal earnings, NEETs reject both the current world and the one that is unfolding. They often believe in a total collapse of the system and prepare for it, and are likely to adopt self-destructive behaviors (drugs, violence,...).

Figure 22 : The share of young people aged 15-29 in a NEET situation in 2017



Source : World Bank

1 UNDERSTANDING

A new segmentation of the population (2)

- On the opposite side of the behavioral spectrum, ***the Alien Gen*** form a population whose characteristics are spread by virality* : under 35 years of age, more comfortable with the world of tomorrow (advanced digitalization*, major global challenges, globality, etc.) than with the one which is disappearing. They focus on their well-being rather than their careers, are fascinated by games and video content, consider themselves to be global citizens, and are committed to great causes *(moonshots*)*. Self-assured, intuitive, fickle, often innovative, they have a hard time fitting into mainstream companies and prefer the world of start-ups (see Best Practice No 5). They are the "creative class" (in the Richard Florida sense) among the winners of today's globalized world.

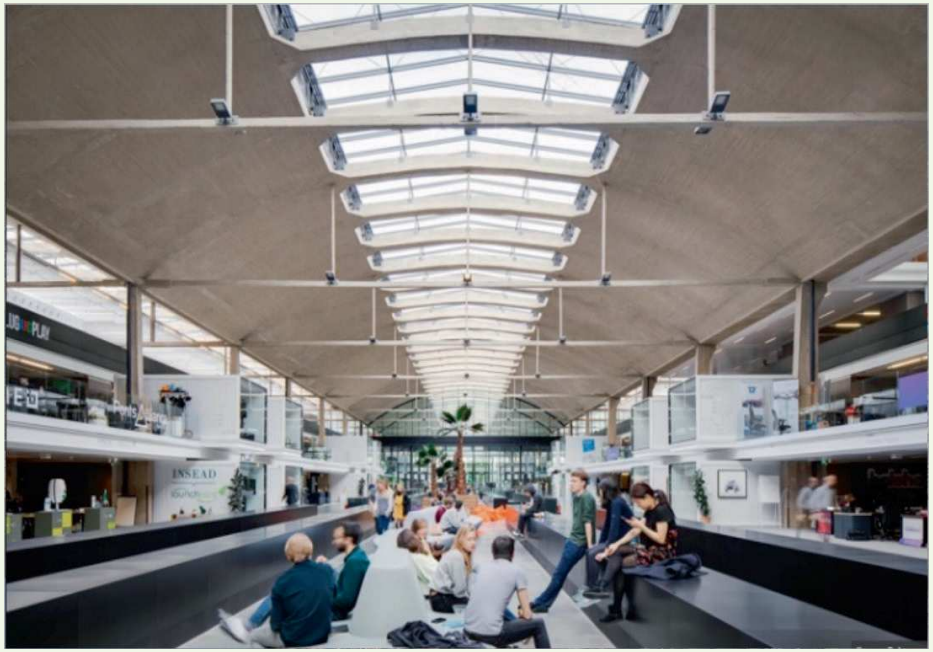
- Between these two segments, the vast majority of the population is experiencing a fundamental challenge to the dominant paradigm. This population's concerns include issues of identity and gender in societies that are increasingly open to difference, family breakdown, the new status of men in dual-career households, anxiety arising from uncertainty and professional stress (boredom at work, loss of meaning, exhaustion) in an increasingly complex, even indecipherable, world. The desire for change becomes as strong as the fear it may generate.

BEST PRACTICE N°5

Station F : Global start-up incubator in France (30)

Station F is a start-up campus, inaugurated on 29 June 2017, spread over 34,000 m^2 and located in Halle Freyssinet, in Paris. The campus includes 3,000 workstations, 26 international support and acceleration programs, event facilities as well as various shops and restaurants. The building is divided into three large areas: the Create area, for work, the Share area, for discussion, and the Chill area, for relaxation and dining.
Two support programs are offered to candidate entrepreneurs :

The "Founders Program" which, when admitted, allows entrepreneurs to benefit from Station F's services in return for an annual subscription.
The "Fighters Program" which is offered free of charge for one year to entrepreneurs who have not completed an academic course at a major business school *(Grandes Ecoles)*.



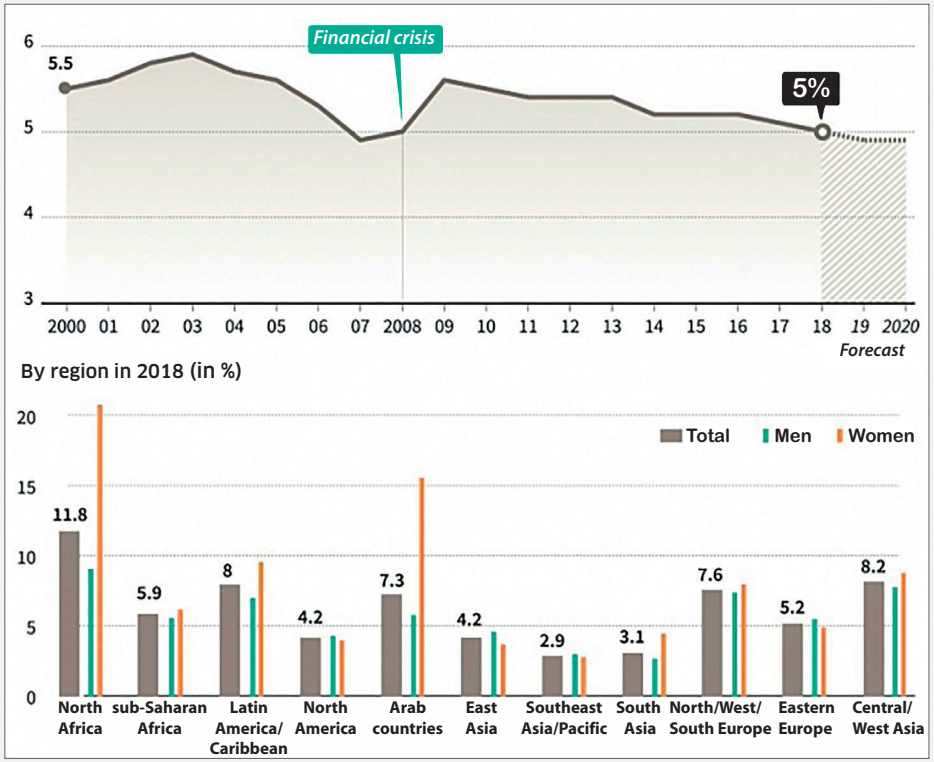
Source : https ://stationf.co/

2 ANTICIPATING

Three major risks

The majority, faced with growing unease, is exposed to **several major risks.** The first is **unemployment** (see Figure 23) : the employees with the lowest productivity are generally the first to be let off as companies undergo a **digital transformation** of their operations and processes (see Chapter 5). Social safety nets, training and re-training support are therefore becoming a priority.

Figure 23 : Trends in the unemployment rate worldwide (in %) and by region (2018)



Source : International Labour Organization, Report on World Employment and Social Issues, 2019

2 ANTICIPATING

Three major risks (2)

The second risk is that of **an exponential increase in inequalities between** the three population segments. *NEETs* disengage completely. The Alien Gen invent a new world (products, services, processes) that is difficult to access for older generations and non-digitalized populations.

The central segment implodes into multiple like-minded communities with distinct and fragmented interests. Inequalities would then become systemic: political, financial, cultural, environmental, digital, etc.

The threat resulting from the first two risks is that of a **shift to violence**, from mere incivilities to crimes, including social insurrection, as is the case in some countries: the United States, France, Haiti, Venezuela, Zimbabwe, etc.

It is therefore urgent, on the one hand, to **empower people with the keys to understanding** that will enable them to control their fears (information, education, training). This requires, first and foremost, a complete reappraisal of the skills being taught. On the other hand, it is a matter of rapidly creating the conditions for more **inclusive and environmentally friendly development**.

3 PARADIGM AND VISION

3.1 Founding principles of a new paradigm

Placing humans back into the system requires rethinking the age-old approach to humans. Only a new paradigm, i.e. a new world view that is shared and becomes the norm, is capable of bringing about the necessary change. Thanks to communication, education, law and exemplarity, it is now possible for States to contribute to the dissemination of such an approach, all the more rapidly as it reflects the aspirations of their populations.

On a universal level, five main philosophical principles underlie this paradigm :

- **Asserting the oneness of humankind** : every individual is first and foremost a human being, with no distinction as to color, nationality, health, income, gender or other status, and as such, he/she must enjoy the fundamental rights that States and the human community undertake to guarantee. Therefore, any discrimination is prohibited by law.
- **Valuing the uniqueness of each person** : every person is a unique combination of innate and acquired knowledge that is not reducible to a skill, a specialty, a gender or a status. Therefore, it is essential to treat everyone with respect, regardless of their social or individual status. Uniqueness must be valued, in particular, by pursuing and nurturing skills rather than by developing substitutable skills through education.
- **Respect for individuals' privacy** : a person' gender, marital status, color and religion are all part of his or her *privacy*. Accordingly, the impartiality and neutrality of the State, as well as of any public or private institution, with regard to privacy must be guaranteed and any breach sanctioned.

3 PARADIGM AND VISION (2)

- **Educating people about the duty of care** : As members of the same and unique living species, human beings owe each other mutual benevolence and solidarity. It is the ethos of care, in the sense of "caring for others." Thus, benevolence must become the norm and failure to assist others must be publicly highlighted. On the other hand, parasitism or free-riding, i.e. a way of life in which humans live and prosper at the expense of others, must also be curtailed.
- **Humankind's belonging to the Earth ecosystem** : Affirming the close interdependence of human beings with all living things on the planet lays the foundations for a new consideration of nature. Respect for living things, both animal and plant, is becoming the new norm. Its widespread dissemination should lead to a complete change in attitude that led to the Anthropocene*.

This paradigm constitutes a new foundation for interpersonal relationships, which must **restore mutual respect and spontaneous trust** between human beings, an essential condition for the proper functioning of the human community.

Digital communication now provides the means to develop such a state of mind, thanks to monitoring and exemplarity, including advertising campaigns and the media, as well as influencers*. This however entails developing a new framework for working with social network operators.

"Below is the Earth, the blue-white, beautiful, shining planet, our human homeland. From here I can put the moon inside the palm of my hand. From this perspective there are no blacks or whites in it, no divisions between East and West, communists and capitalists, north and south. We are all one Earth. We must learn to love this planet of which we are part."

US astronaut John W. YOUNG, during the fifth trip to the moon on April 16, 1972.

3 PARADIGM AND VISION (3)

3.2 Guidelines

Three fundamental guidelines must be implemented to ensure that the development model works.

3.2.1 Guideline 1 : Create the conditions for a human economy

The economy can no longer be considered as separate from society, hence the term socio-economy*, which requires seeking an alternative to perceiving humans as an adjustment variable, but more importantly, to **reconcile quality of life and work.**

The industrial and predatory economy (see Chapter 3) will not change overnight. However, measures to develop a human economy can be introduced very quickly, as they mainly consist of **liberating new productive forces at work**, according to the reverse paradigm in which **employment creates the organization** rather than the organization creating jobs.

This release consists of :

- **Removing all obstacles to employment** and more particularly to entrepreneurship, from starting a business to creating one's own job (self-employment). The revolution here consists in considering individuals as the main economic agents and no longer companies (see Highlight N°. 4). This means that it must be possible to legally set up any business in less than a week. To achieve this condition, there are two powerful levers: the digitalization* of public administration and the diversification of financial support (*crowdfunding*, local savings, tontines, etc..) ;

HIGHLIGHT N°4

The liberated business (31)

A business is said to be "liberated" when a majority of employees have the freedom and full responsibility to take any action that they themselves consider to be the best for the company's vision (32).

The fundamental principles of the liberated company are as follows:

- Leaders' ability to listen.
- Employee freedom, as a driver of motivation and creativity.
- Common values and adherence by all to the company's culture.
- Elimination of the pyramid hierarchy and supervision.
- Disappearance of symbols of privilege.
- Elimination of imposed schedules.
- Principle of subsidiarity*: employees are entitled to make decisions on matters that concern them.
- Employees who care about the customer, their company and their colleagues.

Source : http ://laurenceperrin-conseil.fr/entreprise-liberee-et-demarche-appreciative/

3 PARADIGM AND VISION (4)

- **Emphasizing the human dimension within productive organizations**, in all sectors, by creating a climate conducive to productivity and innovation : encourage people to work, both through the quality of workspaces and by fostering healthy interpersonal relations at work. Upgrade human resources departments so that they are equated with, if not above, companies' financial departments. Strengthen the quality of human resources management by attaching importance to "human added value", in particular through mandatory vocational training, and by enhancing "well-being at work" without forfeiting a fair and rigorous assessment of processes and results achieved ;

- **Speeding up the development of a local economy** (Buurtzorg type) benefiting those who need it most, on the basis of three priorities :
  - **Personal services :** day-nurseries, early childhood care, school canteens, public writers, janitorial services, shopping, etc.
  - **Home care :** caregivers, nurses, midwives, mobile doctors,...
  - **The bottom-of-the-pyramid economy** (see Highlight No. 5) : first, services provided to the most deprived, suitable products, such as medicine by the unit but delivered in bulk and therefore cheaper, and secondhand markets and, second, fostering the growth of local small jobs (running errands, manual work, recycling) for the neediest.

HIGHLIGHT N°5

"Nothing is lost, nothing is created, everything is transformed."
A. L. LAVOISIER

Bottom-of-the-pyramid economy

This economy actually reverses Coimbatore Krishnao PRAHALAD's top-down concept (33), known as the "bottom-of-the-pyramid economy", which stated that anyone living on less than US$2.50 a day could be a profitable consumer. Experience has shown that multinationals are unable to make this potential market profitable.

The lower economy is rather based on Amartya SEN's bottom-up approach (34), which shows that everyone on low incomes is a potential producer (not just a beggar). It is therefore essential to free up work opportunities as much as possible and to promote the development of suitable activities, such as upcycling* (bio-waste in food production, such as mushrooms on coffee grounds*), recycling, etc...

To help the poorest free themselves as quickly as possible, it is imperative to set up the conditions to create a bottom-of-the-pyramid economy, on a country-by-country basis, once the predatory economy is eliminated.

Lamp made from a small boat helix and an electric bicycle hub

Source : http://upcycling-art.eklablog.com/la-lampe-helice-a119147702

3 PARADIGM AND VISION (5)

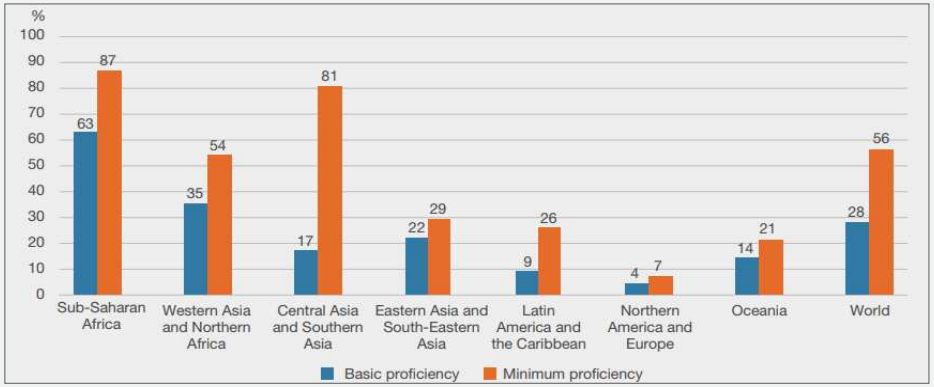
3.2.2 Guideline 2 : Training (and reforming) for the future

Preparing populations for the new world, resulting from both disruptive and systemic change, requires a comprehensive reform of education systems (basic education, higher education and vocational training) in terms of content and pedagogy as well as teacher status.

Two objectives must be assigned to this reform : **primacy of skills over competencies and individual alignment of values, freedoms and responsibilities** ("fullness" concept (35). This requires reforming education systems whose founding principles often date back to the 19th Century (see Best Practice No 6).

In 2018, nearly 86% of people over 15 years of age could read and write world-wide (36). Of course, the objective of a literate population as a whole must be pursued. However, the focus must now shift from mass to content (see Figure 24).

Figure 24 : Proportion of students not reaching the basic and minimum proficiency levels in reading by region



Source : UNESCO Institute for Statistics

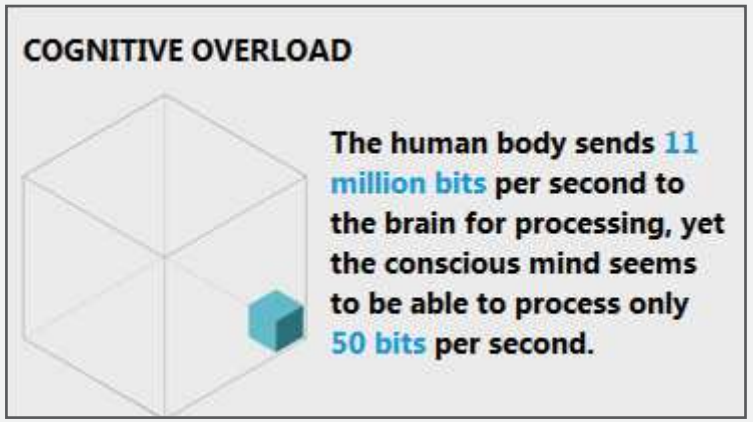
3 PARADIGM AND VISION (6)

Indeed, the rapid obsolescence of content and its digital accessibility make it possible to substitute the time spent memorizing by that devoted to developing cognitive skills. The resulting more autonomous thinking (critical thinking, systems thinking, design thinking*, etc.) is essential, because discernment is a critical skill in an information society, as it leads to greater temperance, especially in this turbulent period in the volatile, uncertain, complex and ambiguous world.

For this revolution in content and minds to occur, the priorities of each cycle of education must be rethought and clearly defined. Thus, kindergarten aims to socialize children ; primary school aims to develop the state of mind (mindset 2.0) and identify the abilities of each child ; secondary school aims to develop these abilities. Vocational training allows for the rapid and efficient development of skills in a chosen field through apprenticeship, work-study, and one-on-one online and tutored instruction. Higher education focuses on professions requiring a high level of intellectual knowledge : medicine, engineering, research, etc.

This shorter, more specialized, post-secondary education must have two distinct effects :

- On the one hand, to better match labor market needs through shorter, vocational, adaptable training ;
- On the other hand, prepare future generations for "life-long learning," which will be necessary for them to adapt to the pace of change (see Chapter 5).



Source : Encyclopaedia Britannica, *Physiology*

BEST PRACTICE N°6

Education : The success of the Finnish experience (37)

Finland's education system has become a reference in this field and "the model to follow". The keys its success are as follows :

- Equal access to education, which advocates free education at all levels, maximizing the potential of each pupil, providing educational support for each pupil and each student, and supporting linguistic minorities and migrants.
- Lifelong learning.
- An educational system based on trust and accountability.
- Pre-school and basic education as an integral part of lifelong learning.
- Flexibility in choices at the upper secondary level, either towards general education or vocational education.
- Diversified higher education, scientific and professional.
- Well-trained teachers, a highly selective profession.

Within the Finnish school, it is thought that all disciplines are equally important to ensure a broad general knowledge.

Source : IRES processing _ https://finland.fi/fr/vie-amp-societe/la-verite-sur-lecole-finlandaise/

3.2.3 Guideline 3 : More human housing

Housing is a fundamental right, which must be recognized worldwide, in view of soaring numbers of "homeless" people around the world (see Best Practice No. 7).

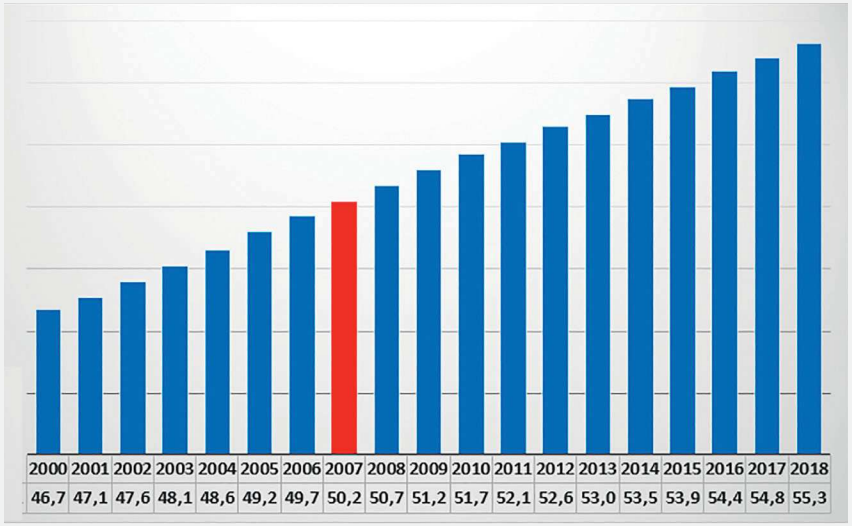
A three pronged approach is to be favored :

- **Provide housing for the homeless**, whose numbers are growing worldwide, particularly in Europe.
- **Transform slums into healthy dwellings** (see Best Practice No. 8), with a streamlining of the transition from the informal to the formal sector through, inter alia, blockchains.
- **Adopt new standards for future buildings** for better adaptation to climate change, sustainability and healthy living conditions. Such standards should include better lighting, natural air circulation (elimination of existing air conditioning, which is detrimental both ecologically and physiologically) and accessibility (mobility, furniture, Internet) adapted to the world's ageing populations.

New technologies such as additive manufacturing, the Internet of Things and blockchain will contribute to changing the housing landscape (see Chapter 5).

Since 2007, more than half of the world's population has been living in cities (see Figure 25). Yet human beings are particularly sensitive to the environment around them : for example, in Brazilian *favelas**, it has been demonstrated that a cleaner environment reduces misdemeanors. This led the Brazilian authorities to implement an urban integration policy for these *favelas** from 1994 onwards (38).

Figure 25 : Changes in the global urbanization rate (in %)



Source : Traitement IRES_ World Urbanization Prospects _ https ://population.un.org/wup/Maps/

BEST PRACTICE N°7

The Housing First Program in the United States (39)

Housing First is a housing program for the homeless, created in the United States in the late 1980s. It was designed as an alternative to the previous multi-stage system, ranging from emergency shelter, transitional housing and, finally, independent housing.

Housing First immediately transfers homeless individuals or families from the street or homeless shelters to permanent housing.

Focusing on families and disabled, vulnerable and alcohol- and drug-dependent people, the program has resulted in significant savings for taxpayers in health and social welfare costs, as well as a significant decline in homeless populations, across all American states that have adopted the program, as well as in several European countries that have emulated its success.

"Housing first" for an autonomous habitat

Source : http ://www.logement-bourgogne.com/logement-dabord-habitat-autonome/

BEST PRACTICE N°8

Rehabilitation and modernization of Slums in Thailand : the "Baan-Mankong" Program (40)

In 2003, the Thai Institute for the Development of Community Organizations (CODI) set up the "Baan Mankong" program, which aims to rehabilitate and modernize slums and transform them into healthy housing. This program is based on a bottom-up approach, aiming at decentralizing the slum upgrading process and promoting citizen participation in the process.

CODI directly provides infrastructure grants, real estate and land loans to targeted poor communities, which in turn plan, manage the budget and transform their slums into healthy housing.

Initially, the program promoted community savings activities across the country. Subsequently, it focused on creating and strengthening networks of poor communities and seeking national expertise for the training and management of these communities.

Thanks to this program, the proportion of Thailand's urban population living in housing built with sustainable materials has increased from 66% in 2000 to 84% in 2010, despite a sharp increase in rural exodus (41).

Source : https ://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9669.pdf/

3 PARADIGM AND VISION (9)

Preparing cities for the emerging world hinges on three cornerstones of sustainability :

- **Building on city dwellers' needs and aspirations** to provide better quality of life everywhere : functional mix and reduced disparities between living environments, new proximity (shops, services) and improved mobility.
- **Reintroducing ecosystem functions into the city** (see Best Practice No. 9) : urban agriculture, community gardening, air purification ; moving towards low energy and water consumption ; developing renewable energy production ; limiting light, allergens, odors and noise pollution. The upkeep of public spaces and infrastructure will quickly become critical as a result of climate change and population growth in urban areas : a better distribution of its burden must be devised and implemented.
- **Improving local governance** by adjusting the granularity* of municipal policies to the neighborhood level while consolidating city unity and its interconnection to outer areas.

This primary objective of the new development model involves humanizing the economy, developing a new state of mind, caring for human living spaces and drastically reducing inequalities. The result of such a policy can no longer be measured in terms of gross national product, an indicator specific to the predatory economy, but in terms of a national happiness index. Policies dedicated to the well-being of citizens are already being implemented (Bhutan, New Zealand, United Arab Emirates, etc.) : however, this happiness can already be achieved by humanizing development.

Indeed, transforming economic growth into employment is a complex process.

BEST PRACTICE N°9

Singapore, nicknamed "garden city", pioneer of green urbanization in Southeast Asia (42)

Sustainable development* is a core focus for Singapore. This policy has paid off as the country ranks among the most environmentally friendly states in the world.

Nature, parks, lush gardens, vertical farms* and green social housing are everywhere, a 10 hectare park is located in the city center in the business district, with 12 metal trees, 25 to 50 meters high, lined with a multitude of plants (over 200 different species).

The Government of Singapore has introduced the *BCA Green Mark* certification, which evaluates buildings on five criteria based on energy performance, water saving, interior design quality and innovation. It has also placed intelligent mobility at the heart of its sustainable development policy* (eco-mobility, intelligent parking, etc.).

Singapore : City in a garden

Source : https ://redtac.org/asiedusudest/2014/12/05/singapour-la-cite-etat-jardin/

4 PROPOSING

Towards a more human Moroccan economy

4.1 The human economy

In addition to the obvious need for better protection of workers, four essential measures and three priorities are proposed to promote the human economy.

4.1.1 Four essential measures

- **Immediate and effective recognition of the right of every human being to work as a self-employed person,** without the need to be subjected to the hardships of a crippling bureaucracy : this could be achieved by assigning each person a worker number at the end of compulsory schooling to guarantee transparency in their activities (possibly later by using a blockchain system subsequently). Such an ID number would enable workers to perform all necessary procedures, much like any other legal representative of a company. This legalization of work would not only reduce informal work but also spread the tax burden over a larger number of taxpayers.
- **Facilitating a platform economy** (see Highlight No. 6), i.e. the possibility of bringing buyers and sellers, supply and demand into contact through digital platforms (Uber, Amazon, Upwork, Thumbtack...) : such an instrument, supported by its presence on social networks, is the best way to start or develop a self-employed professional activity.
- **Liberalizing all trade from individuals to individuals**, according to a preferential tax system : personal services, recycling, second-hand market, manufacturing laboratory (fab lab), etc., including sharing and renting vehicles or housing.
- **Establishing a special "young company" status** (for a five-year period after creation), allowing free and easy hiring and firing, preferential access to loans and to "community savings" type investment funds and minimal taxation, in order to encourage business creation and development.

HIGHLIGHT N°6

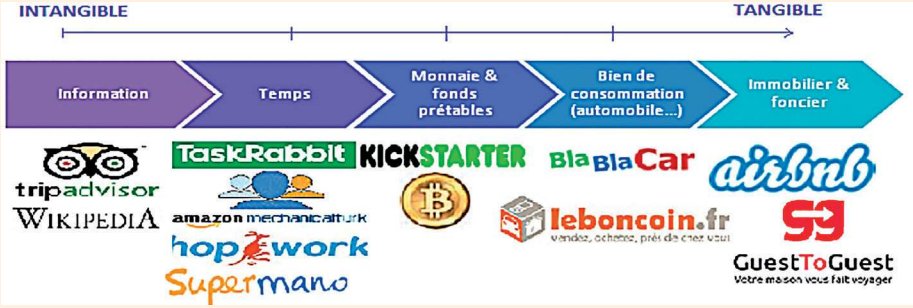
Platforms (43)

Once fragmented and automated, work can be "platformized", i.e. managed by a computerized system through which many suppliers of work can meet many people who are seeking work.

Platforms are new tools which have not yet been fully mastered. They constitute a new ecosystem in the making. They are referred to as : sharing economy*, outcome economy*, *gig economy** (odd job economy), *"tap economy"* (work on demand), micro-work (peer-to-peer employment).

Platforms promote part-time work and multiple jobs. Different legal statuses exist : salaried employees of private employers* ; micro-workers ; self-employed workers and micro-entrepreneurs ; "active leisure" individuals.

They are characterized by diversity, an amplifying effect from local to global, from supply to demand, from ownership to use, from integrated production to fragmented production and by a "blurring" of regulation : social law, competition law, sector-specific law, national law vs. international law.



4 PROPOSING

Towards a more human Moroccan economy (2)

4.1.2 Three priorities for action

- **The bottom-of-the-pyramid economy** should enable the less well-off not only to earn a living but also to have access to basic necessities, such as medicines, at affordable prices. While it has been established that the initial model designed by Coimbatore Krishnao PRAHALAD did not provide the expected return on investment, other forms of bottom-of-the-pyramid economies can be tested, such as the sale of surpluses, recycling, etc. (see Chapter 4 - 4.3.3.3)
- **Homecare services**, designed to relieve hospital congestion and reinforce the paramedical sector, based on the Buurtzorg (neighborhood care) model, deserve to be developed in Morocco. This would help to satisfy an existing demand for care, which is likely to increase as Moroccan society ages, create jobs and promote prevention against complications.
- **Social entrepreneurship**, which generates significant employment, should be promoted. The obstacles that this type of entrepreneurship faces can be addressed through the adoption of an incentive tax framework, easier access to finance and better access to the market for public and private procurement. In particular, encouraging social entrepreneurship in agriculture would make it possible to harness the immense potential of Morocco's biodiversity in a more efficient way.

4.2 A radical change in mindset

The acknowledgement of dysfunctions in the education system has led to frequent calls for its reform. The challenge today, however, is to overcome these deficiencies but also to completely rethink education and training from a radically different angle.

In fact, current education systems, including the Moroccan one, aim to produce interchangeable economic agents with similar skills. However, the introduction of artificial intelligence* into recruitment processes means that both the need of given employers and the profile of unique candidates can now be specified to an extremely high degree of precision.

In addition to early childhood development, a radical change of mindset requires appropriate training for young people, teachers and adults.

4 PROPOSING

Towards a more human Moroccan economy (3)

4.2.1 Training young people

As a result, the expectations to be met by an education system, which must prepare young people for the future that awaits them, can be summed up in three main objectives :

- **Train responsible and caring citizens**, who are well versed in the elements necessary for life in society : reading/writing/math/computer literacy, history, geography, culture, values, common sense, entrepreneurship, digital and language skills, empowerment and soft skills. Alongside these skills, it is essential to educate people in the values of progress, cross-cultural skills, respect for difference and critical thinking, to develop autonomy and personality and to foster cooperation and teamwork.
- **Identify and nurture the skills** that will allow a young person to spread his or her wings to the fullest with minimum effort, regardless of the field (see Best Practice N°. 10).
- **Prepare young people for the future world** they will find themselves in after completing their studies, in particular by acquiring critical and systemic thinking skills, design thinking*, leadership, collaborative project management, cross-disciplinarity, experimentation, etc...

