16 DISRUPTIVE FUTURE SCENARIOS
THAT YOU CAN NO LONGER IGNORE

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INTRO: TIME FOR DISRUPTIONS?

At the crossroads between technical innovation, economic mutations and social transformations, what "Digital Issues" will become central in the next few years?

In our own way, our own activity, we all come to ask ourselves this question in order to anticipate rather than react. But we usually do so on our own. Each year, Fing gathers 100 very diverse individuals in order to collectively answer this question.

They come from large firms as well as startups, from public institutions and NGOs, from research labs or activist groups, from design or artist communities... Their goal: To collectively and creatively anticipate those possible (though not certain) transformations, shifts, and tipping points that we can no longer ignore. To formulate them, discuss them and anticipate them together, in order to act on our near future.

Tensions and Disruptions

After having worked in 2010 on "tensions", in 2011 we chose to focus on "disruptions": which discontinuities, which forking and tipping points... could radically alter the landscape in which an industry, a market, a community or a society functions? How could we anticipate these disruptions, and their consequences? How to turn them into opportunities?

In preparation for this work, Fing produced 16 scenarios that you will discover in the following pages. These will serve as the basis of a collective and creative foresight exercise: Select the scenarios that resonate with the largest number of participants, then refine them, rewrite them, debate them, anticipate what we'll do if they come true.

Please take your time reading through these 16 stories in any order. Reflect on them, project yourselves into these futures, see how you relate to them. Use them, not as forecasts, but rather as tools to do your own forward thinking. Then join us in doing the same.
1. "GIVE ME BACK MY DATA!"

- **2011**: The British government's MiData program gathers 26 major companies who commit to returning personal data to their customers.
- **2012**: 10 French companies (banks, retail, energy...) and two big cities start a similar experiment. Other countries follow suit.
- **2013**: Amidst growing controversy, Facebook decides to give back to its users the ownership of their data. Competing social networks, as well as Google, are forced to follow.

To increase of the purchasing power of consumers by convincing companies to share with them all the personal information they have collected about them: Such is the goal of HM Government's MiData program. It took all the Government's power of conviction to get the first companies onboard. Then, MiData's very positive media coverage helped more firms understand the idea was worth looking into.

Initial results are not particularly spectacular. Extracting data from the companies' information systems proves harder than expected. Making sure the right data reach the right customer creates many security issues. Consumers are not sure what to do with this huge amount of data. In some cases, their initial reaction is one of outrage, when they realize how much companies knew about them.

The situation changes when start-ups begin to offer new tools and services which allow consumers to take advantage of their data: better manage their money, organize a more healthy lifestyle, estimate their carbon footprint, organize their travels as well as their daily mobility, compare offers and prices, group with other consumers in order to negotiate with suppliers... A wholly new market emerges: personal datastores, dashboards, tools to manage, visualize and aggregate data, secured data exchange with vendors...

Companies, as well as public administrations, learn to live and share their data with their customers and users. They benefit from better quality information, which is directly updated by users. What they lose by becoming more transparent, more easily comparable, they gain by building a more balanced trust relationship. Marketing techniques need to change, though, in order to adapt it relationships that are conducted by the customers. All consumers, all companies, do not adopt this approach: the way in which brands manage personal data becomes a factor for competitive differentiation.

Some unintended consequences emerge as well. The vast amount of information that consumers gain access to, combined with the continuous improvement of datamining tools, creates almost irresistible temptations. Some companies resort to a kind of blackmail: No data, no service! All individuals are not equal in the face of such pressure. Nor are they equally equipped to make efficient use of their own data. A new kind of resistance emerges: data strikes, obfuscation, deliberate falsification... The shape of the "Shared personal data" economy will not stabilize before a number of years.
2. DIGITAL BURNOUT

- **2011**: Citing the « scale and the number of dysfunctions » observed in their products, France's largest consumer association files complaints against 4 videogames producers.
- **2012**: A new wave of suicides among executives, "digital pressure" comes under accusation.
- **2014**: The sale consumer association sues 5 "cloud" operators in response to the accidental or deliberate loss of customer data.
- **2015**: For the first time, Nielsen observes a reduction in personal time spent in digital uses.

