

PART 1

A Present-Day Imperative

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A Present-Day Imperative To Think or Not To Think...

“Society is facing a new and unprecedented challenge—responding to its own overwhelming complexity. The structure of our society must change.”

Yaneer BAR-YAM, NECSI

“*Grow, baby, grow.*” Here is a spiraling mantra that resonates in economic and political spheres about infinite growth, jobs sourcing and improving the already set economic indexes.

All right, so it be. But is there somebody listening out there?

The world – the material world – is finite. How then, could mankind sustain such an infinite spiral? At stakes is the way we think it. To think mankind, its role and its ambient effects.

1.1. Where are we by now?

Over the past few centuries, as civilization progressed, it transformed its rooting mechanisms, its governing methods and its intangible orientation. Figure 1.1 sums up the transitions from the 19th Century onwards and the late one from the 20th Century onwards.

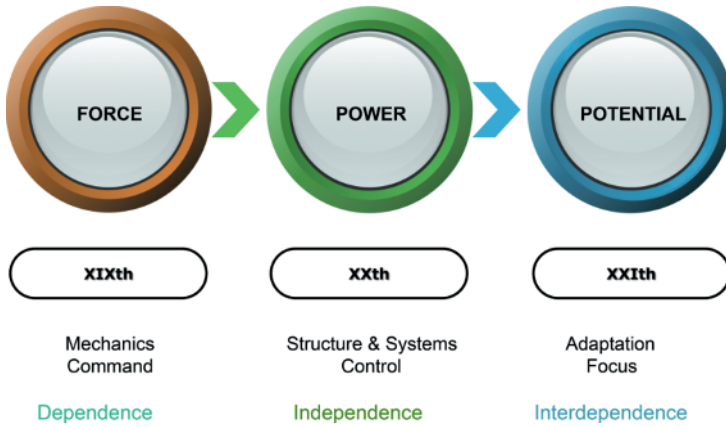


Figure 1.1. *As civilization progressed, it transformed itself profoundly*

The original 1972 Club of Rome report famously illustrated the consequences of the latest evolutionary cycles through a series of curves which, whatever the scenario, ended up being cursed, however with notable variations in lapse time. The plots are recapitulated in Figure 1.2.

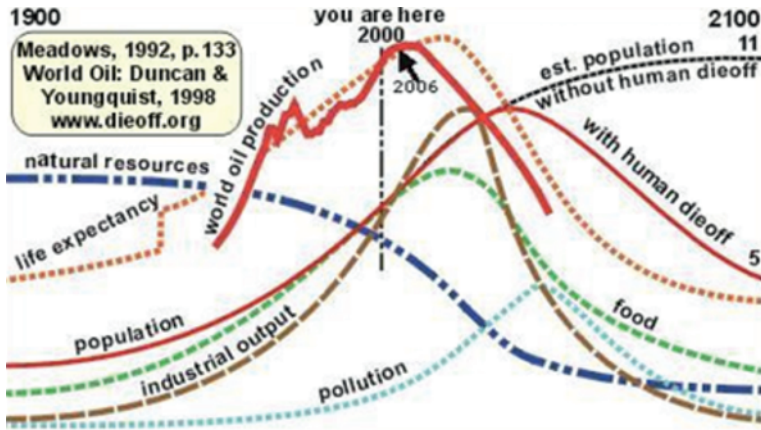


Figure 1.2. *The simulations' outcomes published by the Club of Rome 1972 report were plotted against all odds*

A good half of a century later, and to begin with – let's pause a bit and make a point – where has humanity arrived? Will humanity proceed easily and safely towards such a goal through the present and coming changes? Knowing that these very changes promise to become really exponential within decades.

Our civilization labors strenuously in finding a sustainable sequel to the Industrial Revolution. Albert Einstein famously said, “We cannot solve our problems with the same thinking we used when we created them”, who comes as a poor help anyway.

Even time escapes us: we don’t have the time anymore to run from one part of the planet to another just to meet a few specific individuals. We require technology to supply the faculty to liaise with the many, from the many, and fast. Technology that substitutes us but that also offers the means to work collective consciousness in an instant.

There is a sentient need to rebalance... everything. Us included, probably. But the act and art of rebalancing has not enshrined our constitutions, at any level, it seems. Instead, the way our society functions is to mass employ resources – populations, minerals, whatever. Social capital is at odds.

