Conclusions: Blindly Going Where No One Has Gone Before

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We are approaching, if we are not already in, a new big transitional period, a revolution if you prefer. All the data and inputs gathered support this conclusion or, at least, make it advisable to work with such a hypothesis. Therefore, the sensible course of action is to try to determine its scope, its nature and our role in it.

Regarding the scope, a legitimate question would be if this revolution would be global. We know that the past ones, Neolithic and Industrial, ended being global or having global effects, but we also learned that those transitions developed in an uneven manner and at different rhythms in distinct places of the globe. Given present inequalities, it is reasonable to wonder if the next revolution will contribute to balance these disparities or, on the contrary, will exacerbate them. Those that fear the latter are particularly concerned with the uneven technological development we have today. If Information and Communication Technologies (ICT) are the harbingers of the new era, then some places seem to be ahead of others. Without meaning to diminish the seriousness of this concern it has to be pointed out that this argument is being motivated by an implicit teleology. Nowadays there is a wide consensus to consider that the next big societal period is the so-called Information Society (IS)[1]. Thus, we see many public instances creating observatories, departments and offices to deal with IS; funding is provided to research into it and there in a growing literature to support it. As a matter of fact, it could even be argued that IS has become nothing short of inevitable. Therefore, it is understandable that whenever someone reflects upon this question implicitly assumes that we are pointing towards this IS. Yet, the danger here is that, if you do not challenge this assumption, it may be that the conclusion will drive the initial hypothesis and not the other way round. And this is why there is so much attention in technological factors, on ICT factors to be precise, as the possible drivers of IS; because the one thing in which there is more coincidence is that IS will be technologically (ICT) brought upon. If this point is accepted, it is when it makes sense to wonder if IS will be global, not only for the reason that some places are clearly technologically underdeveloped but, more to the point, because IS does not really challenge the predominant, present, Modern paradigm. One of keys for the success of Modern Worldview has been its way to privilege certain approaches to reality while marginating others. Since Modernity we have been witnessing a process to deploy a model that promotes individualism, empiricism and secularism as the correct way to look at the world. It is no wonder that Modern science (aside from its own merits) has become the best tool, if not the only tool, to understand the Cosmos if the other tools are judged according to Modern categories. In this context it becomes less surprising that some places with diverse cultural background do rate worse in the classifications

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that have been used in the introductory chapter. If any kind of science has to be judged according to Modern standards, if any culture has to be valued in relation to Modern canons, if any society has to be examined with Modern criteria it is logical that the West would become the model for all the other cultures. In this regard, IS does nothing to change this, on the contrary it deepens the already existing gap. Of course, there is also the promise that IS can correct all, or most of the present unbalances; that is true, but every new technology does only solve a problem by creating novel ones. Even more, technology is not the answer, as Huston has pointed quite crudely, the key is not the technological fix but the socio-cultural system in which that technology operates.

That is to say that it only makes sense to wonder if the next transition will be global if you assume that the outcome will be the IS.

Following Huston's pattern that any system goes through five stages: emergence, development, maturity, destabilization and transformational break, the approach should be to determine which elements or agents are destabilizing the industrial society the most, in other words, which factors are straining the most the Industrial system. An examination of the situation reveals that technology does add an increasing stress to that system, yet, the point to determine is if they do so on their own or because of other collateral factors. It is undeniable that every new technology does impact us, even more when we are talking of so powerful ones as ICT which such a symbolic dimension[2], not only that, this would be consistent with many previous evolutionary changes in human history. Yet, there is an unprecedented factor today, the World is already very globalised and the existing inequalities add a tension to the system in a manner that has never been experienced before. So, a most relevant question to ask here is which are the factors that are stressing more the Industrial, Modern Model ICTs or these disparities? Or, following again Huston: which element is adding more pressure to the system, technology innovation or the social tensions derived of the system's inability to deal with growing complexity?

This query will be left pending for the moment as the following point may provide additional insight.