In spite of its indisputable benefits, digital technology also appears more and more like a source of difficulty, even of suffering. But users begin to react.

Software publishers are the first ones to come under fire. The fact that their licenses and terms of service clear them of all responsibility in case of failure becomes less and less acceptable as we grow more dependent on their products. The diversification of digital devices multiplies the points of failure. In 2013, a survey (that the Industry tried unsuccessfully to censor) estimates that users spend almost 3 weeks per year strictly managing their digital devices and data!

Next, several companies stand accused of having lost, misused or unduly shared customer data. "Cloud computing" adds a new concern: Am I really the master of my own data? Indeed, several users have lost entire photo collections, music and other digital libraries, as well as their administrative archives...

Within work organizations, the tension grows between, one the one hand, increasingly authoritarian management, punctilious control and reporting, and on the other, the call for individual initiative, self-entrepreneurship, agility and reactivity. Some find it easy and even pleasurable to adapt, but many more lose control over the very meaning of their work: constant emergency, pressure, infobesity, attention dispersion, the dilution of working communities and teams... This impacts productivity, staff turnover, stress, sometimes resulting in violent social conflicts or psychological pathologies.

"Digital rebellions" spread: Some stop answering emails, some turn off their mobile phones, others refuse to fill any more forms. Employees organize their digital environment against the instructions of their IT department. Intranets are pirated from the inside. Computing projects trigger social conflicts. A few companies try to adjust: drastic reduction in the use of email, mandatory logout periods, personal digital vulnerability diagnoses... Public authorities follow and impose new rules to employers and software editors. Start-ups invent coaching and assistance services that become eligible to tax reliefs.

The purpose is to transform digital industry into a mature and responsible industry. The impact on the sector is significant. Innovation slows down, some companies shut down. The balance between innovation and responsibility is hard to find.
The economic and ecological crisis has a deep impact on Western economies. A wide share of the population is pauperized, fragilized and starts looking for cheaper products and complementary income. Demand for raw material remains strong in Asia and keeps prices on the rise. The ecological priority remains important, but Europe's also considers re-industrialization a top priority... How to reconcile these seemingly contradictory imperatives?

The initial answers emerge from the margins of society: to repair or recycle all that can possibly be, to self-manufacture objects and sell them, to move producers and consumers closer to one another... Several digital trends contribute to facilitating the emergence of these local alternatives: contributive online practices, social networks, digital design and production based on the ever expanding network of Fab Labs. Some Fab Labs create micro-factories able to produce objects on demand or in small series. The "Slow Food" movement, that intends to bring food producers and consumers closer to one another, federates on the scale of cities. Recycling networks and local manufacturers organize closed circuits, where one's waste is another's raw material.

Some territories, some visionary corporations, are first to grasp a major opportunity: this momentum needs help in scaling up. Innovative local infrastructures stem from corporate as well as citizen initiatives: shared warehouses, logistics, distribution, recycled materials exchanges, prototyping and production workshops... A new manufacturing ecosystem emerges, based on multiple small production units situated near city centers. These units are flexible, interconnected, inserted into the fabric of the local actors who feed them and feed off of them.

Companies learn to produce differently, more durable, repairable objects, in ways that can adapt to local conditions and resources. They are nevertheless competing with a multitude of "neocraftsmen", part...
amateurs and part professionals, who design, improve and distribute their models on "free" networks.

This dynamics draws the attention of large economic players in search for new growth opportunities: retailers, logisticians, online platforms... They organize local production and distribution units in global franchise networks. In several cities, they eliminate the more fragile precursors, they reorganize circuits around their brands, and they skim the catalogs of objects that can be locally bought, produced, repaired or recycled. Collaborative networks, clusters of small and medium-sized companies, call attention from public authorities against these new monopolies. But after all, these big networks facilitate the connection with more traditional manufacturers, whereas collaborative networks succeed in protecting a part of their territory.