Should we dare refresh our memory with the very words of the then contemporary UN Secretary General U. Thant, which served as the front introductory citation to the historical 1972 Report for the Club of Rome:

“I do not wish to seem overdramatic, but I can only conclude from the information that is available to me as Secretary-General, that the Members of the United Nations have perhaps ten years left in which to subordinate their ancient quarrels and launch a global partnership to curb the arms race, to improve the human environment, to defuse the population explosion, and to supply the required momentum to development efforts. If such a global partnership is not forged within the next decade, then I very much fear that the problems I have mentioned will have reached such staggering proportions that they will be beyond our capacity to control”.

These words were written in 1969. How can we push the production frontier in new ways that rebalance the whole lot? It is probably a preparation that day after day works on our consciousness, on the energy quality of our consciousness. But we need to go deep inside to find it. To balance outside, we are to balance ourselves inside. And this in a sense requires reprogramming the way we use our brain. After all, how can we churn out new things with an older software?

To begin, let's make a few critical observations that seem to characterize our 2010's times.

The economic cursor has shifted in recent years. For one, the wealth is ever more concentrated, and the lubricant for distributing it widely is a rarer resource. This is quite clearly a source of unbalance, if only of the economic system.

Education has shifted to mere instruction, that is content. Or information, if we prefer. And at younger ever ages. But offering data deluge isn't a recipe to free the inner/innate potentialities of our children, or is it? How do you address creativity and imagination? How do you train the exploration of fresh, original, varied paths – those that will lead to future innovations? The more developed countries aren't much better in that respect compared to the less developed ones.

Many people suffer depressive states of being under the social pressures they experience. Gaps creep between the social environment and themselves. Perhaps they are demotivated by their jobs, have a poor self-esteem, can't dream a better living. A rampant generational divide may not help: while younger generations are striving and jumping into the future, older ones find it hard to regenerate themselves in a mobile, hyper connected and accelerated society. Inclusiveness becomes harder to achieve as a social objective. Do our children being in their twenties or less have factual past reference based on pre-Internet age models?

And what about ethics, the cornerstone of our civilizational roots? When lacking, we simply collectively loose the societal spinal cord that underpins our societal structures. Social motivation suffers and cohesion disappears.

Yet, at the individual level, the basic balancing act between what I give and what I receive sources the value tone found in any social transaction. To sustain a postural contribution, I would at some point need to see the enlarged value picture that goes forward beyond myself. This in the end builds the global balance. A global poise and steadiness built from our differences! What a paradoxical construction: each of our uniqueness, when assembled together, brings a unity, a sense of belonging, even a feeling of wholeness.

And this also constitutes the “Third Industrial Revolution” (TIR) narrative developed by Jeremy Rifkin which basically says *how the lateral*

power will transform economy, energy, and the world [RIF 11]. A narrative that is based on the convergence of information and communication technologies (ICT), energy and transportation. It is first the Internet of Information that underpins the TIR. Then, an Internet of Energy is now developing through a decentralization of the production. As for the automatization of transportation, this is a current trend via more autonomous vehicles guided by positioning systems.

The Internet alone was and still is a computing-centric network; it thus cannot provide the global solution it is commonly expected to deliver by each of us when using it. Any progress will result from ubiquitous and pervasive access and secured network transactions and not from the possession of connecting devices, as this was brilliantly demonstrated by the visionary Jeremy Rifkin two decades ago [RIF 00].

As we endorse a TIR vision, we can only begin to understand the power of a hyper-connected world sourcing enormous growths via a sharing economy and the collaborative commons. The basic tenet for the new growth power is that every asset – a product, service, data, information, knowledge, know-how, etc. – was previously a “fixed given” and now can become an *enabler* of new values. “*Lateral power*” says Rifkin. The previous motto “Anywhere, anytime, from any device” of the birth of Internet is being radically transformed into:

Anything contributing to anything from anywhere

For instance, any use or building houses a micro energy plant that powers the sharing activities of a local community team which contributes to circular economies involving third communities, which in turn involve etc. The enormous difference in terms of growth potential between the two expressions lies in unleashing the exponential power of the contributive links within networks. Networks fundamentally develop exponential laws¹. Our world has followed the dominant rule of an *extensive* growth path: more resources, more work force, more inequalities, more debts, more pollution –