BEST PRACTICE N°10

Schools 42 (France, United States)

Schools 42 are two self-study higher education institutions not recognized by the State whose objective is to train developers. At the end of a training course lasting between 2 and 5 years, the school issues professional certifications accredited by the French Grande Ecole du Numérique (44). The first school was opened in Paris in 2013 and the second in the United States in 2016.

The schools operate in the same way as EPITECH (45) : project-based teaching. The educational approach (46) used is as follows :

Source : https ://www.42.fr/fiches-metiers/

- *Peer-to-peer* learning* : there are no lectures or coursework supervised by teachers. Students are both trainers and learners.
- Progression : It is expressed in levels of experience inspired by video games. Each student develops his or her skills through the project proposals and receives experience in exchange.
- No fixed time limits : each student progresses at his/her own pace.
- Training adapted to the job market : the training provided does not lock graduates into stereotypical jobs. It allows them to prepare for jobs that do not yet exist, particularly in the digital field.

4 PROPOSING

Towards a more human Moroccan economy (4)

4.2.2 Training teachers

This transformation can only be achieved by freeing the education system, its teachers and administrative staff from purely political considerations and obscurantist values. To do this, three measures are necessary :

- **Enshrine long-term educational fundamentals** in the Constitution in order to avert challenges by governments.
- **Compulsory professional training for teachers** and administrative staff, at least every three years, in new teaching methods, new technologies, changes in subjects taught, findings of experiments carried out and changes in mentalities.
- **Professionalize teaching at all levels**, including university professors, through a triple annual assessment by students, peers and external professionals, preferably future employers.

4.2.3 Training adults

Lifelong learning alone can enable an adaptation of attitudes, skills and processes to the profound transformations underway and to come. It should however be complemented by continuous evaluation.

It is therefore necessary to **make continuing vocational training compulsory** in Morocco in order to foster workers' personal growth, improve the productivity of public and private companies and ensure that a properly educated population is the primary driver of economic development.

In addition, the capacities of public and private vocational training institutions must be enhanced so that they can deliver quality services in Morocco's priority development areas.

4 PROPOSING

Towards a more human Moroccan economy (5)

4.3 Public space development

Psychologists and sociologists have long highlighted the impact of the environment on people's mentalities. Moreover, environmental pollution, congestion in urban areas that were not designed for the current state of mobility, inefficient segmentation of cities and poor quality housing are now also a concern.

Hence, three priorities :

- **Making cities human for their inhabitants** (see Highlight No. 7) - from the marginalized (47) to the elderly and vulnerable people such as pregnant women, children, the disabled, the sick and the elderly - requires a major effort of listening to the population, whereas these facilities are designed and approved by professionals who are not well informed about the reality of people' needs and expectations. Greater attention to basic housing and public spaces would improve quality of life, potentially reduce incivilities and promote the involvement of residents in the management of their neighborhood.

HIGHLIGHT N°7

Creative and cultural industries : a driver for city development

The concept of "creative industries" was developed in English-speaking countries by the geographer Richard Florida (48) around the concept of "creative class". It is defined by its stakeholders : researchers, artists, engineers, designers, computer scientists in particular. Creativity is achieved through the tryptic : "Technology, Talent and Tolerance". Creativity is supposed to be at work in the development of large cities. This is currently the case in Berlin.

By developing cultural projects (museums, for example), creative industries play an important role in the regeneration of urban spaces. This is the case, for example, of the Louvre Lens, the Louvre Abu Dhabi or the Guggenheim Museum in Bilbao.

Film cities (Bollywood in India) are also representative of the economic and social impact of cultural and creative industries on the development of cities.

LOUVRE LENS

LOUVRE ABU DHABI

GUGGENHEIM

Source : Composite images _https://www.louvrelens.fr/ ; https://www.louvreabudhabi.ae/ ; https://www.guggenheim-bilbao.eus/fr

4 PROPOSING

Towards a more human Moroccan economy (6)

- **Making cities sustainable** in terms of energy and water consumption is becoming increasingly easier thanks to *"Shaping Things"** (see Best Practice N°. 11), sensors that automatically switch public lighting and irrigation systems on and off according to real needs, thus generating significant savings. Promoting the preservation of a minimum amount of green space and air quality through a municipal land use policy can reduce the municipality's burden by transferring some of it onto citizens, schools and other institutions. Dematerialization of data and public services should be designed to limit travel in particular to and from administrations. This would also have the non-negligible collateral effect of reducing corruption.

- **Eradicating substandard or illegal housing** (49) continues to be a thorny issue. The new development model does not provide a definitive solution for the moment. Nevertheless, three public policies could help to limit its scope in the future :

  - Undertake a comprehensive cadastral survey of the country, backed by the "blockchainization*" of ownership titles.
  - Regularly reassemble and/or reallocate, every ten years, unused or fallow land to reclaim building land without encroaching on arable land and to develop a sustained municipal and regional land use policy.
  - Address the root causes of rural exodus, making farming more productive and sustainable and bringing it closer to cities (short local supply chains).

BEST PRACTICE N°11

Smart cities : the Barcelona model

In 2016, Barcelona ranked second in the global ranking of smart cities (50). It meets the criteria of a smart city, a sustainable city that strives to make life pleasant for its citizens, economically, socially and environmentally.

City authorities have launched the "Barcelona Digital City" strategy (51), investing in digital public infrastructure that can promote better quality public services and be the gateway to a collaborative society and an inclusive, sustainable and smart economy. This strategy includes three programs :

- "Digital education, which mainly aims to foster science and technology education for children.
- Digital inclusion, which takes training to the next level : "Vincles BCN", for example, helps older people overcome barriers to entry into the digital world.
- Digital rights and democracy that empower Barcelona's citizens to make decisions.

In addition to developing smart transport systems and promoting public-private partnership, the keys to the Barcelona experience's success lie in building data infrastructures and protecting them, as well as designing a platform for creating solutions : the best way to achieve digital democratization is to empower citizens to explore and experience technology for themselves.

Source : Urban hub

4 PROPOSING

Towards a more human Moroccan economy (7)

4.4 Drastic reduction of inequalities

In the long term, education and training are of crucial importance for the reduction of social inequalities. In the short and medium term, tackling inequalities requires a redistribution of growth proceeds, through a tax reform that promotes equity between taxpayers, a financial inclusion policy for very small and small businesses as part of self-employment development, and for vulnerable groups of the population, including very low-income people and women.

Public authorities must address the digital divide since it risks marginalizing part of the population, especially since access to public and market services is gradually occurring through online platforms.

Combating inequalities in all their forms, as well as generalizing social protection and implementing the Unified Social Register efficiently can contribute to building institutional trust and, in general, social capital. To this end, particular attention should be paid to two important dimensions of social capital in the new development model : gender, including inequalities faced by women, and interpersonal trust, including through compliance with the rules.

CHAPTER 3

PILLAR 2 : TAKING CARE OF NATURE

A growing number of citizen movements are striving for different relations with the living world, a more environmentally friendly economy and a less consumer-oriented way of life. This is due to the fact that damage from the predatory economy is becoming increasingly apparent and that Mankind has entered a new stage of consciousness, more concerned with the planet.

For the younger generations (52), it is becoming clear that we must take care of nature and all living things, as the very survival of the human species is at stake. The hyper-technological mirage of humanity dominating nature is crumbling.

1 UNDERSTANDING

IRES' Panorama 2017 focuses on the global challenges facing the biosphere, which includes all living things on planet Earth. The concept of "biosphere" has been adopted for its holistic and interdisciplinary aspects and, mainly, for its scientific rather than political significance. It is in keeping with IRES' systemic and forward-looking approach to tackling the major challenge of changing natural conditions in human beings' living environments.

Climate change is undoubtedly the most significant threat to the future of humanity. It is not, however, the first threat faced by mankind whose adaptive capacities have always enabled it to survive. This is, however, the first time that such a change is not only so rapid, but also and especially, that it is combined with a major degradation of the planet as a whole, due to an excessive global ecological footprint*, which may jeopardize the very survival of the human species on this planet.

The awareness, over the past two decades, of the significant alteration of the Earth's climate has gradually obliterated what almost a Century of observation of nature has shown : that the model of natural resource exploitation and management is unsustainable.

Moreover, in response to acute threats arising from climate change, policies have focused on greenhouse gas mitigation and energy related concerns, to the detriment of all other factors affecting the biosphere, but also to the detriment of adaptation policies.

Despite the setting of major global, regional or national targets, measures hitherto considered are still too slow in their implementation and often prove ineffective.

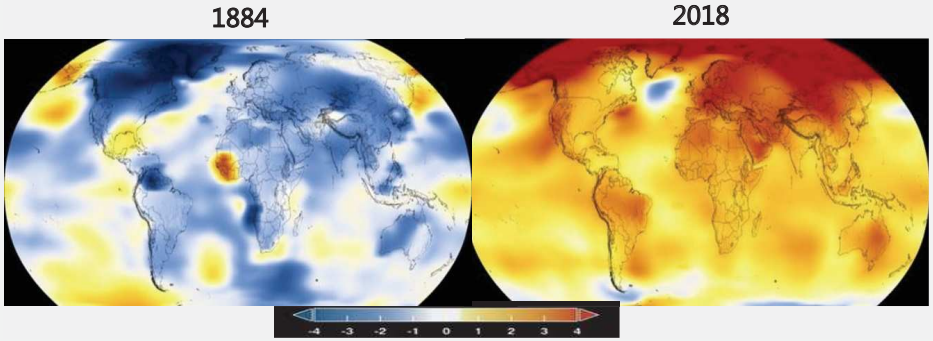
1 UNDERSTANDING (2)

IRES' 2017 Panorama highlighted how serious the current developments are, as confirmed by the most recent findings of the Intergovernmental Panel on Climate Change (IPCC) (53), which reports an alarming global warming trend. The main conclusions, with a high degree of certainty, are as follows :

- Human activity has already caused a 1.0°C warming. This increase could reach 1.5°C between 2030 and 2052 if the pace is not slowed.
- Some impacts may be long lasting or even irreversible, leading, in particular, to the disappearance of certain ecosystems and the increase in global natural phenomena*.
- The impacts of global warming are evidenced by an increase in global temperatures (see Figure 26), an increase in the frequency and intensity of heat waves and significant changes in the distribution of rainfall (see Figure 27) : droughts in some areas and floods in others.

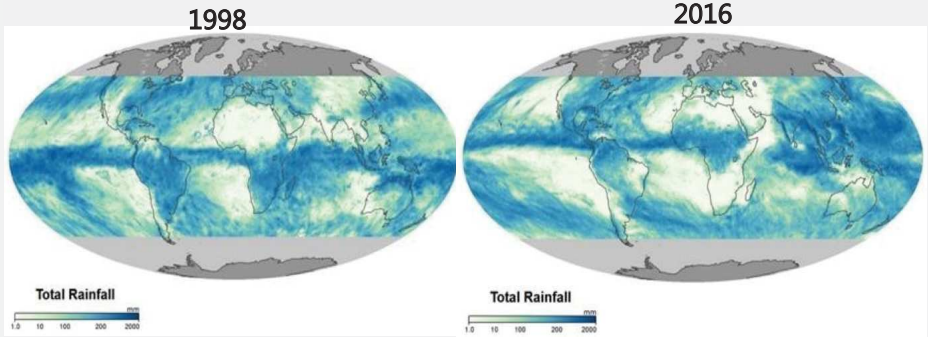
To limit global warming to +1.5°C, scientists consider that options are increasingly limited. To successfully stabilize global warming at +1.5°C, CO_2 emissions neutrality would have to be achieved by 2050.

Figure 26 : Observed change in global temperature between 1884 and 2018 (in °F)



Source : Scientific Visualization Studio, NASA

Figure 27 : Observed change in rainfall between 1998 and 2016

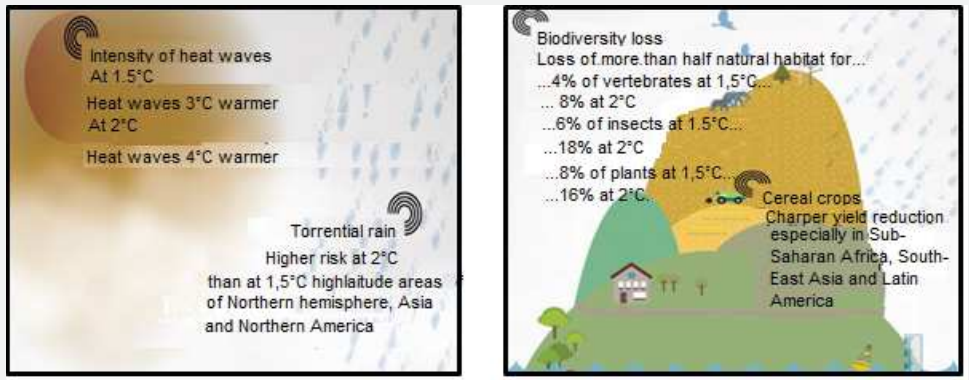


Source : Earth observatory, NASA

1 UNDERSTANDING (3)

Figure 28 highlights expected climate change effects above 1.5°C and that could occur at +2°C.

Figure 28 : The impact of global warming at +1.5°C or +2°C



Source : IRES processing _ IPCC Report, October 2018.

Mankind can no longer afford the luxury of consuming non-renewable resources, nor can it upset the balances that are fundamental to sustaining life on Earth (Anthropocene*).
It is therefore urgent to change both consumption patterns and more destructive processes (human activities) (see Highlight N° 8).

The unsustainable development model* prevailing in most parts of the world has altered environmental balances by affecting the planet's biological reproductive capacity.

This trend has dramatically increased the human footprint on the environment, reaching both physical limits to the sustainability of productive systems : resource reproduction and waste absorption.

HIGHLGHT N°8

Some recommendations from the 2018 IPCC report (54)

To achieve the target of limiting global warming to 1.5°C, global greenhouse gas emissions would have to be reduced by about 45% by 2030 as compared to 2010 and these emissions would have to be stopped by 2050. In the Chapter 4 of its report, the IPCC proposes the following :

- An energy transition through a shift from fossil fuels to renewable energies, including the use of solar, wind (see Best Practice N° 12), hydropower and biomass or the use of nuclear energy. However, this energy transition is not sufficient and, in addition, energy demand resulting from unnecessary uses should be strictly limited.
- An urban transition and a revolution in mobility through the design and organization of cities to create better-built cities with better oriented and more thermally insulated buildings and sustainable multimodal mobility. The IPCC report confirms that buildings are responsible for 32% of global energy consumption. Less frequent use of private cars, and reliance on public transport and multimodality could also reduce final energy consumption up to 40% in this sector.

BEST PRACTICE N°12

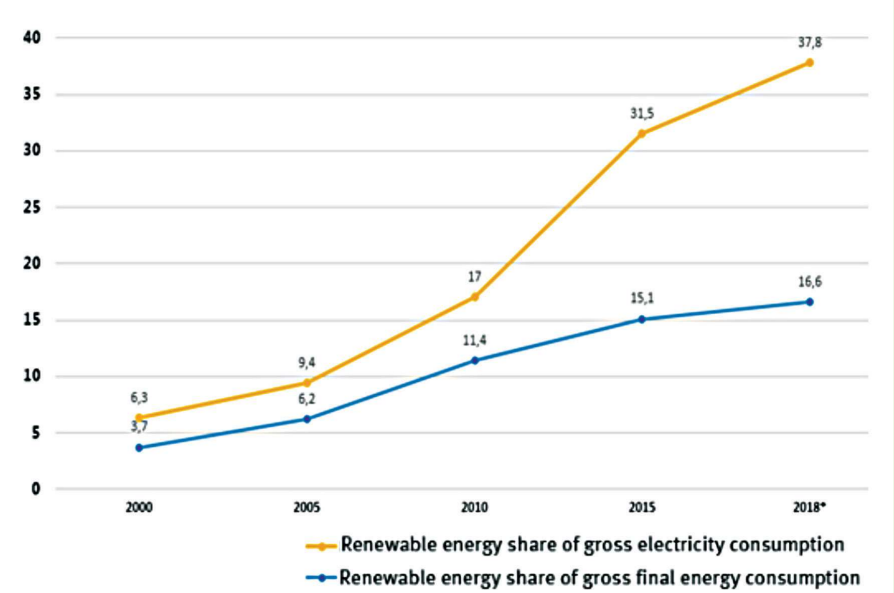
Renewable energy development in Germany

Described by the Organization for Economic Cooperation and Development (55) as a "Green Growth Laboratory", Germany has made substantial investments in the development of renewable energy.

As a result, the country has decided to drop nuclear power by 2022 and plans for a longer-term phase-out of coal. According to the German Environment Agency (56) (see Figure 29), the share of renewable energy in electricity production approximated 40% in 2018. The share in Germany's energy mix reached 17%.

Wind energy alone accounts for 20.4% of the country's power generation. Germany is now developing offshore wind energy with the commissioning last April (2019) of the "Arkona" offshore wind farm on the Baltic Sea. With its 60 wind turbines of nearly 6 MW each, this park is the largest offshore wind farm located on this sea.

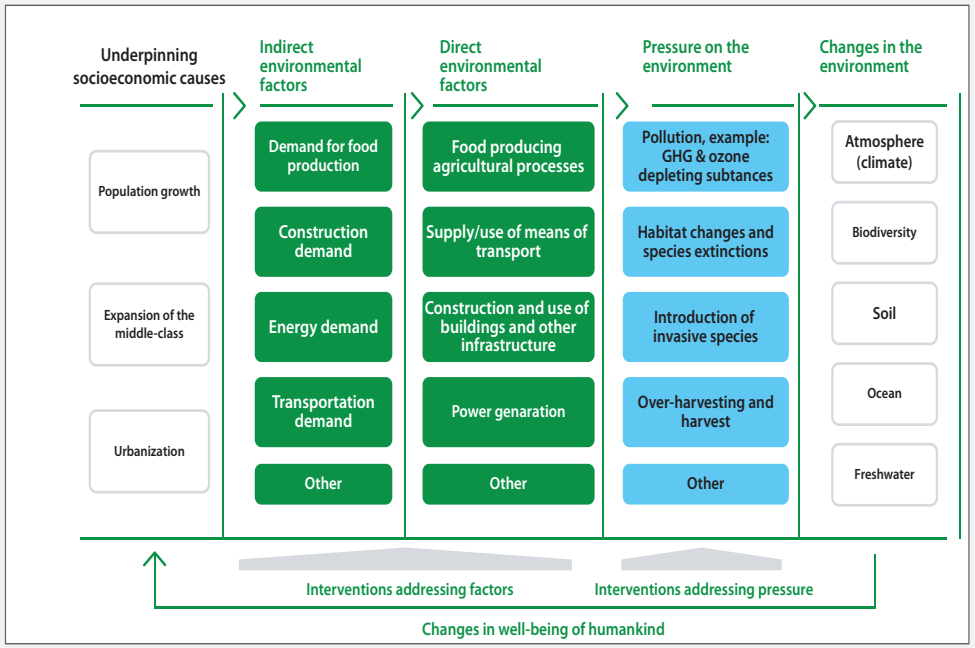
Figure 29 : Renewable energy share in gross final energy consumption and gross electricity consumption



Source : IRES processing _ Data from the German Environment Agency

1 UNDERSTANDING (4)

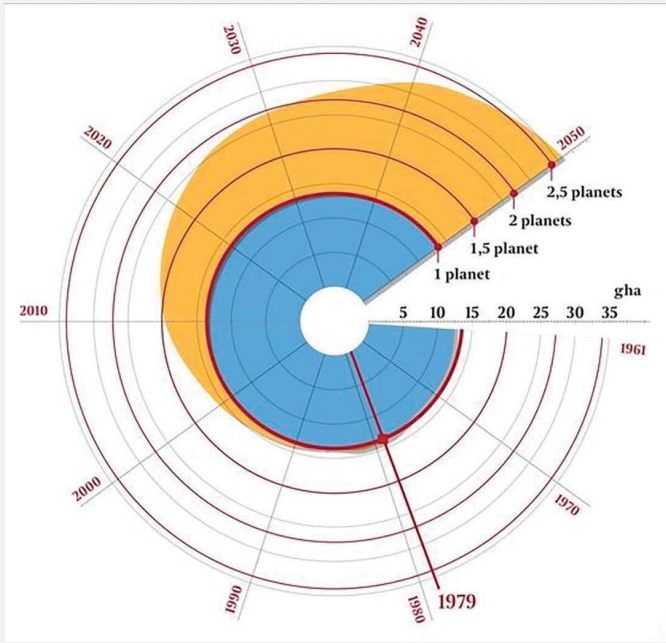
Figure 30 : Cause-effect chain for the degradation of biocapacity* and the growing ecological footprint*



Source : Global Environment Facility, 2015 _ IRES analysis

The global ecological footprint* has exceeded the planet's biocapacity* since the late 1970s (see Figure 31). More recently, August 1st, 2018 was "Earth overshoot day", according to the organization "Global Footprint Network." As of that date, humanity had consumed more natural resources than the planet is able to regenerate in one year and had emitted more greenhouse gases than the planet is able to absorb in one year.

Figure 31 : Evolution of the global ecological footprint* between 1961 and 2050



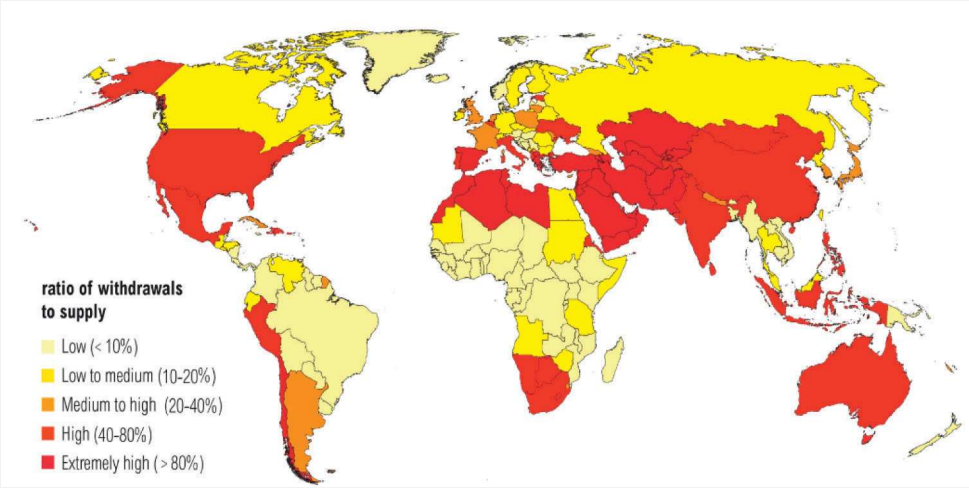
Source : Alexandre Nicolas, after : 2033, Atlas of the Future of the World, Laffont, 2010.

2 ANTICIPATING

The era of shortages

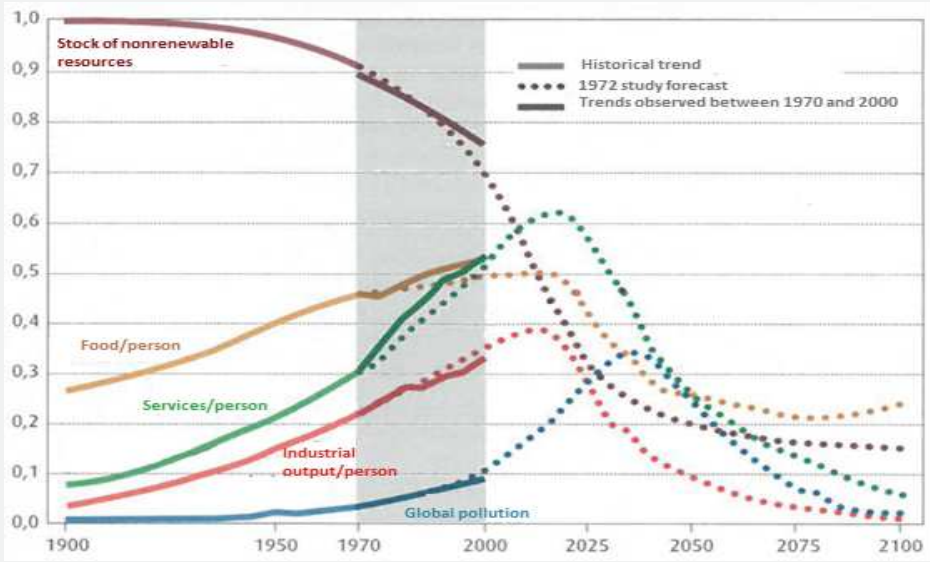
Three major shortages are likely to shape the world of tomorrow : drinking water resources, food resources and strategic non-renewable resources (see Figures 32 and 33).

Figure 32 : Water stress by country in 2040



Source : World Resources Institute

Figure 33 : Trends and forecasts in stocks of non-renewable resources, global pollution and per capita food, services and industrial production



Source : IRES processing _ Meadows Dennis and Donella and Randers Jorgen, Limits to Growth (in a Finite World). The Meadows Report 30 years later, Paris : Rue de l'Echiquier, 2012

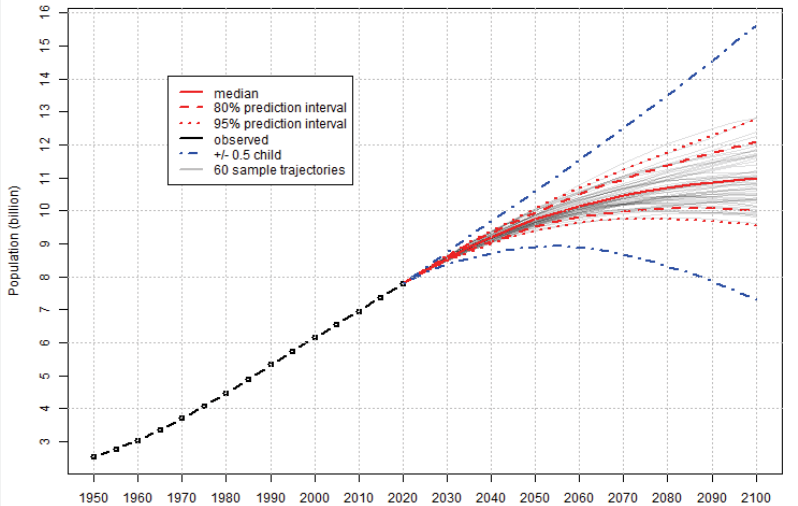
2 ANTICIPATING

The era of shortages (2)

In addition, **climate change will exacerbate these shortages**, due to its impact on food production, desertification and resource needs for reconstruction (following natural disasters) and adaptation, which requires new technologies as substitutes for older ones. The impact of natural disasters is expected to increase, although the impact has not been fully assessed.

World population growth by 2050 (see Figure 34) will place increasing pressure on all resources, mainly food.

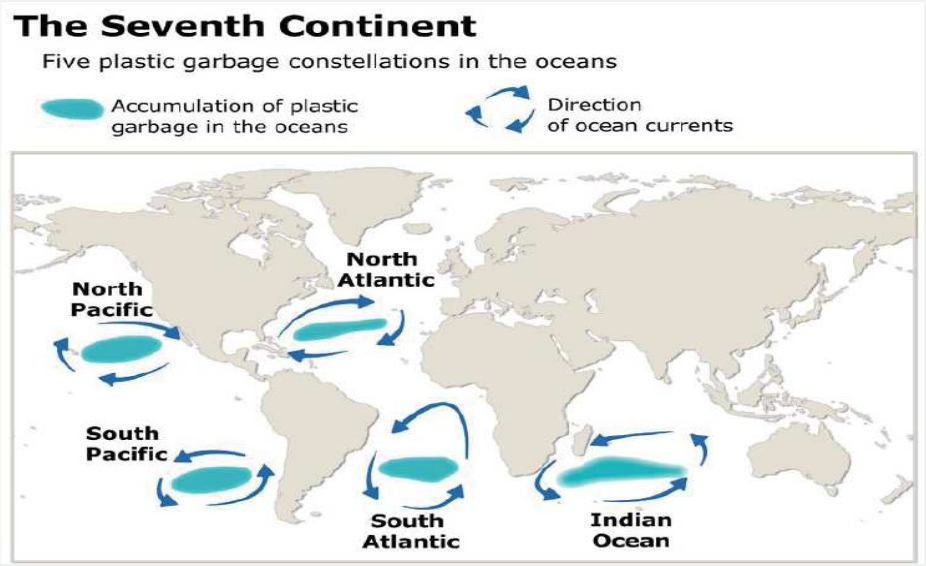
Figure 34 : World: Total population, 1950-2100



Source : World Population Prospects, Volume II : Demographic Profiles, 2017 Revision, United Nations

Lastly, disturbances in the global geophysical balance could significantly worsen as a result of ocean degradation (see Figure 35) : slowing down of major currents, changes in the rainfall system, dead zones and accelerated extinction of marine species (disturbed food chain).

Figure 35 : The degradation of oceans due to the accumulation of plastic waste



Source : IRES processing_ https://www.cartograf.fr/img/7eme_continent/carte_7eme_continent_animaux.jpg

3 PARADIGME AND VISION

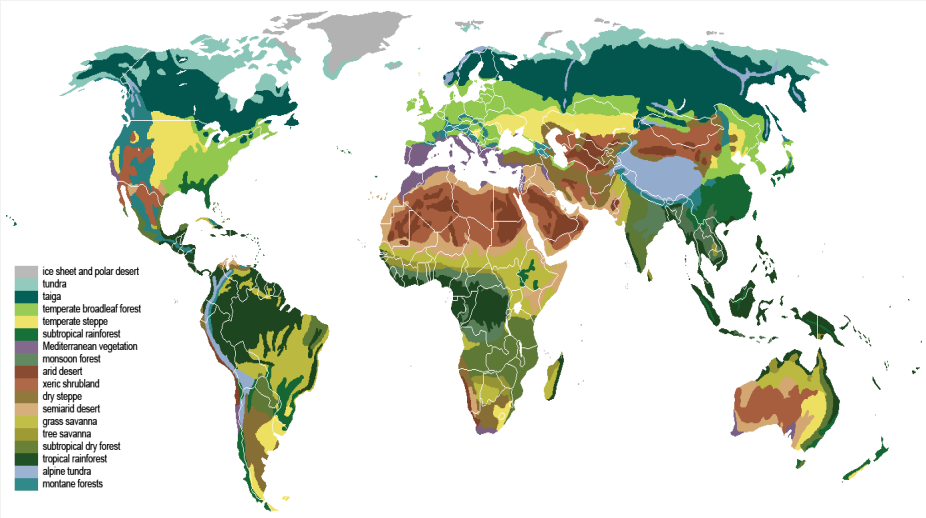
The main question nowadays is therefore : how to satisfy everyone's needs for energy, food and water without impairing environmental systems ? Or in other words : how to bring an end to predation ? Four main, complementary types of answers constitute the environmental pillar of the development model.