The new industrial ecosystem needs everybody.
4. OWNERSHIP IS SOOOO YESTERDAY!

- **2012-2013:** Crisis, unemployment, decline in salaries and social-security benefits, bring to the foreground a local economy of survival, based in part on the repurposing of exchange, sharing and person-to-person commerce web platforms.
- **2014:** 10 big European cities and 15 companies launch a large-scale experiment, "Share and Dematerialize". 6 major European TV channels launch the show "How do YOU make it?", in connection to online spaces (ideas, mutual aid, tutoring, sharing of goods and services)
- **2016:** Renault launches "Renault Share", a vehicle designed to be shared by its owner, with a business model based on profits made from rental and ride sharing.
- **2020:** Urban planning regulations require the construction of shared spaces in homes as well as offices.

As the crisis lingers on, a survival economy emerges: more and more Europeans need to find ways to spend less and to generate additional income. How? By sharing all that can be shared: our car, home, tools, backyard, time, skills... The Web is the natural platform for this trend, however, the initial, yuppy-oriented "collaborative consumption" services are taken by surprise. Sharing mostly happens locally, which makes it easier while limiting its scale.

Local communities are the first to recognize and embrace this movement. They organize local systems of exchange based on dedicated "currencies"; they multiply shared workplaces and public equipments; they organize "markets" for co-housing, car sharing, mutual aid, grouped purchases... They help local companies mutualize resources (logistics, accounting), to develop new activities: local secondhand stores become intermediaries through which inhabitants buy and sell on websites like eBay or Craigslist.

For businesses, ownership has also become expensive and burdensome. Having outsourced or sold everything that they could, some of them see this as an opportunity to restructure the market to their benefit: sell services rather than objects, rent, sell in co-ownership, organize the sharing of their products... As a result, industrial companies tend to produce objects that last longer, are easier to repair, with simpler product lines.

Political institutions follow. Fiscal and regulatory incentives encourage the design of spaces, products, and services in a way that maximizes collective uses and mutualization. Property and other wealth taxes increase considerably for all unshared goods.

Little by little, "de-possession" becomes less of a constraint, and more of a field of innovation. Sharing becomes a positive value, grounded in
"degrowth" thinking (despite protests from some of its original theoreticians): « less things, more links » (and a reduced ecological impact). Ownership, property, are no longer seen as positive values: yearning for flexibility and lightness in a harsh world, young people see them as unnecessary weights that hinder their mobility.

This transformation, which affects both production and consumption, has a paradoxical economic effect: by satisfying many needs for a lesser cost, it mechanically reduces GDP. We really need alternative ways to measure wealth!
5. THE EXECUTIVE CAMPER

- **2012**: The rise in land prices drives the average home-work distance in Europe beyond the 50 km mark.
- **2013**: Traffic congestion and ever-higher oil prices result in exponential growth in the use of public transportation. However, the lack of public funds does not allow their supply to follow the demand. Public transportation prices also rise sharply.
- **2015**: Recognizing the explosion of nomadic work situations, European labor legislation removes all reference to the "workplace".

April, 2012: Paris' La Defense business district wakes up with a dozen tents at the feet of its office towers. Emerging from them in the morning are regular office workers, not homeless people. Within a few weeks, this practice snowballs. After trying to ignore the phenomenon in order to prevent it from spreading, local authorities react. They summon La Defense's main employers and ask them to intervene with their respective employees. But nobody really seems to know what to do.

Confronted with clogged public transportation, ridiculous gasoline prices, reduced wages, as well as rising housing costs which inexorably push them further away from their workplace, employees explain to have no other choice if they want to go on working. By sleeping at the very foot of where they work, they save hundreds of Euros and dozens of waking hours every month. The benefits to employers are obvious as well, especially since, despite the constant lip-service paid to it, teleworking has failed to catch up among employers as well as employees.

Two workers' profiles appear.