¹ Metcalfe’s Law says that the value in using a network is square the number of its nodes. A geometric progression respective to the number of its nodes. Metcalfe’s Law is setting that the value of a network – i.e. the ability to connect nodes from any peer to any peer – grows with and equals half the square number of its nodes. When Metcalfe introduced his law, a node was a device. Today, a node should be a user (after all, a user may connect from mostly any device). This takes us back to the Rifkinian vision of a world of access and not a world of machines.

more is good, more is better, only is more. But we know we have collectively reached limits. Not only to growth, but to everything that has a material correspondence. And that we cannot function as cycles only, such as growth–wars–regrowth or bear market–bull market, because a host of contingent epiphenomena become more impacting than the nominal activity (e.g. population increase, raw resources attrition, traffic congestions, etc.). What then is worth the accumulation of money or any wealth for instance, if taken in isolation? Beware reader, humanity is secretly churning out new fundamental and more inclusive values, which may have such names as creativity, sharing, belonging, cooperation... well, quality it is.

A big transformation is at play that radically transcends the linear model views of the past epochs. It engages into spiraling dynamics based on a huge convergence of means, for which Rifkin uses the term “distributed capitalism”. This represents the core *growth foyer*, and human beings may not want to miss the opportunity to reposition themselves collectively at the center of the value processes. Today, it is concentrated, and hierarchical structures that occupy this position, armed with the scaling model. This transformation also entails the reversing of models: a mobile transportation system when not in use may power a fixed installation (it used to be the reverse!), sell and buy energy. Inversions happily unclog the previous accumulations (of energy, of materials, of stocks, of people, etc.). Everything becomes a source (of power, of knowledge...), a tank, a market place, a transporter, a buffer... Just plug anything and... welcome to roadmapping the “ambidextrous society”. Everything becomes a lever, and we will formalize a ternary model far extending the public–private partnership (PPP) models and which can operate as a building block for massive growth anywhere, everywhere.

1.2. Situating this book

This book seeks to express a synthetic operation for stimulating a productivity understood in a global way. It specifies the bits, later to become words, sentences, border-crossing narratives of a new open growth-based economy and society. It attempts to cut through a number of commonplace views, fixations, also some cognitive bias about such pervasive notions as growth, work and related notions. The first step towards an ontology of growth.

A specific result will be the consciousness of mental representations in action. Not statistics and not quantitative analyses. We believe mankind has reached a major level of interaction, and therefore the urgent thing is to set things in motion – to begin by the mental side.

The biggest problem that we are individually and collectively facing may not be external to us. It may be that we want to continue ahead and strive, still resolving our most pressing problems, but... we still tend to think with our past models. A global situation that would be funny enough to narrate in cocktail parties if it had not the most severe consequences for our common future.

Why so? Because the discrepancy grown wide between the required changes and our way of thinking of them denotes a capacity gap. That we became incapable to address the salient issues with adapted measures due to our resistance to the old ways of doing. Thinking, speaking and writing, and acting are distinct occupations. By not aligning these three stages, we simply disrupt our future. The unfortunate thing facing us is that our free will compels us to always act; but have we thought well before acting? “Thinking well” is about a method for thinking. And that comes before... thinking.

Thinking how to think isn't taught much at school, and the gap goes on during our whole life as an old vest attempting to cover our acts. Shouldn't it be the opposite? And while speaking of it, when a society has reached a collective level of sophistication, as it is clearly the case today, shouldn't the thinking exerted in society be in terms of the collective and not the individual?

Some could argue that it is science that has reached a high level of sophistication inviting us to abide with what science discovers, invents, programs and develops. And they're surely right: who would reasonably argue the going back to ancient times of living? The problem lies in our dominant analytical approach that tends to restrict our innate perception and discernment. For instance, how capable are we to change scale in our investigations?

At this stage, it seems that the dominant reasoning behind the notion of economy needs to be revisited and new propositions be made which widen a strict economical scope. To make this possible is to found a relation of humans with respect to their environment (economical, ecological, planetary...). In other terms, to neutralize the risk of global ecological

destruction of the planetary resources... But then, is such a shift a mere contingency that is attainable through adaptation, elasticity or flexibility only? Or does it require a massive revamping of the way we do economy? We hold no clear or definitive answer here, and the vast imaginative capacity of man may originate positive surprises.