3.1 Appropriate protection of species and natural areas (biomes)

Since the 19th Century, a number of approaches have been developed, which must now be combined according to the situation (contextualization and subsidiarity*), in order to identify all natural areas in the world (see Figure 36) and assign to each of them specific protection status :

- **Preservation** consists in rigorously protecting a given area (biome) from human interference by creating natural, enclosed and monitored sanctuaries.
- **Conservation** allows for a rational and limited management of a given natural space, while respecting natural balances and rates of renewal of environments and species.
- **Ecologically intensive use** aims to mass produce quality products using natural ecosystem functions (water, energy, nutrients).

Figure 36 : Terrestrial biomes around the world



Source : https://fr.wikipedia.org/wiki/Biome

3 PARADIGM AND VISION (2)

3.2 Regeneration

A "regenerative economy" recognizes that the proper functioning of complex units cannot be understood without continuous and dynamic relationships between parts that give rise to larger units (57). In other words, a holistic view of the world leads to the restoration of key elements of the global system which have been damaged, so as to produce both wealth and growth simultaneously while protecting non-renewable resources.

This regeneration includes both the built environment and the natural environment (58).

3.2.1 The restoration economy

It is defined as an economic activity that involves the **regenerative use of land**, such as ecological restoration activities. Indeed, activities to repair damage to natural and human communities are often economically beneficial locally, regionally and nationally.

Ecological restoration of a watercourse
in the commune of La Flèche, France

Source : http://www.genie-ecologique.fr/wp-content/uploads/2012/05/Image16.png

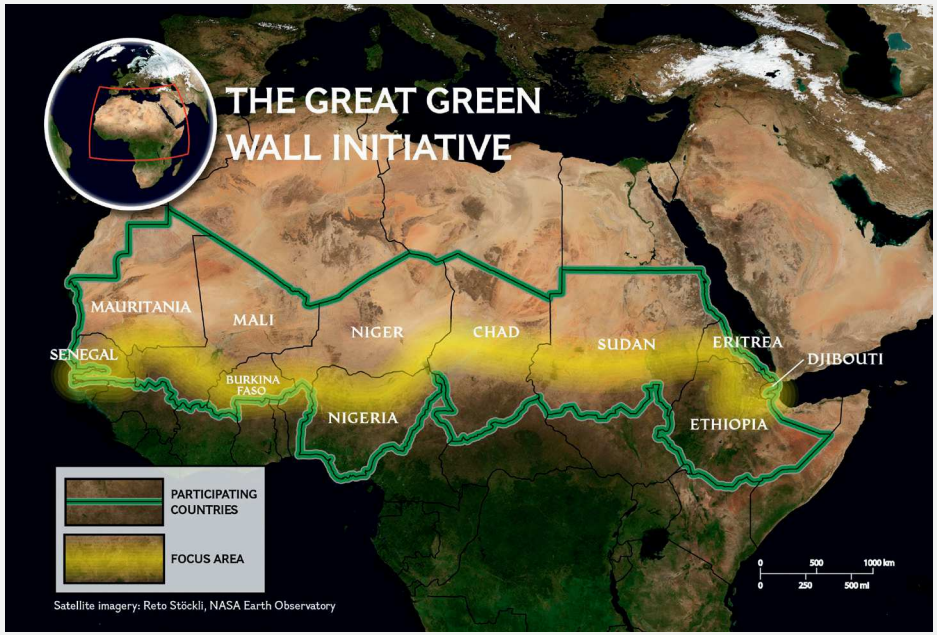
3 PARADIGM AND VISION (3)

Thus, the **necessary restoration of damaged natural balances** can take forms as diverse as :

- Reconnecting rivers to floodplains and restoring wetlands, which have the potential to restore the water cycle and improve human health and livelihoods ; removing dams on tropical rivers requires a significant alternative investment in renewable energy ;
- Economic exploitation of invasive species, for example, water hyacinth as a depolluting agent ; use of non-productive soils to grow commercially viable species such as bamboo ; use of bioremediation* to clean up a polluted rivers or soils ;
- Restoring vegetation cover to allow for market gardening, retaining topsoil and re-moistening topsoil, as in the case of the Great Green Wall Initiative/AFR100 project (see Figure 37), which aims to restore 100 million hectares of degraded land by 2030 in Africa.

More broadly, these actions mainly involve ecological restoration, watershed restoration, fisheries restoration and regenerative agriculture (see 4.1 of this chapter). They create sustainable local employment through the restoration of ecosystem services*.

Figure 37 : Participating countries and focus areas of the "Great Green Wall" project



Source : https://media.nationalgeographic.org/assets/photos/000/343/34337.jpg

3.2.2 Regeneration of artificialized environments

It involves the rehabilitation of industrial and agricultural wastelands, which are particularly polluted areas, the restoration of natural heritage, such as former acclimatization gardens or urban watercourses, and the rapid clearing of urban or local arable land in the event of a natural disaster.

The reuse of brownfield sites, whose soil is too polluted to be arable or inhabited, for solar power plants is a good example.

Box N° 7 : The importance of investing in scientific research (59)

The second priority is to recognize that the "wealth of nations" is the result of scientific inquiry – learning about the world around us – and social organization that allows large groups of people to work together for the common good. Markets still have a crucial role to play in facilitating social cooperation, but they serve this purpose only if they are governed by the rule of law and subject to democratic checks.

3.3 Sustainability

A holistic approach to the economy is needed to avoid economic, social and environmental collapse : this results in the notion of sustainable development*. Two main approaches are needed to implement such sustainability.

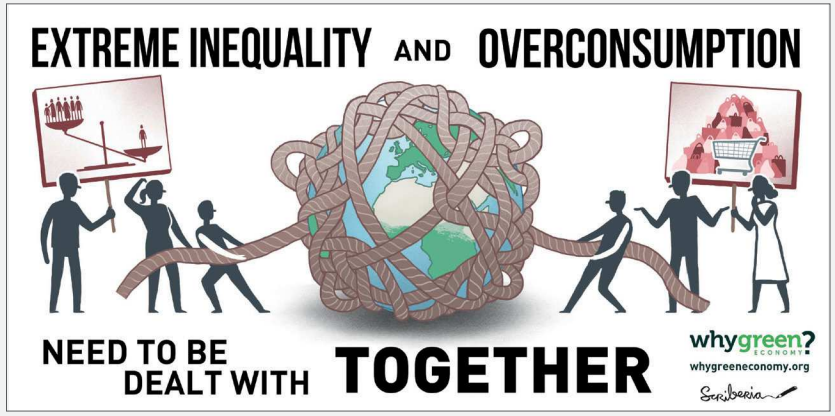
3.3.1 New knowledge-based practices

Once nature has been protected or even regenerated, it must be managed for sustainable use by humans. Such sustainability requires an understanding of the long-term impacts of different mechanisms used (production, flow regulation, etc.) and the interconnections between them. Hence the importance of investing in **high-level and inherently pragmatic scientific research** (see Box N° 7).

3 PARADIGM AND VISION (5)

This knowledge has resulted in the need to drastically reform most of the basic building blocks of the current economic and ecological system, including :

- **Prohibiting environmentally harmful practices** : it is therefore necessary to definitively ban the construction of dams on tropical rivers, single-crops, plastics, inputs that sterilize soils in the long term or whose effect can be harmful to humans,....
- **Rethinking both production practices** (see 4.1 of this Chapter), energy production (see 4.2 of this Chapter) **and recycling** (see 3.2 of this Chapter), and reducing over-consumption, in particular by taxing packaging, promoting the distribution of portioned products and charging for waste collection on a weight basis.



Source : http://whygreeneconomy.org/wp-content/uploads/2015/11/Inequality-and-overconsumption-need-to-be-dealt-with-together-Dario-Kenner-Why-Green-Economy.jpg

Source : https://cdn.pixabay.com/photo/2017/04/28/16/10/forest-fire-2268729_960_720.jpg

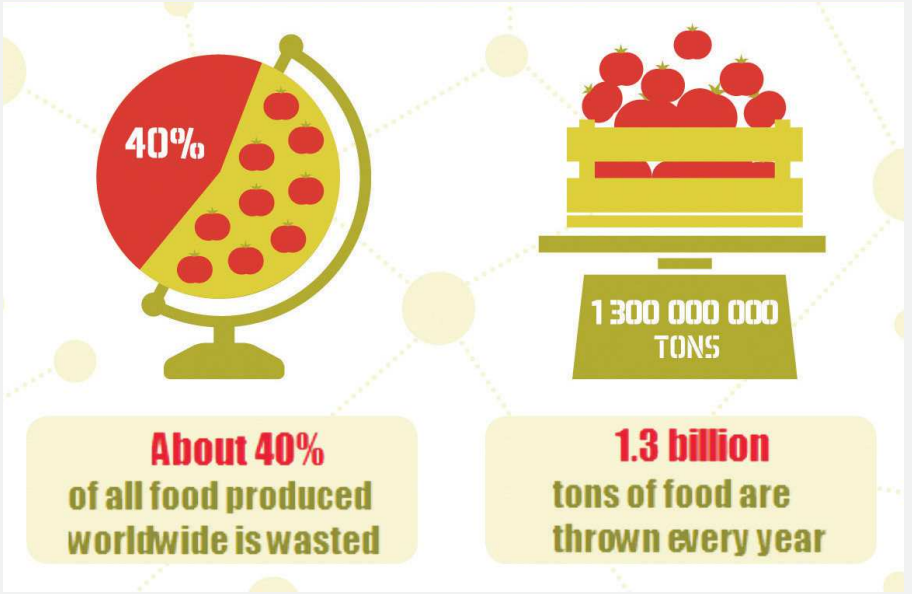
Source : http://media.paperblog.fr/i/261/2612072/belle-pollution-L-1.jpeg

3 PARADIGM AND VISION (6)

The amount of waste must be reduced by combating industrial input misuse and leakage of drinking water as well as the deterioration and destruction of food stocks.

The sustainability of human activities must be assessed with the highest possible granularity* in order to implement necessary measures (subsidiarity* and contextualization). Companies are now becoming aware of the need to reduce their carbon and water footprints.

A model other than the overexploitation of natural resources is possible, without compromising people's living conditions. It requires that companies in industrialized and emerging countries radically change their production methods and drastically reduce their consumption of non-renewable resources.



Source : http://discosoupe.org/wp-content/uploads/2014/11/d%C3%A9roul%C3%A9_sensibilisationantigaspi_RVB1.jpg

3 PARADIGM AND VISION (7)

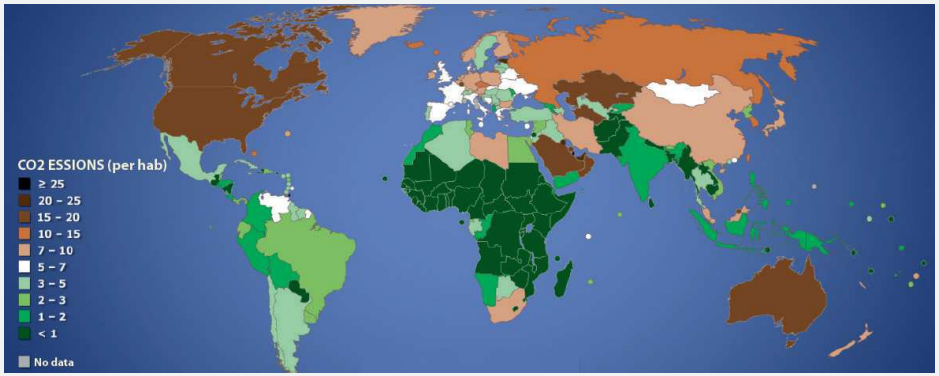
3.3.2 Limiting and adapting to climate change

Although the global warming process now appears to be continuing irrespective of human activity, it is necessary not to exacerbate it. Prevention - a term to be avoided given the misconception of the reality it conveys - must be replaced by measures to limit climate change. This requires work on both carbon (see Figure 38) and methane emissions and their sequestration.

Adaptation to climate change requires considerable resources, which are only likely to increase : agriculture must be radically transformed, living spaces must be moved (Miami, Sydney, Alexandria, etc.), infrastructure must be buried, destruction due to natural disasters must be repaired, significant migration flows must be managed, etc. It is therefore necessary to rapidly start adapting what can be adapted, so as to spread this investment over time and create shared relief mechanisms to cope with the most acute events : tsunamis, hurricanes, fires, epidemics and related famines.

Sustainable development* is now the norm, but measures to enforce it must be accelerated in view of the severity of the situation of certain resources, such as water, and the state of oceans (ecological footprint*), as well as the rapid and underestimated worsening of climate-change effects.

Figure 38 : CO_2 emissions per habitant in 2015



Source : http://discosoupe.org/wp-content/uploads/2014/11/d%C3%A9roul%C3%A9_sensibilisationantigaspi_RVB1.jpg

4 PROPOSING

Moving towards an anticipatory regeneration economy

Morocco has already embarked on its sustainability revolution. Preparation of the Climate Plan, which provides a framework for climate policy, is nearing completion. Effective implementation of this plan will ease the transition to a low-carbon economy and increase resilience to climate risks. It will lay the foundations for appropriate climate governance.

Morocco's commitment to combating climate change impacts has been rewarded. The Kingdom ranks first in Africa and the Arab world and 5th in the world, just after Sweden, according to the 2019 Climate Change Performance Index*, developed by the non-governmental organizations "Germanwatch", "NewClimate Institute" and "Climate Action Network International".

The successful implementation of the National Climate Plan by 2030 requires making the preservation of water resources and reducing the ecological footprint* (see Highlight N° 9) a central issue in all public policies, elevating food security to the rank of strategic priorities for the Kingdom and instituting a policy to anticipate all climate risks and manage national disasters.

HIGHLIGHT N°9

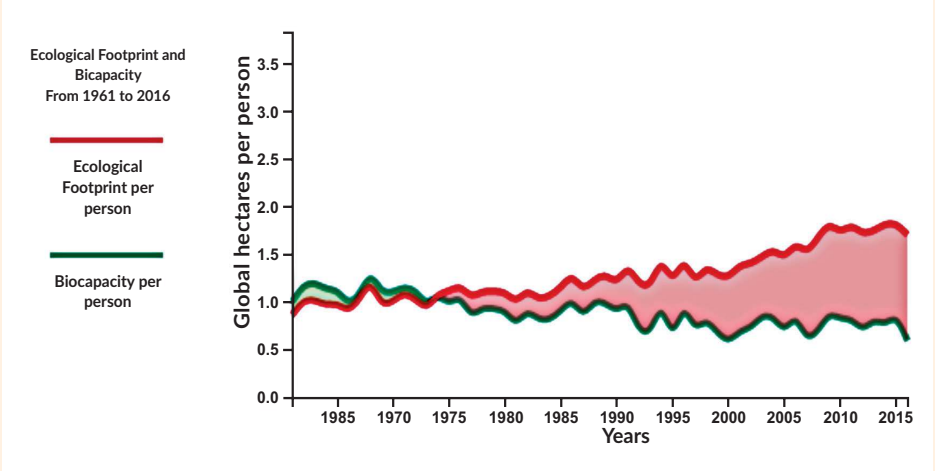
Morocco's ecological footprint*

Morocco's ecological footprint* and biocapacity* vary from year to year, depending on agricultural production, which is still largely reliant on rainfall.

The ecological footprint* per capita doubled between 1961 (0.86 global hectare) and 2016 (1.7 global hectare). Although it remains below the world average (2.75 global hectares), the continuous increase in the ecological deficit, which began in 1974 (see Figure 39), is a major source of concern, especially as the Kingdom aims to accelerate its economic and social growth.

Morocco's ecological footprint* is dominated by carbon and crops components. The carbon component accounts for 42% of Morocco's ecological footprint* compared to a global average of almost 60%. The crops component contributes 34% of the Kingdom's ecological footprint* against a global average of 19%. This high level reflects, in part, the pressures on Morocco's agriculture production base as a result of population growth and climate change impacts.

Figure 39 : Ecological footprint* and biocapacity* per person in Morocco, 1965-2015



Source : Global Footprint Network, 2018

4 PROPOSING

Moving towards an anticipatory regeneration economy (2)

With a production capacity of 2,000 MW in 2020, the Solar Plan has invested in concentrated thermodynamic solar energy, capable of storing this energy, which constitutes a true revolution in photovoltaic technology (see Best Practice N° 13).

Similarly, the protection of species of wild flora and fauna has long been a matter of concern, since Morocco ratified the CITES Convention (60) in 1975 and enacted Law N° 29-05 of 2011. Agricultural land is to be managed by new laws in the near future, such as *melkisation* and the protection of communal collective land.

Morocco ought therefore now to turn to the regeneration economy. This could be achieved in two ways : through the regeneration of degraded and degrading biomes and the enhancement of ecosystem services* with proven future added value.

4.1 Regenerating severely degraded resources

Both deforestation and growing desertification due to the expansion of the semi-arid zone (droughts) contribute to soil erosion and the loss of wild fauna and flora. Ocean resources are not immune to these severe degradations.

Soil regeneration through organic matter restoration (carbon enrichment by animal excreta ; agroforestry* - see Best Practice N° 14) can both re-green pastures (see Best Practice N° 15) and maintain vegetation cover by creating wetter microclimates that are more suitable for crops, with significant yield increases (61).

BEST PRACTICE N°13

Renewable energy development in Morocco

As part of its energy transition, Morocco has set the goal of increasing the share of renewable energies in installed electrical power to 42% in 2020 and 52% by 2030.

Renewable energy development (solar, wind, hydroelectric) has reduced the Kingdom's energy dependence from 98% in 2008 to 93% in 2017 (62).

As for the Solar Program, Units Noor I, II, III and IV in Ouarzazate are currently operational with a total capacity of 582 MW, while the Noor Midelt project will be commissioned in 2022 with a capacity of 800 MW according to the Moroccan Agency for Sustainable Energy (MASEN).

As regards wind power, the National Development Plan, which includes an objective comparable to that of solar power (2,000 MW), has led to the implementation of several projects, including Africa's largest wind farm in Tarfaya, inaugurated in 2014 (total capacity of 301 MW).

Africa's first wind farm in Tarfaya, Morocco

Source : https://lnt.ma/parc-eolien-tarfaya-proche-mise-en-service/

BEST PRACTICE N°14

Soil regeneration with the "Ramial Chipped Wood technique" in Canada (63)

Since the 1970's, Canada has been using forest waste generated en masse by a company that maintains high-voltage lines in agriculture to regenerate its soils*. This is known as the "Ramial Chipped Wood" technique.

This wood comes from the cutting and crushing of branches and chips from fragmented branches (diameter < 7 cm), which allows Mediterranean plant species to be grown without ploughing or fertilizer, with a very low water supply. This fertilizer-saving method is considered to be a natural solution for soil aggradation and enrichment.

The "Ramial Chipped Wood" technique provides the soil with essential nutrients and promotes the growth of organisms capable of improving the soil's physical structure.

This technique is not suitable for very wet or even waterlogged soils, nor for clayey or overly acidic soils. But it is particularly beneficial on well-drained and fairly dry soils in summer.

Ramial chipped wood

Source : Le Monde

BEST PRACTICE N°15

Niger's experience in landscape restoration (64)

The Niger experience is considered a successful example of large-scale restoration, which began as early as 1985. A agroforestry park* covering more than 5 million hectares has been created for this purpose. In 2018, about 200 million trees were planted on more than 5 million hectares of agricultural land.

This initiative has reduced wind and water erosion. This has resulted in increased crop yields and greater production and marketing of crops, fodder and some fruits,...

Source : https://www.goodplanet.info/agir/2008/12/04/agroforesterie-au-niger/

4 PROPOSING

Moving towards an anticipatory regeneration economy (3)

The regeneration of water resources, which are increasingly limited in Morocco (see Highlight N°10), requires, in particular, wastewater treatment to supply industry and agriculture, effective irrigation techniques, streamlined and rational management of water use, protection of water catchments and even desalination.

Morocco is already in the process of revising its National Water Plan (2018), with the aim of eradicating drinking water shortages and solving irrigation challenges by 2050.

The regeneration of endemic biomes by restoration is expected to curb the loss of biodiversity that is already impacting Morocco (see Highlight N°11) by promoting natural restocking (see Best Practices N°s 16 and 17).

Efforts to preserve biodiversity and combat desertification should be continued and intensified. In the space of 25 years, Morocco has created 38 nature reserves, 7 green belts for the mechanical and biological fixation of coastal and continental dunes on 40,050 hectares. It has developed 154 biological interest sites and reforested 730,000 hectares out of a planned 2.5 million hectares. A 25% reduction in the area of burned forests was achieved through an early warning and climate risk management system (65).

The regeneration of fishery resources, whose stocks are shrinking, requires more efficient coastal management (particularly polluting discharges), better regulation of fishing and strict enforcement of quotas (see Best Practice N°18).

Lastly, the **promotion of climate smart* agriculture**, which uses innovation and is better integrated with other sectors of the economy, should be encouraged.

HIGHLGHT N°10

Water issues in Morocco

Morocco currently has less than 700 m^3 of water per inhabitant per year (66), a level that could drop to 500 m^3 per inhabitant per year by 2030, that is, the scarcity threshold. Groundwater tables are declining sharply both in quantity and quality. Morocco is therefore ranked among the top twenty countries most threatened by water stress by 2040 (67).

Freshwater availability is declining due to population growth, climate change impacts and water quality degradation caused by wastewater discharges. By 2030, the water deficit could reach nearly 2.3 billion m^3 (67).

Water a valuable source to be preserved in Morocco

Source : http://www.in-terre-actif.com

HIGHLIGHT N°11

Biodiversity in Morocco

Biodiversity in Morocco is of particular ecological significance, with more than 24,000 animal species and 7,000 plant species. The overall endemism rate is 11% for fauna and more than 20% for vascular plants* (68). Morocco is also home to a number of globally threatened species, such as the monk seal, bald ibis, red coral, mother of pearl, etc...

Other mammals have completely disappeared from the wild. These include the Atlas lion and Sahelo-Saharan antelopes. Some species are highly endangered, such as Addax, Scimitar Oryx, Dama gazelle, Dorcas gazelle and Cuvier's gazelle* (69). Morocco is home to the last viable colony of Bald Ibis.

The Rabat National Zoological Garden, in collaboration* with the High Commissioner for Water and Forests and the Fight against Desertification, has set up a program to protect and conserve endangered wild animal species, covering 22 endangered species in Morocco. Eight species are being reintroduced, five of which are extinct in the wild in Morocco, such as bald ibis, red-necked ostriches and Saharan antelopes.

Source: Rabat zoological Garden, Morocco

Sahelo-Saharan antelopes :
Morocco has implemented major projects for the conservation of Sahelo-Saharan antelopes by establishing a network of reserves. About a hundred Sahelo-Saharan antelopes live in the Rabat zoological garden.

Atlas Lion or Barbary Lion (Panthera leo leo) :
A species that is extinct in the wild, but can be found in the Rabat Zoological Garden.

Source : Rabat zoological Garden, Morocco

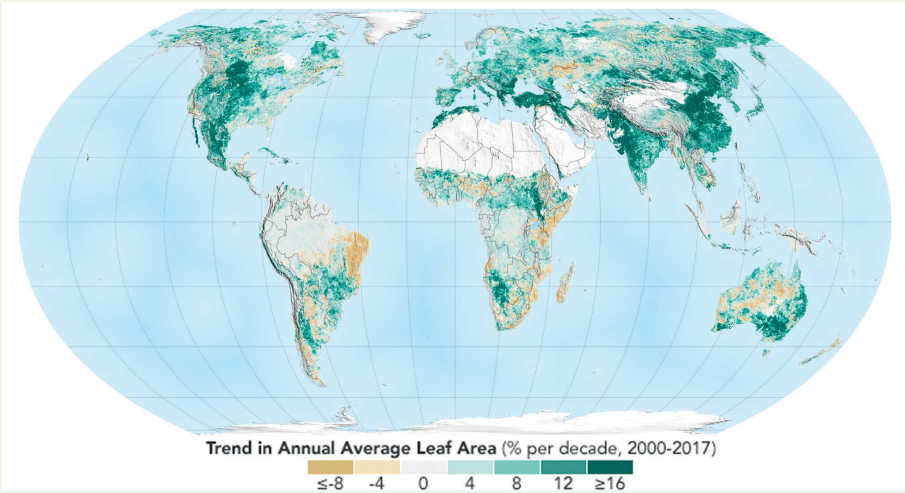
BEST PRACTICE N°16

Reforestation in China

According to a NASA study published in February 2019 in the journal Nature Sustainability (70), the vegetation cover of land, forests and fields has increased by 5% since 2000. China and India are leading this trend (see Figure 40). China alone contributed 25% of this increase, of which "42% comes from reforestation and 32% is the result of new cropped land" (71).

Since 1978, China has been implementing a massive reforestation plan, called the "Great Green Wall", to combat the advance of the Gobi desert and plant trees over an area of 450,000 km², the size of a country like Sweden. In 2018, it planted trees on nearly 7.1 million hectares (72).

Figure 40 : Trend in annual average leaf area (% per decade, 2000 - 2017)



Source : Nasa, https://earthobservatory.nasa.gov/images/144540/china-and-india-lead-the-way-in-greening

BEST PRACTICE N°17

Biome conservation and combating desertification in Morocco

- **Khnifiss Natural Park** (73)

  Located on the Atlantic coast, near the cities of Tan Tan and Tarfaya, this park is an extension of a wetland that became a national park in 2006. It is an oasis with a biologically rich fauna and flora. Khnifiss Bay was included in the Ramsar Convention* in 1980 and was classified by UNESCO on the World Natural Heritage Tentative List in 1988.

  This 285,000 hectare site consists of a marine part including the lagoon, a "*Naila*" wetland and a terrestrial part with remarkable vegetation.

  To preserve the ecosystem and its biodiversity, the wilderness area is protected by a ban on construction. The desert side is home to wild population of Cuvier's gazelle*. In order to conserve this species, a reserve has been built to reintroduce it and allow it to live in the wild.

Source : https://www.flickr.com/photos/odileva ; http://www.mapexpress.ma/actualite/opinions-et-debats/le-parc-national-de-khnifiss-entre-tan-tan-et-tarfaya-un-espace-ecologique-pour-la-promotion-du-tourisme-durable/

BEST PRACTICE N°17 (CONTINUED)

Biome conservation and combating desertification in Morocco

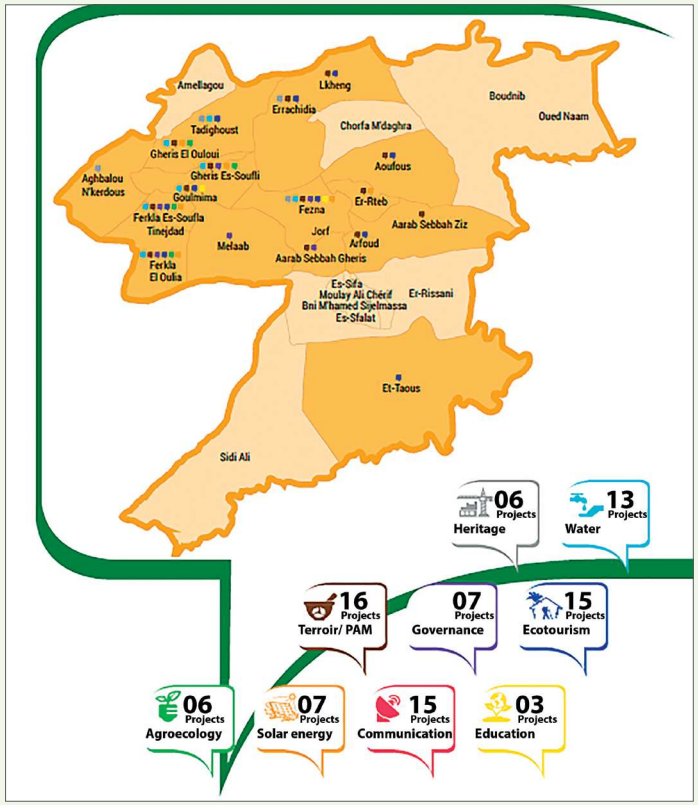
- **The Tafilalet Oasis Sustainable Spatial Development Program (POT)** (74)

  Launched in 2006 and coordinated by the Spatial Planning Directorate (DAT) and the United Nations Development Programme (UNDP), this program was completed in 2014/2015. It aimed to combat desertification and poverty by safeguarding and enhancing the Tafilalet oases.

  Priority areas for action included : curbing desertification and enhancing the value of natural and heritage resources, consolidating gender-sensitive democratic governance, combating vulnerabilities and sustainable development* of oases.

  The program supported 17 local authorities in Errachidia province in the implementation of 88 cross-thematic projects (see Figure 41).

Figure 41 : Thematic areas of the Sustainable Territorial Development Program for the Tafilalet oases and projects initiated



Source : IRES processing _ Summary of the achievements (2006-2015) of the Sustainable Territorial Development Program of the Tafilalet Oases, Ministry of Urban Planning and National Spatial Planning, 2015.

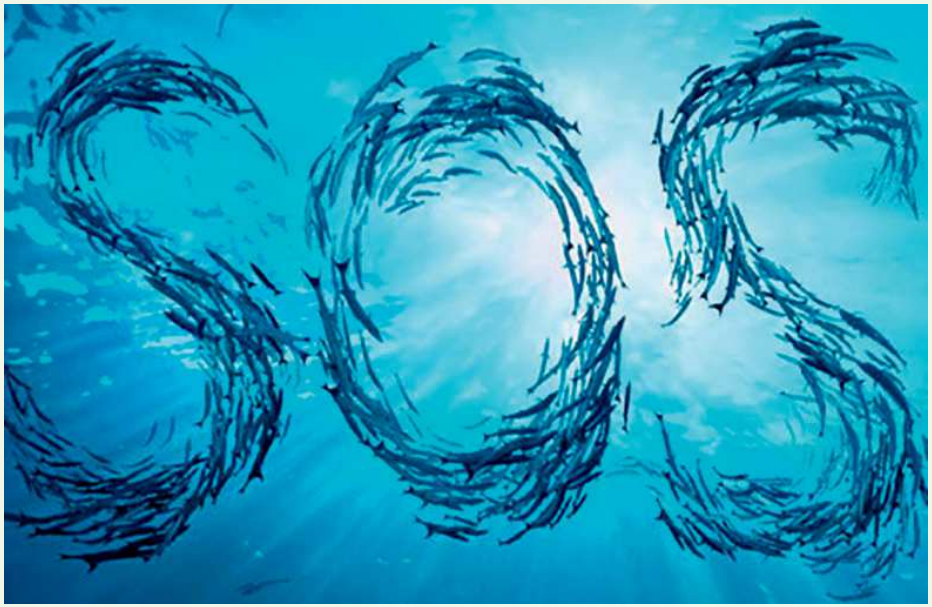
BEST PRACTICE N°18

The individual Fishing Quota to curb overfishing in Iceland

The Icelandic Sea is particularly rich in fishery resources (75). Fishing in this country has long been an international activity and the globalization of the sector has a long-standing history. The Icelandic economy is highly dependent on this sector, which "accounts for almost 6% of its GDP" (76).

In the aftermath of the most recent international financial crisis and in view of shrinking cod stocks, the government embarked on a drastic restructuring of the fisheries sector by tightening controls on Iceland's maritime areas and introducing stricter regulations than in the European Union.