The urban "workizens" choose precarious housing solutions near work at least a few days per week. Camping gear brands adapt by creating new lines of tents, among which fancy-looking yurts. A new market opens up for camping trailers in Europe. After a few rough months, employers, district managers and employees negotiate improvements to the improvised camping grounds. Showers, lockers and changing rooms appear in office buildings. Electricity, Wi-Fi and video surveillance are also installed in the spaces occupied by tents. "Workizens" also hack their corporate networks for their private use, forcing IT departments to brutally control access.

On the other hand, rural "placeworkers" spend most of their time working from home or from wherever they happen to be, progressively estranging themselves from the corporate community. On their resumes, they will notify that they own an all equipped home-office (specifying its level of performance, quality, and security). Far from being reserved to "knowledge workers", this arrangement is embraced by an ever-wider diversity of workers, including blue collars. Before making that "choice", most of them tried all sorts of intelligent, collective, mutualized transportation systems. They finally gave up, considering them too impractical.
### 6. AFTER THE FALL OF NETWORKS

- **2012:** *Anonymous* cyber-attacks target selected private corporations, stock markets, and governments.
- **2013:** Huge Christmas night electricity brownout in 200 European cities, including some of the "smart grids" pioneers.
- **2017:** The European Federation for Local Internet Providers celebrates its 100 000th member.
- **2020:** The Energy Cooperative of the City of Nantes (ECCIN) wins its trial against ERDF, who manages France's electricity transport network. ERDF was sued from brutally ending the rental of the long-haul links on which ECCIN's "electricity internet" model depends.

December 21st, 2012: the end of the world did not happen, in spite of *Anonymous’* threat to paralyze world financial centers. This day was to be the climax in a series of cyber-attacks that paralyzed in turn (and always over the period of a day) most of the world's largest financial companies, which the militant group considers responsible for the financial crisis. Did the *Anonymous* group give up or did it fail? Whatever the answer, the whole planet became aware of the vulnerability of the networks on which we depend.

*Anonymous* had nothing to do with the proliferation of power black outs, in several European countries. "Smart grids", which were supposed to improve management of power supply, *and* regulate consumption, *and* encourage alternative sources of energy, *and* introduce more competition in energy supply, crumble under the weight of their complexity. Conflicts of interests between infrastructure administrators, competing energy vendors, business and individual customers, large and small energy producers... make the situation even worse.

Will too much intelligence kill intelligent networks? That's what many of the local internet access providers think, as they prosper while big operators produce ever more complex service bundles – granting them devastating cyber-attacks on behalf of "Net neutrality" activists. Their local competitors return to a more basic internet, where everybody shares bandwidth in an almost equal manner.

Energy companies follow: rather than relying on mega-networks, several territories help local companies, buildings, and districts, to get organized in self sustaining networks. These networks produce and store the energy as close to consumption as possible, exchanging locally before resorting to extended networks. An internet-like energy network is underway.

In many other sectors (mobility, food distribution, logistics), local actors, companies, and individuals, try to get organized in order to become more autonomous from large networks, while remaining connected to them.
When it became clear that existing economic theories were unable to respond to financial and ecological crises, behavioral theories appeared to many decision-makers as the new path to explore. Under these theories, consumers are no longer considered like rational actors trying to optimize their choices, but rather as animals moved by their desires, fears and cognitive biases. Following Barack Obama and David Cameron, both inspired by the works of Richard Thaler and Cass Sunstein, a growing number of governments turn to these techniques in order to induce citizens to act "right", mostly unconsciously.

To the left as well as to neo-liberals and libertarians, this kind of mental control heralds the end of free will and Enlightenment. However, advertising has created a precedent, and such oppositions have a hard time competing with the fast response that "neuro-solutions" offer to all sorts of problems: supporting consumption in a time of crises, encouraging civil attitudes and fighting violence, improving road driving, changing behaviors in a "ecologically responsible" direction... Within companies, brain scans become standard ways of selecting job applicants.