It is time to devote some attention to the nature of the incoming revolution. The first thing to analyze is if this is a mainly socio-cultural one like the previous two, or if it is something deeper. In other words, this is like the Industrial Revolution or the Cambrian one. If IS is the destination of this process, then we could settle for a new socio-cultural, if we are not so sure, then it is worth to consider this a little longer.

One way to approach this is to examine past revolutions, according to Huston, evolutions seeks to optimize evolvability and, for the last ten thousand years, evolvability has been mostly cultural. In other words, we are reaching a point in which, for evolutive purposes, our genes (the genotype) are as important as all the cultural background (the phenotype) that is transmitted via education. A legitimate projection of this could imply that IS would provide better and more efficient ways to transmit this information and, maybe, to transfer information from the phenotype to the genotype. However, there is another possibility. According to both Anderson and Huston the possibility that the next evolutionary stage would be an artificial, post-human, being is quite real. In other words, it could be that the one thing that the Industrial and late-industrial period are doing is not merely destroying the biosphere but creating the conditions for a new species. We know that living beings do affect the ecosystems in which they live so as to shape them to meet their needs. Under this new perspective it could be interesting to re-examine which could be the most stressing factor to force the aforementioned "Transformational Break Stage". The truth is that from a strictly evolutionary standpoint even all these technological drivers do not provide any reassurance that IS would be the outcome of such a "Transformational Break". On the contrary, technological factors are the one factor that may incline the evolutionary push towards the post-human scenario. Then, just relying on technology, like during the past revolution will not suffice. What is required is the knowledge to manage properly the social, cul-

tural and political factors there in order to steer the next jump in a direction in which humanity does not become evolutionarily redundant.

Therefore, this time the transition humanity is facing is deeper and more relevant than the previous two. The Neolithic and Industrial revolutions allowed our species to evolve to superior systems, this time we may be testing our capacity to evolve any more. It is not like we could qualify for the next level of the game, this time, if we fail we may be out of the match.

Thus, we reach the fundamental question: which could be our role in this transition. Anderson, following Huxley, has pointed that we need to learn to govern evolution as we are effectively affecting the future direction of evolution. Of course, this is a very anthropocentric premise, but it is legitimate that any species would try to assure its continuation. And this is the case here precisely: only if we learn to deal with the forces that we have put in motion we may be able to survive and keep evolving. Sometimes, it is easy to fool ourselves pretending that we are boldly going to where no one has gone before; the truth is that we are going blindly and we may be approaching a situation in which our alternatives are diminishing sharply.

In one hand we have two most pressing problems: we are straining the biosphere to a point that we are starting to jeopardize the continuation of human life as we know it; and we have an increasingly complex and stressed social situation generated by the unfair an unsustainable unbalances that characterize present World.

On the other, we have two approaches to deals with these problems: the first one is mainly technical, we hope to be able to develop technical solutions that could get us out of this disjunctive, but to rely in technology innovation increases the chances that we may be relinquishing the governance of evolution to post-humans beings; the second one approach is mostly socio-cultural, that is to develop new social systems that allow us to live more harmonically with the Earth and ourselves, but this option implies deep, structural changes in nowadays status quo and it is likely to generate strong resistance form different social actors.

The irony here, is that culture has been the mechanism that humans have found to enlarge our capacity to assimilate, process, storage and transmit information beyond our genes; it has allow us to do amazing things and now, we are on the verge of creating a new species, if we have not done it already[3], that could integrate all this "cultural" information in its own genes. Therefore, we really have to learn fast how to keep evolving culturally otherwise chances are that we became a failed evolution experiment. We have to stop being so sure that we are the peak of evolution and start realising that dinosaurs and Neanderthals were also evolutionary peaks, for a while. Unlike them however, we have put in motion the developments that may bring upon the next evolution peak and, despite our fragmented and incomplete knowledge about the implications of what we are doing, we have an opportunity to steer the next evolutionary jump so as we would not follow the dinosaurs and Neanderthals path.

But we cannot rely in a technological fix to do this.