Research in fisheries resource regeneration has been supported by public authorities, which has made it possible to set allowable catch levels based on scientific data.



Source : https://www.rse-magazine.com/L-UE-annonce-une-baisse-des-quotas-de-peche_a797.html

4 PROPOSING

Moving towards an anticipatory regeneration economy (4)

Extending the ecosystem approach to agriculture (as is the case with Morocco's global sectors) would bolster ties between peri-urban agriculture and urban markets and enable farmers to produce solar energy for themselves and their communities, conserve groundwater, monitor food security and landscape gardening. This would enable rural areas to be integrated into an autonomous development process, offer opportunities to rural youth and foster the emergence of a genuine rural middle class.

4.2 Enhancing the value of ecosystem services*

In addition to the need to educate populations about the importance of respecting nature, the best way to regenerate severely degraded resources is to finance it by enhancing the value of the ecosystem services* provided by nature.

In addition to conventional yield increases through resource regeneration and agroforestry*, other forms of valuation could be developed - often based on traditional knowledge - such as :

- improved irrigation and gains from lower consumption : as such, traditional irrigation techniques (khettaras* and oasis) are worth developing (see Best Practice N° 19) ;
- the herbal industry which could serve as a basis for a rational broader-scale development of phytotherapy, (herbal medicine) beyond the souks of Marrakech in particular ;
- locally grown endemic species should be valued (77) (new recipes, processing) as climate change may require a return to these native species, which are better adapted to local climatic conditions.

BEST PRACTICE N°19

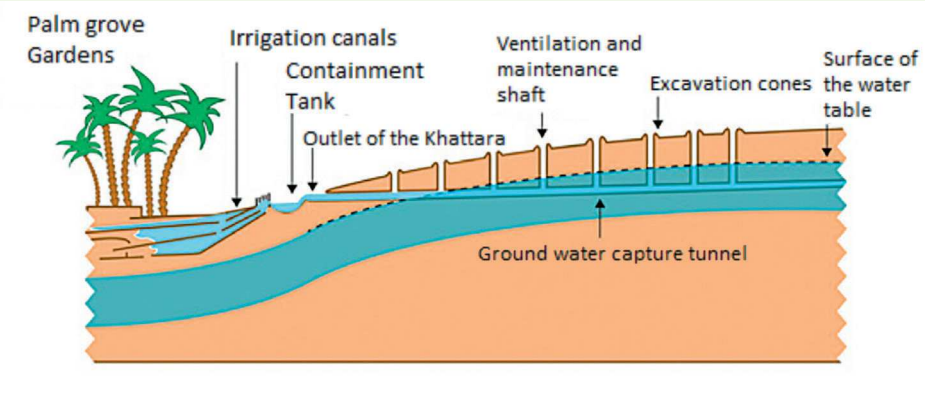
Khettaras* age-old irrigation know-how and intangible heritage in Morocco's oases

Groundwater mobilization in oasis environments is achieved through a traditional khettara* system, which has been used in southern Morocco since the beginning of the 11th Century (78).

*Khettara** is a system for collecting groundwater from the water table, intended to irrigate oasis fields. More specifically, it involves digging shafts of about 50m in length, the bottoms of which are connected to each other by galleries (see Figure 42).

Today, the know-how associated with this ingenious and ecological system, classified on UNESCO's list of intangible heritage, is endangered due to the succession of periods of drought, lack of maintenance and a move away from it to excavated wells, which has reduced the number of *khettaras**. Nevertheless, the implementation of initiatives, such as the "Oasis Tafilalet Program" (POT), has been instrumental in supporting the preservation of *khettaras** (79).

Figure 42 : The fonctionning of a khettara*



Source : IRES processing _ Research and development Institute (IRD), Michel Janvois

Source : Le Matin

Source : MAP ECOLOGY

CHAPTER 4

PILLAR 3 : PLANETARIZATION

Initiated several millennia ago, in a non-linear process, the planet's globalization has had contradictory effects. It has enabled the creation of a global community capable of gradually lowering language, cultural, economic and human barriers. Globalization has, however, come with a gradual closure of borders, greatly reducing the opportunities for citizens to move from countries in the South to countries in the North.

New generations of "world citizens" are hardly mobilized by the idea of a homeland, and are quick to come alive, simultaneously, on all continents, shaping their globish* as a common vehicle. They therefore live in a state of globality. The next step already appears to be **planetarization**. It consists in reconciling the respective interests of humanity and the planet (biosphere) through an awareness of the vital interdependence between them.

Thus, the pillar of the development model relating to planetarization supports a two-fold priority given to nature and humanity, by promoting a post-predatory, sustainable and human economy, within the framework of a soft globality, in the wake of a hard globalization. It is underpinned by multi-level governance*, concerned both by the commons and development that is respectful of a planet shared by human beings and all other living species.

1 UNDERSTANDING

A glocalized planet

While the accelerated globalization experienced during the past century can be considered to be synonymous with maximizing the predatory economy and inequalities, planetarization appears to be the new, **disruptive** stage of progress during which a state of **globality** and a **new awareness** of the "living" quality of **the planet**, as a biosphere that also includes humans, coexist.

Source : http://www.sociologydiscussion.com/wp-content/uploads/2013/10/911.jpg

HIGHLIGHT N°12

Why glocalization* and what is the link between glocal and global ? A few avenues for reflection (80)

In our globalised world, the existence of glocal realities is factual. It is indeed possible to encounter the same local issues in several countries or regions of the world. These issues thus have global implications and create an interdependence between the local and the global. There is therefore a link to be sought between the two approaches, global and glocal.

Thus, while the global approach retains its relevance in addressing global issues, it struggles, however, to understand certain local realities that, by transcending national borders, have an influence on the global context.

Source : Emmanuel Jean-François, *Building Global Education with a local perspective*, Palgrave Macmillan, 2015, pp. 61-63

Often perceived as a threat to local cultural identities, globalization can have a positive impact on them. Social movements have frequently successfully used global frameworks to bring about positive change in local contexts.

Essential to the resolution of glocal issues, the local approach is limited by its geographical scope. It is therefore necessary to use an approach that combines the local and the global.

Lastly, glocalization* makes it possible to consider local ideas, practices and institutions, such as education or health, in a global context. In other words, it creates a balance between the local and the global and allows global solutions to be applied in local environments.

1 UNDERSTANDING

A glocalized planet (2)

1.1 Three concurrent evolutions

Three concurrent evolutions lead to the complex phenomenon of planetarization :

- Globalization - an instrument of the predatory economy, in contrast to an often protectionist localism - has led to a virtual bi-polarity of territorial scales. But a new link is currently appearing, namely the "glocal," between **the world**, which is a new "natural" scale, in particular, to address global issues, and **the local** territory, an ideal place for physical interaction with others and with the biosphere.
- The strong relationship to the living that first peoples had has gradually disappeared in favor of the assertion of **human superiority over nature.** This assumption warranted an unreasonable exploitation of nature. In view of the degradation of resources that currently jeopardizes the future of mankind, a new awareness of the importance of living things is emerging, affecting both lifestyles and productive activities such as agriculture and industry.

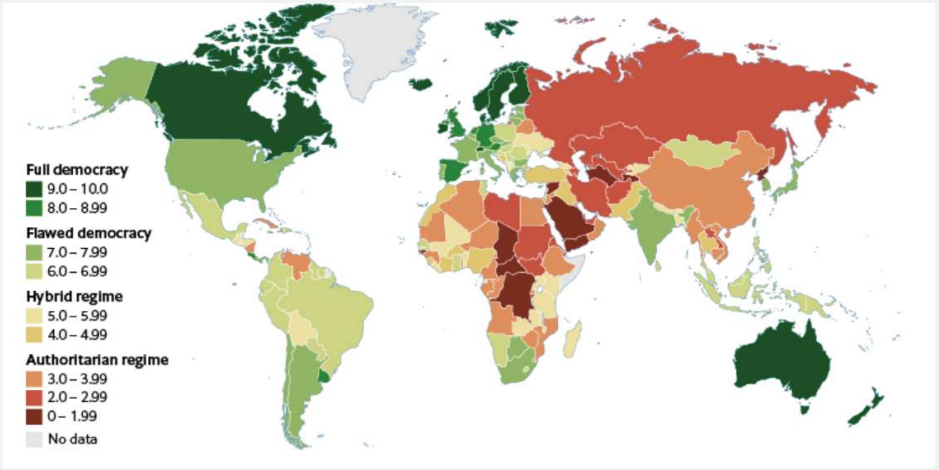
1 UNDERSTANDING

A glocalized planet (3)

- A gradual evolution led from local to national to supranational governance (European Union, international organizations). In the aftermath of the fall of the Berlin Wall (1989), the scale of the **democratic revival** on a global scale constituted a first breakthrough, with persistent upheavals in the Arab world, Africa and South America (see Figure 43). But this democratic rise is being thwarted by the emergence of authoritarian regimes stemming from uncontested elections. The overall picture is therefore complex.

However, a new breakthrough is already occurring with the **emergence of subsidiarity***, which places power where it is efficient rather than where it has regulatory jurisdiction.

Figure 43 : Democracy Index* in 2018



Source : The Economist Intelligence Unit

These three movements contribute to the emergence of planetarization, a post-globalization movement, characterized by a global vision of a globalized and living planet (as a carrier of multiple and distinct lives) that requires new ways of life, production and consumption, as well as a new form of governance, based on subsidiarity* and participation*.

1 UNDERSTANDING

A glocalized planet (4)

1.2 Two new cultural phenomena

Two new cultural phenomena have come to bolster the formalization of this new paradigm, which is still in its infancy :

- **Territorialization of the world :** any geographical space, populated or not, becomes a territory, i. e., a soil and subsoil, hosting living organisms (biomes and humans) and crossed by flows (natural or artificial), marked by age-old history and culture. This new four-dimensional vision of geographical spaces leads to a "natural" appropriation of planetary territory by humans, which sweeps across national and even cultural borders.
- **The significant increase in mobility**, including medium-term mobility (study, work) and the **increasing hybridization** of cultures and nationalities through alliances but also under the influence of the film industry (Hollywood, Bollywood, Brazilian, Turkish, Egyptian series, etc.) contribute to this new state of mind: "the world is my country". This is a trend that States will have to face.

Planetarization therefore consists of both redefining the governance of territories, combining different scales in terms of their efficiency, revisiting the ways in which human beings move and settle (new appropriation of planetary territory) and, lastly, gradually ending the Anthropocene*, taking into account living things, including non-humans, to develop new alternatives to the predation-based economy.

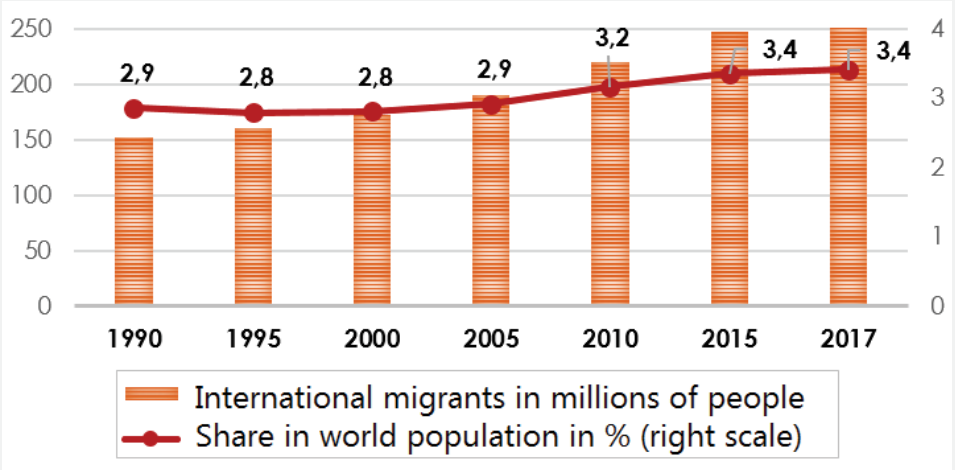
2 ANTICIPATING

The multiplicity of human mobility

By 2050, several trends impacting territories will constitute a real challenge for this new global consciousness :

- **Claiming the world as a single territory** leads to the rejection of overly narrow territorialization, such as nationality, and of any obstacles to mobility, such as visas, for example. Significant migration flows (see Figure 44) are expected in the coming decades from both chosen mobility and forced migration. How can they be managed without harming the environment and increasing pressure on resources ? How can social tensions in host countries be avoided in a context where growth is slower and employment is hard to access ? Finally, how can we turn these migrations into a source of prosperity, much like the American melting pot did ? (see Box N° 8)
- **The meso-geographical scale assumes a new significance** between macro (the world) and micro (proximity), thanks to supranational regional spaces (Europe, Mercosur,...). Growing slowly but surely, these regions offer intermediate spaces that satisfy both markets and migrants (regional passports, for example, are part of this rationale). But they will not solve the problem of urban congestion (increase in the number of vehicles, waste generation, construction of slums, etc...), which will require specific treatment, as costly peri-urbanization will continue to be unavoidable.

Figure 44 : Trends in the international migrant stock and their share in the world population



Source : IRES Processing of IOM Data _ https://www.iom.int/sites/default/files/wmr/document/WMR%20Fiche%20d%E2%80%99information%20N°%202.pdf

2 ANTICIPATING

The multiplicity of human mobility (2)

Box N° 8 : Definition of the *melting pot* (81)

The melting pot is a metaphor for the fusion of diverse immigrant identities to form the American identity. The expression became commonly used at the beginning of the 20th Century. It is the subject of ongoing debate and lends itself to three different readings.

Some interpret the melting pot as the adoption by newcomers of the Anglo-Saxon values and traditions of the founding fathers of the United States. President Theodore ROOSEVELT is one of these. Others have a dynamic interpretation of American identity that, in their view, is shaped by the interactions between older and newer immigrants. Finally, part of the doctrine falls between the first two approaches, considering that the melting pot is in reality an Americanization, an assimilation to the identity forged by the meeting of Anglo-Saxon values and the traditions and identities of the first generations of immigrants.

- **The widening gap** between the globalized world of multinationals and global travelers (businessmen, students, tourists) on the one hand, and the withdrawal of populations, rejecting or unable to benefit from this globalization, is already contributing to current tensions. Acts of **violence** by groups wishing to hasten general awareness of the deadlock into which predatory behavior is heading are likely to increase. The expected increase in commodity and food prices over the coming decades is likely to aggravate this situation. Hence the urgent need for a real **break** with globalization in its current state.
- **The unbridled urbanization** of the planet raises the issue of both rural desertification, at a time when we must feed a growing population, and deteriorating quality of urban life. The city is both the point of contact with the world (positive effect) and the focal point of tensions : redesigning cities according to more human and less technocratic functions will very quickly become a must.

Rethinking and implementing the **planetarization** of human activities is the best way to tackle these challenges and to slow down, if not stem, the "anthropocenization" of the planet.

3 PARADIGM AND VISION

Specifically, the planetarization of human activities consists, on the one hand, in applying the principle of subsidiarity*, adopting the right scale to address issues and, on the other hand, in **developing and implementing solutions that are both beneficial to human beings and the biosphere** in these territories, in accordance with their needs. Hence the following three main areas of focus: .

Box N° 9 : Definition of the commons (82)

The commons refer to forms of collective use and management of a resource or thing by a community. This notion makes it possible to move away from the binary distinction between public and private, by focusing more on equal access, sharing and decision-making than on ownership. The commons can apply to fields such as access to resources but also to housing and knowledge.

3.1 Implementing governance and new land use management

To manage the Earth as a totality of spaces and living species, it is necessary not only to define the commons to be protected (see Box N° 9) but also to lay the foundations that now govern land use planning and devise new governance instruments.

3.1.1 Defining and sustainably managing the commons

If we accept that the overexploitation of the commons (land, water, natural resources) can be avoided by empowering users to manage the asset in question, it is urgent, as a first step, to identify all commons. By classifying them by degree of depletion, depending on whether the resource is to be protected, conserved or used in an ecological way (see Chapter 3 - 3.1), it will then be possible to establish rules for sharing and reciprocity with a given community, on the scale of the biome of reference. Such protection of resources must be coupled with a prohibition of privatization of the land in question and the development of land tenure policies, with a return to *affermage* (land-leasing) (see 4.1.2 of this Chapter).

One such common must now be governed by a glocal policy, both global and local: that is, water, whether fresh or saltwater. Restoring wetlands and reconnecting rivers to floodplains, for example, are strategies to rebalance the water cycle, improve the health of living organisms and provide livelihoods. The same applies to the sensible use of oceans (see 3.3 in this Chapter).

Nowadays, a global dimension also extends to common resources such as urban and intangible resources, particularly knowledge.

3.1.2 The fundamentals of spatial planning

Although the whole field of spatial planning needs to be rethought in terms of greater sustainability and humanity, some structuring aspects are already visible:

- Resorting to the principle of subsidiarity* to resolve issues leads quite naturally to an acceleration of decentralization, and its corollary is the devolution of powers and financial resources.
- **The residential city** must move beyond the technocratic role it has been ascribed until now (traffic plan, zoning, imposed mobility policy, etc.) to become once again a space with a human dimension that it never should have lost. The key is to rebuild the city around **central local spaces** which combine functions (housing, services, shops, jobs). The reintroduction of **green spaces** (see Best Practice N° 20) should make it possible to purify urban air, create calm zones, promote urban food farming and improve the sound and thermal insulation of dwellings.

  Infrastructure is intended to facilitate transport flow, not to prevent it, especially as the rapid **ageing** of urban populations must now be taken into account and public spaces developed accordingly. Lastly, the issue of non-regulatory or illegal housing and, in particular, slums must quickly be resolved to avoid ghettoization (see Chapter 2 -3.2.3). The "smartization*" of cities must benefit everyone.

BEST PRACTICE N°20

The Woodlands in and Around Towns Program in Scotland (83)

Launched in 2005, this Scottish Forestry Commission initiative aims to improve citizens' quality of life by encouraging use of woods and forests in the immediate vicinity of residential areas.

The program focuses on three inter-related actions: improving existing wooded areas, creating new green spaces and involving local populations in the management of these spaces, through the establishment of community forest management frameworks and specific activities that encourage residents to use these spaces.

To this end, a specific funding scheme, the Challenge Fund, has been developed, providing financial support for the management of urban forests located less than one kilometer from residential areas with a population of more than 2,000.

In 2014, a study by the Forestry Commission showed that this program had generated an increase in forest use of around 20%, as well as leisure and health benefits, estimated at around £14 million per year, for a total investment of £50 million.

Source: https://forestryandland.gov.scot/blog/forests-near-glasgow-and-edinburgh

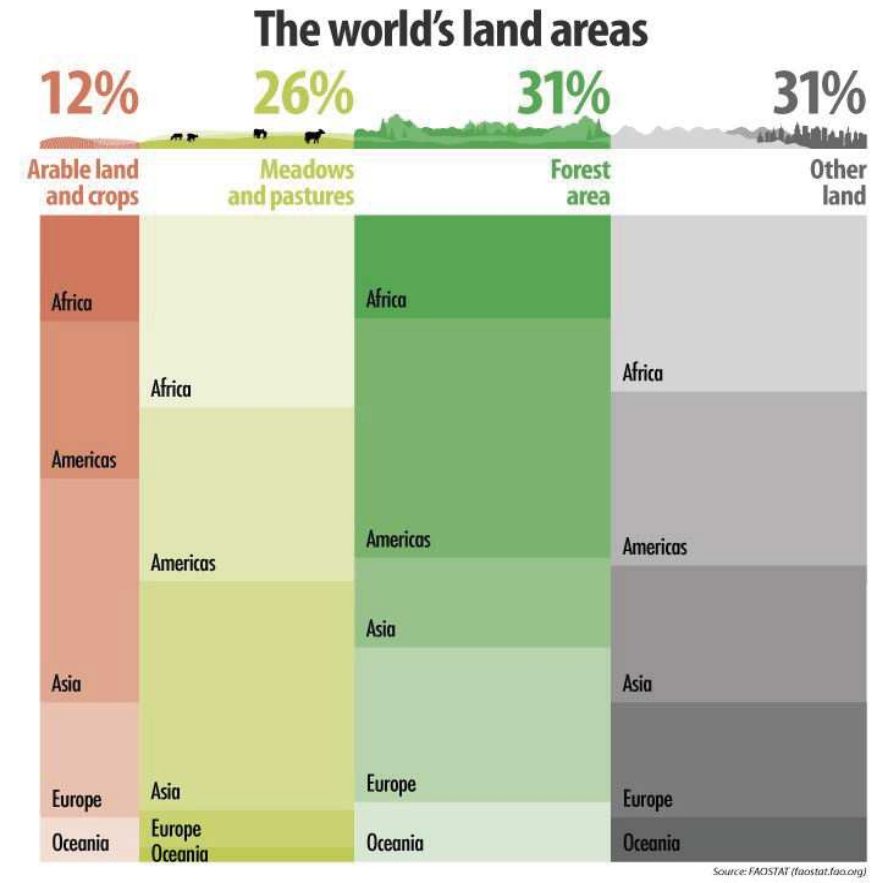
3 PARADIGM AND VISION (3)

- **The urban-rural link** must also give rise to a major shift: from the unproductive opposition between these two distinct territories, to an urban-hinterland* cluster that can once again become a **basic functional unit.** This would support both local economies, land management (land tenure), liquid and solid waste management and local energy production (solar and micro-grids).
- Implicitly, this development model entails an organization of local districts that promotes the reduction of **corruption** through various means, including technical ones: compliance with the ban, for example, on construction in floodplains must be monitored by drone or satellite, the purchase of protected land made impossible by a regulated use of blockchains, etc..... Current **digital tools** enable such control at a lower cost and have a role to play in these new mechanisms.
- **Land reallocation** (see Figure 45) or land consolidation* is becoming an urgent necessity, particularly in countries without land tenure security systems (e. g. land registry) or where corruption is widespread. The inviolability of lands considered sacred by indigenous peoples must be respected wherever possible and titles of ownership transferred to indigenous communities. The same applies to the creation of natural conservatories which may not be privatized where biomes are under threat. Lastly, communal land tenure must be governed by an ongoing policy and land leased to the poorest must comply with clear regulations, defined through agrarian reform.

This new land use planning will have two objectives: on the one hand, to achieve the **sustainability** of ecosystem services* and urban areas (reduced pollution, fluid flows) and, on the other hand, to **humanize** both urban functions (housing, living spaces, etc.) and public spaces for a better quality of life, greater security and better access to public services.

3 PARADIGM AND VISION (4)

Figure 45 : Distribution of land worldwide and by region



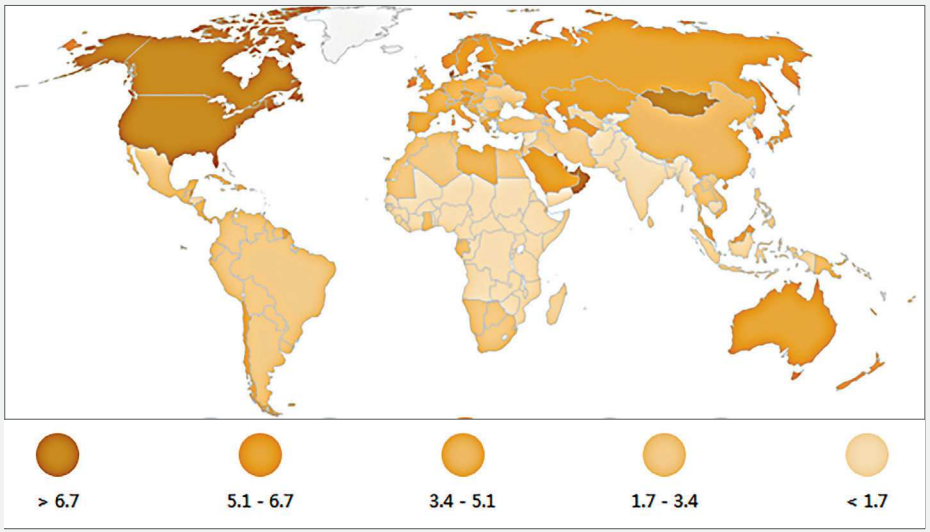
Source : http://www.fao.org/resources/infographics/infographics-details/fr/c/174205/

3.1.3 New governance instruments

New governance principles (see Chapter 1) are particularly relevant to planetarization, which must be built on three cornerstones:

- The principle of subsidiarity* which is key to **context-based management**, as close as possible to the issue to be addressed.
- **Stakeholder involvement**: participation*, consultation*, cooperation.
- **Pooling resources, equipment, infrastructure, etc.** in order to reduce the ecological footprint* and streamline spending.

Figure 46 : Global ecological footprint* per capita (2018)



Source : IRES Processing_Global Footprint Network

3 PARADIGM AND VISION (5)

3.2 Establishing globality

Globalization, a process of progressive conquest and opening up of all known spaces to human activity, is followed by a post-globalization state: globality. Indeed, once most of the customs, cultural, language and cultural barriers have been lifted, which implies a halt to the ongoing decline of multilateralism, how will we live in a state of globality ? And how to establish it in the most constructive way possible ?

3.2.1 Fostering mobility

To new generations, mobility is a fundamental human right. However, many countries are still cautious when it comes to welcoming migrants, other than tourists. However, travelers have a lot to offer in terms of manpower, grey matter, purchasing power, etc.

Visas are therefore the first issue to be resolved : bureaucratic procedures in the United States, China, France and Russia, for example, considerably discourage entry into their territories. However, in a planetarized world, it would be sufficient to assign a unique number to an individual at birth, for life, with his or her biometric details when he or she reaches adulthood, so that checks at the entry and exit of a given country become an easier and faster procedure. The recent introduction of regional passports (common to several countries) shows that this opening is not only possible but beneficial to countries' economies.

Similarly, the opening of all **countries' airspace** must swiftly lead to a single global airspace, and maritime mobility must be made more secure.

Source: https://borntobeonline.fr/wp-content/uploads/FLIGHT-TRAFFIC-LIVE_RES1.jpg

3 PARADIGM AND VISION (6)

Fostering mobility involves not only reviewing the way people move about but also the way newcomers settle in. Migration can be transformed into mobility, in particular circular mobility (return of pensioners to their native countries, brain gain). Host countries' management of travelers and migrants will become a necessity due to the increase in migration, particularly climatic migration. It is vital that unsolicited migrants (as opposed to selective migration) be channeled to places where their skills can be used.

3.2.2 Expediting geopolitical planetarization

Alien Gen's appetite for global citizenship suggests that by the end of this century, political nations will have given way to heritage nations, while a **global government** will have already established itself to address major threats to the survival of humankind.

In the meantime, the world's **regionalization** continues, **paving the way for regional single markets**, such as the European market or the future African single market, and related **single currencies**. These instruments are essential to the development of planetarization, provided they are associated with a **sustainable and humanistic vision** to be upheld and enforced by the new governance bodies.

Some cities, such as Brussels, for example, should be able to benefit from a **global status**, administered by a global body, constituting a kind of outpost where **experimenting** with new forms of development will be possible.

Soft power* instruments must become a credible alternative to nations' violence, from armed conflicts to economic wars, from guerrillas to ethnic massacres. Reconciliation processes, such as those that have taken place in Africa, in particular, have already made a significant contribution to appeasing communities. Economic influence has preserved peace in Europe through the single market, while the results of cultural influence are undeniable. Stakeholder involvement, mediation and objective knowledge of the facts form the key **triptych** to soft power*.

3.2.3 Achieving globality of knowledge

Respect for the fundamental rights of humans and all living beings is at the heart of planetarization. In the global information society, the right to scientific knowledge, based on objective evidence, must be defended and enforced through a number of measures :

- Fostering scientific work and its use on a global scale, through :
  - **free access to scientific publishing,** which is currently the exclusive preserve of major Western scientific publishers who distribute publicly funded knowledge at a high cost ;
  - **dissemination and translation** of scientific work ;
  - **public education, based on up-to-date scientific work ;**
  - **development of major international scientific projects,** aimed at pooling research and development resources ;
  - **facilitating the international mobility of scientists** in the fields of hard sciences as well as human and social sciences.
- In line with the United Nations' ten-year objectives, setting global priorities focusing public and private funding and researchers on major moonshot-type projects*: eradicating hunger in the world, combating desertification and the disappearance of arable land, etc....
- Requiring the press and advertisers to verify all information disseminated, including advertisements, with checks and punitive penalties.
- Critical thinking education for young people for more responsible access to the many sources of information that circulate on social networks.

3 PARADIGM AND VISION (8)

3.3 Promoting the post-predatory economy

Is it possible to develop a profitable economy, i.e. one that allows people to make a living and invest without resorting to deadly predation of the planet's resources ? Or must we necessarily go through a degrowth ? Given the needs to be met and emerging countries' aspiration to enjoy a modicum of comfort, decreasing growth (see Box N° 10) is simply not an option. Moreover, GDP continues to be the preferred measure despite its flaws and the fact that it does not take into account the damage done to nature.

Box N° 10 : Definition of degrowth (84)

The term degrowth was first coined in 1972 by the French scholar André GORZ, who questioned the need to strike a balance between production and preservation of the planet.

Degrowth is nowadays a political, economic and social concept, whose advocates consider that industrialization produces negative effects both economically and socially (mass unemployment, precariousness, stress, moral harassment, increasing number of accidents, etc.) and environmentally, with pollution from industrialization causing the deterioration of ecosystems and the loss of thousands of animal species.

3 PARADIGM AND VISION (9)

The new development model must therefore lay the foundations for a viable alternative, based on the principles of global sustainability, entrepreneurial freedom (see Chapter 2-3.2.1), restrained (progressive) capitalism and fair price to be paid (see Box N° 11). In addition to the need to make a firm commitment to the bottom-of-the-pyramid economy (see Chapter 2 - 3.2), several new avenues for development have emerged :

- Promoting the Blue Economy*.
- Holding finance to higher moral standards.
- Rethinking the "Water Planet".
- Fostering a living heritage economy.

Box N° 11 : Definition of just price (85)

To Aristotle, just price is the essential condition for the survival of human communities. Far from being the result of trade relations, a natural price is rather the consequence of reciprocity relations. On the other hand, once prices are no longer in line with these relations, economic activity becomes the means of accumulating wealth beyond what is necessary. Trade is no longer natural and prices are no longer fair.

3 PARADIGM AND VISION (10)

Source : RPM Retail _ https://www.rpmretail.com/single-post/2018/04/02/Your-Triple-Bottom-Line?page=1

3.3.1 Promoting the blue economy*, an advanced version of sustainable development *

Whereas sustainable development* is a rather vague concept, the blue economy* devised by the industrialist Gunter PAULI offers a more precise framework for its implementation and also integrates the principles of industrial ecology* and biomimicry* : an economy based on natural ecosystems to resolve economic, social and ecological crises (86). It aims to achieve zero defects, breakdowns and accidents, zero stock, waste and pollution..., thanks to three fundamentals :

- **Applying circular economy** (see Highlight N°13).
- **Drawing inspiration from nature** (biomimicry*).
- **Enhancing the value of local resources.**

3 PARADIGM AND VISION (11)

The blue economy* notably enables the **development of a reasoned local economy** based on local exchanges (Assistance and Liaison Services*, locavores*) and permaculture*. Today, various types of organic* and sustainable* agriculture have already demonstrated their viability, including in developing countries, with the Songhai farm model (see Best Practice N° 21) for example. This is also the case for the regenerative economy (see Chapter 3 - 3.2).

