

The complexity of communication. The communication of complexity^a

A complexidade da comunicação. A comunicação da complexidade

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ABSTRACT

Communication and information currently are the only elements capable of reuniting a notoriously complex reality. Communication has assumed an even more decisive role than in the past also with respect to the capacity of complex systems and organizations to manage risk and situations of crisis/emergency/uncertainty. Managing *emergency* means to *inhabit social complexity*, serving to understand through information and communication its unending dynamics, ambivalence, non-linearity and unpredictability. Avoiding the biggest mistake: managing “complex systems” (e.g., non-administrable) as though they are merely “complicated systems”.

Keywords: Communication, simulation, inhabiting hypercomplexity, culture and education, complex ecosystems

RESUMO

A comunicação e a informação representam atualmente os únicos elementos capazes de unir uma realidade problemáticamente complexa. A comunicação, em particular, tem assumido uma função ainda mais decisiva do que no passado, também no que diz respeito à capacidade de sistemas e organizações complexas gerirem o risco e as situações de crise/emergência/incerteza. Gerenciar o *emergente* significa *habitar a complexidade social*, tentando compreender, justamente através da informação e da comunicação, seu incansável dinamismo, ambivalência, não linearidade e imprevisibilidade. Sem replicar o “erro dos erros”: gerir “sistemas complexos” (não administráveis) como se fossem “sistemas complicados”.

Palavras-chaves: Comunicação, simulação, habitar a hipercomplexidade, questão cultural e educativa, ecossistemas complexos

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EMERGENCY IS SOCIAL COMPLEXITY. And communication, in addition to being a (causal and causative) *part*, is a strategic *variable* of vital importance in the attempt to *inhabit* this very particular (hyper)complexity, both unpredictable and chaotic, inexhaustible, much less understandable based on algorithms and/or more or less infinite data streams. Although important and useful, the same models and visualization tools/techniques/software attempting to represent it increase this (hyper)complexity instead of reducing/simplifying it (Dominici, 1998, 2005/2011). *Our own life is an emergency*, an infinite sequence of dynamic processes in which the *emergent* (element and structural characteristic of complex systems) manifests itself unpredictably, in all forms possible and unimaginable. As I could state in unsuspected times, it is *an infinite succession of many black swans* (Dominici, 1998), alluding to the old metaphor in use among our elders. After many years of studies and research, as well as experience, in this regard, I have a clear feeling that, often, at all levels of performance of organizational and social practice, those who, in the presence of situations/dynamics that escape their *control* (the illusion of control has always been and will always be with us) insist on the *black swan* question/metaphor – I’m obviously not referring to Taleb and his famous *The Black Swan* (2008) – for the unique and unpredictable or, in any case, *highly improbable* event, do not seek/do anything but operating/construct yet another *a posteriori rationalization*, capable of reassuring others and themselves that, despite this circumstance, everything remains predictable, and “under control”. Until the next emergency arises.

In this regard, it is not useless to emphasize, once again, how communication, management/sharing of information, and all the more, knowledge (Dominici, 1998, 2008, 2010, 2011, 2014a, 2014b, 2014c) are complex *variables*, increasingly determinants for the evolution and (attempt to) governance of these complex and structurally unstable dynamics. Also, there is still little awareness that, as I have repeated for many years, “communication is complexity,” “communication is organization,” “communication is citizenship” (Dominici, 1998, 2008, 2010, 2011, 2014a, 2014b, 2014c). These are the strong assumptions from which our analysis takes place, aiming at reflecting on the social and cultural processes and dynamics that characterize risk and emergencies, with particular reference to the dimensions of *communication, representation and perception, amplification, and social acceptability*.

Strong assumptions that necessarily imply the use of *a systemic approach to complexity* (Arendt, 1958/1964; Ashby, 1956; Barabási, 2002/2004; Bateson, 1972/1976; Bocchi & Ceruti, 1985/2007; Braidotti, 2014; Capra, 1975/1982, 1996/2001; Ceruti, 1986, 1995; De Kerckhove, 1993, 1996;