Our approach may just represent a modest contribution in understanding how to branch out positive paths. Our tenet is to deal with mental models that may source a new economic paradigm. Not solutions *per se*, as the approach would then reduce to a problem-solving approach, while the stakes are a new understanding. Our difference is that we do not seek solutions; we call for opening our understandings for action, so that a new horizon would appear and be shared. This book isn't a macro economy treaty. It is more a narrative anchored on growth mega trends plus a definite method. It is an intellectual framework that engages into walkable forward dynamics.

Many local solutions have appeared here and there on this planet, be they alternative currencies by the thousands, entrepreneurial experiments by agro-food growers across continents, or city-based entrepreneurial systems. Verifiably, they tend to be and remain local. And their scaling up may not result from direct expansion. It could be that the socio-cultural conditions prevailing elsewhere appear to remain hugely different. Perhaps, a consciousness raising will instead abstract the meaning behind each local project and diffuse in wider human mental substrates, then ready to land into myriads of new local implementations. In other terms, not a linear transfer model, but a de-contextualizing phase preceding a re-contextualizing step. Such planetary adoption models are yet unknown to our conscious mind, as this was probably never yet achieved by humanity.

Several mechanisms are already widely shared: the circular economy, the blue economy (developed by Belgian entrepreneur and economist Gunter Pauli and his team [PAU 10]), the shared economy and their varieties. At the moment, technologies such as the blockchain rise to offer radical changes in transactional operations, also in behavior. But to go farther: how to create ways and means for infinite growth? Is this possible, even plausible? What can infinite abundance be? Certainly not material possessions only, as these are necessarily physically limited.

For Thierry Gaudin [GAU 10], *“the deeper question is that economic doctrine has to be completely reshaped to fit the realities of cognitive civilization.”* The fact is that Peter Drucker [DRU 85a, DRU 85b, DRU 93,

DRU 02, DRU 06] long signaled the big change forward to be created by the knowledge economy and its knowledge workers.

Any revolution commences by thinking. We need to theorize somewhat the matter at hand before anything. The central tenet is to offer the means for a deeper investigation of what can be meant by growth and work, not from the point of view of traditional economy, but with a design capacity that opens up fresh avenues. For work is part and parcel of growth, as growth is part and parcel of a thriving economy.

1.3. From local to global to complex

Ugo Bardi [BAR 11, BAR 17] cites and amplifies the famous word by Seneca, who wrote that *“increases are of sluggish growth, but the way to ruin is rapid.”* His point is that, having reached the global level operations – and with global problems on the rise – there isn’t an alternative for humanity to jump away to a safe exit (as it was the regular case when regions developed as substitutes one after another). In plain terms, growth as we have known it is simply doomed. He recalls the early “World3” model used for “The Limits to Growth” study in 1972, which was the first ever to consider the world’s economy as a whole, with this figure:

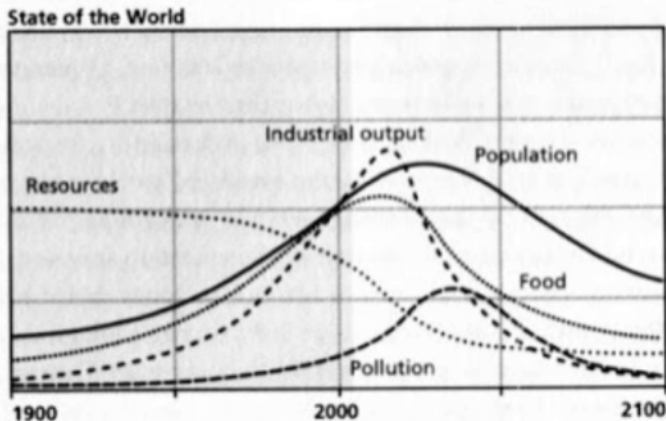


Figure 1.3. The “base case” scenario late 2004 study from the Club of Rome (cited by Ugo Bardi, [BAR 11, BAR 17]), where the Seneca effect (forward leaning curves) was already observable

Thanks to system dynamics, Bardi has shown that the persistent pollution factor alone can create the Seneca effect: in a sense, it is a spin off effect from a nominal capital that at some point begins to drain this very capital. And he concludes, “*In all cases, the Seneca effect will be the result of trying hard to keep things running as usual.*” That is why this book departs from the business as the usual mindset and tries to operate a “mind range”² exercise geared to open up fresh avenues for developments that not only cut through the current mental fixations but also venture into unknown territories.