The blue economy* also relies on renewable energies with low potential for harm, such as solar energy, and decentralized distribution networks (micro-grid), to pursue the electrification effort while limiting fossil energy consumption. Similarly, biofuel from crops grown at the expense of plant cover (carbon sinks) or food crops should be prohibited.

The new development model must therefore promote the implementation of the blue economy* principles, whose model is viable in local contexts and at fair prices.

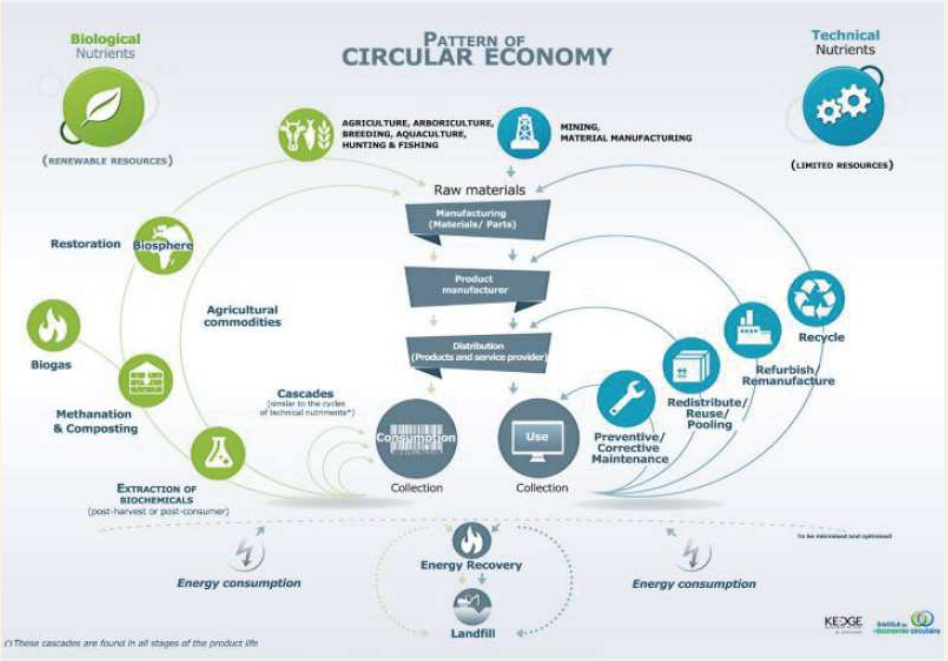
Source : https://blueeconomycrc.org.au/wp-content/uploads/2019/01/BECRC_Venn-Diagram-1.png

HIGHLIGHT N°13

Principles of the circular economy

The idea of the circular economy is to develop efficient industrial models, imitating the cyclical functioning of ecosystems where waste does not exist. It is an "industrial restorative or regenerative system by intent and design[that] replaces the concept of end-of-life with restoration, [that] evolves towards the use of renewable energy, removes the use of toxic chemicals, hinders possible reuse and aims at waste disposal through superior design of materials, products, systems and, in this context, business models" (87).

The implementation of the circular economy requires applying three principles: preserving and improving natural capital, optimizing the efficiency of resource use and promoting system efficiency by eliminating negative environmental externalities, i.e., pollution in all its forms.



Source : https://www.notre-planete.info /ecologie/developpement_durable/economie-circulaire.php

BEST PRACTICE N°21

The Songhaï farm in Benin (88)

Designated as a "center of excellence for agriculture" by the UN, Songhaï is a development NGO, created in 1985 by a Dominican priest of Nigerian origin, Godfrey NZAMUJO. Songhai's experiments began on a hectare of abandoned land granted by the Benin government in the suburbs of Porto-Novo. This plot has since become the center's headquarters and its first "farm-school". It covers 22 hectares and is one of the most productive in the region.

Over the years, this experience has been replicated in other regions of Benin and in other countries in the West African sub-region, such as Nigeria. The center's resources come from both agricultural production and subsidies from various partners.

The NGO "Songhai" aims to contribute to Africa's development by creating "green rural cities" and promoting the practice of integrated, organic and biomimicry-based* agriculture as a means of achieving food sovereignty on the continent.

Livestock, crop production, energy production and aquaculture are constantly interacting. As a result, the pens in which gallinaceous plants are farmed are located near the fields and are fed with agricultural by-products such as cassava chips, rice bran or oilcake from palm oil production. Animal manure is collected and treated to enrich the soil in the fields. Then, when animals are slaughtered, their innards are recovered, spread on straw in a "fly hotel" so that they can lay eggs and the protein-rich maggots can be used as food for the fish farm's carnivorous fish.

To save water resources, fish tanks are filled with water from a well and swill water collected from kitchens and toilets, purified with water hyacinths that filter the water. These then end up in a methanizer, combined with other organic waste, to produce biogas, which will be used in the kitchens of the restaurant used by Songhai's guests.

To date, thirteen similar sites exist. The largest of them, Katsina in Nigeria, covers 15,000 hectares and is expected to provide more than 50,000 young farmers with a living.

3.3.2 Moralizing finance

In an emotionally charged human society in constant interaction, where information has acquired considerable importance - as have misinformation* and disinformation* - it is vital that its impact on money, as a crucial means of development, be regulated. Hence the rise of two powerful levers in the early 21st Century, which must be further developed:

- **Behavioral finance** has shown that most market anomalies, such as upward or downward market trends, can be explained by the effects of under-reactions and collective over-reactions to information. The impact of these reactions through global entrainment and overemphasis can result in extreme and disproportionate price fluctuations, such as financial bubbles. It therefore stands to reason that **economic behaviors that create negative externalities or directly affect the standard of living of other humans (speculation, interest rates...) should be restricted** or even penalized.
- **The concept of ethical finance** refers to the post-2008 concerns about the morality of financiers and the global financial system, which ought to have already led to a **general overhaul of a system** that continues to encourage the proliferation of tax havens (see Figure 47). However, specific measures have been taken (corporate social and environmental responsibility*, ethical measures, etc.) which deserve to be mainstreamed. They do not however offset the need for a complete review of the global financing system, which is undermined both by the complexity and toxicity of financial products and by widespread public and private sector debt.

3 PARADIGM AND VISION (13)

The double imperative of financing the need to act against climate change, to feed populations, to promote energy transition, on the one hand, and to curb the growth of inequalities, on the other, requires a forced, if not deliberate, effort to hold finance to higher moral standards at the macro-, meso and micro-economic levels.

Figure 47 : Ranking of the 15 worst tax havens

Source : https://www.ladepeche.fr/article/2017/11/08/2680633-comment-en-finir-avec-les-paradis-fiscaux.html

3.3.3 Rethinking the "Water Planet"

Because water is so prevalent on the Blue Planet, it has always been considered an infinitely renewable common good. We now know that this is not the case and that two distinct, albeit complementary, policies must be pursued :

- **Drinking water conservation** consists in "sorting" water, by prohibiting, for example, the use of drinking water for industrial purposes, retaining drinking water without damming it, especially on tropical rivers, recycling waste water, etc. Mechanisms such as water electrolysis, which cleans water without using harmful chemicals, or rainwater harvesting from rooftops, contribute to its conservation. First, it is essential to repair leaks and educate people about water scarcity.

- **Extending the application of sustainable agriculture principles to the sea**. The rationale for this is that marine fauna and flora are deteriorating as much as their land-based counterparts, altering biodiversity (including the food chain) and depriving humans of substantial nutritional resources. Therefore, as with terrestrial biomes, marine **ecosystem* resources and services must be swiftly identified, documented and restored**. In addition, sustainable aquaculture must also be established, as must seaweed farming and exploitation, as an untapped resource with a significant and varied contribution, particularly in terms of proteins.

It is high time to institute a genuine policy for the protection and wise and rational use of the marine environment during the UN decade of ocean science, as well as to rethink all human practices and activities with a view to preserving water resources.

3.3.4 Fostering a living heritage economy

While it is necessary to protect the "commons," which have been profoundly altered, and to prevent any further deterioration, it is nevertheless possible to generate income from this living heritage, particularly through :

- **herbalism :** traditional and modern knowledge stand to benefit by competing to identify and harness the pharmacopoeia specific to each region ;
- **biomimicry* :** observation of living organisms can provide the key to many challenges, as nature is notably free of ultimate (non-reusable) waste and energy-efficient ;
- **tourism:** living natural heritage can be leveraged for sustainable tourism (see Highlight N°14), such as the Mombasa Marine National Park & Reserve (see Best Practice N° 22) ;
- **preservation of human, genetic (stem cells) and cultural heritage** (memory and practices of elders and indigenous peoples, human libraries*) and its use where it is more effective than modern technologies, for example, in the case of oasis irrigation or natural cooling.

HIGHLIGHT N°14

Survey of sustainable ecotourism best practices (89)

As part of a collective project involving twenty universities around the world, researchers from several scientific fields compiled and analyzed data collected from about forty ecotourism sites on five continents. As a result, they developed a list of good practices in ecotourism, covering both socio-economic* and environmental aspects. Main recommendations are as follows :

- Involve local communities in ecotourism while ensuring that they do not become financially dependent on tourism.
- Involve scientists and environmentally friendly and socially responsible companies in developing ecotourism projects.
- Conduct ongoing monitoring of wildlife and the environment and encourage research on "benevolent conservation", animal emotions and animal cognition for species commonly found in protected areas and ecotourism.
- Establish clear guidelines for human access to ecotourism areas and implement strict practices to prevent environmental pollution.
- Adopt a glocal approach to ecotourism by adapting practices to specific ecological, geographical and sociological contexts.

BEST PRACTICE N°22

Mombasa Marine Nature Reserve in Kenya (90)

The Mombasa Marine Reserve is one of a series of parks and reserves created by the Government of Kenya in Mombasa, Malindi, Watamu, Kisite, Mpunguti and Kiunga. In addition to improving biodiversity, Kenya derives multiple benefits from protecting these areas, including preventing erosion of beaches, supporting traditional fishing, developing tourism, etc.

Created in 1986, the Mombasa Marine National Park is one such marine protected area. It covers an area of about 200 km² and is home to highly productive, diverse and complex coral and plant ecosystems. Coral reefs attract crustaceans, mollusks, cnidarians, sponges and reef fish. Underwater vegetation provides feeding and breeding grounds for turtles, dugongs and some reef fish.

The coral reef ecosystem's rich biodiversity, combined with white sandy beaches and tropical sunshine all year round, are major attractions for tourists travelling to the Kenyan coast. This raises the question of how to manage this area and preserve it, since a significant proportion of the income and employment of the region's populations depends directly on coral reefs. This park is therefore the focus of an ongoing study on methods, rules and interactions between human activities and fragile nature.

Mombasa Marine Reserve

Source: https://www.oceandocs.org/bitstream/handle/1834/7247/ktf0395.pdf?sequence=2&isAllowed=y

4 PROPOSING

Morocco's contribution to planetarization

Morocco has already entered the era of planetarization : it hosted the Intergovernmental Conference on Migration in Marrakech in December 2018 and signed the Global Compact on Safe, Orderly and Regular Migration*. Morocco also promulgated the "zero mika*" law in 2016. The Kingdom has significantly increased its drinking water supply in recent years, with a drinking water access rate of 97% in rural areas and 100% in urban areas by 2018.

Morocco has significantly opened up to the world. Its accession to Advanced Status with the European Union in October 2008, the conclusion of a free trade agreement with the United States in 2006, its return to the African Union in January 2017, its accession to the Memorandum of Understanding on the New Silk Roads in November 2017, a project launched by China in 2013, and the recent Euro-Moroccan Partnership on Shared Prosperity, are symbolic of Morocco's move to the global arena.

Morocco must, however, focus its attention on the following areas: local governance and spatial planning as an instrument of local management in a globalized context, developing cognitive capital in a context of globalized knowledge, promoting the blue economy* and deepening the Kingdom's regional integration.

4.1 Strengthening territorial development

4.1.1 Expediting and guiding decentralization

Two measures of the new development model have already been adopted by the Kingdom: the principle of subsidiarity* introduced in the 2011 Constitution (article 140) and decentralization, of which the most recent measure is the adoption of the *Administrative Deconcentration Charter* (decree of 26 December 2018), whereby regions are to become the new spheres of economic and social development, thanks in particular to territorialization of public policies, which will enable better integration of regional and provincial characteristics.

3 PROPOSING

Morocco's contribution to planetarization (2)

In addition to implementing these measures, three distinct avenues should now be pursued :

- **Community management of the commons*** under the supervision of decentralized authorities, in accordance with the principle of subsidiarity*, and in keeping with the historical collectives for the management of common land property (91) ;
- **Systematic pooling** of local resources through joint investments or specific instruments such as a freight exchange to pool transport, whose rate of return remains high. This would make it possible to reduce costs and therefore consumer prices while curtailing predation and, consequently, shrink the ecological footprint* ;
- **Automation** of local procedures most prone to corruption, in order to significantly reduce it and ensure compliance with the rules, both in the management of the commons and land distribution (see land ownership below).

4.1.2 Implementing proactive land policies

Managing unused land or vacant buildings is an absolute necessity to cope with future demographic pressure, including migration, changes caused by climate change and desertification, impacting crops and habitats and preserving degraded biomes.

This implies new - sometimes unpopular - measures to combat land grabbing, a ban on the privatization of areas whose biomes are endangered, with the exception of regeneration measures, the extension of public land rights to any building unused for more than five years and to any industrial or agricultural wasteland.

A mapping of future impacts of water stress and climate change should make it possible to plan future geographical zones (farming and catchment zones).

4 PROPOSING

Morocco's contribution to planetarization (3)

Agricultural lands pre-empted by public power* would be granted through land-lease (see Box N° 12) to the poorest, or even to migrants with know-how in this field. In and around cities, community gardens would facilitate the development of food agriculture.

Such a land policy requires, first of all, developing a detailed land register of the Kingdom and updating property titles, and secondly, identifying the potential for economic development of various regions.

4.1.3 Reconstructing the urban-rural entity

To achieve this, it is necessary to make both cities and countryside attractive, but also to establish bridges between these two types of spaces so that they can be part of one single development project.

Box n° 12 : Definition of land-lease (*Affermage*) (92)

"It is a contract by which a public person (leasing authority) entrusts the operation of a public service, for a fixed period of time (generally shorter than that of a concession, due to the absence of capital to be amortized), to a freely chosen farmer (...). The authority finances the costs of initial establishment (the farmer only contributes the working capital) and possibly makes available the works necessary for the performance of services to the partner. The manager operates at his/her own risk, collects fees directly from users, but must pay a rent, in an amount predetermined by the contract, to the public entity (his/her profit being therefore equal to the difference between these two sums). If it is the farmer's responsibility to maintain the works that have been made available to him/her, any reinforcement and extension work shall be the responsibility of the farming community."

4 PROPOSING

Morocco's contribution to planetarization (4)

Developing rurality

Rural exodus is not a solution. It can only be curtailed by large-scale development of rural areas. The modernization of agricultural techniques has already made it possible to improve yields thanks to the Green Morocco Plan. However, it is also necessary to create conditions conducive to the marketing and distribution of agricultural products, through the development of cooperatives and associations to maintain peasant farming (AMAP* - see Best Practice N° 23), for example, and to bolster economic functions in villages, rural tourism, the rational use of local resources and land policies (controlled designation of origin, labels, etc.).

An organized local economy (recycling, short circuits, local markets, micro-grids, shops and itinerant services, etc.) can also contribute to developing Morocco's rural areas, provided that the cultural gap between urban and rural areas can be bridged through adult education and training.

Making cities more sustainable

Morocco has already developed a city and housing policy that it is gradually implementing. A leapfrog* in this area would make major cities more sustainable, reducing their ecological footprint* while making them easier to live in. This could be done, for example, by incorporating more greenery and plants with depolluting properties, organizing cities in such a way as to limit intra-urban travel, facilitating access for the elderly, organizing nurseries and municipal catering, and considering the use of additive construction (93), ...

4.2 Fostering and internationalizing knowledge

Morocco's global presence is growing fast, both in terms of the mobility of its nationals (brain gain) and participation* in global geopolitical bodies. The Kingdom's regional foothold is well established in West Africa and extends to Africa in general. Nevertheless, there is one major area where Morocco must make essential progress in order not only to participate fully in the concert of nations but also to trigger the virtuous circle of emergence: the development of cognitive capital (94) (see Best Practice N° 24).

BEST PRACTICE N°23

Associations for the preservation of peasant farming in France (95)

An association for the maintenance of peasant farming (AMAP) is generally born from the meeting of a group of consumers and peasants. Together, they define the variety and quantity of food to be produced for the season. These foods can be fruits, vegetables, eggs, cheese, meat.... During the season, farmers make fresh produce available to partners on a periodic basis (e. g. once a week).

Basket contents depend on which products are ripe. Unlike supermarkets, consumers place less importance on food standardization ; everything that is produced is consumed. On the one hand, this principle is very rewarding for the farmer and, on the other, it lowers the price of food by transferring costs to the entire production process.

The consumers' group and the farmer also agree on the agronomic methods to be used. These are inspired by the charter of peasant farming and by the specifications of organic farming.

AMAPs thus contribute to combating pollution and other risks associated with industrial agriculture and promote responsible and shared management of common goods.

The price of the basket is set in a fair way: it allows the farmer to cover his/her production costs and generate a decent income, while being affordable for the consumer.

Such prices are made possible by the absence of product losses, the absence of middlemen between farmers and consumers and the reduced use or even elimination of packaging.

BEST PRACTICE N°24

Towards knowledge cities : The exemple of Austin in the United States (96)

Knowledge-based urban development and knowledge as a key to resilience are clearly demonstrated in the case of the city of Austin, Texas. It was one of the first American cities to develop strategies to attract footloose industries*, becoming, over the decades, a major magnet for large electronic firms.

To offset the effects of a bursting internet bubble, an ambitious investment strategy was put in place in 2003, under the aegis of the city's chamber of commerce and involving public authorities, businesses and civil society.

The Opportunity Austin 1.0 (2004-2008), 2.0 (2009-2013) and 3.0 (2014-2018) plans were very successful, exceeding expectations. The Opportunity Austin 4.0 (2019-2024) plan identified three major priorities :

- Support the growth of companies with the stated objective of creating 50,000 new direct jobs and 75,000 indirect jobs by the end of the period.
- Generate sustainable competition by increasing the number of graduates and improving infrastructure and services for citizens and businesses.
- Improve the living conditions of workers through a substantial reduction in travel times and keeping house prices at affordable levels.

Since 2004, Opportunity Austin plans have created 365,000 direct jobs, relocated 515 companies in the city, attracted 750 new investors and increased the city's payroll by more than $21 billion.

4 PROPOSING

Morocco's contribution to planetarization (5)

4.2.1 Improving access to knowledge

Free access to public knowledge (academic scientific publications, public databases), acquisition of the fundamentals for understanding (good level of English and scientific databases) and access to scholarly works (growth of domestic publishers and access to international online booksellers) should all be given high priority.

Moroccan laboratories of excellence should also be objectively identified in order to be leveraged by both public and private sectors for the country's development and international influence.

4.2.2 Disseminating global knowledge

This requires considerable effort to disseminate and translate scientific work (97), not only from Arabic to English, the world's lingua franca, but especially from English to Arabic.

A media-related policy (television, radio, press, social networks) could usefully promote global knowledge and contribute to more globalized Moroccan academic culture.

Special consideration should be given to think tanks with a view to facilitating their international cooperation and communicating their results widely.

4 PROPOSING

Morocco's contribution to planetarization (6)

4.2.3 Exploring new areas of knowledge

In order to stand out, Morocco's scientific contribution should focus squarely on experimental or advanced fields, such as biomimicry*, climate change adaptation, artificial intelligence* (see Best Practice N° 25) and robotics, additive manufacturing, photovoltaics, electricity storage, the use of local pharmacopoeia... regardless of whether these fields come from high or low tech.

The structure of the field of research would gain from differentiating between major national and international scientific programs in basic research on the one hand, and applied research by the private sector, which is in a better position to protect and harness research findings than the public sector, on the other hand.

Research programs should be consistent with Morocco's broad strategic priorities. Their deployment should be part of a strategy to make Morocco a hub for scientific research.

4.3 Promoting a Moroccan-style blue economy*

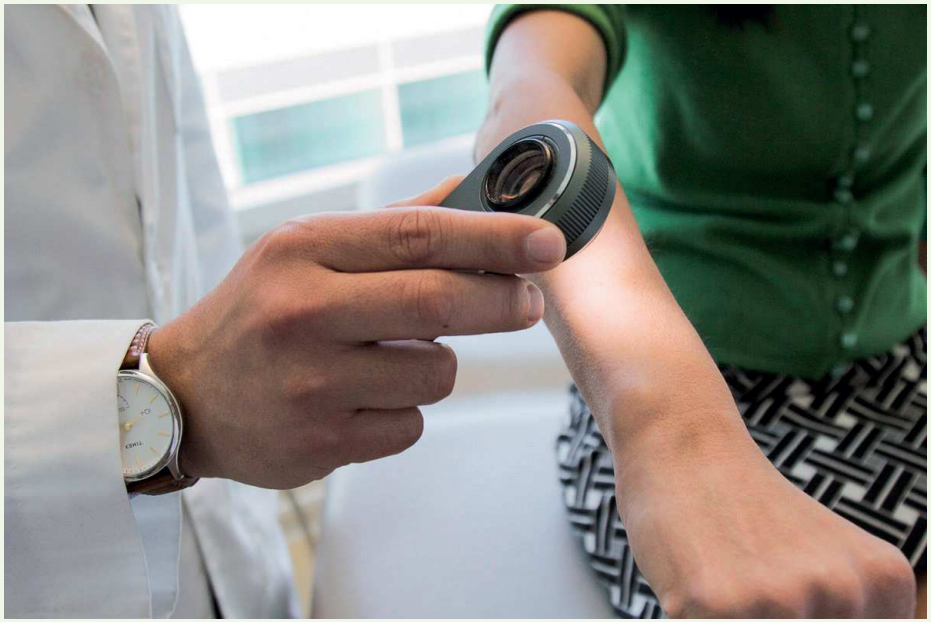
The post-predatory sustainable economy is embodied by a highly systemic blue economy* approach. Morocco is already at an advanced stage in some areas that characterize it, such as the production of renewable energy. It should be able to target the blue economy as a whole* to achieve a real leap forward. To this end, three main priorities are essential: access to finance to enable the transformation of the local economy into a sustainable local economy, the establishment of a sustainable maritime economy and commitment to a bottom-of-the-pyramid economy.

BEST PRACTICE N°25

Artificial intelligence as a medical diagnostic tool in the United Kingdom (98)

In partnership with Stanford University, the University of Edinburgh (United Kingdom) has developed an early diagnosis system using artificial intelligence based on an algorithm created by Google. The algorithm in question was fed by 129,450 training images of 2,032 cases of skin cancer. After learning what cancers typically look like, the software was tested with clinicians for classification of keratinocyte carcinoma, melanoma and melanoma by dermoscopy.

Computer scientists, dermatologists and engineers designed the software to identify life-threatening and common skin cancers using an image database. The results were compared to those of 21 expert clinicians and the algorithm was able to match their performance on 130,000 cases. By integrating these technologies, researchers are now able to detect the early signs of skin cancer with an accuracy of 91%.



Source : https://news.stanford.edu/2017/01/25/artificial-intelligence-used-identify-skin-cancer/

4 PROPOSING

Morocco's contribution to planetarization (7)

4.3.1 Promoting participatory finance

Moralizing the economy, which may prove difficult at the scale of a State integrated into a global economy, could, however, be readily applied in the case of Morocco in the future thanks, in part, to Islamic finance*, which promotes transparency, justice, equity and social responsibility* of investment and proscribes interest and speculation.

In addition, other instruments may now enable the less fortunate to access financing, such as crowdfunding and the widespread use of direct banking instruments such as M-PESA (see Box N° 13).

Box n°13 : Definition of the M-PESA system (99)

M-Pesa (M for mobile and pesa, money in Swahili) is a microfinance and mobile money transfer system launched in 2007 by Vodafone for mobile operators in Kenya and Tanzania. It has since been extended to Afghanistan, the Democratic Republic of Congo, South Africa, India and, in 2014, Eastern Europe.

M-Pesa allows users in possession of an identity card or passport to easily deposit, withdraw and transfer money using a mobile device such as a mobile phone.

M-Pesa has grown rapidly and, in 2010, became the most successful mobile financial service in developing countries. By 2012, approximately 17 million M-Pesa accounts had been registered in Kenya. This service has provided millions of people with access to the formal financial system, which has helped to reduce crime in societies largely based on cash transfers.

4 PROPOSING

Morocco's contribution to planetarization (8)

4.3.2 Developing and implementing a sustainable sea economy

With a 3,416 km long coastline overlooking the Mediterranean Sea and the Atlantic Ocean, Morocco is in a position to significantly improve its domestic income from the sea and its resources (fish, crustaceans, algae). From thalassotherapy to aquaculture, seaweed processing to maritime transport, freight cabotage to recreational boating, the sources of direct and indirect income from the sea are particularly numerous and diversified.

A sustainable sea economy is particularly well suited to the development of a local economy, linking cities and their hinterlands and connecting wastewater treatment and pollutant treatment in a systemic way.

Indeed, the management of marine resource sustainability as a whole is a major challenge for Morocco's future. To this end, overfishing, declining port water quality, discharges of untreated effluents and coastal degradation should be avoided.

Particular emphasis should therefore be placed on oceanological work to identify resources, their availability and the rules for their sustainable conservation, in order to initiate necessary protection, transform harvesting methods and develop alternatives such as sustainable aquaculture.

4 PROPOSING

Morocco's contribution to planetarization (9)

4.3.3 Fostering a bottom-of-the-pyramid economy

According to OXFAM's 2018 report entitled "Reward work, not wealth," half of Moroccans have a standard of living of less than 966 dirhams per month (100). Hence the need to **develop new sources of income through sustainable economic activities**. Although less desirable, the collection of recyclable products is nevertheless profitable, particularly for materials that are becoming scarce, such as copper or electronic waste.

Transportation of raw materials, waste processing, services to individuals and home-based care are all activities that provide access to a minimum income. Although marginalized by the Western model, in Morocco, the transmission of traditional knowledge should make it possible to recreate or develop useful professions: ironwork, irrigation, natural air conditioning techniques, etc...

To this end, a flexible legal framework should facilitate job creation. Access to basic vocational training would boost employability. Only under such conditions could the informal economy gradually decline. It would, nevertheless, continue to serve as a safety valve for a two-tiered Moroccan economy, until bureaucracy is reduced, education is improved and traditional knowledge is fully exploited.

In addition, a more measured Moroccan marketing adapted to low-income people could be substituted for Western marketing aimed at hyper-consumption. For example, the easiest way to make medicines accessible to the greatest number of people is to sell them in smaller formats (for example by providing only the number of tablets or capsules strictly necessary in a medicine box) in order to lower the unit price. The use of local herbalism would also offer an effective alternative, hence the importance of developing this sector.

4 PROPOSING

Morocco's contribution to planetarization (10)

4.4 Establishing regional integration as a pillar of the new development model

Morocco enjoys high potential relational capital thanks to its network of alliances with economic powers and its valuable cultural and historical heritage. He has developed and maintained relationships based on trust and loyalty with partner countries, donors and international institutions. This reflects the progress made by the Kingdom in gradually building its status as an attractive power.

Faced with the major economic and geopolitical changes of recent decades, with the emergence of China and new players who are setting their pace for global growth, Morocco has adopted a policy of diversifying its partners. This policy is also motivated by the fact that Europe, the Kingdom's main partner, is experiencing a deceleration in its economic growth with, consequently, a marginal ripple effect on the economies and countries of the Mediterranean basin.

Morocco has made it a priority to focus on Africa, and intends to further integrate its economy into West Africa, actively contribute to the establishment of the continental free trade area and establish itself as a regional hub and a link between Africa and Europe in a broad range of areas.

The currently sluggishness of the domestic market and the persistence of certain structural macroeconomic imbalances, including that of the trade balance, are prompting reflection on new patterns of economic integration with other African regions where economic growth margins are potentially higher.

4 PROPOSING

Morocco's contribution to planetarization (11)

For all these considerations, Morocco should adopt a genuine soft power strategy*. Its objectives should include :

- everaging its relational capital by taking advantage of the opportunities offered by the Kingdom's free trade agreements and, in the future, favoring regional rather than bilateral agreements as well as agreements that are less asymmetrical than those signed with developed countries and a few emerging countries ;
- providing the country with a Morocco brand, with prior definition of distinctive identity features and an incentive for companies to define their brands, starting with those operating abroad ;
- promoting bold economic diplomacy and large-scale cultural diplomacy that values cultural heritage and spans the soft power* of cities ;
- enhancing Morocco's presence on the international scene through effective representation of Moroccan nationals in international bodies, mobilization of the diaspora as a power of influence on behalf of the homeland, and engagement with foreign civil societies and academia.

Lastly, universities' soft power*, which is highly important, deserves to be fully leveraged. The objective is to train more foreign students in Morocco and to maintain links with these graduates of Morocco's higher education system.

CHAPTER 5

PILLAR 4 : "EXPONENTIALITY"

"The greatest shortcoming of the human race is our inability to understand the exponential function."

Albert Allen BARTLETT (1923-2013), physicist

Exponential technologies*, exponential companies* (unicorns*), exponential growth*, exponential information*... "exponentiality" (see Figure 47) is now everywhere, although it is unclear what it is about and what its impacts are. What is certain, however, is that it expresses continuous and very rapid growth, although such growth cannot be sustained at this pace due to exogenous constraints. This is why the current exponential growth* (mainly technological, but also demographic) often leads to) disaster-mongering (101), and goes so far as to invoke the collapse of civilization.

1 UNDERSTANDING

1.1 Three characteristics of "exponentiality"

There are three major characteristics of "exponentiality" as it is expressed in human societies today.

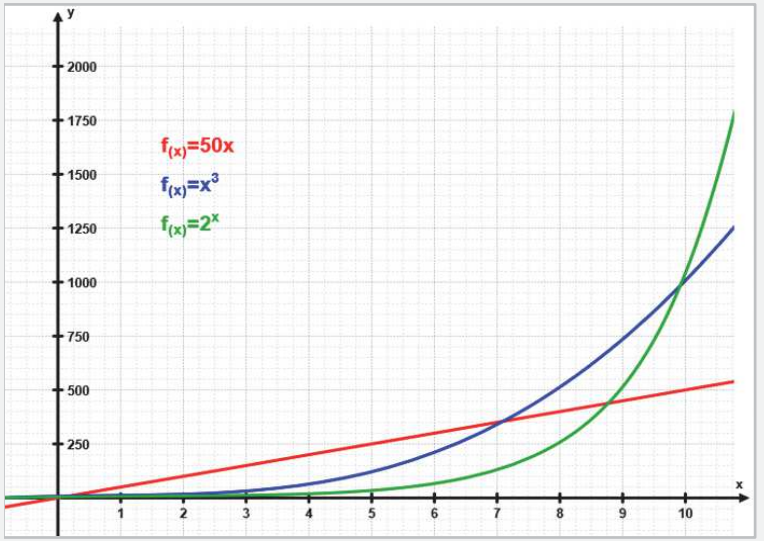
1.1.1 Digitalization*, the driving force behind "exponentiality"

While digitization* pursues the quest for dematerialization - from paper documents to heritage objects - digitalization* is transforming all human, personal and professional, recreational and productive activities at an ever faster pace.