Diamond, 1997/2006, 2005; Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020; Emery, 2001; Feyerabend, 1975/1979; Gallino, 1992; Gandolfi, 2008; Gell-Mann, 1994/2017; Gleick, 1987/1989; Israel, 2005; Kauffman, 1993; Longo, 2014; Luhmann, 1984/1990; Maturana & Varela, 1972/1985; Mead, 1934/1966; Morin, 1974, 1977/2001, 1980/2004, 1986/2007, 1991/2008, 2001/2002, 2004/2005; Lakatos & Musgrave, 1970/1976; Piaget, 1970; Prigogine & Stengers, 1979/1981; Prigogine, 1997; Simon, 1962; Sloman & Fernbach, 2018; Taleb, 2008, 2013; Tegmark, 2018; von Bertalanffy, 1968/1975; von Foerster, 1981/1987; Wiener, 1948/1968, 1950/1966), which can only be, at the same time, multi- and interdisciplinary, considering that this umpteenth “emergency” with global characteristics, certainly more important, systemic and invasive than others, highlighted a series of issues related, also, and above all, to the approach and methodology that, inevitably, condition and determine the choices and strategies to be adopted. The Covid-19 *emergency ecosystem* forces us to critically face inadequacies and vulnerabilities at the micro and macro level that, as *human beings* and social systems, have always accompanied us. But, regarding the past, we can no longer postpone choices and strategies that have now become unavoidable.

The hyper-technological and hyper-connected civilization characterized by progressive, but also exponential, growth in the *technological control* dimension, increasingly based on programming, automation, and (hyper) simulation of processes and dynamics, entails a series of *risky illusions*: that of a total rationality, disconnected from *emotions* and able, with the support of technologies, to eliminate/expel the *error* (and variability) of practice and our own lives (the most dangerous illusion); that of total control and, above all, *predictability* and *measurability* – which means, in concrete terms, the possibility for objective and “scientific” evaluation (Hammersley, 2013/2016) based exclusively on quantitative data (while “data” is presented and described as “factual data,” at the same time as “data never speak for itself”... so we have learned in old research methodology and epistemology courses) – of all “objects” (which are always “systems”), processes, and of dynamics; finally, of *security* and *prevention* based entirely on a kind of *blank check* given to technology. A series of dilemmas, illusions, and paradoxes that inevitably result from: (a) the use of reductionist and deterministic approaches, which have their roots in the continuous, historical, almost atavistic, confusion between *complicated* (linear, manageable, and predictable) and *complex* (non-linear, uncontrollable, and unpredictable); (b) the use of exclusively technical knowledge and skills that, on the other hand, seem to capture and better ensure precisely those illusions of

total control and predictability; (c) the progressive marginalization of the human being and the *space of responsibility* within processes, systems, and ecosystems that are evidently complex, or hypercomplex, in fact, unstably dynamic and unpredictable, impossible to manage and govern.

In the face of an increasingly evident and recognizable *hypercomplexity* that characterizes the ongoing change and finds education and training institutions dramatically unprepared; in the face of the exponential growth of interdependencies/interconnections/interactions/conditionings tensioning both phenomena and processes, for some time and almost paradoxically, we have witnessed the dominance/hegemony of the reductionist and deterministic analyzes/explanations, as well as the rebirth of a neopositivist view/conception of “real” and “reality”. Dynamics and processes that materialize, on the one hand, within the sometimes obsessive search for simplification at all costs – even when simplifying could be dangerous (as with education, training, communication, democracy) – and, on the other hand, within what I have in fact defined as the *hyper-technological civilization great illusions: rationality, control, predictability, measurability, and elimination of errors* (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020).

We are facing, or rather in the middle, not of a single *pandemic* to be confronted, but of a series of pandemics. A series of emergencies linked by a *systemic and complex relationship*. Thus, *communication and information* (as well as education and training) are often configured as the *most critical emergency* to be faced. The most critical emergency yet, especially because those are *factors, variables, dimensions, and (complex) processes* that continue using traditional paradigms, precisely underestimated as knowledge and skills that could contribute to building up the conditions to *inhabit this hypercomplexity* (Dominici, 1998). These are some of the countless emergencies of a country that *lives in an emergency state* and “used to survive while nearly conditioned”, thinking only in the short term, unable, since its very beginning, to define and implement *policies* and, above all, establish a *culture of responsibility and prevention* (Dominici, 1998, 2005/2011) capable of socially and culturally monitoring and legitimizing the complexity and unpredictability of the change in course. A culture of responsibility and prevention that, clearly, alongside the fundamental role of education and training, is found within the *culture of communication* – which means/implies advertising, simplification, access, transparency, sharing, commitment, responsibility, reciprocity, symmetry – and within communication itself, perceived as the *social process of sharing*

knowledge (= power) (Dominici, 1998, 2005/2011), the fundamental prerequisites of a mature and *open* democracy. Many years ago, in this sense, I proposed the definition of a *society of irresponsibility* to underline the strategic centrality of the *cultural and educational issue* that, together with the communicational factor – as we understand and define it – constitutes the actual exposed nerve of our state-system. As stated in the past, the society of irresponsibility is:

the essential connotation of the ongoing change, increasingly permeated by individualization processes, the hegemony of individualistic values, and a superficiality/inability to evaluate the consequences of social action (both individual and collective). A worrying *ethical vacuum* capable of affecting the mechanisms of trust and social cooperation and causing disorientation and insecurity, establishing precarious bases for a social order already characterized by the fragility of institutions and, in general, of systems of belonging. (Dominici, 2010, p. 21)

The most critical emergency, among so many, thus becomes that of information and the *culture of communication*: an emergency closely correlated – as mentioned – not only to the *educational and cultural issue*, but also to the social and cultural processes of *social construction*, representation, and (individual and collective) perception. It is the most critical emergency yet because science and research will find answers and *solutions* – it is only a matter of time – for other emergencies and emerging phenomena...