In response, many citizens try to fight the growing influence of brain tests and neuromarketing by learning to control their physiological reflexes and intellectual mechanisms: brain-machine interface devices originally designed for games, filtering systems and cognitive tricks, auto-hypnosis, etc.
**8. SLOW DOWN!**

- **2011:** The "Post-It War" spreads all over facades of Paris' business districts.
- **2012:** Massive wave of depressions within large corporations. Companies test all sorts of responses.
- **2013:** Governments and social partners initiate negotiations on speed and infobesity.
- **2014:** Business software suppliers create a "Cool Tech" label to distinguish efforts in the favor of greater control over time and speed.

It all started with the Post-It War of August, 2011 at La Defense, Paris' main business district. Observers were bewildered: how could such brilliant brains, hired at a high price by the biggest French companies, dedicate their time to decorating windows with Pacman and Mario Bros drawn out of Post-Its, before posting the pictures onto social networks? Corporate think tanks scratched their heads. Their conclusion: work has become like a video game. Professional time spent interacting on social networks sometimes occupy a third of the day. Add to this emails, phone calls, text messages, instant messages, coming in and out constantly and at all hours... Today's executive spends his/her time running all over the place, responding to all kinds of stimuli, throwing balls to other overworked executives, and has lost sight of what his/her work is all about.

BankX6, the original seat of Post-It War, first reacted abruptly by severely controlling the use of social networks, with daily connection quota. Inevitably, rebellion ensued. The blockings were quickly overcome. BankX6 learned from its mistakes and changed attitude. It started by launching "happy hours@work", time slots dedicated to digital social interactions. At other, rotating times - so that most of the company stays in touch with markets -, computers have to be shut down, or meetings are forbidden.

This initiative produced spectacular results. Stalled projects picked up again. New ideas were born. Office neighbors found out they had things in common. Working at BankX6 is more pleasant than it used to be, and it shows in productivity indicators.
9. CORPORATE TAHRIR SQUARES

- **2013**: A new worker’s union hacks corporate boards of directors.
- **2014**: The management of Axum International is overthrown by its its employees. Competitors try to take advantage of it, before undergoing the same thing.
- **2015**: 1st global workers-management summit. A fragile deal is made in order to reduce the power of shareholders.
- **2020**: Multi-entrepreneurship spreads widely, and becomes an essential growth engine.

Hardly out of the economic storm of 2008-2012, companies face a new crisis – only this time, the pressure comes from within.

Employees paid a heavy toll to the crisis: layoffs, blocked salaries, the comeback of authoritarian management, the tyranny of urgency, a focus on the short term. The meaning of work is lost. Workers often have the feeling that they are not serving customers well. Despite being equipped with all possible electronic tools, they are caught between management demands for more implication and initiative, and the decreasing levels of autonomy they enjoy for doing so.

And they talk. Shocking internal information leaks out. Employees publish and denounce in discussion forums. Their targets: corporate management, which does not take its share of sacrifices, and the anonymous power of shareholders, who absorb in dividends the main part of their efforts while showing no interest in their corporate culture. Secrets become public, and management loses its influence.

Through social networks, revolt becomes revolution. After a series of spectacular operations, the employees of a company overthrow their management team. In another firm, employees force the majority of shareholders to sign a pact in which they commit to contributing to the long-term development of the company. Each success virally produces several similar movements elsewhere.

From 2014 on, in spite of high unemployment, many employees leave their company, having accumulated enough informal customer and partner networks to continue on their own. They organize their activity in networks, with several customers and employers. A "skills Wiki", collaborative platforms, and other shared tools, make it easy for them to find and execute complex missions.

A new employment contract spreads quickly: multi-entrepreneurship. It becomes harder and harder for companies to attract and keep full-time employees.
10. THE DAWN OF THE CONTRIBUTORS

- **2012**: First signs of crisis of the "attention economy".
- **2013**: Facebook sets up a premium subscription for its members with more than 100 friends.
- **2014**: Etsy, "the world’s handmade marketplace", enters NASDAQ.
- **2015**: The Nobel Prize in Physics is given to "the public" for the people's contribution in understanding the Higgs Boson.
- **2016**: 40% of Ikea's profit results from the sale of files and raw material.