Moore's law* leads to an exponential increase in digital memory and the proliferation of computer tools whose versions are constantly **upgraded to more capacities and functionalities**. In addition, digitalization* enables the development of so-called exponential technologies, which benefit from each other: biotechnologies*, neuro-technologies, nanotechnologies, drones, robotics, artificial intelligence*, 3D printing*, mobile technologies, information and communication technologies*, detection technologies, etc...

As a result, **digitalization* introduces new innovations every day,** from small everyday gestures related to touch (touch screens) to the intrusion of the virtual into reality (GPS, smart screen), but also home automation, connected vehicles and the entire production chain right up to distribution (virtual or physical). This accumulation of changes is experienced as an acceleration (102) (see Figure 49), the dynamics of which must be fully understood in order achieve value creation through digital technology.

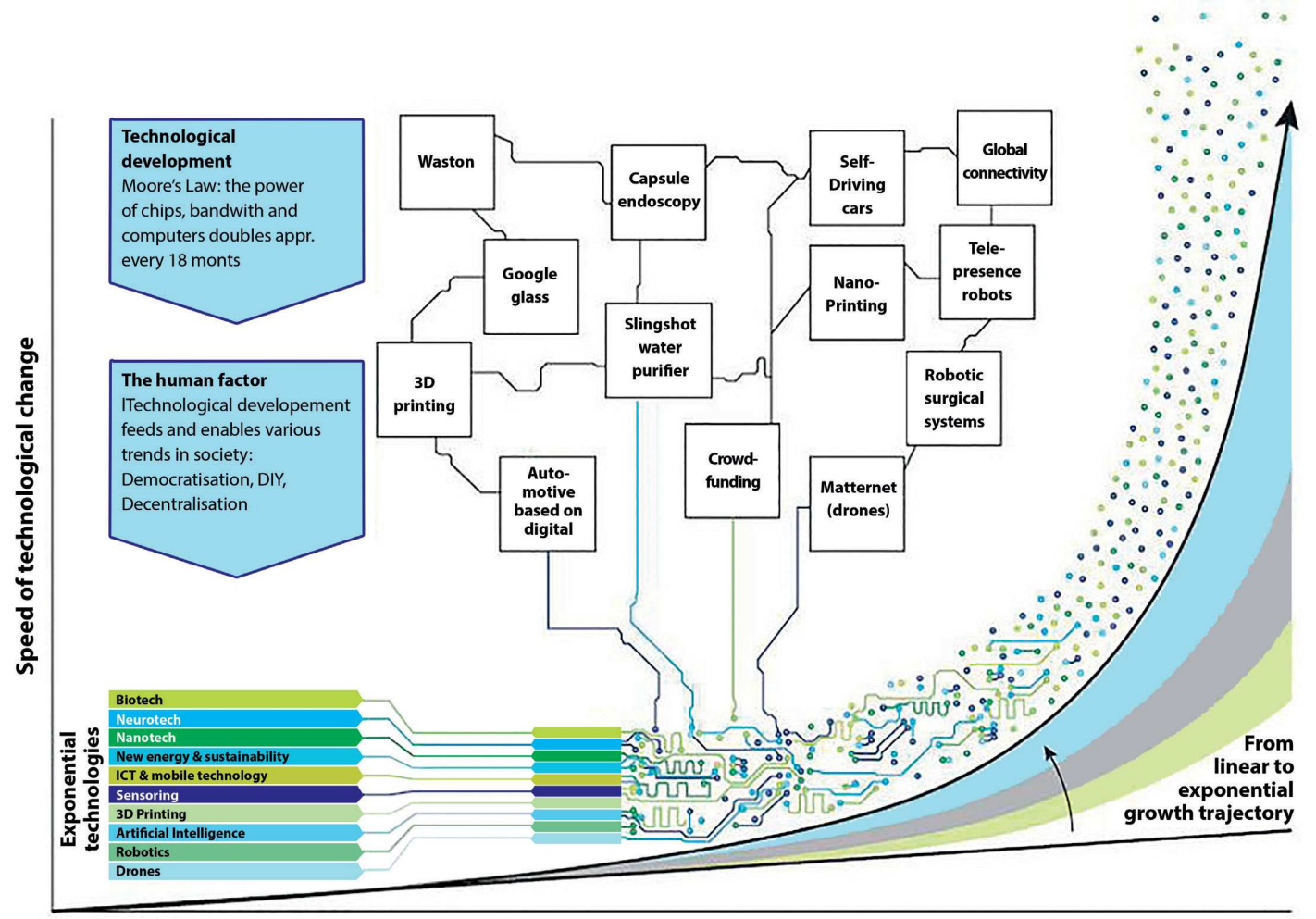
Figure 48 : Comparison between linear (red), cubic (blue) and exponential (green) growth



Source : https://fr.wikipedia.org/wiki/Croissance_exponentielle#/media/Fichier : Exponential.svg

1 UNDERSTANDING (2)

Figure 49 : Speed of technological change



Source : Industry 4.0 emergent exponential technologies Schlaepfer, Koch, & Merkofer, 2015

1 UNDERSTANDING (3)

1.1.2 Acceleration

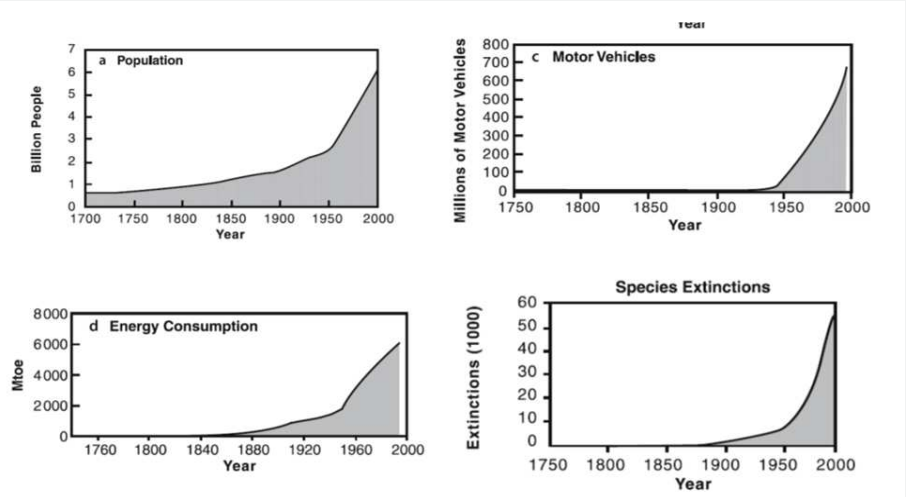
Thus, as digitalization* spreads, almost virally, the phenomenon of acceleration is increasingly felt through the **growing number of actions** now possible in a given time frame thanks to the speed of electronic communications (voice, SMS), actions (online purchases), interactions (social networks), production processes....

Nevertheless, "exponentiality" is not only due to digitalization* as it also affects **living** organisms (population growth, species extinction - see Figure 50).

It actually results from a specific moment in history, a **great transition**, during which a declining and an emerging world collide. During this period, volatility and complexity increase, generating much uncertainty and ambiguity (103), and trends reach their peak.

To slow down this acceleration, only two possibilities are currently available: implementing a **development model** capable of curtailing this surge (see below) and using **artificial intelligence** (see Highlight N° 15). Indeed, they can serve as a buffer between the acceleration of technological change and human beings' ability to adapt, providing a stable interface (Alexa, Google Home, etc.).

Figure 50 : Some changes on a global scale



Source : Global change and the earth system: a planet under pressure, 2004

HIGHLIGHT N°15

What is artificial intelligence ? (104)

Artificial intelligence can be roughly defined as a system with the ability to learn to learn, in other words, a system whose initial algorithms are able to generate new algorithms independently.

Artificial intelligence is a generic term that encompasses a set of distinct capabilities, as well as human intelligence. This applies to Natural Language Processing, which refers to humans' language acquisition abilities, computer vision, the Internet of Things, which is akin to the human ability to perceive the environment through the senses or, lastly, Big Data, which is equivalent to everything that nurtures human intelligence, all inputs from the external environment.

There are three types of artificial intelligence, each linked to a level of completion of the development process. The first stage, which is very basic, involves machines with a so-called narrow artificial intelligence. These machines are specialized in a specific field of application, in which they are able to perfect themselves by drawing on the data to which they have access. DeepBlue, the computer that beat Gary KASPAROV at chess is an illustration of this type of weak intelligence.

The second type of artificial intelligence, called Artificial General Intelligence, characterizes the situation where a machine is able to develop knowledge in a specific field and apply it in different environments. Google DeepMind is one of the most successful examples. Although very advanced, these types of machines are still dependent on the data flow they receive, which limits their autonomy.

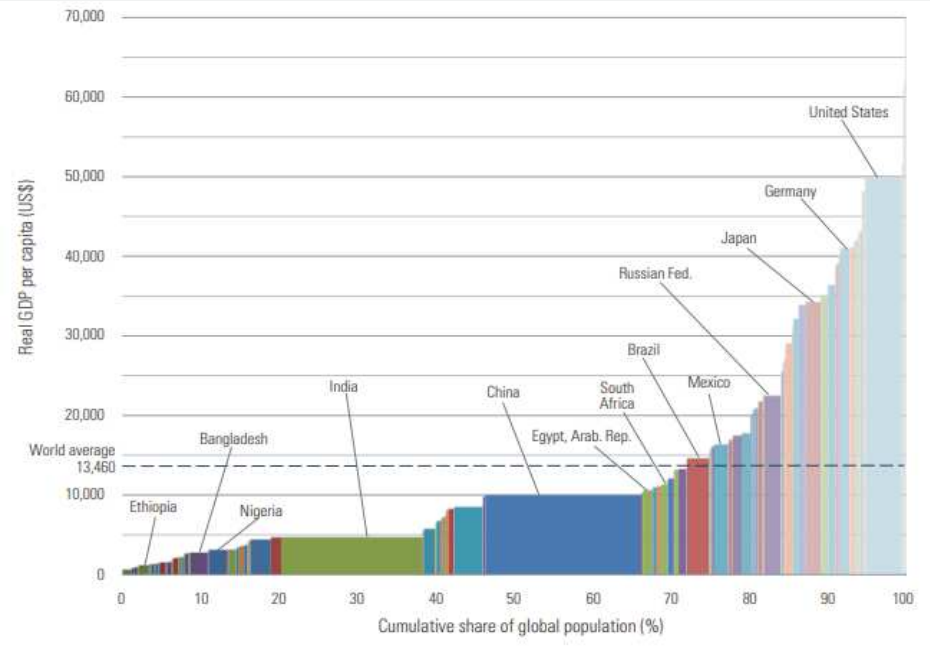
Lastly, the final stage in the development of artificial intelligence, which is currently only theoretical, is that of Superintelligent AI, whose capabilities exceed those of human beings. These machines would be able to think scientifically and creatively, with general knowledge, social skills as well as emotional intelligence.

1 UNDERSTANDING (4)

1.1.3 Growing inequalities

"Exponentiality" acts as an elastic that is abruptly stretched: inequalities rise inexorably between each end of the spectrum, between the richest and poorest, the most and the least "digitalized," those who have the most access to information and those who have the least, those who are best able to understand the complexity of the world today and those who are not.

Figure 51 : Real GDP Per Capita and Shares of Global Population, ICP 2011



Source : Purchasing Power Parities and Real Expenditures of World Economies, A comprehensive report of the 2011 international comparison program ICP, World Bank

Digitalization* exacerbates these inequalities both by contributing to them (gap in proficiency and access to digital technology) and by making them more visible everywhere : social networks, online news, television and radio.... Acceleration also contributes to this by adding a new pitfall : the **capacity to adapt.** Because the speed of change is such, without such an ability, many people will be left on the sidelines, particularly in the context of human-machine substitution or the energy transition, hence the need for support.

The **decoupling of productivity from employment** and the slowdown in global growth are contributing to breaking the virtuous circle of the classical economy : increased productivity, increased job growth, increased wealth. The traditional top-shaped form of developed societies (few very rich and very poor and a very large middle class) has been transformed into an hourglass (large population comprising very rich and very poor people). Neoliberalism, as the driving force behind the global economy, which has led to the current systemic crisis, seems to have reached its limit.

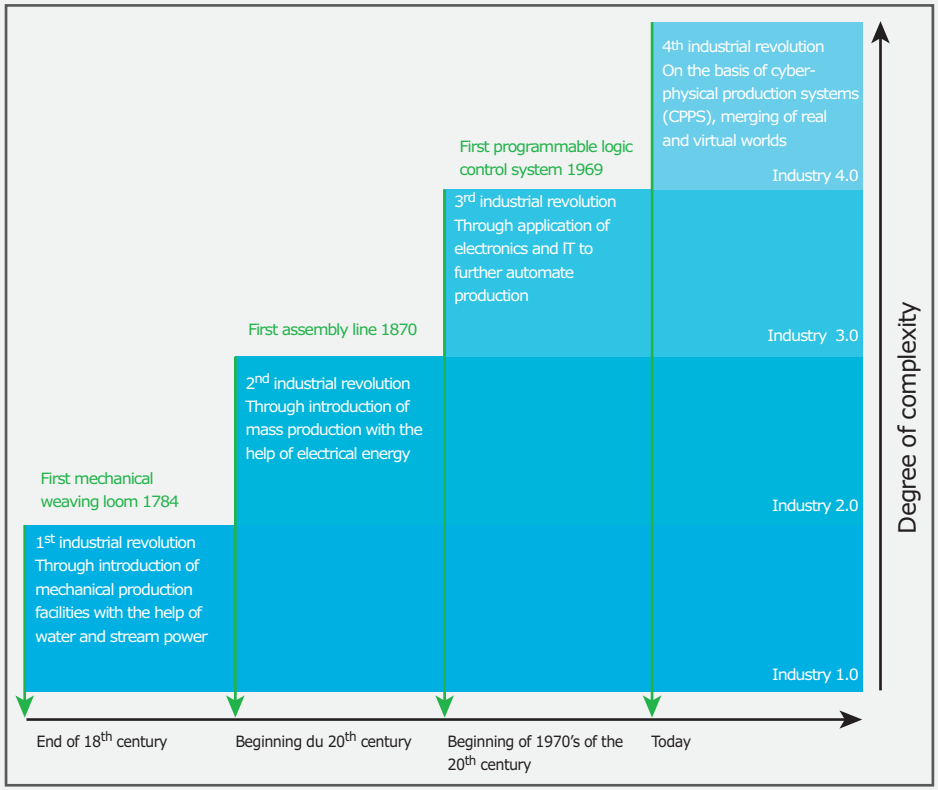
1 UNDERSTANDING (5)

1.2 The Fourth Industrial Revolution

Industry 4.0, resulting from the **convergence of the real and the digital world**, generates more flexible production processes, suited to the production of shorter series and just-in-time logistics systems, and adapted to "on-demand" distribution. This transformation of production methods is leading manufacturers to acquire more agile tools and more participatory structures, involving all employees more closely.

Like the first industrial revolution* at the end of the 18th Century, this **4th industrial revolution*** (see Figure 52) brings about considerable changes that go far beyond industry itself: from technology to management and the market, it is the whole economy that is changing as a result of this convergence made possible by artificial intelligence*, cognitive computing* and the Internet of Things.

Figure 52 : The four industrial revolutions



Source : DELOITTE. «Industry 4.0. Challenges and Solutions for the Digital Transformation and Use of Exponential Technologies». Swiss: DELOITTE, 2015

1 UNDERSTANDING (6)

1.2.1 From supply to demand

During the last two centuries, industrial development was driven by a so-called supply-side rationale : manufacturers created the products they wanted and tasked marketing with generating the right demand.
By the end of the 20th Century, a **"consumer'actor"** began to emerge, especially in developed countries, who was more aware of the impacts of her/his purchases, more interested in quality (organic for example) and safety (labels), and nowadays even in traceability and ethics (fair trade).

Industrialists have adapted to these new requirements, thanks to digitalization*, by moving from the sale of manufactured objects to the sale of services, hence the expression "**outcome economy**"* (105). Thus, in the software industry, a program is no longer sold but rather leased to the customer (through a subscription). In the tyre industry, it is the "mileage driven" that is charged rather than the sale of the tyre.

This **XaaS* trend** (everything as a service) has an impact on all market activities well beyond industrial production, such as furnished real estate, cosmetic care shops, but also the sectors of energy, transport and agriculture. However, it requires continuous connection to the web, use of a cloud infrastructure* (see Highlight N°16 and Figure 53) and physical sensors (data analytics*) that make it possible to anticipate the delivered "outcome."

Such a transformation comes with a considerable need for capital to invest in new technologies, which in turn contributes to the challenge of sustaining competitiveness and profitability for companies.

HIGHLIGHT N°16

Cloud computing (106)

Cloud computing is a form of information technology outsourcing* in which companies give up the development and use of their own data infrastructures to use the services of a cloud provider*.

Cloud computing* constitutes one of the most dramatic paradigm shifts in recent IT history. It offers a significant competitive advantage to companies that use it. For example, a recent study found that the use of the cloud* significantly reduces the cost of setting up a computer storage network for companies. In the United States, this cost fell from $5 million in 2000 to $5,000 in 2016, a 99% decrease.

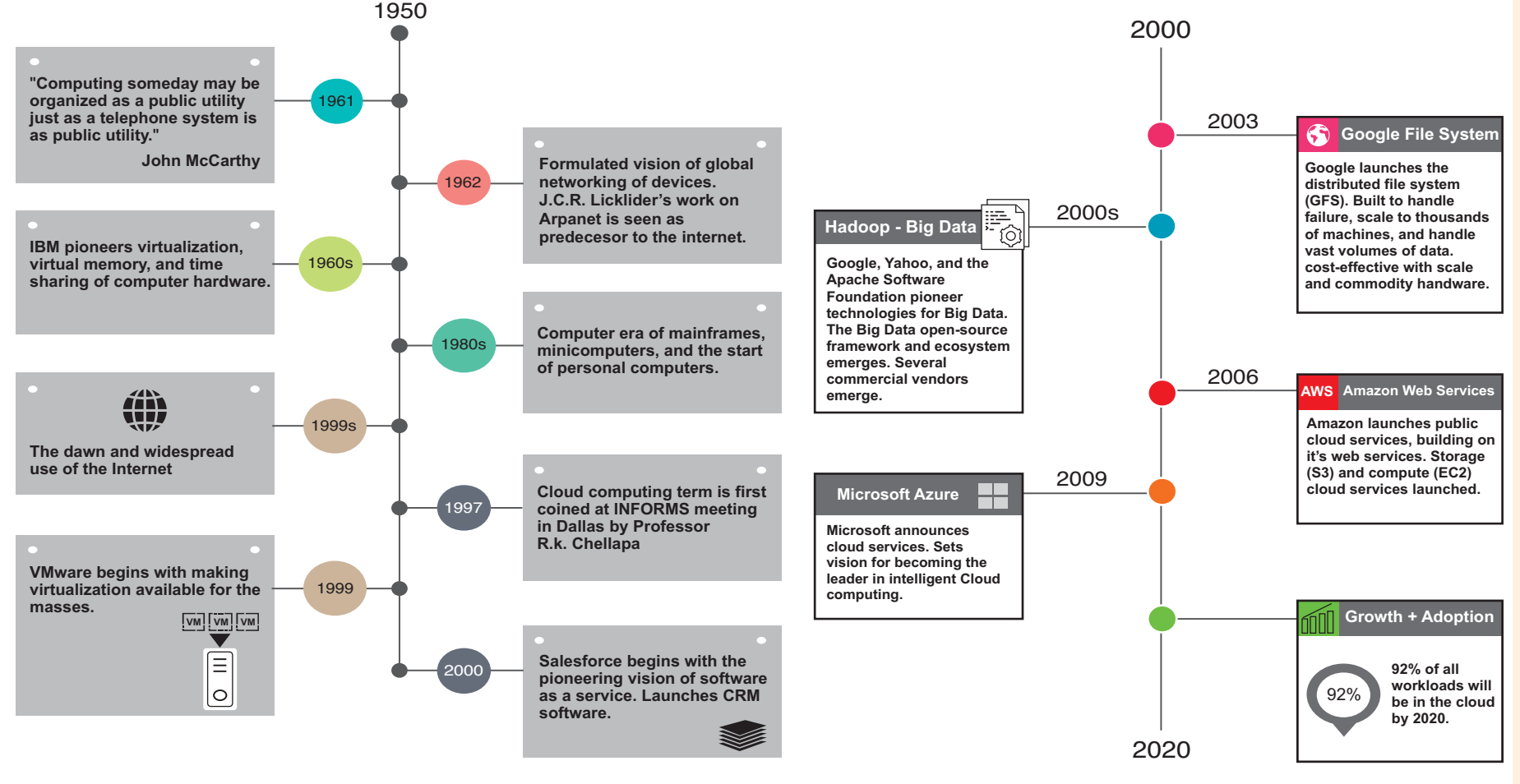
The first use of the term Cloud computing is attributed to Professor Ramnath Chellapa, who, in 1997, described it as follows: "Cloud computing is a dynamic computing paradigm where the boundaries of computing are determined by rationale provided by technological, economic, organizational and security requirements".

Source : https://guide-high-tech.com/cloud-computing-c-est-quoi/

HIGHLIGHT N°16

Cloud computing (106) (continued)

Figure 53 : Timeline of the cloud*



Source : *Cisco Global Cloud Index (2016), cité dans, Sharma, Vinit, The cloud-based demand-driven supply chain*, Hoboken (NJ), Wiley, 2019, pp. 45-46.

1 UNDERSTANDING (7)

1.2.2 Great shift in management

While the above-mentioned race to competitiveness and profitability has enabled the streamlining of production tools (industry, logistics, distribution), it has also generated significant **adverse effects**, such as decoupling wages from productivity (which has contributed to reducing the share of wages in value added (107), widening pay gaps, increasing numbers of deaths due to stress, inappropriate workplace conditions and poor managerial practices, declining performance (despite higher labor productivity) measured in terms of return on investment, shorter company lifespans and, finally, increasing disinterest of the workforce in their work (108).

It is therefore clear that the ways in which goods and services are produced and **management style** adopted must be completely revised, in favor of a more humane treatment of employees. It is a **new mindset** that must now be promoted in organizations, both public and private, to be fairer, more respectful and more ethical.

Henceforth, **leaders**, irrespective of their hierarchical rank or sector of activity, must be more humane (see Box N° 14), more attentive to their staff, more present (109). He/she is expected to be able to lead the way and communicate clearly on his/her vision, to facilitate and support transitions, in particular digital transitions, and to gain the support of as many people as possible.

Box n°14 : Humane leadership in the 4th industrial revolution* (108)

The 4IR has a disruptive effect on leadership: the old model, the carrot and stick, toxic leadership and organizations based on fear and control do not work. A new model is needed, a model where leadership has not only a functioning radar to understand what is happening across the company, but also a moral compass to steer the ship in the right direction, guided by ethical choices and responsibilities. Not merely a change, but a true shift towards humane leadership, where trust and respect permeate organizations.

2 ANTICIPATING

Three major factors will compete over the next few decades to accelerate or slow dow "exponentiality".

2.1 Exponential technologies*

Fast paced evolutions and the disruptions they bring about portray a **dark picture of a future** in which humans are deprived of work, and therefore of income, by physical robots (drones, autonomous vehicles, etc.) and immaterial robots (artificial intelligence*, chatbots - see Box N° 15, etc.), and where growing inequalities would be such that one part of the world would plunge into poverty and permanent violence (Dark Age*) while the other would take refuge behind walls, behind which the wealthiest would benefit from biotechnologies* to live better and longer (bioengineering), to get rid of their disabilities (bioelectronics) or to increase their cognitive or physical capacities (neurocognition, bionics).

Thus two Humanities would gradually emerge, one that would return to a state of primal survival, and another would artificially move to a more advanced stage. Scientists and computer scientists have already sounded the alarm (the Call of the 700*) about the potential emergence of a sentient artificial intelligence*, which could be propelled to the rank of dominant species on the planet.

Box n°15 : Chatbots (110)

Chatbots, also called chatterbots, are computer programs capable of simulating a conversation with one or more humans through voice or text.
There are many chatbots on the Internet that can mislead users because their answers sound so natural. But over a period of time, it becomes apparent that they are not human Some of these programs are equipped with artificial intelligence* and are able to learn, while others have an extraordinary knowledge of specific subjects, such as geography or software development.

2 ANTICIPATING (2)

These very genuine fears are based on scientific and technical developments that are just as real. However, since technologies are objects, they only become good or bad according to how they are used. Hence the need to anticipate any possible abuses that could arise, such as the picture portrayed above, and to train future users and designers. After all, these exponential technologies* also have the power to save lives (sick, injured), maximize agricultural yields in sustainable conditions, save resources, improve everyone's living conditions....

2.2 The human cost of "exponentiality"

Rapid change, the frantic pace of technological progress (partly imposed by planned obsolescence*), as well as the uncertainties that these innovations generate, contribute to deteriorating human health and, as a result, to poorer interpersonal relations, especially in the work-place, where violence is on the rise, especially in the developed countries.

The human brain is partly responsible for this state of affairs. Indeed, the complex biological mechanisms that allow it to process information it receives require time, particularly to adapt to this dynamic and the resulting complexity.

This is why "exponentiality" fascinates young adults and exhausts their elders. While the need to work longer is justified by pension plans due to an ageing population, it is both painful for experienced human beings and perilous for the companies that employ them, to have to adopt new practices, often with a high technological component, which are difficult to grasp because of diminishing brain plasticity.

Thus, "exponentiality" will necessarily have to drop to a rate more compatible with human mental and physical health (mental, nervous, chronic diseases, etc.).

In short, everything is evolving much faster than expected or planned. As a result, decision-makers continue to believe that they have time, when in reality the future is already rushing towards the present. It is therefore urgent to lay the foundations for a new approach.

2 ANTICIPATING (3)

2.3 The cost of inequalities

Societal segmentations play an essential role in economic segmentations. As described in Chapter 2 (section: Understanding), the population of most Western countries, but also that of a growing number of countries in the South, can now be divided into three categories:

- Those who are marginalized, unemployed, without education or training (NEET) or who simply reject the "system" and whose access to the exponential world has become almost impossible.
- A large mass of the population, with varying degrees of education, that is slowly adapting to digitalization* and needs to be supported, threatened by increasing automation (see Highlight N°17) ; its social cost is particularly high in a slower global economy where ageing and longer life expectancy are weighing on public finances, already weight down by the cost of adapting to digitalization*.
- Lastly, a technophile elite, backed by a generation of digital natives (Millennials*) who are advancing at the exponential pace of financialization of their industries (GAFA, Über,...), making a small contribution to state revenues, but also generating direct revenues for millions of people who benefit, in particular, from the platform economy.

The large-scale shift of agricultural jobs to industry during the industrial revolution* was relatively easy. That of industrial jobs into the tertiary sector, which was came alongside the post-industrialisation, was significantly more challenging. The shift ahead - away from jobs with a strong material component to jobs with a strong intangible component - cannot occur under the same conditions.

This is the **major disruption** in economic development of the last two centuries : it is no longer a matter of moving from primary to secondary, then to tertiary and now to quaternary, with a world population expected to reach nearly 10 billion people in 2050. Unless we automate all human activities and provide a universal basic income for all the world's inhabitants. Until this can possibly happen one day, rapid and effective solutions must be found to this new radical transformation of the current economic system, in which all sectors of activity and individuals must find their rightful place in an equitable way.

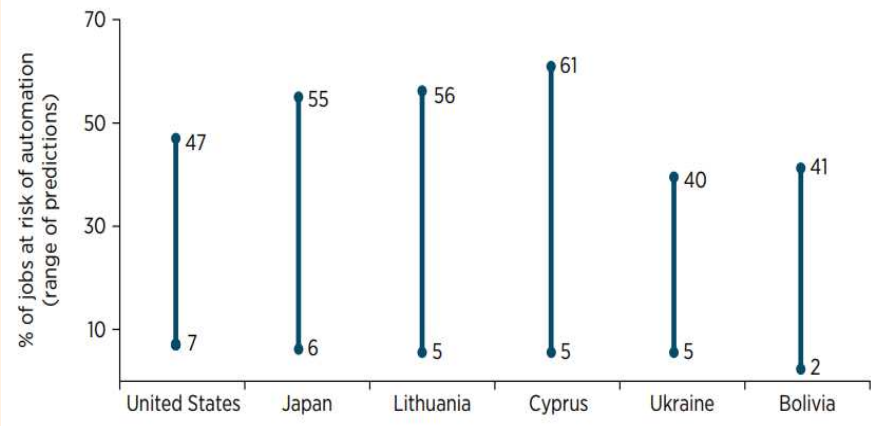
HIGHLIGHT N°17

The impact of automatisation on jobs

Some economists argue that the world is entering a period of slow growth where (digital) technology has a low impact on productivity and therefore on growth, while others believe that growth will have a fundamental role in transforming jobs and productivity in general (Robert Gordon, Erik Brynjolfsson, Andrew McAfee of MIT in particular).

Research on the impact of robotics on employment is limited. Most of it is conducted in developed countries, as well as by the OECD and the World Bank, on a more global scale. The findings of key recent studies are presented below :

Figure 54 : Estimates of the percentage of jobs at risk from automation



Source : World Development Report 2019, The Changing Nature of Work, working draft, Banque mondiale, 2018

- A study (111) entitled "The Future of Employment : how susceptible are jobs to computerization" paved the way for questions about the impact of robots on jobs in the United States of America. It analyses the likelihood of computerization of 702 types of jobs in the United States and concludes that there is a 47% risk of computerization of tasks hitherto performed by individuals. Such susceptibility to the risk of computerization varies according to types of jobs and level of qualification. It varies from 0.28% for therapeutic assistants to 99% for "telemarketers".
- Like OECD countries, developing countries also exhibit a wide variety of levels of impacts of automation on job destruction, depending on the type of job (see Figure 53). The real impact will depend on how quickly technologies are absorbed and what organizational choices are made.

3 PARADIGM AND VISION

Work - its volume, income, conditions - is at the heart of this ongoing tremendous socio-economic transformation (see Box N° 16). Hence the following three areas of focus.

Box n°15 : Earning a living is a nonsense (112)

"We must do away with the absolutely specious notion that everybody has to earn a living. It is a fact today that one in ten thousand of us can make a technological breakthrough capable of supporting all the rest. The youth of today are absolutely right in recognizing this nonsense of earning a living. We keep inventing jobs because of this false idea that everybody has to be employed at some kind of drudgery because, according to Malthusian Darwinian theory he must justify his right to exist. So we have inspectors of inspectors and people making instruments for inspectors to inspect inspectors. The true business of people should be to go back to school and think about whatever it was they were thinking about before somebody came along and told them they had to earn a living."