And, if we fail to implement serious, rigorous, and systemic efforts to *overcoming the coronavirus* (as extensively proven by many examples from our history), new crises and emergencies will inevitably arise and drag us back to our usual starting point. We will still be talking to ourselves about unpredictable phenomena and events which, in any case, were unavoidable. With the usual appeals *not to be overwhelmed by fear* and *not to spread social alarm* and *panic* (and always when everything has already taken place, in the name of a debatable communication and information and data management, to say the least), with the publication of new manifests and guidelines; the creation of new communication and marketing campaigns, as well as new ethical codes and statutes; the definition of new laws and regulatory ties. Still concerning this case, we will continue *to look at the detail, instead of the broader picture*; confusing *symptoms* and *pathologies*, as in the case of disinformation and fake news (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020).

THE STRATEGIC CENTRALITY OF THE *EDUCATIONAL AND CULTURAL ISSUE*

In recent weeks, when many have also begun to evoke the (hyper)complexity of ongoing processes and dynamics and the urgency of a *systemic approach to such complexity* (more as a slogan than a renewed awareness!), As is generally the case in all emergencies and/or in the face of crises/disasters of any kind, everyone is rediscovering and recognizing – together with the value of science and scientific knowledge and, more generally and at another level, training and experience in the area (incredible, but unfortunately, even this “value” is always recognized in the alternating current and according to convenience, or politics) – the crucial importance and strategic centrality of education, freedom, responsibility (individual and collective – I always repeat: relational concepts), of the well-known *cultural issue*; in other words, we are all rediscovering and recognizing – as is usual in these situations – the fundamental role of social and cultural factors/variables. With them we rediscover, not that there is still need for that, the weight/role that fear, phobia, the *solidarity of fear*, the culture of indifference have always, today more than ever, fostered by an ecosystem of information and communication built to be, above all, fast and viral, according to the control and surveillance logic currently known.

We continue to witness the worrying slippages of the information system, which are not limited to the indiscriminate spectacle of news and misinformation. *Fake news*, the “prank calls” that the internet and social networks keep feeding until they become “true” (by the force of repeating and reproducing them...), detailed descriptions, above all, to “certify” the veracity of “facts” ... But also, unreliable research and data, presented as such, with biased or non-existent methodological observations; investigations carried out with no sense of rigor, not to mention videos and *shock* photos (as they are always defined) intended to thrill their recipients, playing with their (our) emotionality and lack of depth.

This issue has been discussed for twenty years and I am somehow under the impression of noticing this *interrupted evolution*, in addition to being worrying, it was said that the issue was related to *technical competence* and knowledge of the *means* (necessary but not sufficient); even so, there was a claim that laws and new ethical and professional codes would help to solve critical issues. It didn't happen, and we can see proof of it every day. Beyond the legal sphere, ethical and professional codes are an important guarantee of autonomy, which, however, often does not translate into *responsibility*. The incessant search for spectacularization and *emotional* information has never been (actually) contained, which is not only not deepened, but aims at *entertaining* instead of informing; polarizing opinions until a clash that becomes, for quite a while, ideological and based on slogans,

prejudices, and generalizations of all kinds. A *media circus* – I repeat – marked by marketing logics that also led to a total separation from people’s centrality and dignity. Awareness issues, issues of freedom, and responsibility to inform and communicate that do not speak to the level of technical skills.

Once again, the issue is both cultural and related to freedom, education (not limited to technical skills), and the continuous updating of those who inform/communicate. This is precisely why those who are “free to inform/communicate” shall always be responsible, as, despite the ongoing *disintermediation* (but also re-intermediation) processes, one still can exercise significant power over the public opinion (a decisive variable of democratic regimes), contributing to the representation and social construction of reality processes also through a sort of information/communication which only seems *neutral* (news and values, news emphasis/omission, location, spread, content language, use of images, etc.). Increasingly evident dynamics and effects that were later radicalized by an interconnected and hyperconnected mass society (Dominici, 1998, 2005/2011, 2014a, 2018c).