In 2012, for the first time in its history, Google's sales decrease by 1%. The economic crisis certainly has its part of responsibility, but other signs show that the "attention economy" itself is entering a crisis: the spectacular decline of the number of clicks on ads and sponsored links, the success of "ad blockers", the increasing vigilance of users concerning personal data ... The "free" model of delivering services online is in trouble, while paid services still do not take off.

Meanwhile, users contribute ever more contents and services on the web - personal videos, educational contents, additions to local maps... And their "contribution" goes beyond the screen: co-riders or voluntary helpers coproduce services, the Etsy website sells more and more professional "home-made" products, Fab Labs proliferate and become local mini-factories... A growing number of citizens are regular employees during daytime and "neo-craftsmen" in the evening.

Companies adapt. Instead of charging them, Google asks Gmail users to contribute: share their computing resources in order to relieve some of the load on Google server farms, contribute to StreetView with their own pictures, test new services, assist new users... In the physical world, the "Tupperware" model is back into fashion; IKEA sells plans of highly customizable furniture and raw materials, while fabrication happens in independent or branded local workshops.

Manufacturers quickly learn how to benefit from this new contribution economy. On the other hand, while a majority of citizens are now converted to it, a new divide appears between those who are able to contribute (in time, know-how, or resources), and those who aren't.
11. GENERATIONS APART

- **2012:** The 18-25 yrs old massively quit Facebook and reconstruct their links elsewhere, on disseminated but dedicated spaces.
- **2014:** The "Design for me" movement, which tried to differentiate interfaces in order to draw several generations to use the same products, produces the opposite effect: separate uses become powerful generational identity markers.
- **2017:** Companies reorganize their spaces and management according to generational lines. Work evaluation criteria are tailored to age and generation brackets.

At the beginning of 2014, the tower that Jean Nouvel built for Babel Corp. in Paris, proposes a wholly new organization. Every 4-storeyed block is assigned to a given generation, according to their dates of birth: "1949-1959" at the top, then "1969-1979", then "1989 and over", and so on. Every block is organized and equipped in a specific way. Between every block, an "intergenerational" floor offers meeting rooms, relaxation areas, cafeterias...

Babel Corp. and Jean Nouvel were reluctant to take this stand, but they did so out of experience. It can no longer be denied that each generation now has its own, highly idiosyncratic culture, technologies, methods, aesthetics, services, communities...

From consumption to daily sociability through ways of learning and working, within families as well as cities and work places, generations hardly share any common reference anymore.

On the job market, old-school PDF resumes exist alongside high quality online recommendations by peers and the obfuscation of other undesirable information. At home, even if some moments such as meals persist, most fly into pieces. Individual practices take over, while synchronization tools are expected to insure continuity.

Within work organizations, responsibilities are also distributed by generation: those that require multitasking, those who need focused energy on a given project, those who require long-term thinking...

Social networks split up, with "data portability" facilitating some level of interaction and mobility between social-generational silos...

While this seems to work reasonably well on a day-to-day basis, on the contrary, it appears that mixing generations is the best way to produce really new ideas, as well as to explore the most essential common values.

By admitting the deep split between generations, have we in fact enriched their interaction?
12. "WITH US, YOU'LL NEVER TALK TO A COMPUTER"

- **2012**: "I am not a number to you!": the manifesto of an unknown blogger creates a massive buzz.
- **2014**: YellowTelecom, the phone operator where "you'll never talk to a computer", becomes a case studied in most management schools.
- **2018**: Generalization of the QPI (qualitative Performance indicator), that evaluates the quality of the relationship between customers and companies, as well as with individual employees.

"With us, you'll never talk to a computer!" At first, the slogan chosen by YellowTelecom, a new phone and internet operator, made competitors and experts smile. Then it made them jealous, when ecstatic customer and media comments drove the market shares of the new comer through the roof. Tired of being treated like cattle by increasingly inhuman and frustrating customer service systems, hundreds of thousand consumers turned to YellowTelecom.