3.1 Slowing down acceleration to a sustainable pace

A significant portion of the acceleration is not so much driven by technology as by marketing, understood here as a sales tool. In order to slow down acceleration, it would therefore be useful to act on its key factors.

Planned obsolescence*, which requires the renewal of equipment that could last longer, is an important factor in acceleration. Although it has the advantage of creating a constantly updated tangible and intangible (software) products, thus guaranteeing a certain degree of security, it impacts lower incomes, especially in periods of impoverishment, and exacerbates predation of already scarce resources (coltan, hafnium, silver, antimony, etc.) (113). Some countries have already started addressing this concern (France, Germany, European Union) and several class actions have been initiated against multinationals whose products are planned to become obsolete.

3 PARADIGM AND VISION (2)

The increasing pace of software updates, designed as a sales technique rather than a real service, not only produces new, less functional versions, but also entails the aforementioned consequences of planned obsolescence*.

This functional regression is mainly due to the obsolescence of older functions in the new programming language used or their delegation to third parties, thus increasing IT vulnerabilities and the need to acquire third-party tools.

However, since algorithms are now at the core of all digital processes, this fast pace has a particularly strong impact on acceleration, and the resulting functional loss for the user, and thus impairs his or her performance.

Lastly, **growing awareness of digital addiction** - more broadly extended to nomophobia* and the fear of being disconnected from social networks - is also starting to trigger measures such as digital detox, laws prohibiting employees from sending emails during weekends, automatic logout applications, etc.

The new development model must contribute to bringing this acceleration back to a sustainable pace, both for human adaptability, natural resource exploitation and the very quality of updated products.

3 PARADIGM AND VISION (3)

3.2 Preparing for digitalization*

Three sets of measures are required for a country to succeed its digitalization*.

3.2.1 Developing new digital infrastructures

Satellites, cables, optical fibers, WIMAX wireless communication standard: both wired and wireless networks must carry more and more information. In many countries, it is a **critical infrastructure** on which the incomes of a growing number of people depend, from farms that need to track market prices to day laborers in search of daily work. As the technologies used in these infrastructures are constantly evolving (5G, Li-Fi,...), choosing the widest bandwidth, with the lowest deployment cost and the smallest ecological footprint*, is imperative.

Moreover, **a pooling of research and development and related investment** would contribute to strengthening (interoperability*) supranational regional integration (see Chapter 3 - 2.2). Data protection and liability policies must also be updated to streamline cross-border data flows.

Lastly, governments must promote investment and the adoption of new digital processes, particularly in **public services and healthcare** (see Best Practice N° 26), which requires a review of current regulations in these sectors.

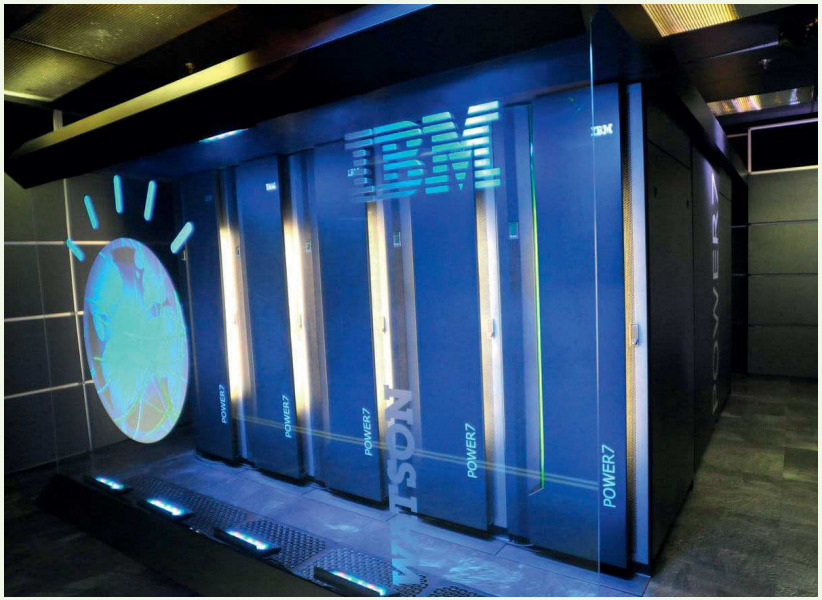
It is essential to understand that the development of this infrastructure (integrated sensors, broadband connectivity, etc.) is now just as important for economic growth as roads and other physical means of communication have been.

BEST PRACTICE N°26

Cancer treatment through deep learning* in India (114)

In Tamil Nadu State, India, ten private hospitals belonging to the Apollo Group have signed an agreement with the American company IBM to deploy the Watson artificial intelligence computer program for cancer treatment purposes. This program was used for the first time in Switzerland in the field of oncology.

This initiative is designed to help physicians identify the most appropriate treatment options and personalize care for patients with breast, lung, colorectal, gastric, cervical and ovarian cancer. Watson analyzes patients' genomic, clinical and pharmacological data to identify potential genetic modifications, drugs and clinical trials targeting patients' tumors.



Source: https://www.swissdigitalhealth.com/news/lhopital-de-nyon-premier-hopital-de-suisse-a-implementer-li-a-ibm-watson-en-oncologie/

3 PARADIGM AND VISION (4)

3.2.2 Supporting digital skills acquisition

While a significant proportion of younger generations are digital natives, gender and income are major discriminators in terms of digitalization*. Only schooling can overcome these differences by offering each student the opportunity to **develop digital skills** (see Highlight N° 18) that are as essential nowadays as reading and writing. These include demystifying the functioning of the Internet, mastering office automation tools and data language, creating a website, developing an ability to think critically about information, encouraging responsible, respectful and careful behavior on social networks, warning about computer security....

Moreover, providing young people with a forward-looking education will enable them to understand the wide range of opportunities that these skills will open up and prepare them for new subjects such as design thinking* (see Best Practice N° 27), systems thinking, anticipation and project management.

Prior to this shift in education, it is necessary, and urgent, to **support teachers' transition** toward greater digital literacy and the ability to train their students in this field on new interfaces (phones, tablets). Continuing professional training and train-the-trainer programs must be deployed to this end.

3.2.3 Anticipating human-machine substitution

Digitalization* will **generate new jobs and professions** for which current and future workers must be prepared. This is the case, for example, of the platform economy which allows non-professionals to generate income, such as renting their home or vehicle, or employees to become self-employed (convenience stores, consultants, web designers, etc.): on a global platform like Upwork, 100,000 job offers and requests intersect every second.

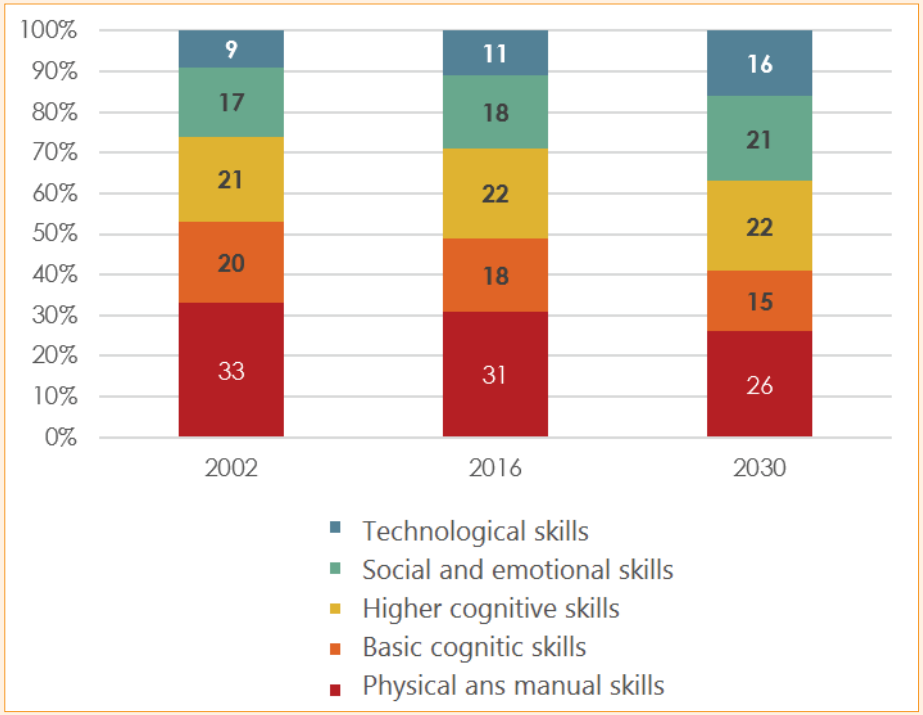
HIGHLIGHT N°18

New jobs, new skills

Competency profile analysis is required to determine job profiles (115). The projected structure for developed countries indicates a series of significant developments (see Figure 55) :

- A decrease in physical and manual skills over the period 2002-2030.
- A decrease in the proportion of basic cognitive skills.
- Stable trend for high cognitive skills.
- An increase in the respective shares of social and emotional skills and especially technological skills.
- In developed countries, research suggests that emotional and technological skills are expected to grow strongly. These results are expected in all developed countries and in all sectors of activity.

Figure 55 : Changes in the skills structure in developed countries (%)



Source : Mc Kinsey & Company ,
"Skill Shift, Automation and The Future of the Workforce", 2018

BEST PRACTICE N°27

The "Taking design thinking to schools" program in the United States (116)

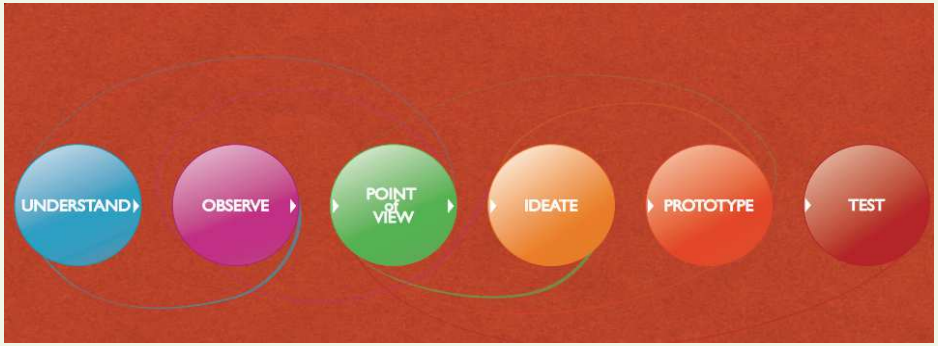
"*Taking design thinking to school*" is a pilot program, a collaboration between Hasso Plattnet Institute of Design, Stanford University and public school teachers. The objective of this program is to assess the impacts of implementing conceptual thinking in the learning and teaching processes from kindergarten to high school.

The initiators of the program believe that underlying its implementation is an ethical issue. Indeed, through design, children develop self-confidence and the ability to make a difference by acquiring skills that, up until then, were the prerogative of a few elite schools and that, due to a lack of resources and time, teachers in public schools could not teach.

The project therefore consists of training teachers in conceptual thinking methods and equipping them with the means to apply them in their classrooms.

Conceptual thinking

Conceptual thinking is a didactic approach that aims to develop students' creativity. Students and teachers work together to address practical challenges that aim to increase empathy, strengthen propensity for action, and encourage ideation and metacognition in problem solving.



Source : Stanford University: https://web.stanford.edu/dept/SUSE/taking-design/presentations/Taking-design-to-school.pdf

3 PARADIGM AND VISION (5)

The current school and university system trains employees in the private or public sector, but not entrepreneurs capable of managing their own business in a systemic way. Considerable effort must therefore be made in this area to ensure that, in the future, everyone has an opportunity to work in a world where conventional wage employment is waning (117).

Lastly, the concept of **universal basic income** is already being tested and should be systematically explored and piloted in all countries, in order to guarantee a minimum social safety net for those who are unable to be employed in the new digital economy.

3.3 Embracing the shift to a new development model

The model of development we seek is a fundamentally inclusive model : technophile, it integrates the **cleanest technologies** (digital, additive manufacturing, solar energy, etc.) to transform the planet into a world in which mankind's needs are more **in balance** with nature conservation and where there is **less inequality**, whether in terms of income, treatment, access or knowledge, etc....

The world today is however already very unequal and its digitalization* is likely to widen the gap.

It will thus be necessary to **harness all the resources** of new governance (mutualisation, subsidiarity*) and of this new model as a whole (mobility, regulation) to achieve a smooth global transformation to a world of "exponentiality".

Pragmatism is essential to carry out this transition successfully: we must recognize that not everyone has the desire or the knowledge necessary to enter into this unbridled digitalization*. This is why a **closely interconnected multi-speed economic system** must make it possible to develop a high-technology sector based on mastery of critical technologies, the contribution of these same technologies to improving the living conditions of all categories of the population and the development of a low technology sector that is nevertheless profitable. Hyper-competitiveness is replaced by **cooperation***, which is committed to human well-being and the preservation of the commons.

3 PARADIGM AND VISION (6)

Support from public authorities is the key to this transformation, until a major change in mindset takes place on a global scale. Beyond investment and training measures and a thorough review of existing regulations to adapt them to the future, a new form of state intervention is emerging, analogous to the **progressive capitalism*** mentioned by Joseph STIGLITZ. Faced with the failure of neoliberalism (growing inequalities, financial instability, environmental degradation) and the scale of future challenges (climate change, demographic explosion, scarcity of natural resources), public power* once again appears to be the only means of restoring balance between markets, the State and civil society. To do this, it must :

- **limit and shape markets** by regulating matters relating to the environment, health and safety at work, while leaving enough **entrepreneurial freedom** to encourage real economic development ;
- **facilitate transformation** by opening, supporting and championing, by means of fully revised regulatory frameworks in accordance with future objectives ; build on **innovation and experimentation** to create new jobs and sources of income that are fair, adaptable, ecological and human ;
- do what the market cannot or will not do, such as **actively investing in basic research, technology, education and healthcare for its citizens**.

4 PROPOSING

Morocco has already entered the era of "exponentiality", as evidenced by the sustained growth of investments by international groups in the Kingdom, particularly in global sectors, but also by the commitment to digital development: adoption of the "Morocco Digital 2020" strategy and establishment of the Digital Development Agency.

In addition, the 2019-2023 Country Partnership Programme (118), concluded between Morocco and the United Nations Industrial Development Organisation, aims to support the transition towards a green economy that is respectful of environmental balances and issues.

This paradigm shift is still difficult to achieve, however, even though acceleration should lead precisely to a faster pace of reforms in order to avoid falling behind. Five strategic directions could help Morocco engage further in the "exponentiality" of current economic development, while at the same time keeping it under control. This requires an even greater openness of Morocco's economy to the outside world and the conclusion of partnerships with international firms operating in the field of disruptive technologies.

4.1 Achieving a structural transformation of the national economy : a prerequisite

Industry should be the driving force behind future growth. A balanced expansion of this sector with that of services should help supply more quality jobs to the population, reduce social and spatial inequalities, and improve living standards, including by fostering growth among urban and rural middle classes.

To this end, it would be advisable to adopt a genuine industrialization policy capable of boosting economic diversification, enhancing its complexity, developing a dense network of competitive SMEs and creating stable and sustainable jobs.

Industrial policy should go beyond productivity gains in a few sectors of global value chains, to truly initiate a structural transformation that increases the degree of integration of local SMEs so as to meet the growing supply needs of global value chains operating in Morocco.

4 PROPOSING (2)

Morocco must pay particular attention to the capital intensity of world industry, which is increasingly concentrated in space and, more importantly, is reducing its use of labor. As part of its process of integration into global value chains, Morocco must also consider its own specializations.

The structural transformation of Morocco's economy is only possible if Morocco succeeds in **positioning the private sector as the bedrock of wealth creation** in the new development model.

To this end, it would be advisable to grant more freedom and facilities to entrepreneurship, both in urban and rural areas, to support the creation and development of businesses, particularly SMEs and SMIs, and to promote sharing and mutual assistance, through the conclusion of public-private partnerships and the establishment of ecosystems for entrepreneurship and innovation.

In addition, market and decision-making contestability must be guaranteed, in particular by lowering barriers to access for new market participants and by promoting more competitive and transparent allocation of public resources.

It is also important to complete judicial reform, to bring about significant progress in terms of moral standards and integrity, including speeding up the enforcement of decisions, and to undertake genuine land reform with a view to boosting private investment.

4.2 Successful transition to future added value

Future added value should not be limited to the industrial sector. To this end, it is advisable to **promote the development of a more sophisticated, high value-added service sector** that is strongly linked to other sectors of the economy.

In the transition to future added value, two key factors can act as drivers under the new development model: digitalization* and sustainability.

4 PROPOSING (3)

4.2.1 Advanced digitalization*

Digitalization* is understood here as the transformation of human activities (potentially all activities) as a result of digital technologies and connectivity. Its implementation paves the way for an entire segment of the economy : developers, webmasters, repairers, moderators, web technicians, etc. (see Best Practice N° 28).

IRES' study on digital transformation in 2017 highlighted that leading companies are ahead of some governments in terms of "maturity." They are islands of excellence on which to build. As far as uses are concerned, Morocco boasts innovative players in both the public and private sectors. But these are isolated sectors, which need to be widely publicized and included as part of an ambitious national digital strategy.

The objectives of the "Digital Morocco 2020" strategy (119) reflect the Kingdom's intention to switch to digital, whereas the annual Digital Trends Morocco study conducted by the Association of Moroccan Advertisers highlights the progress achieved in a given sector (that of advertisers). Nevertheless, digital penetration inequality is still high, particularly with regard to the dematerialization of administrative procedures, for example.

The actions already undertaken could be usefully supplemented by the **creation of a genuine digital ecosystem** combining, in the form of a competitive cluster, prime contractors, researchers and startups. More than in any other field, digital leadership and complex project management must become instruments of facilitation and not blocking factors.

Significant efforts should be made to promote state-of-the-art technologies. **Blockchain** could be used to ensure reliable registration of transactions, from land titles to maritime transactions. **Big Data**, i.e. the acquisition and processing of huge amounts of data (data analytics*), can, for example, enable better and cheaper food for children in school canteens, selling agricultural production at the fairest price, remotely managing a water-saving irrigation system, etc.

BEST PRACTICE N°28

The e-Residency strategy in Estonia (120)

Estonia is a country of 1.3 million inhabitants. A former socialist republic and now a member of the European Union, Estonia has implemented a massive digitalization* strategy.

He is renowned for having been the birthplace of four "unicorns*", strat-ups with a market capitalization of more than $1 billion. They are Skype, Transferwise, Taxify and Playtech.

The Estonian digitalization strategy* focuses on placing the needs of people and companies at the forefront of the debate. Thus, in 2002, the country introduced an electronic identity and signature system and thus digitalized almost all administrative procedures, with the exception of marriages, divorces and transfers of real estate ownership.

In 2014, Estonia took a further step in digitalization* by launching e-Residency : the possibility for anyone, regardless of citizenship, to apply for a digital residency card in Estonia and to set up an Estonian, European or online business. This has a double advantage: an influx of investment and tax revenue for Estonia, access to the European market for foreign investors, without having to comply with the procedures in use in other European countries or even travel.

Between 2014 and 2018, Estonia received 48,000 e-Residency applications from 157 countries. According to projections by the Estonian government, related investments could reach €1.8 billion in 2025.

4 PROPOSING (4)

Artificial intelligence* is used to control robotic systems, such as surgical robots or agricultural drones. It is paving the way for an infinite number of smartphone-based applications, from home automation to shared transport to bookings of all kinds (see Best Practice N° 29). As for **3D printing*,** it is still in its infancy: printing of buildings, biocompatible materials (organs to be grafted), prostheses, spare parts, various instruments, vehicles... Now is the time for Morocco to become a leader in these technologies of the future.

It is thus essential that Morocco join the leading group of countries attempting to develop expertise in these advanced technologies thanks, in particular, to excellent quality training. This would, among other things, enable Morocco to substantially increase the high-tech content of its exports.

With regard to digital infrastructure, Morocco should clearly adopt **interoperability* of the various systems** (by including this clause in all calls for tenders relating to intangible infrastructures) and **user data security.** At the international level, it could contribute to promoting global security commons. At the national level, it could encourage technology providers to become genuine regional leaders or champions :

- by identifying and sharing best practices in security ;
- developing technology benchmarks to demonstrate how solutions from different organizations can work together ;
- and by focusing on the so-called brownfield innovation* which consists in allowing two systems/equipment of different generations not only to co-exist but also to be linked to one another in such a way as to communicate.

BEST PRACTICE N°29

Automated customer support in South Korea (121)

At the 2018 Consumer Electronic Show, the South Korean company LG unveiled a new generation of robots, called CLOi, specifically designed for commercial use in hotels, airports and supermarkets.

The first of these robots is designed to serve food and beverages to customers in hotels and airport lounges. It can essentially substitute the work done by servers and be operational on a continuous basis.

The second, a carrier robot, can manage check-in and screening services in hotels and transport luggage to rooms. This type of machine is already used in some hotels, particularly in Japan.

Lastly, LG's third new robot is designed to assist supermarket customers, showing them the price of products and guiding them through the aisles.

LG's CLOi robots

Source : https://www.lg.com/au/ces2018/lg-exploring-new-commercial-opportunities-with-expanding-robot-portfolio.jsp

4 PROPOSING (5)

4.2.2 The potential of sustainability

Improving efficiency, minimizing waste and maximizing resources are the basic principles of sustainability. Until education on these principles improves the situation, it is essential to immediately start doing a better job of collecting, treating and recycling liquid and solid waste. In this respect, it should be mentioned that the electrical and electronic equipment waste treatment sector, represented by the Association for Industrial Waste Recovery and Disposal, has recently signed its first agreement as part of the national strategy for waste recovery.

Preparing for **substitution to the carbon economy*** should become a source of profit - with the initial help of government incentives - in particular, to develop renewable energies (batteries, micro-grids), alternative products or processes and to reduce operating costs,...

The **transformation of predatory agriculture into sustainable* (ecologically intensive) agriculture** must also lead to improved productivity. In this area, it is important for Morocco to pursue two courses of action :

- **Diversification** of agricultural production in order **to adapt** to new conditions resulting from the water stress induced by climate change.
- Diversification of production methods to facilitate :
  - **organic** farming* based on simple, ancestral farming methods that combine immediate or deferred recycling of waste, use of natural pest control treatments, plant selection, seed recovery and respect for natural cycles ;
  - **sustainable** agriculture*, which aims to ensure sustainable production of food, wood and fiber, while taking into account ecological limits, human safety and adequate pay for workers ;
  - **urban** agriculture, which contributes to urban oxygenation, shortens distribution channels and transforms bio-waste into market gardening products and mushrooms.

4 PROPOSING (6)

4.3 Focus on people and innovation

To leap into the high-speed train of digital "exponentiality", education is the first driver. But it does not only apply to children (see Chapter 2 - 4.2). For this reason, a first step is to **make vocational training compulsory.**

This training should focus mainly on :

- **awareness of the future**, which comes from acculturation and the practice of foresight, so as to gain a systemic insight into future challenges (threats and opportunities) and understand that tomorrow will not be the same as today ;
- **leadership** (108), which is both more humane and more digital, and should enable employees to be more involved thanks to a better understanding of global issues and a vision of their organization as a dynamic entity and not as an inert set of assets ;
- **reporting,** which is essential in a collaborative culture to foster accountability and self-reliance (feedback management*) ;
- **innovation** - and more broadly creativity and design thinking* - which is at the heart of the fundamental shift that organizations must undertake to become more sustainable and humane while confronting "exponentiality".

Training is not enough. It should be supported by strong incentives and other soft power measures*.

4 PROPOSING (7)

Experimentation is the second driving force: disruptive innovation needs a ground for expression (learning organizations) and a life-size field of experimentation so that all aspects can be addressed. This is the role of living labs*. The movement has already begun in Morocco : since 2015, Casablanca has become a living lab*, operated by its Smart Cities Cluster "e-Madina*". The stated goal is to make the city interconnected, attractive and efficient across all its services in order to improve its residents' quality of life and overcome economic, social and cultural disparities (122).

This type of **laboratory should now be rolled out throughout the country** to accelerate the pace of disruptive innovation, tailored to the new development model. In the informal sector in particular, it would be interesting to experiment with intermediate forms of work that allow for a gradual transition from informal to formal. The urban prospective workshops carried out by the NGO ENDA in French-speaking Africa have also proven to be excellent ways of implementing solutions to neighborhood issues, by and for the inhabitants.

Lastly, the negative impact of this acceleration should not be overlooked : **Morocco should join other countries that are already experimenting with universal basic income**.

4.4 Firmly committing to endogenous and moderate development

The economic emergence process that has driven the world community over the past 50 years can no longer be perpetuated according to the rationale of a model that has led to current stalemates. It is therefore necessary to rethink emergence in terms of a new development model, which must be implemented as soon as possible in view of rapid depletion of resources, climate change and increased demographic pressure.

4 PROPOSING (8)

Such an endogenous and moderate development in Morocco would require three priorities to be set:

- Follow the path recommended, in particular, by the Network of West African Farmers' and Agricultural Producers' Organizations, according to which **"Africa too must consume locally"** (123). This would involve stemming rural exodus by offering better working conditions and wages to farm workers and developing an agri-food industry that targets not only exports but also the local market, specific branding based on the "terroir" label and local markets (particularly in short circuits). **Food sovereignty** should become a core principle of Moroccan policy.
- Incentivize the **pooling of knowledge**, or even the pooling of resources, between small and large companies through sponsorship and incubators in order to build a competitive "strike force" on a national scale, and to develop and **foster new activities** (national innovation exchange, for example).
- **Prepare legislation, intangible infrastructures and people for the new forms of work** that are emerging through the sharing economy*, the outcome economy*, the on-demand economy* (one-off missions) and finally the gig economy*, via platforms (see Highlight N°19) and liquid ecosystems (ad hoc, mission-specific groups based on affinity).

4.5 Leapfrogging towards a new form of emergence

Several studies on the distribution of income and wealth (Theil and Gini rates) show (124) that although globalization has helped narrow the growth gap between nations, it is likely to be at the root of increasing inequality within all countries. This observation therefore points the way forward: the emergence of developing countries must no longer be modeled on the prevailing global development model of the 20th Century.

HIGHLIGHT N°19

Platformization as an advanced model for value creation

Platformization is a central feature of value production in the 21st Century. Platforms (see Highlight N° 6), of which GAFAs are a typical example, are defined as companies that develop business models based on their organization into two-sided markets, combining information/knowledge (user data) and transaction (marketing, advertising).

Platformization refers to an organizational mode where central elements (the core) and peripheral elements are constantly recombined. In other words, a mode driven by the rapid production of links between these elements. Uberization is one expression of this mode of value production.

Most of the major digital platforms are American and Asian, mainly Chinese. The Center for Global Enterprises has identified 176 platforms worldwide, worth US$4.3 trillion in 2016. 72% of this value is located in North America and 22% in Asia. While Europe is a major user of platform services, it accounts for only 4% of the consolidated global market capitalization (125).

The platform mode is also adopted by mainstream companies: hotels create platforms in response to the prevalence of "pure players*". In the automotive industry, platforms are expanding beyond product development in the strict sense of the term, particularly in the area of data use.

4 PROPOSING (9)

The new development model, including the values of **progressive capitalism*** (Joseph STIGLITZ), provides an alternative way to base development on restoring the planet's ecosystem functions, better asset management at the global and territorial level (subsidiarity*) and curbing exponential* growth in technology and information.

Beyond Morocco's commitment to **upholding the five main principles** that put people back at the heart of this new paradigm (see Chapter 2-3.1), this requires a **fundamental overhaul of Morocco's implicit governance model**, leading, in particular, to the following :

- **drastic reduction in corruption,** still considered as "normal" ;
- **compliance with equal rights** for all human beings (equal pay for men and women, equal treatment regardless of origin, facilitated access for poor, sick, disabled and migrant people), imposed by mediation bodies and **enforced laws ;**
- **increased investment in brainpower :** in addition to encouraging exceptional initiatives such as the Ben Guérir High School of Excellence (126), it is essential to raise the overall level of national education ;
- **improving women's image and training,** facilitating their access to professions at all levels, enabling them to become entrepreneurs more easily, particularly in rural areas ;
- **a human resources management system, which allows for the freeing up of decision-making positions** to facilitate employment and upward mobility for young people ;
- creating, implementing and communicating **greater entrepreneurial freedom,** so that the dynamics of change in Morocco can be swiftly stepped up.

CONCLUSION

The 2019/2020 Strategic Report is IRES' contribution to the national debate regarding the renewal of Morocco's development model called for by His Majesty the King in the Royal Speech of October 13, 2017, addressed to members of both Houses of Parliament.

For its preparation, IRES has adopted a unique approach that seeks to constructs a new development model for Morocco, which takes into account global systemic issues and responds to its population's aspirations for greater well-being. We have favored the leapfrog* approach as it is the only one likely to bring about major leaps forward, allowing Morocco to join the club of developed countries in the long term while refraining from replicating the model that prevailed during the 20th Century.

IRES uses a prospective meta-methodology that consists of three steps : Understanding, Anticipating and Proposing. These three phases structure the strategic report.

The report presents the macro-historical, global and national context as well as the four major disruptions that are reshaping reality at both the national and global levels :

- Shifting from material value to intangible values.
- Revaluing mankind.
- Ending the predatory economy.
- Rapid emergence of disruptive technologies.

These various aspects were considered in the process of devising Morocco's new development model, the pillars of which could be summarized as follows :

- Placing humans back at the heart of development.
- Taking care of nature.
- Contributing to planetarization.
- Firmly committing to "exponentiality".

CONCLUSION (2)

The four interdependent pillars must be supported by a new governance system, the two main principles of which are justice and ethics, on the one hand, and flexibility and adaptation, on the other hand. Such a new governance, which would constitute a break with past practices, should be based on three fundamental principles: the principle of honesty, new approaches to action and new leadership.

For Morocco to be able to place people back at the heart of development, it is necessary to create the conditions for a human economy, effect a radical change in attitude by training young people, teachers and adults, review spatial planning by making the city more human for its inhabitants and drastically reduce inequalities.

Humans' relationship to nature as a whole must be reconsidered by mainstreaming climate change adaptation and ecological footprint reduction into public policies, successfully transitioning to a low-carbon economy, regenerating highly degraded natural resources and enhancing ecosystem services. The move towards an early regeneration economy should be encouraged. It is also about developing the potential for sustainability by focusing on sustainable agriculture and extending the ecosystem approach to agriculture.

By promoting the link between local and global levels, Morocco's contribution to globalization could consist of consolidating territorial development, improving access to, and dissemination of, global knowledge, creating a Moroccan-style blue economy and accelerating the regional integration of Morocco's economy, by actively participating in the establishment of the continental free trade area.

CONCLUSION (3)

Morocco must stand ready to face the "exponentiality" of the changes. To do so, it is necessary to transition to future added values, by leveraging advanced digitalization and the potential of sustainability, to focus on people and innovation and to firmly commit to endogenous development. Lastly, the conditions for a new form of emergence for Morocco, based on a leapfrog* strategy, should be created.