Unfortunately, subjects and issues of vital importance have always been underestimated and – I repeat – rediscovered only in emergencies: those that highlight all our vulnerabilities and uncertainties and that, more than any other type of situation, make us understand how inadequate and unfounded our certainties are and, with them, the organizational, political, and social paradigms that, at least apparently, support/sustain them.

Situations that, at each moment, amidst the multiple dimensions to be considered (the transition phase, which is partially an *economic crisis*; the historical, now dated, *socialization agencies crisis*; the affirmation of a *formative polycentrism*; individualism and the weakening of the social bond, the loss of credibility of educational and political institutions, the complexity and unpredictability of the change in progress; the absence of reflection and a *system of thought* suitable for a *hypercomplex society*, etc.) evidence/highlight the *substantial inadequacy and the incompleteness of our education and training*, sometimes/often accompanied by a superficiality and inability to translate decisions operationally. In the last decades, the choices, strategies, and instruments adopted to rethink education and training itself, have been proven wrong and ineffective, in addition to being built upon reductionist and deterministic approaches. Trying to adapt/adapting the educational and training processes to technological changes and the so-called digital revolution was not enough. And frankly, it did not take long before this became clear, regardless our stubbornness in following the usual directions, fashions, and trends, and not only *underestimating ethical and epistemological implications* (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c,

2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020).

Choices, strategies, and instruments (together with the lack of resources and investments) absolutely incapable, even more so in the current state of affairs, of even defining/creating the bare conditions (knowledge, skills, critical thinking, a culture of error, empathy and responsibility, relational and communicative space, etc.) for the understanding and, even better, *inhabiting* the complexity, unpredictability, ambivalence, variability, and dynamism of educational and training processes and, more generally, of social life and life itself.

A BLANK CHECK FOR TECHNOLOGY. IN SEARCH OF A *COMPLEX SYNTHESIS*

The crises, disasters, and emergencies that, in other words, have dramatically demonstrated how decisive the bond and social ties are and, above all, how decisive the educational and training processes (evidently, communicative and relational) are, while redesigned and mistakenly rethought (or rather... rethought only in appearance, with a lot of marketing and special effects) in recent decades. For over twenty years, and on several occasions, we have debated this in studies and research that have underlined and highlighted such aspects and critical issues.

We make an effort to inhabit a type, an *ideal type* (Weber) of society, a social model that we delude ourselves to believe is able to shape and, in some way, contrast, as it used to do, with laws and decrees (and I always say: necessary, but not sufficient conditions), through technology, algorithms and artificial intelligence (which, with all the implications of the case, may turn out to be extraordinary opportunities) and, more generally, *delegating everything* to technology and, increasingly, currently as well as in the future, automation and simulation processes. I must reiterate that, in these types of situations, technologies and social networks may not only *be* of extraordinary help and support but also other dimensions and *instruments* must be added.

Quite the opposite, we are still there, stuck, immobile within a movement and dynamism that has only been postulated and/or, even worse, simulated; firm within that previously described series of *great illusions* that still persuades us to believe that, despite the events that openly deny this vision/narration, everything is governable and under control; and, when we perceive – at all levels and areas of social and organizational practice – that “things are not like that,” all we have to fear is indifference, the separation from everything and everyone. The *great illusions* of a hyper-technological and hyper-connected civilization, the subjects and issues that also affect the *world* and artificial intelligence ecosystems and

those of the so-called *living matter* and, more generally, the (under development) processes of *complex synthesis*, within *which we continue to confuse intelligence with a simulation of intelligence; thinking, with a simulation of thought; empathy and feelings, with a simulation of empathy and feelings* (Dominici, 1998, 2005). Once again, there is the crucial question of the urgency of a *new culture of communication* (Dominici, 1998).

The hypercomplexity of social systems and the *new characteristic of risk* require a renewed awareness of the *strategic centrality of communication*, which is not limited to being attentive to the (more or less conscious) use, practices, and behavior of the media (and/or social networks) present in each context. Once again, we must deal with subjects and issues that transcend merely technical and applied dimensions of media and connection technologies. In this sense, there are many variables and moments of mediation and filtering permeating the complexity of the communication flows. What is at stake, as stated, is not only the technical and technological dimension of the means and their technically correct and effective use, but a more global, demanding, and sophisticated view of *communicating*, which implies *strong planning* as a basis; without this planning and a culture of complexity (responsibility), *communicating* loses its meaning and, subsequently, comes to a perfect coincidence with the neutrality – precisely – the technical medium; communicating, therefore, must be understood as the (individual and collective) ability to manage a significant and elusive multiplicity of processes of various natures (and, with them, variables, accessory causes, measurement parameters, and their systemic relationship), related to each other in a systemic way, and mainly by the (communicative) interaction of knowledge, skills, and abilities that, rationally, must be oriented towards the sharing of information and, at a more demanding level, of knowledge. These are such decisive questions that they ultimately come together closely with democracy and the essence of citizenship.