How is it that they can compress prices, without degrading customer service? They rely on human networks. The numerous "self-help" tools that YellowTelecom provides are all linked to customer forums. Customers are encouraged to obtain answers to their questions from their peers, and to share the solutions they have found. The most active contributors receive "expert" status and benefit from significant advantages. Professional advisers also intervene in these conversations. They are also present on all major social networks, where they serve several dozens of clients at once, often sharing their answers with several or all of them, and even inviting them to build the best answer together. YellowTelecom trusts its service reps enough to allow them to bend corporate rules at times, provided it provides real customer benefit and the outcome is shared with the company in order to improve its overall service.

On the phone, callers get on conference calls, in which consumers facing similar problems, gather around one adviser.

YellowTelecom employees are encouraged to express themselves on forums and blogs, with minimal control. Individual performance indicators take into account their commitment to customer relationship and service improvement.

In everyday life, working for YellowTelecom is not always easy: it is exciting, but exhausting and rather poorly paid. How much longer until employees also share that information with their clients?
13. GREEN I.T. IS DEAD, LONG LIVE GREEN I.T.?

- **2012**: UICN (UN – Environment) sets off the alarm: digital technology consumes more and more scarce natural resources and energy.
- **2013**: Generalization of smart meters - and doubts on their real effects on the environment.
- **2014**: Several criminal fires set off in big server farms in the USA and in Europe.

The Green I.T. hype is over: environmental rating agencies degrade its role in their criteria, public authorities reduce their support, consumers groups and the press look at PR announcements with a wary eye.

Green I.T. did contribute to boost digital innovation. Recent computers contain fewer polluting materials; but the incentive to renew I.T. equipment created massive heaps of discarded hardware. Cloud computing accelerated dematerialization; but the Internet's energy consumption is 6 times that of air transport. Smart meters, sensors, and "flexible" transport allowed each one of us to optimize our energy consumption; but rebound effects more than compensated for those savings by creating other sources of consumption and waste. Dematerialization reduced the amounts of administrative and commercial mail; but sales of printers and consumables have never been better...

In short, the real environmental effect of Green I.T. turns out to be disastrous in most areas. But not everybody draws the same conclusions from this fact. "Deep" ecologists see it as a confirmation that, however "greener" it becomes, growth is the problem. Neo-luddite and technophobe movements spread. On the other end of the spectrum, the corporate world accuses nit-picking and ineffective regulations that prevent firms from innovating.

Innovative models emerge in the hope of overcoming these limitations. They are highly local and rely on short circuits, peer to peer and ressource sharing. Green I.T. "2.0" takes into consideration the scarcity of energy, of materials, and the radical changes in our mobility and logistics. "Cloud computing" looks at more decentralized architectures, relying on local network loops. The development of personal energy and micro-storage decreases electric consumption at home and at the office.

Instead of delaying its end by just optimizing existing processes, digital technology sets off to facilitate the change of our entire system of production and consumption.
## 14. "SOCIAL NETWORKS ARE GOOD FOR YOUR HEALTH!"

- **2012**: Players of the FoldIt game discover a protein thanks to which research makes a fundamental breakthrough against AIDS.
- **2013**: The sharing of data from users equipped with "Self Quantification" tools plays a major role in understanding the propagation of this year's flu virus.
- **2015**: With the proliferation of health forums, Social Security creates a quality label and experiments with refund for their use.

### Excerpts from the FAQ of the CGR (General Conditions for Refund) of the Social Security, April, 2020.

"Q: Why does part of the health insurance coverage take into account the «insured's implication»?"

"A: One of the priorities of the 2015 reform consisted in reducing the dependency on medicines and in developing the autonomy of patients. Several scientific studies demonstrated that interactions among patients, in certified spaces, has positive effects on the detection and the understanding of pathologies, on the well-being of patients, on observance and finally, on the production of scientific knowledge.