A comprehensive agenda must focus on education, research and the other true sources of wealth. It must protect the environment and fight climate change with the same vigilance as the Green New Dealers in the US and Extinction Rebellion in the United Kingdom. And it must provide public programmes to ensure that no citizen is denied the basic requisites of a decent life. These include economic security, access to work and a living wage, health care and adequate housing, a secure retirement, and a quality education for one's children.

Stiglitz, Joseph. «Neoliberalism Must Be Pronounced Dead and Buried. Where next? | Joseph Stiglitz». *The Guardian*, 30 mai 2019, sect. Business

LIST OF FIGURES

LIST OF FIGURES (2)

LIST OF BOXES

LIST OF HIGHLIGHTS

LIST OF BEST PRACTICES

1. Drones and genetics against drought (China, United Kingdom and Switzerland)
2. Participatory democracy: The experience of Porto Alegre (Brazil)
3. The Agency for Public Management and e-Government (Difi) (Norway)
4. The "1Malaysia" strategy (Malaysia)
5. Station F : Global start-up incubator (France)
6. Education : the success of the Finnish experience
7. The Housing First program (United States)
8. Rehabilitation and modernization of slums : "Baan-Mankong" program (Thailand)
9. Singapore, nicknamed "garden city", pioneer of green urbanization in Southeast Asia
10. Schools 42 (France, United States)
11. Smart cities : the Barcelona model
12. Renewable energy development (Germany)
13. Renewable energy development in Morocco
14. Soil regeneration using the "Ramial Chipped Wood" technique (Canada)
15. Niger's experience in landscape restoration
16. Reforestation in China
17. Biome conservation and combating desertification (Morocco)
18. The individual fishing quota system to curb overfishing in Iceland
19. *Khettaras** intangible heritage and age-old irrigation know-how in oases (Morocco)

LIST OF BEST PRACTICES (2)

20. The Woodlands In and Around Towns program (Scotland)
21. The Songhai farm (Benin)
22. Mombasa Marine Nature Reserve (Kenya)
23. Associations for the preservation of peasant agriculture (France)
24. Towards knowledge cities: the example of Austin (United States)
25. Artificial intelligence as a medical diagnostic tool (United Kingdom)
26. Cancer treatment through deep learning* (India)
27. The "Taking design thinking to schools" program (United States)
28. The e-Residency strategy (Estonia)
29. Automated customer support (South Korea)

LEXICON

- **Agile methodology** : it characterizes an IT project management approach that promotes dialogue between all stakeholders: customers, users, developers and other project professionals, flexibility during implementation, ability to modify plans and speed of delivery. (198)

- **Agroforestry** : these are new or historical practices that combine trees, crops and/or animals in the same farming plot, on the edge or in the open field. These practices include agro-forestry systems, forestry-pastoral systems, meadow orchards (where animals graze under fruit orchards),... (130)

- **Anthropocene** : a term first coined in 2000 by Josef CRUTZEN and Eugene Stormer to describe the current geological era, marked by a major and growing impact of human activities on the earth and the atmosphere at all scales, including on the planet as a whole. The two researchers proposed the end of the 18th Century as the starting point for this new era, a period that coincides with early findings of the effect of human activities on the environment and also with the beginning of the industrial revolution. (131)

- **Appel des 700 :** Call of the 700: In view of the inaction on the impacts of climate change, 700 French scientists wrote an article on the climate emergency published in the newspaper "*Libération*" on September 7, 2018, to urge French public authorities to take action and to move towards a carbon-free society. (132)

- **Artificial intelligence** : artificial intelligence is the implementation of a number of techniques to enable machines to imitate a form of real intelligence. The concept of artificial intelligence, which dates back to the 1950s, was introduced by the mathematician "Alan Turing". (186)

- ***Associations pour le Maintien d'une Agriculture Paysanne (AMAP)*** (Associations to Maintain Peasant Farming (AMAP)) : a partnership between a group of consumers and a farm, based on a "basket" distribution system made up of the farm's products. It is a solidarity-driven contract, based on a financial commitment from consumers, who pay in advance for a part of production over a period determined by type of production and geographical location. (134)

- **Bank solvency** : refers to a bank's financial strength, measured mainly by the amount of equity capital that determines its ability to cope with potential risks associated with its activities. (228)

- **Biocapacity** : the biocapacity of a given biologically productive area refers to its ability to generate a continuous supply of renewable resources and absorb the waste resulting from consumption. (135)

LEXICON (2)

- **Biomimicry** : this concept refers to engineering inspired by living things. It refers to a process of innovation and engineering that is inspired by the forms, materials, properties, processes and functions of living organisms. (136)

- **Bioremediation** : a process that uses living organisms to degrade contaminants harmful to the environment present in polluted environments (soil, water, etc.) in order to transform them into non-toxic compounds. In other words, it is a process used to clean up soil. (137)

- **Biotechnology** : refers to the application of science and technology to living organisms and their components. It involves altering living or non-living materials to produce knowledge, goods and services. (138)

- **Blue Economy** : covers two distinct concepts. The first meaning of blue economy is derived from the concept forged by Belgian entrepreneur Gunther Pauli, founder of the ZERI Foundation (Zero Emissions Research and Initiatives) at the United Nations University in 1994. The "blue" is opposed here to a "red" economy based on the excessive and inconsistent exploitation of natural resources, but also intends to go beyond the achievements of the green economy and related circular economy in terms of quality. It is no longer a question of polluting less, but of not polluting at all. The second meaning of the blue economy refers to the economic opportunities provided by the marine environment, much like the green economy. The name "blue" refers to its marine specificity: it refers to all the sustainable economic activities associated with seas and oceans. These opportunities are thus characterized by renewable marine energies, biotechnologies*, strategic minerals located on the seabed, aquaculture and fisheries, tourism, or environmental protection. **(162)**

- **Brownfield** : this term was originally used in construction and development to refer to land occupied at a given time by a permanent structure. Nowadays, this term is used in many industries, including software development, to mean the start of a project based on previous work or the reconstruction of a product from an existing product. (139)

- **Carbon economy :** an economic model based on low energy consumption, as well as a reduction in pollution and emissions. (161)

LEXICON (3)

- **Climate change performance index** : this index is an instrument that is intended to improve transparency in international climate policy. Its objective is to exert political and social pressure on countries that have so far failed to adopt ambitious measures for climate protection, as well as to highlight the best climate practices of some countries. Based on standardized criteria, the index assesses and compares the climate protection performance of 58 countries which are collectively responsible for more than 90% of global energy-related CO_2 emissions. 80% of the assessment is based on objective indicators of emission trends and levels, and 20% is based on national and international assessments of each country's climate policy by over 200 experts. (182)

- **Climate-smart agriculture** : this approach defines the measures needed to transform and redirect agricultural systems in order to effectively support agricultural development and ensure food security in response to climate change. (128)

- **Cloud** : in French *"l'informatique en nuage"*, consists of using remote computer servers through a network, usually the Internet, to store data or use it.. (142)

- **Cloudification** : the term generally refers to traditional applications that have migrated from local installations on users' computers to equivalent web-based applications. (143)

- **Cognitive computing** : this involves self-learning systems that use data mining, pattern recognition and natural language processing to try to reproduce the way the human brain works. (184)

- **Collaboration** : refers to the act by which several individuals or work groups seek to carry out a task or project together (144)

- **Community management of commons** : refers to an awareness of the limits of both market-based regulation and public management of goods and services. This principle consists in choosing a hierarchical level of policy execution which minimizes economic costs and maximizes social wellbeing. (172)

LEXICON (4)

- **Conference-consensus** : participatory mechanisms designed to allow citizens to express their views on science or technology policy issues. Initiated in Denmark, they have spread to other countries since the 1990s in response to the growing debate on technologies and their impacts. (146)

- **Consolidation** : an agricultural term referring to a particular land development : grouping of parcels of land together to form a single agricultural estate. (218)

- **Consultation**: a method of administration or governance in which citizens are consulted in order to debate and contribute to a project. It includes a dimension of continuity and monitoring during the development of the project. It enables opposing views to be shared, and it allows for participation. (145)

- **Coopetition** : a collaboration* or an occasional or opportunistic cooperation between different economic players which are competitors (148)

- **Corporate social and environmental responsibility (CSER) :** the responsibility of an organization to address the impacts of its decisions and activities on society and the environment, reflected in ethical and transparent behavior that contributes to sustainable development*, including the health and well-being of society ; takes into account stakeholders' expectations ; respects current laws and is in line with international standards of behavior and is mainstreamed across the organization and implemented in its relations with stakeholders. (219)

- **Corruption Perception Index (CPI)** : published by Transparency International, this index ranks countries according to the degree of perceived corruption in public administrations and the political class. The CPI is a composite index, aggregating survey data. The score of 100 indicates no corruption and the score of 0 indicates systematic corruption. (181)

- **Crispr-Cas9 :** refers to a set of molecules that allow the DNA of plants and animals to be modified with great precision. It is a new, simple, fast and efficient system for cutting DNA at a specific location in the genome, in any cell. (149)

LEXICON (5)

- **Cuvier's Gazelle** : a species of gazelle from North Africa and the Sahara. It was named after the scientist Georges Cuvier. It is an endangered species, according to the Red List of the International Union for Conservation of Nature. (171)

- **Dark Age** : the "Dark Ages" is a historical period, traditionally referring to the Middle Ages, during which it is claimed that a demographic, cultural and economic deterioration occurred in Western Europe after the decline of the Roman Empire. (151)

- **Data analytics** : a science of examining raw data to draw conclusions. It is used in many industries to enable companies and organizations to make better decisions. In the field of research, it is used to test theories or to refute existing models. (152)

- **Deep learning** : a type of artificial intelligence derived from machine learning where the machine is able to learn by itself, unlike programming where it simply executes predetermined rules to the letter. (153)

- **Democracy index** : created in 2006 by The Economist Intelligence Unit, this index aims to assess the state of democracy in 167 countries. Its calculation is based on 60 criteria grouped into five categories: the electoral process and pluralism, civil liberties, the functioning of government, political participation and political culture. The rating is based on a scale from 0 to 10 and, based on this rating, countries are ranked into four regimes: democratic, imperfect democratic, hybrid or authoritarian. (180)

- **Design thinking** : an approach to innovation and innovation management that combines analytical and intuitive thinking. It is largely based on a co-creativity process involving end-user feedback. (155)

- **Digital detox** : a US-born concept that involves disconnecting from your screens (smartphone, tablet, computer) to better reconnect with yourself. (224)

LEXICON (6)

- **Digital Evolution Index** : index developed by Mastercard, in partnership with Fletcher School. It measures the degree of adoption of technology by government and society and the state of digital trust. It is a global, data-based assessment of progress in the global digital economy, combining more than 100 indicators grouped around four key factors: digital supply conditions, digital demand conditions, institutional environment and innovation. This index also highlights the evolving nature of risks arising from continued dependence on digital technology. (158)

- **Digitalization** : the process by which an object, tool, process or profession is transformed into computer code in order to replace it and make it more efficient. (159)

- **Digitization** : this term, in computer science, refers to the action of digitizing or representing information through numbers. (204)

- **Disinformation** : a set of communication techniques designed to mislead people or public opinion to protect interests (private or not) or influence public opinion. (156)

- **e-Madina** : a Smart Cities Cluster that works to make Casablanca more attractive, efficient and competitive for businesses, citizens and visitors through public-private-citizen partnerships and through the use of technology. (163)

- **Ecological footprint** : concept that calculates the area of land and water needed to support a given human population, based on the population's needs for water, energy, food, building materials and other consumer goods. This accounting indicator is particularly useful for identifying the impacts of human consumption on the planet's resources. (135)

- **Ecosystem services** : these are the benefits, both tangible and intangible, that humans derive from ecosystems. Ecosystem services reflect the interactions between biodiversity, ecological dynamics, land use and land management priorities set by local stakeholders and policy makers. (223)

LEXICON (7)

- **Employee of individual employers** : a person who works in or near the private home of an individual for non-profit purposes and who carries out family or household work. This includes, for example, a nursery assistant, a home-based childcare provider, a gardener, etc. (221)

- **Etats généraux (Estates General) :** in the political system of the Kingdom of France, the Estates General of the Kingdom (or *Etats-Généraux*) were an extraordinary assembly bringing together the three orders of society: the nobility, the clergy and the third state. They were convened by order of the King in exceptional circumstances (political or financial crisis, war or major diplomatic question. (165)

- **Exponential companies (Exo) :** an exponential company is one whose impact is 10 times greater than that of its peers, thanks to the use of new organizational methods and digitalization*. (164)

- **Exponential growth :** growth means an increase in a quantity. In the case of exponential growth, the increase is not only there, but it grows over time. Growth is therefore increasingly rapid. (150)

- **Exponential technologies** : For Neil Jacobstein, senior expert in artificial intelligence*, the concept of exponential technologies refers to technologies whose performance doubles every 18 to 24 months, such as artificial intelligence*, robotics, synthetic biology and nanotechnologies. These technologies are advancing so rapidly that entrepreneurs are unable to integrate them into their thinking and strategies. (232)

- **Favela** : a term whose origin comes from the fava: the bean that was the staple food of the poor. The favela (slum) is a predominantly residential area occupied by a population with a very low income. It is characterized by unregulated constructions, in non-compliance with legal standards, lack of urban infrastructure and public services, with narrow streets and uneven alignment, and irregular shaped and sized lots. (166)

- **Feedback Management** : this concept generally refers to all the devices that aim to measure customer satisfaction and/or feedback following an interaction (support call, point of sale visit, service, etc.). (167)

LEXICON (8)

- **Fog computing** : "Fog computing" enables the provision of data storage, analysis and computation services, while promoting greater proximity to users and a denser geographical distribution. (185)

- **Footloose industries** : industries that can be established in any location, without affecting their supply or production. This is particularly the case for companies that produce computer circuits. (170)

- **Generic development model :** a model built on new economic and human fundamentals and based on four pillars (two structural and two instrumental) : humans' place at the heart of development ; mankind's relationship with nature ; planetarization, i.e. the combination of the local and the global within a new perspective of "glocalization*" ; exponentiality with processes that are not "adapted" to digitalization* but rethought for real "digital optimization". (200)

- **Gig economy** : literally means the economy of small jobs. It is a free market system in which people have temporary jobs and perform different tasks. Under this system, organizations hire self-employed workers for short-term assignments. (173)

- **Global Compact for Safe, Orderly and Regular Migration** : the first ever global agreement by the United Nations on a common approach to international migration in all its dimensions. It was formally adopted on December 19, 2018 in Marrakech by the United Nations General Assembly. This text aims to ensure better protection of migrants at the international level, while preserving the sovereignty of States over their migration policy. Unlike a treaty, its legal scope is not binding. (207)

- **Global natural phenomena** : natural events that can be observed in nature, without any human interaction being involved. Natural phenomena are obvious or measurable. They are due to natural causes. (211)

- **Globish :** a simplified version of English using only the most common words and expressions in the language. (174)

- **Glocalisation** : French translation of an English neologism that stems from the fusion of two concepts that appear to be in opposition: "globalization" and "localization". The term was coined in the 1980s to describe "global" (global) products in a local market. It was sociologist Roland Robertson who popularized the concept, emphasizing the importance of "global thinking and local action" in the 1990s. (175)

LEXICON (9)

- **Granularity** : the notion of granularity defines the size of the smallest, finest element of a system. When you get down to the granular level of a system, you can no longer break down the information. For example, in a population, granularity is the individual. In computing, granularity is the smallest part of a data set. The granularity of a decision refers to the aggregation and filtering of information as it moves upwards, and the disaggregation and distribution of information as it moves downwards. (177)

- **Hinterland** : the term "Hinterland" comes from German and refers to the area of influence and economic attraction of a port, i.e. the area that a port supplies or from which it draws its resources. (178)

- **Human Library** : an international organization and movement that began in Copenhagen, Denmark in 2000. It aims to correct people's prejudices by helping them talk to people they would not normally meet. (190)

- **Industrial ecology** : a recent concept and practice of environmental management aimed at limiting the impact of industry on the environment. Based on an analysis of material and energy flows, industrial ecology seeks to have a global approach to industrial systems by representing them as an ecosystem and making them compatible with natural ecosystems. (160)

- **Industrial revolution** : all the phenomena that, from the 18th Century onwards, have been associated with the transformation of the modern world through the development of capitalism, production techniques and the means of communication. (220)

- **Influencers** : an influencer is an individual who, through his or her status, position or media exposure, can influence consumer behavior in a given field. (183)

- **Information and communication technologies** : covers a wide range of services, applications, technologies, equipment and software, i.e. all the tools needed to create, record, process and disseminate information. (231)

LEXICON (10)

- **Islamic Finance** : Islamic finance is a form of finance which operates according to the principles of Shariâ. Fairness, equity and transparency are the main values underlying this financial system. (169)

- ***Khettara*** : a traditional irrigation system that consists of harnessing the water table through a type of underground drain made up of a succession of interconnected wells. (188)

- **Leapfrog** : the concept of a "frog jump" is used in many fields of economy and business and was originally developed in the field of industrial organization and economic growth. It is used as a development theory for developing countries in the context of sustainable development*, to refer to skipping some steps to accelerate development by ignoring lower, less efficient, more expensive or more polluting technologies and industries and moving directly to more advanced technologies. (189)

- **Living labs** : in order to promote innovative developments, a given area can be designated as a "living laboratory". It is, therefore, a space for co-creation and open innovation, allowing collaboration* between users, public and private stakeholders, associations and researchers in order to test innovative products and services in real conditions. (192)

- **Local exchange systems** : a local exchange system is a system that operates in various French regions and involves the exchange of services or products within a group. This allows members to share their know-how or skills. (230)

- **Locavore :** locavorism or locavore movement is a movement advocating the consumption of food produced within a radius of 100 to 250 kilometers maximum around one's home. "Locavore" means to eat locally : "Loca" (local) and "vore" (to eat). (193)

- **Make sense** : is an international community dedicated to solving social and environmental challenges. It is a horizontal, dynamic and expanding ecosystem that brings together citizens, entrepreneurs and organizations. (196)

LEXICON (11)

- **Millennials** : also known as Generation Y, includes all people born between 1980 and 2000 in the West. (199)

- **Misinformation** : new information that is intentionally incorrect. (197)

- **Moonshot** : refers to an ambitious, exploratory and innovative project, undertaken without any prospect of profitability or short-term benefits. This type of project could be carried out without a full analysis of the potential risks and benefits. Google has used the term "moonshot" to describe its most innovative projects, many of which come from Google X, the company's semi-secret laboratory. (202)

- **Moore's Law** : empirical law based on findings by Gordon E. Moore. In 1965, the man who was one of the co-founders of Intel Corporation drew a curve of changes in the size and price of microprocessors. He then realized that, at equal cost, their complexity doubled every year. In 1975, he stated that it is the number of transistors that doubles every two years. He predicted that this growth would continue at this rate until 2015, when it would be limited by the size of the atoms. History has proven him right: between 1971 and 2001, the density of transistors actually doubled 1.96 times per year. Since 2014, the slowdown announced in adjustments to Moore's Law in 1997 has been observed. IT industry players are still using this law to anticipate the power of future computers. (195)

- **Multilevel governance** : a recent concept born of the intersection of political science theories and public action analysis. The theory of multi-level governance is a continuous system of negotiations between various overlapping governments at several levels. (176)

- **Mushrooms on coffee grounds** : this involves growing mushrooms at home, using coffee grounds, which are known to be a very nutrient-rich substrate. (141)

- **Nomophobia** : this term, in English "no mobile phone", refers to the fear or worry felt at the thought of being without a mobile phone or being unable to use it. (203)

LEXICON (12)

- **On-demand economy :** focuses on the "on-demand" - i.e. immediate and demand-led - supply of goods and services. (161)

- **Organic farming** : organic farming is a production method that is original in that it uses farming and livestock practices that are mindful of the need to respect nature's balance. It therefore excludes the use of synthetic chemicals, genetically modified organisms and limits the use of inputs. (127)

- **Outcome economy :** phase of the market economy in which competition between companies no longer focuses on the sale of goods and services but on the provision of measurable outcomes in accordance with consumer expectations. This is a more complex production method since it involves a thorough knowledge of consumer needs and a real-time assessment of outcomes. This evolution is made possible by digitalization* and increasing interpenetration between the physical and virtual worlds. The key feature of the outcome economy is pay-per-use, thanks to the widespread interconnection of ecosystems, but also to the development of platforms. (161)

- **Participation** : refers to the participation of citizens in political decision-making. (209)

- **Participatory democracy** : a vision of democracy that gives citizens an active role in political decision-making. It is based on four pillars: collective determination, capacity building and the provision of economic and social services, the development and strengthening of interconnections between stakeholders and institutions, and replacing unequal power relations with shared authority. (154)

- **Peer-to-peer or P2P :** it describes a peer-to-peer computer network model. Computers distribute and receive data or a file. In this type of network, comparable to the client-server network, each client becomes a server itself. P2P allows several computers to communicate with each other via a network. (208)

- **Permaculture :** this form of agriculture aims to draw inspiration from nature to develop synergy in agricultural systems based on crop diversity, resilience and natural productivity. (210)

LEXICON (13)

- **Planned obsolescence** : it was in 1932, in a crisis-stricken economy, that the concept was used for the first time. American real estate developer Bernard London talks about "imposed obsolescence" to stimulate industry and growth. According to Brooks Stevens, an American industrial designer who died in 1995, "our entire economy is based on planned obsolescence (...). We make good products, we push people to buy them, and then the next year we deliberately introduce something that will make these products outdated, outdated, obsolete. We do this for an obvious reason: to earn money. (206)

- **Polluter-pays principle** : adopted in 1972 by the Organization for Economic Co-operation and Development (OECD) and in 1986 by the European Economic Community (EEC), the polluter-pays principle (PPP) aims to internalize hidden environmental costs in the economy. It stipulates that the costs of prevention, pollution prevention, reduction, clean-up and restoration must be borne by the polluter causing the incident. (214)

- **Positive Planet :** a non-governmental organization (NGO), created in 1998 by Jacques Attali to promote growth and fight poverty by enabling the most vulnerable populations to become self-sufficient and to pass on a better world to future generations through entrepreneurship. (213)

- **Progressive capitalism :** in a new essay entitled "People, Power and Profits" published in April 2019, Joseph Stiglitz argues for a progressive capitalism that, through stronger state interventionism and democratic control of corporate action, reduces inequalities, invests in health and education, regulates the financial sector more effectively and provides a better framework for globalization. (140)

- **Public power** : it refers to the administrative expression of power, as a political reality. This definition points to the legitimate power of coercion exercised by the State, and the means of action available to a government to achieve its objectives. (216)

- **Pure-Player** : this concept refers to a company operating in a single industry sector. However, the term has become more popular as it refers to companies that operate solely on the Internet, particularly paperless information websites. (217)

- **Ramsar Convention** : adopted on 2 February 1971, this convention aims to conserve and sustainably use wetlands and to prevent their present and future degradation or loss, while recognizing their ecological functions and their economic, cultural, scientific and recreational value. (147)

- ***Service d'Entraide et de Liaison (SEL) :*** a Protestant international solidarity association that aims to improve the living conditions of people experiencing poverty in developing countries. (222)

LEXICON (14)

- **Shaping things** : Bruce Sterling imagines the future of consumer goods, with the convergence of several new technologies that will radically transform their very nature. He thinks that objects will no longer be just a simple inert mass, and also imagines the possibility of retracing the history of their evolution in time and space, from their conception, through their use, to their destruction and recycling. (205)

- **Sharing Economy** : focuses on sharing underutilized assets, whether monetized or not, to improve their efficiency and sustainability while helping to strengthen communities. (161)

- **Smartization (of the city**) : a concept that refers to the use of technology to improve the quality of life of the city's inhabitants. (225)

- **Social elevator** : term used to describe social mobility, i.e. changes in the social status of individuals or social groups over time. (133)

- **Socio-economics** : a mixture of economics and sociology. It aims to combine the tools of economics with those of sociology in order to examine the economic evolution of societies. (226)

- **Soft power** : a concept developed by the American professor Joseph Nye, used in international relations. It refers to the power of influence, persuasion, of an entity, for example a State, over another actor. An influence that is carried out by non-coercive means, without any constraints whatsoever. (227)

- **Subsidiarity** : this principle, introduced into European law by the Maastricht Treaty (1992) and enshrined by the Lisbon Treaty (2007) as a fundamental principle of the European Union, alongside the principles of attribution and proportionality (Article 5), has been designed to bring decision-making spheres closer to citizens and avoid distancing them from power spheres. (229)

- **Sustainable agriculture** : is the application of the principles of sustainable development* to agriculture. The aim is therefore to ensure the production of food, wood and fiber while complying with the ecological, economic and social limits for sustainable production over time. It does not compromise the integrity of persons and living beings. Sustainable agriculture limits the use of pesticides that can be harmful to the health of farmers and consumers and aims to protect biodiversity. (129)

LEXICON (15)

- **Sustainable development** : development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (157)

- **System interoperability :** a computer term for systems that can adapt and collaborate with other independent systems that already exist or are yet to be created. This compatibility capability makes it easier to create a network and transfer data from different programs. (187)

- **Territory Project** : a document by which a community defines its future in terms of development and social cohesion, urban planning and development, transport and housing, urban policy, environmental policy and resource management. It sets out the actions that will ensure development and homogeneous planning of the territory. (215)

- **Unicorns** : the term unicorn, coined in 2013 by Alien LEE, an American venture capitalist, is used to describe a startup, mainly from Silicon Valley, valued at more than a billion dollars. (191)

- **Unsustainable development model** : development is said to be unsustainable when society's ability to produce well-being is inconsistent and compromises the ability of future generations since damage to natural capital is, at least to some extent, irreversible. (201)

- **Upcycling** : "*recyclage par le haut ou le haut*" in French, refers to the action of recovering materials or products that are no longer in use in order to transform them into materials or products of superior quality or utility. In other words, "recycling from above" is about transforming waste and giving it a new life that is better than the previous one. (233)

LEXICON (16)

- **Vascular plants :** these are plants that have vessels used for water circulation. These are plants with stems, leaves and roots in which water from the roots circulates through the plant, allowing them to reach large sizes. (212)

- **Vertical farms :** an alternative form of urban farming to feed city dwellers, thanks to ecological towers. (168)

- **Virality** : fast and unpredictable distribution of content on the Internet through relays that are often free, most often social networks. (234)

- **XaaS** : the acronym XaaS stands for "Everything-as-a-Service". This term refers to the different models of cloud computing "as a service". The term was coined following the emergence of many cloud computing services such as SaaS (software as a service), PaaS (platforms as a service) or IaaS (infrastructures as a service). In general, the benefits of XaaaS are the same as those of cloud computing in general. (235)

- **Zero Mika law** : law 77-15, which entered into force on July 1, 2016, prohibiting the manufacture, import, export, marketing and use of plastic bags. (194)

- **3D Printing :** 3D printing, also called additive manufacturing, is the process of creating physical objects by superimposing different layers of material, based on a digital model. (179)

BILINGUAL GLOSSARY OF TECHNICAL TERMS

FRENCH	ENGLISH
Addiction digitale	Digital addiction
Âge sombre	Dark age
Agriculture biologique	Organic farming
Agriculture climato-intelligente	Climate smart agriculture
Agriculture durable	Sustainable agriculture
Analyse des données	Data analytics
Anthropocène	Anthropocene
Appel des 700	call from 700 French scientists
Arrière-pays	Hinterland
Ascenseur social	Social ladder
Association pour le maintien de l'agriculture paysane	Association for the maintenance of Peasant agriculture
Automatisation	Automatisation
Biocapacité	Biocapacity
Biomimétisme	Biomimicry
Bioremédiation	Bioremediation
Blockchain-isation	blockchainization
Brownfield	Brownfield
Capitalisme progressiste	Progressive capitalism
Cloudification	Cloudification
Collaboration	Collaboration
Concertation	Consultation
Conférence-consensus	Consensus conference
Coopétition	Coopetition
Coût pollueur-payeur	Polluter pays principle
Décentralisation	Decentralization
Démocratie participative	Participatory Democracy
Désinformation	Disinformation
Développement durable	Sustainable development

BILINGUAL GLOSSARY OF TECHNICAL TERMS (2)

FRENCH	ENGLISH
Digitalisation	Digitalization
Ecologie industrielle	Industrial Ecology
Eco-mobilité	Ecomobility
Economie à la demande	On-demand economy
Economie bleue	Blue economy
Economie carbone	Carbon economy
Economie circulaire	Circular economy
Economie de partage	Sharing economy
Economie des petits boulots	Gig economy
Economie du bas de l'échelle	Bottom of the pyramid economy
Economie du résultat	Outcome economy
Empreinte écologique	Ecological footprint
Etats généraux	Estates General
Exponentialité	Exponentiality
Ferme verticale	Vertical farm
Finance islamique	Islamic finance
Footloose industry	Footloose industry
Gazelle de cuvier	Gazella cuvieri
Génération Y	Millennials
Gestion communautaire des communs	Community management
Gestion de feedback	Feedback management
Globish	Globish
Glocalisation	Glocalization
Gouvernance multiniveaux	Multi-level governance
Granularité	Granularity
Indice de la transformation digitale	Digital Evolution index
Influenceurs	Influencers
Information exponentielle	Exponential information
Informatique cognitive	Cognitive computing

BILINGUAL GLOSSARY OF TECHNICAL TERMS (3)

FRENCH	ENGLISH
Informatique en brouillard	Fog computing
Informatique spatiale	Spatial computing
Intelligence artificielle	Artificial intelligence
Internet des objets	Internet of things
Interopérabilité	Interoperability
Khettara	Khettara
Laboratoires vivants	Living labs
Librairie humaine	Human library
Licorne	Unicorn
Locavore	Locavore
Mésinformation	Misinformation
Méthodologie agile	Agile method
Modèle de développement générique	Generic development model
Moonshot	Moonshot
Nomophobie	Nomophobia
Numérisation	Digitization
Objets bavards	Shaping things
Obsolescence programmée	Planned obsolescence
Pacte mondial pour des migrations sûres, ordonnées et régulières	Global Compact for Safe, Orderly and Regular Migration
Pair-à-pair	Peer-to-peer
Parking intelligent	Smart parking
Particulier-employeur	Individual employer
Pensée conceptuelle	Design thinking
Permaculture	Permaculture
Phénomènes naturels mondiaux	Global natural phenomena
Planétarisation	Planetarization
Plante vasculaire	Vascular Plant
Plateformisation	Uberization
Projets de territoire	Territory projects

BILINGUAL GLOSSARY OF TECHNICAL TERMS (4)

FRENCH	ENGLISH
Puissance attractive	Soft power
Puissance publique	Public power
Pure player	Pure Play
Recyclage par le haut / vers le haut	Upcycling
Remembrement	Consolidation
Responsabilité sociale et environnementale des entreprises	Corporate Social and Environmental Responsibility
Révolution industrielle	Industrial revolution
Saut des étapes	Leapfrog
Services d'entraide et de liaison	Assistance and liaison services
Services écosystémiques	Ecosystem services
Sevrage numérique	Digital detox
Smartisation	Smartization
Subsidiarité	Subsidiarity
Système d'échange local	System of local exchange
Technologie exponentielle	Exponential technology
Travail à la demande	Tap economy
Viralité	Virality

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