HYPER-COMPLEXITY AND CULTURE OF COMMUNICATION

Given the complex and systemic nature of the dynamics, communication and information – and their *management* – are, in practice, the strategic variable capable of paralyzing or, in any case, creating chaos, but also ineffective or inactive, a *system*, of any kind. Many considerations spontaneously arise from these cases, as well as different ideas for an analysis that must be bound to an interdisciplinary and multidisciplinary approach, which is required by the dramatic *complexity* of these events, often across their simultaneous *local* and *global* consequences and implications. A complexity that relates closely to the

new types of risks and emergencies that, at the macro level, characterize the world-system and individual (interconnected) social systems and, at the micro-level, characterize the *complex organizations* and social practice. A *complexity* (we always talk about *hypercomplexity*) that scientific knowledge itself has been showing can no longer be defined and analyzed (*reduced*) to the “old” paradigms of *monocausal determinism*, being the *result* of innumerable causal factors and characterized by multiple repercussions that can only be evaluated diachronically and at different observation intervals. At the same time, we must notice how the fundamental dimensions of risk, danger, emergency, and insecurity (but other conceptual categories can also be used) are increasingly innate to social systems and their intrinsic capacity to affect the social *mechanisms of fear* (now an *existential condition*), trust, and cooperation (Coleman, 1990/2005).

From this perspective, communication, “bad” communication, as well as irresponsible information, aimed more at spectacularization than enlightening – may generate and foster *social fears and alarms*, trigger conflicts, feed prejudices and stereotypes while driving the whole production system into crises – by increasing the perception of insecurity and precariousness (many examples could be given in this regard); and they can also affect, in an absolutely invasive and capillary way, the cognitive and perceptual processes of traditional social interaction networks and new *social networks* (social media), which vertebrate the public (global) sphere and constitute this public opinion legitimated, in fact, to define and condition the political agenda.

ENABLING SOCIAL COMPLEXITY

Within the hyper-technological and hyper-connected civilization, managing the emergency consequently means trying to *inhabit the social complexity*, managing the information and communication, the ambivalence, the non-linearity, and the unpredictability that characterize them: all this takes on an increasingly strategic relevance which implies attempting to interact with the *variety, ambivalence, and unpredictability* of social, relational, informational, and communicative processes; this means, even more so in the so-called *access era* (Rifkin), trying to attribute meaning and systematicity to that unlimited/infinite availability of data and information that, while repeated several times, in no case, *exhaust* the complexity of the real and the reality; it means having to deal – in the transition from simple to complicated, from linear to *non-linear* and chaotic, from complex to hypercomplex – with new growth, both in terms of quantity and quality, of variables, contributing causes, the parameters to be considered for the observation, description, interpretation, and understanding

of the phenomena. Avoiding the persistence in the replication of what I have called “the greatest mistake”: trying to manage (unmanageable) *complex systems* as if they were *complicated systems* (Dominici, 1998, 2008, 2010, 2011, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b).

The emergence, mainly in the presence of epidemics/pandemics and disastrous events, requires not only the means to define and execute *systemic actions*, but also a great ability to *coordinate human beings*, in the first place, which means: psychological profiles, life and professional experiences, systemic relational spaces, educational and cultural models, organizational and social cultures, etc. and secondly, the management of resources and instruments. The same analysis applies to the *management* of all types of risk and emergency, in which – the variable that unites them – the first problematic level to be faced relates precisely to the restoration and/or strengthening of the multiple *channels and environments*, which allow for the communication and spreading of information and knowledge, that is, in situations of risk and emergency, it is also of fundamental importance to *remove* systems (and, complex organizations at the micro-level) from their *state* of sudden information isolation and/or, even worse, disorder and *entropy* of information and communicative processes.