"Consequently, Social Security has decided to make -at least partially- the rate of coverage of health expenses depend on the degree of implication of the insured in certified online patient forums. The criteria for additional coverage considers several levels of implication:

1. Search for 1st-level information, information, interrogation of peers and professionals within certified platforms.
2. Regular participation to patient groups, online or not, and regular contribution to forums.
3. Anonymous transmission of medical data for research purposes, either automatically, or through online surveys.
4. Personal or shared use of health-oriented "Quantified Self" tools and observation of their behavioral prescriptions.
5. Active participation in the production of studies, mediation activities, forum moderation of groups representing patients."

### Title of an ePetition circulating on social networks, April, 2020

*No more heavy policing of patients! Let us cure in peace!*
15. HUMAN ENHANCEMENT AS THE NEW FRONTIER

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>2013</td>
<td>The exclusion from high school of a student accused of having used Modafinil during exams triggers teenager demonstrations in the whole country.</td>
</tr>
<tr>
<td>2014</td>
<td>First generation of medicines promising a gain of one or two decades of life expectancy! That is at least what their developers are saying, after having tested them on animals.</td>
</tr>
<tr>
<td>2025</td>
<td>New research establishes that most cognitive improvement drugs inhibit creativity. Several premature deaths question the side effects of longevity drugs.</td>
</tr>
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Research in neurochemistry and biology allows for the development of products that claim to radically to improve human condition, in particular longevity and intellectual performance.

The use of "cognitive improvement drugs" increases. Their legalization without medical prescription comes under heated discussion. Aside from health-related risks, governments and populations fear the creation of a new "neurochemical divide", separating two kinds of populations. On the one hand, the rich would live longer, healthier, and benefit from significantly higher intellectual performance thanks to their access to the whole range of smart drugs. On the other hands, the poor would live shorter lives and remain forever excluded from positions of power. Already, supplying one's DNA and agreeing to using certain substances are mandatory conditions to apply for a job in a number of companies.

Some governments ferociously regulate these new drugs, whereas others leave it to the market, which eventually ends up to the same result: the constitution of black markets where these products, unbranded and at lower prices, are traded on confidential websites and paid for with alternative, Bitcoin-type currencies.

At the same time, scientists discover that some cognitive increases are incompatible between them. "Cognitive tribes" emerge and sometimes, run into conflict: groups of high-performers, who never sleep, and whose creativity dwindles, face neo-shamanistic "drop outs" who reject both the school the work systems, but are nevertheless actively sought out by companies in need of innovative minds.
16. THE INTERNET, 1969-2013

- **2012**: The new, Republican US administration shuts down the Federal Communications Commission.
- **2013**: Apple launches a friendly takeover bid on Verizon.
- **2015**: Facebook signs an exclusive partnership with one single network operator per continent.
- **2016**: Google changes its "Don't Be Evil" slogan into "Be good to the Internet". First "independent" European interconnection node between alternative access providers.

The Tea Party wins the American 2012 presidential election. One of its first decisions is to close down the FCC (Federal Communications Commission), which in turn signals the end of network neutrality. A profound restructuring of the telecommunications industry ensues.

Big operators and content creators multiply exclusive alliances. Security, quality of service and traffic management serve as excuses for operators to sort out services and uses according to their profitability. The highly controlled model of mobile networks becomes the standard. Within it, an open internet remains, but it is more and more filtered, and its performance is in sharp decline.

Online innovators and creators who want to remain independent are generally doomed to remain confidential. Others have to comply with the rules of operators a few very big platforms: no competition with inside products and services, unfavorable revenue sharing agreements, exclusive contents, severe sets of rules regarding appropriate content, etc.

The opposition starts to organize. A motley alliance is forged between "challenger" access providers, who lack the means to sign agreements with the big traffic generators; regional authorities, who refuse to let their industries become marginalized in this new internet; digital entrepreneur networks; hacker communities; and a few bigger player actors who base their economic model on the open internet, such as Google.

Alternative Wi-Fi networks connect the internet's "first mile" to local public infrastructures and the rest of the network. In France, the Renater Research and Education network merges with that of Illiad, France’s main competitor to the incumbent operators, to form the backbone of a "free internet" that sticks to its original spirit. Two "internets" compete. But for how long?
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