But are we truly in a knowledge-based economy? For Gaudin [GAU 10], the word “cognitive” is preferred to the classical “knowledge-based economy” mantra for the reason it bears an interesting assumption. That, as first quoted by Alvin Toffler, hyper choice and cognitive saturation appear as two specific features in this civilization, which faces the “industrialization of the persuasion activities”.

The conventional narratives bathing us are social, cultural and environmental, and their voiced themes are themes of a new Industrial Revolution: smart economy, prosumers and social model, energy, mobility, finance, circular economy, food, etc. As we become all connected, we no longer dwell in a knowledge-based economy; we are the knowledge, we become a fictional family in history (quoting Jeremy Rifkin), adoring smartness in every object.

And this is the positive narrative. However...

There’s another side to the coin. Are we managing our nations and collective bodies in a way that – by the same token – becomes detrimental to us collectively? Do we have to wait for the negative impacts to become so evident that action becomes mandatory if not just too late for survival?

We all remember Al Gore’s two canaries in the coal mine, Arctic and Antarctic, which lurk around us now: “*We are witnessing a collision between our civilization and the Earth*” (from: “An Inconvenient Truth” documentary). Whereby three factors (growing overall population, technology bigger than human scale and way of thinking) are our factors forming our relationship to the Earth. Sustainability calls for a new science of qualities (not quantities!) and a higher system for adopting it. Accounting

² This term is intended to echo and also transcend Seymour Paper’s “Mind Sized” epithet [PAP 80].

for these a new *language* is required that will support a new perception of reality. And this leads to consciousness.

To reach consciousness levels, we asserted in Massotte and Corsi [MAS 15a, MAS 15b] that the “*sustainability of a system is based on the five following and complementary codes*:

- 1) The code of Matter: which is the source of any aggregation, growth, gravitation, now subject to *quantum physics*.
- 2) The code of Life: with the *DNA* biology, etc.
- 3) The code of Thought: with the *brain*, its capability to reason and to develop consciousness.
- 4) The code of Energy: with thermodynamic physics, i.e. entropy, etc.
- 5) The code of Complexity with the new geometries (chaos and fractals) and *Network Theory*, etc.”

These five realms of organization act in conjunction. Sustainability is the result of finding new equilibria in the five codes constellation, and a new vocabulary is needed. We added: “*These five codes reveal different aspects of Sustainability. They are strongly linked to some of underpinning concepts related to information, information systems and decision-making, notions of space-time, quantum fluctuations, entropy, etc. Also, we have to point out that they are interdependent and involve each other, e.g. matter and energy for positioning in space and time, etc.*” Figure 1.4 synthesizes the five codes into a global whole.

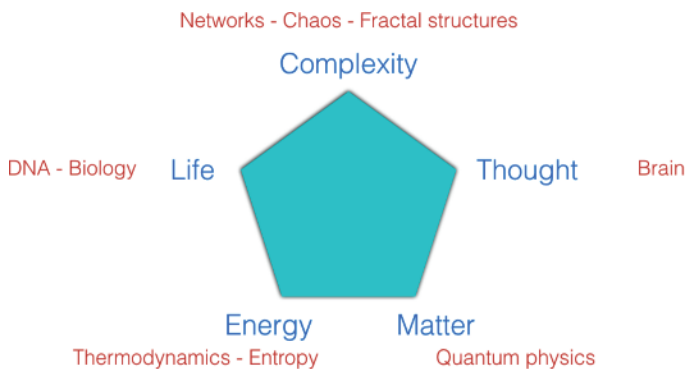


Figure 1.4. *The five complementary codes building into sustainability (adapted from [MAS 15a, MAS 15b]).*

1.4. In search for growth

Traditional capitalism would seek to restore growth through, e.g. the efficiency of the production machine (a “doing more with less” to become “doing better with less”). Today, thanks to the pervasive digitalization of human activities, acting at near-zero marginal cost has become possible in more and more sectors of industry: the cost of producing extra goods is freed from fixed costs. Here we have collectively obtained a new posture that far transcends the traditional mechanical conception of growth, because it potentially enables exponential gains in productivity. Anybody can become a producer of value goods in the above five code ranges: from e.g. own energy to ideas, information and knowledge, to 3D-printed material goods, artistic creations, living, etc., and share it across wide networks, bypassing the classical market mechanisms. These goods transcend the virtual domain to also regenerate the material world.