From this point of view, the *network of networks* and, in particular, social networks (Twitter, Facebook, Instagram, etc.), besides radically transforming – for quite a while – horizons and scenarios that can be traversed, re-drawing the limits of the global ecosystem of communication, represent the only *meta-channel/meta-means* capable of overcoming the (in certain situations and emergencies) inevitable *informative blackout* and *reactivating* information circuits and flows, so decisive for the systems and their organization. To confirm, once again, especially considering the complex and systemic nature (De Angelis, 1996; Dominici, 2005/2011, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b; von Bertalanffy, 1968/1975) of the dynamics, how much communication and information – and its *management* – really are, in practice, the strategic variable capable of paralyzing, or at least making a system of any kind whatsoever either inefficient or inactive (Luhmann, 1984/1990; Parsons, 1951/1965). Many considerations spontaneously arise from these cases, as well as different ideas for an analysis that, I repeat, must be linked to a multidisciplinary, interdisciplinary, and transdisciplinary approach (McDaniels & Small, 2004; Sarewitz et al., 2003) required by the *complexity* of these types of events, often in their *local* and *global* consequences and implications at the same time. This complexity is closely related to the new type of risks and emergencies that

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characterize the world-system and the (interlinked and hyperlinked) individual social systems at the macro level and complex organizations and social practice, at the micro-level.

Thus, the new *social complexity* defines a series of scenarios, even more ambiguous, uncertain, and unpredictable, in which public discussion and cultural evaluations have strategic importance, giving rise to a *new moral environment in politics*:

In the past two centuries, the place of tradition has been overtaken by scientists' judgment. However, the more science and technology interpenetrate and shape existence on a global scale, the less – and this is paradoxical – the experts' authority is taken for granted. In speeches about risk, in which questions of regulatory (self) limitation are also raised, the media, parliaments, social movements, governments, philosophers, lawyers, writers, etc. claim the right to speak. (Beck, 2008, p. 13)

However, specialized technical knowledge continues to play a dominant and hegemonic role in the analysis and interpretation of events related to the risk and emergency categories, mainly those knowledge and skills that, once again, seem more capable of supporting and turning to the confusion between *complicated and complex*, the great illusions of hyper-technological civilization. This element should lead to a reflection, first of all, because, as affirmed by Beck (2008) himself – the *calculation of risk* (and disasters) “connects the natural sciences, technology, and society” (p. 13); also, because the type of media representation – even if trivial – has an absolutely significant impact on risk and/or disaster analysis, in the way of dealing with them, accepting their possible and future consequences, equally sharing of costs and side effects, as well as defining respective actions and strategies. The *social invention of the risk pact*, based on the “ideas of controllability and compensability of the insecurities and dangers produced by the industrial system” (p. 15), thus tends to weaken under the blows of the insecurity *artificially* produced and self-manufactured by the hypercomplex society itself.

In this sense, the life – and evolution – of modern complex social systems is increasingly bound to the strategic variable of (individual and collective) *perception* that politics, as a whole and, above all, *policymakers* must necessarily have in its regard. This dimension is now also “recognized” as fundamental and deeply conditioned by the processes of representation of reality, for allowing *access* to information/knowledge, as well as for its *narratives*, especially the ones spread by the media, which are born from reality itself.

In the so-called knowledge society and knowledge economy (Benkler, 2007; Castells, 1996/2002; Ferrarotti, 1997; Rainie & Wellman, 2012; Rodotà, 1997; Rullani, 2004), communication and, more specifically, information systems, thus, assume a role even more decisive than in the past, also concerning the ability that complex systems and organizations have to manage risk (*risk management*) and situations of crisis/emergency/uncertainty (*crisis management*); we can now more generally affirm the existence of a close correlation between communication (*knowledge sharing*) and reduced complexity (Luhmann) of reality at both the micro- and macro levels (Dominici, 2005-2020). In this regard, once again, the complexity of information and communication, and of informing and communicating have become clear in the last few weeks. It emerged clearly – regardless seemingly stopped many years ago – as the preparation – and (continuous, systematic, unfinalized) updating – of those who inform/communicate should/must go far beyond the dimensions related to the competence's techniques and knowledge/application of deontological rules and codes, even if necessary. These are the most demanding complex and relational dimensions of Freedom and Responsibility.

The so-called *digital revolution* and the knowledge society bring high levels of knowledge and skills into question, as well as a radical change in terms of the system of thought, approaches, and methodologies; and we can no longer continue to evoke paradigmatic changes and technological and/or anthropological transformations that, in the end, will only figure as label words to which we do not attribute any continuity or operational translation.

The deep and complex questions that, as I have been tirelessly repeating for over two decades, have not been simplified at all (and that is a fact!), since the advent of the digital, by those that I prefer, for many reasons, to define as *connection* (and not communication) *technologies*; of the *new virality* of communication (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020). I have talked about this in detail over the years, specifically in terms of *hypercomplexity*.