That is we cannot rely in a technological solution unless this technology is not based on the same premises that have provoked this situation on the first place. Hence, the first thing to be done is to re-examine the assumptions on which is based the dominant paradigm. And this has to be done taking into account that the dominant position of the Modern Worldview is not only due to its own merits; as a matter of fact, it could be argued that it has this position despite these merits. Too often, cultures and their connected identities, have been used as a claim to power and power over territories and people, as Sardar has highlighted. The point that it is being put forward here though is that cultures cannot be tools for domination; they are evolutionary mechanisms, they cannot be used for the advantage of the few because that may enhance the chances of being the end of all.

It is time to rethink our social systems. We have to identify all the factors that add complexity and design new systems that could tolerate greater complexity. Let us examine some possi-

ble future developments:

System Reform:

This may be the preferred option to many as it is the one that implies the lowest degree of change. It is based on the assumption that present structures and system are fine, they just need some adjustment to be implemented properly. If you prefer, the problem is not the system but how it is applied. Therefore, on the political context nation-states keep on being the main actors, on the economic one free market remains as the predominant credo, regarding environment issues the n^{th} version of the Kyoto protocols is put forward and on the socio-cultural side the globalisation based on Modern, Western models and values remain unchallenged.

However, and accepting that there is room for improvement with present economic and political institutions, the real problem lies in the aforementioned point that present day statu quo is the single main factor stressing our societal systems. It is what Inayatullah and Sardar point: the currently dominant worldview is deeply biased, despite its universality claims and it this should not be a surprise for anybody, after all, so far, every civilization has prosper at somebody else's expense. Yet, this time we have to find an alternative modus operandi and there are two arguments to support this statement:

First, in a truly global world there are no real "somebody else" and any action will turn in a boomerang effect, sooner or later, on its initiator.

Second, and according to Anderson and Huston, we may have put events into motion that makes the whole human race the "somebody else" in relation to a new post-human species.

Therefore any approach that is just based on system's reform may provide a momentary relief but ultimately it can only add more stress to the system and increase the chance of leading to a collapse.

System Update:

This is the scenario that relies on technology to solve problems. The notion underlying this option is that we have the technical capacity to solve present challenges but political, cultural and economic obstacles are preventing this from happening. Without questioning that we may have the technological capability to do this, it may be worth to analyze the assumptions in which this scenario rests.

First, this scenario works as long as it is operated under a paradigm of technical neutrality. That is, problems are just the expression of functions that are not properly operated. For instance, is there are unbalances in wealth is because the distribution mechanism are not functioning well enough.

Second, further research and development are needed to create better tools to address adequately present challenges.

Third, problems are just problems, they may be connected in complex relations but they are not symptoms of anything or the cause of deeper issues (because technology, in itself is neutral).

Four and final, it is possible to successfully deal with present challenges from a strict technical and objective standpoint.

But technology is never neutral. Technology is rooted in particular worldviews and, as such, it is designed so as to privilege certain approaches, values and structures and to conceal others. That is to say that to opt for a technological alternative is, in itself, a political decision by which a concrete aspect of the issue will be emphasized and another one suppressed. The implication here is not that a technological approach is essentially perverse, but the pretension that it is a neutral, objective way to deal with challenges. Among other things, to frame any world problem as a mainly technical question, means that many countries, territories and people will be marginalised from the debate simply because they will not be technically proficient enough (as the records of the introduction show).

Not only that, many times the choice to favour a technical option is accompanied by a plea to increase the funds for research and development. Yet, many times there is enough technology already to offer viable alternatives to present problems. Quite often, the pressure to provide additional evidence or to develop bet-

ter technology is just a dilatory tactic to delay any sound approach to present problems.

Finally, it has to be considered the role of technology in the present big transition. The previous contributions have supplied enough arguments that our intensive and extensive use of technology may have triggered some evolutive mechanisms that, ultimately, may make us evolutionarily redundant. If we accept that technology is opening up new alternatives to optimize evolvability that may make genes obsolete, a further use of technology will increase or reduce our chances to be evolutionary dead ends?