The radically new business models that emerge are forcefully disruptive. A car previously owned by exclusion and disposed of is now shared, assigned as taxi in the open, reused and recycled. Resisting the new operation models is by and large logically doomed to fail sooner or later because the higher level of complexity reached by our society requires the multiplication of lateral – not vertical – associations of people and objects. This is the age of networks. The capacity to link up (what Jeremy Rifkin calls “access”) becomes the core competence for everyone. And in the social capital realm, growth seems to have intrinsic (i.e. material) limit, being a manifestation of servicing attitudes that spiral up into wider and wider settings.

Google’s Eric Schmidt addressed employees at a weekly meeting in Mountain View on January 26, 2016 with these blunt terms: *“I can tell you that the tone of this government is very much economic growth”* (BuzzFeed News) and added *“... the core focus is going to be to get the growth rate in the country – which is roughly one and a half to two percent – up another point by simply pushing through increases in federal spending...”*.

Would you then resort to accounting such an economy by means of the emblematic welfare benchmark figure of GDP? While the classical economy sees consumers and markets, the new economy – the one of sharing and circulating without limits – enables ambivalent prosumers: combinations of producers and consumers.

Prosumers create a new growth, where not only is more yield done with fewer resources (a degree of efficiency), but better overall value is achieved by sharing and circulating more. Individual prosumers together generate global behavioral approaches which are poised to tackle the post-modern conundrum of economy, finance and environment mix.

Economy and the preservation of the environment are still often perceived as antagonistic. But this is a prevalent dualistic view stemming from past epochs. As we convoke more global views of the universe in which we live, the more alignment we tend to bring between environment and socio-economic development. Perhaps the biggest stumbling block keeping us in dualistic thinking (oppositions, contrasts, benchmarking attitude and comparisons, etc.) is the dominant analytical mindset over society today. Meaning rather emerges from synthesis or the opening up to wider understandings. This is a capacity of resonance, a bit like breathing: you embrace the issue in as ample as possible space and nurture a sense of wholeness.

Without grasping wholeness in your economic models, issues such as malnutrition, poverty – and un-growth – are here to stay. Denis de Rougemont [DER 77] long asked whether a partial approach would suffice. He pointed at the capacity of machines (robots, software algorithms) to address the environment, economy, finance and complexity concurrently: a terrorist's killer robot, a carbon tax in a pollute-pay scheme. Todd Hixon [HIX 16] bluntly declares that *“software has now won a place at the main economic banquet table. It will be able to take on an increasing range of tasks that have previously been the province of humans.”*

Complexity sciences called to the human rescue... Which may help to view diversification as a form of resilience and not of weakness. A political message lies underneath: how to cohere sovereign entities? Ambivalence is what's required to evolve a system where adaptations are continuous and endless because equilibria are sought at any time.

1.5. On futures and their values

Well-known futurist Wendell Bell detects an interesting weakness comment on “Limits to Growth” report: *“While the Limits authors’ spent much time and effort on organizing the data, equations, computations, and*

presentations focused on the various scenarios, they failed to justify or defend their values – sufficiency, innovation, development, etc. – as being worthy goals” [BEL 01]. Bell is known to describe practical strategies for reaching judgments about our futures. For instance, how to decide what is “dutiful, right, good, and preferable”. “These include appeals to religion, appeals to law, appeals to collective judgments of group members, and finally, through a set of professional ethics” [BEL 97].

To reinvent our society is to rethink it. And this will be done in the context prevailing today: Internet age, networked individuals, omnipresent technology, environmental and social responsibility, etc. Degrowth – forced or intentional – isn’t an option, and Bardi [BAR 14] cites several reasons why this can’t work: poor shared understanding or poor visibility of the regrowth notion, plus savings here that are typically used elsewhere. Then, what could re-growth mean, that not only offsets the Seneca effect, but cleanses the economy from its thermodynamic consequential effects?

By thinking upon this, we think of a mental bridge that serves as a transponder process to facilitate the thinking transformation. The other edge to reach is a widened dimension with less person-centric resistance and more collaborations. The best collaborations, which are those interactions between energies with a common end, for the common good. Which facilitate human resources in their sharing.

Today builds tomorrow, and tomorrow builds another tomorrow, and so on. But the initial propulsion and its correct angle is entirely determined by the posture we hold today – not tomorrow. Should we succeed in staying in this disposition, the present shall become both past and future.

“Think well to the end. Consider the end first.”

Leonardo da Vinci’s notebooks.