Once again, in the last few months, the dramatic “cultural backwardness,” in terms of the *culture of communication*, has clearly emerged in a moment of global and radical change in which information and communication – in the context of a global and systemic emergency which, once again, showed the radical interdependence and interconnection of all phenomena and processes – while confirming themselves as strategic resources, presented several inadequacies and little attention to planning and the broad strategy. At this level of analysis and

practice, there is no point in reiterating that: the *educational and cultural issue* is, again, central, not only because “the training in communication/information is not enough,” it is even more necessary to educate in communication/information and responsibility (Dominici, 1996). Always: “Communication is the fundamental prerequisite for reducing society’s complexity, managing risk/uncertainty/insecurity, mediating conflicts, managing the unpredictability inherent to the systems themselves” (Dominici, 2005/2011, p. 9).

In the hypercomplex society,

communication, understood as a social process of knowledge sharing, started to have a strategic centrality in all spheres of individual and collective practice: considering the established *knowledge = power* equation, it is evident that the processes, dynamics, and instruments aimed at knowledge sharing can only lead to a reconfiguration of power systems. (Dominici, 1998, p. 47)

The educational and cultural issue tensions and feeds the complex *architectures* of what I define as an *asymmetric society* (Dominici, 2005/2011). These are issues of education, citizenship, and democracy (Capitini, 1964, 1967, 1968; Dewey, 1916/1992; Dominici, 2014-2019; Freire, 1968/2011; Gramsci, 1975/1948-1951; Nussbaum, 2010; Profumo, 2018; Rawls, 1971/1982; Robinson, 2016).

Prejudices, stereotypes, clichés, and, with them, misinformation, are even faster and more harmful, and, sometimes, devastating, than certain viruses. A kind of *contagion*, linked to communication and (mis)information can, over time, have even more damaging effects with this kind of *new virality* which is triggered by the so-called digital revolution. Misinformation, prejudice, stereotypes, clichés, etc., sometimes fueled not only by the media and the information/communication ecosystem but also education and training agencies/institutions themselves; misinformation, prejudices, stereotypes, clichés, which are produced and reproduced at an impressive rate... are quickly perceived, above all, by those who travel and are often abroad...

Among the considerations and discussions made so far, the most worrying and potentially devastating emergency for its invasive effects, even at the cognitive level, its long-term effects, its ability to affect and redefine even the educational and training processes (including those relating to the person and the citizen), is evidently, and for many years, precisely that of information and communication. An emergency that has always worried the communities, the coexistence with the Other, the Democracy.

Consequently, among the (numerous) countermeasures/strategies to be adopted in the famous “long term” (currently evoked by everyone in terms

of slogans, brands, and labels), a radical change in education and training; educational and training processes; people and citizens; and, even further, of those who will have to deal specifically with informing and communicating (including researchers and scientists). In this field, the game, which is vitally important, is linked to the urgent need to reviewing *the general architecture of knowledge and skills* (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020). The (crucial) issue of the *new culture of communication*, the urgent need to educate, and not just train, in communication/information and related responsibilities, also concerns scientists and the so-called specialists. In fact, preparation and continuous updating, in addition to researching in a rigorous manner, have always been essential but, even regarding scientists and technologists, there is no guarantee, by no means, that they will know how to disseminate and communicate them.

Within an increasingly interdependent and interconnected world-system, such crisis must be faced with strategies *conceived* in a transnational key (reference is made to the role of the European Union and the famous[?] International community, currently “inconsistent” entities which lack an identity, as well as common strategies): (a) redesigning welfare and cohesion policies in the light of new social risks and new forms of precariousness; (b) defining education, training, and research policies; stimulating the society to develop “antibodies” capable of strengthening social ties (citizenship education, legality, anti-corruption, etc.), which are increasingly affected, both by the dominant individualistic and selfish values and by the lack of functional cultural models aimed at the “common good”: in other words, a shared ethics; (c) betting seriously and concretely on a cultural change that, again I repeat (and I will never tire of doing it), can only take place in the long term and from the centrality and quality of educational processes. This is what (for years) I have been calling a *mandatory path*: everyone – not just politics – talks about it, everyone seems to agree, but, at least for now, I perceive nothing more than a *declared* awareness. We hope that it will at least serve to increase this *declared* awareness of the importance of *cultural change*, as what we are experiencing is a cultural crisis, transformed by countless variables and contributing causes into a *crisis of civilization*.

A crisis that makes us question (and act) towards what it means to be *people*, in the first place, *citizens* in this global society that radically questions the founding dimension of *trust* and *our* safety paradigm; forcing us to rethink our understanding and practice the values/principles of freedom and responsibility (relational concepts, cf. Dominici, 1998, 2005/2011); that lead us to redefine our idea of *rationality* and the codes, models, and strategies it produces;

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a crisis so delicate that, in addition to extraordinary scientific discoveries, as well as technological innovation, brings the question of human dignity, human rights, and (global) citizenship back to the foreground.