That is the point, given our limited understanding of the events that we are putting into motion, would it advisable to enhance the use of technology? For Huston the answer is clear: we cannot jump into technology without a profound analysis and reassessment of the worldview in which is based.

In other words, technology can, no doubt, provide way outs of many present challenges but only to the cost create new and (maybe worse) ones because it cannot address the deep causes of those challenges, and it cannot do it because technology itself is one of these causes.

System Re-engineering:

This is the scenario that departs from the fact that things are not working and all the possibilities have to be considered, even the option that the system itself needs to be redesigned. In this alternative the keyword is depth, simplistic and flat explanations are not enough, just like comfortable and facile solutions will not do. Therefore, deep analysis and reflection are needed and, most likely, deep re-engineering will be required.

The challenge is clear: we need to able to design a new system, capable of moving to a superior evolutionary state without making humans redundant. So far, we have discovered that present world system endangers our evolvability on two accounts: first, because of its uneven and unsustainable development that stresses both the biosphere and human societies beyond its tolerance capacity and, second, because of its use of technology that it is making possible for post-human beings to outevolve us. To avoid this, several conditions need to be fulfilled:

A world governance system capable of coordinating a global effort to design and to implement a new world system.

A truly global worldview that makes possible to attain trans-cultural meaning, understanding and, ultimately, consensus.

The global awareness that the two previous conditions are essential.

According to Inayatullah this is only possible letting go of national, religious and ethnic identities. However, from a Habermasian standpoint it cannot be ignored that not only identity but also the whole mind is constructed in dialectic process within a community that shares meaning. That is to say that identity is ingrained in the process by which the self is defined, can someone let go these identities and remain the same? Of course, this problem could be circumvented by building a new global community based on shared meaning that would make former particularities obsolete; yet, if the objective of the whole effort is to attain such a global community it would be difficult to have it from the beginning. Not only that, Identity is also designed by individual circumstances that help to give depth to personality; it is really feasible to define the self without the aid of these identities? But maybe the problem are not these identities but they way they are framed, as Sardar points, we need to be able to construct pluralistic identities, identities that do not separate apart, that do not set borders, but that help to reconcile, to put bridges.

However, this would be only the first step. The next one would be to generate a truly global worldview. That would be a real challenge because it cannot be based on a predominant civilization, it cannot even be based on a mixture of the main (whatever this might mean here) cultural traditions. It has to be created incorporating all what could be necessary from any culture regardless of any other consideration. It would be like engaging humanity in a global match, but no game can be used before all the rules are agreed and built on consensus. That is why deep analysis would be required, nothing could be taken for granted, everything

will have to be considered from diverse standpoints and consensus should be the consequence of the certainty on the best option.

Only when this common, shared, global worldview is developed, it could be possible to design worldwide governance instruments to put together the new system able to take humanity, a new humanity no doubt, through the next evolutionary threshold.

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Notes

1. Yoneji Masuda was the first one to use the concept in his book *The information Society* as Post-Industrial Society and despite this seems to be the predominant label, there are contending definitions, among others: Daniel Bell wrote a book about The Coming of Post-Industrial Society, Manuel Castells on the other hand uses another concept in his book *The Rise of Network Society* where he talks of the Informational Society, and Peter Drucker talks about Post-Capitalist Society (although this seems more controversial).
2. Computers are unusual machines as they do not really do anything, they are secondary machines, they do not operate directly but they help us to utilise primary machines. Not only that, you cannot figure out the functions and proper handling of a computer by mere observation (like with primary machines) that is why they are symbolic machines as long as they require from the user the learning of their language in order to use them.
3. According to physicist Doyne Farmer computer virus are, already, a new life form as they fulfill most of the traits of living beings:
   They are patterns in space and time.
   They reproduce.
   They include information of its own representation.
   They have metabolism (by capturing the computer CPU cycles).
   They can die.
   They can evolve.
4. That is to say, that we are facing species that could incorporate our genotype and phenotype information and store it in their memory, beings that contain all the information of our genes and all the encyclopaedias in them.