These are times when the issue of *controlling* social systems has become more radical as nation-states can no longer be “guarantors” of the developments, not only at the economic, but also at the political and social levels; they find it difficult to exercise their duty of controlling and managing increasingly interconnected phenomena and processes expanded on a global scale (Beck, 1999, 1999/2000a, 2000b, 2001/1999), increasingly complex and, therefore, unpredictable, in a context which, according to other observers, seems to be configured in all its aspects as a form of *organized irresponsibility*. Even at the individual level, we all are/seem, at least superficially, “freer,” but not everyone feels the importance of critically and judiciously evaluating the consequences of our actions, which are never disconnected from the historical-social context of reference.

To take this “concept” to the extreme and, at the same, time simplify it, we would like to argue that the knowledge society, on the one hand, has undoubtedly put us in a position to better face – in terms of efficiency and effectiveness – the risky, the uncertain, the complex, the emerging, even giving us the illusion of total control over the *environment*. This society, on the other hand, has not yet fully understood – and perhaps never will – these *social mechanisms* (Hedström & Swedberg, 1996; Karlsson, 1958) of (*self*)protection against the unpredictability of individual and/or collective behaviors, often dictated exclusively by apparent rationality. In this sense, this pandemic, or rather this series of pandemics, is, for all intents and purposes, a kind of *new paradigm* of this new risky character of the *risk society* and this new social complexity that, in a way, pushes analysts and the scientific community itself to rethink their interpretive model and related theoretical approaches. According to this line of discourse, the *irresponsible society* to which we refer is a society made up of *isolated* individuals, often guided by selfish interests and an *irrational* but also *limited rationality* (Simon), who see themselves projected only and exclusively as *individuals* in social practice.

Paradoxically, technique, innovation, and technological progress have been proven paramount instruments for controlling, or at least counterbalancing, the unpredictable force of nature and, more generally, managing the social systems’ *instability*; but – again – there are no means capable of supporting and guaranteeing the same effectiveness in the *management* of that truly unexpected, very hard to *control, unpredictability*: the unpredictability related to human, social, individual, and collective behaviors; the unpredictability that no legal system and no codified law or sanction would be able to eliminate. In other words, security, risk management, and the efficiency and effectiveness of social and

organizational systems are complex variables, increasingly linked to technological innovation, but which encounter an insurmountable obstacle in the area of practice connected to the *irresponsible social action* which goes beyond any training and professional trajectory and/or any competence acquired. It is a *cultural backwardness* that also consists of not considering, or rather, not wanting to be aware that the nature of the events and processes with which we interact is increasingly complex, multidimensional, and systemic (Emery, 2001). As such, it requires an approach, analytical tools, and operational methods that can be equally complex to affect effective *policy* choices and strategies (Althaus, 2005; Bradbury, 1989; Weale, 2002).

Dimensions and variables are even more conditioned by the individual and collective perception, by complex construction processes, *social acceptability*, *social amplification* of the risk (Pidgeon et al., 2003) that, consequently, guide the political decisions in this respect. Newspapers and media narratives resumed and later fed by social networks – the metaphor of “contagion” (Kucharski, 2020) proves extremely effective also in this case – have, starting from today, a decisive weight in *social construction risk and insecurity*; at the same time, the social sciences continue to play an absolutely marginal role in the explanation and general management of this and other disasters. It should also be noted that the *media coverage* is mainly based on an *emotional* narrative, always *reductionist* in the identification of causes, with a weak attempt towards enlightenment, and attributable to a *single dimension*, the technical and of *technicist* nature. Therefore, the information system remains weak and inadequate in an attempt to achieve a more complex and global reading involving the various *expertise*.

It should be noted that the social sciences remain totally excluded from the range of *expertise* called upon to analyze, evaluate, define possible emergency response strategies and *risk management*, which should possibly involve all *stakeholders*: this is at least paradoxical, precisely because we are faced with a particular type of event, whose “nature” is clearly complex and does not exclusively concern technical issues, though fundamental.

These are deep and complex issues, and it is time to *imagine, design, implement complex systems while seeing them – because, in fact, they are – more like organisms than machines. Complex and uncomplicated systems*. Recovering these dimensions is also vitally important, especially considering that the extraordinary scientific discoveries and technological innovations, the speed and the intrinsic dynamism of the change in progress, do not *lead* to simplification, rather quite the opposite! We must, thus, recover the awareness that, precisely in the age of *disintermediation*, (social and professional) figures, institutions, processes, and mediation mechanisms must once again play a strategic role,

to say the least. Mediation *figures* become even more strategic, but they must be educated, prepared, trained, and constantly updated to recognize and deal with this hypercomplexity, with the richness of systemic relationships and the levels of connection that characterize not only the hyper-technological civilization but life itself.

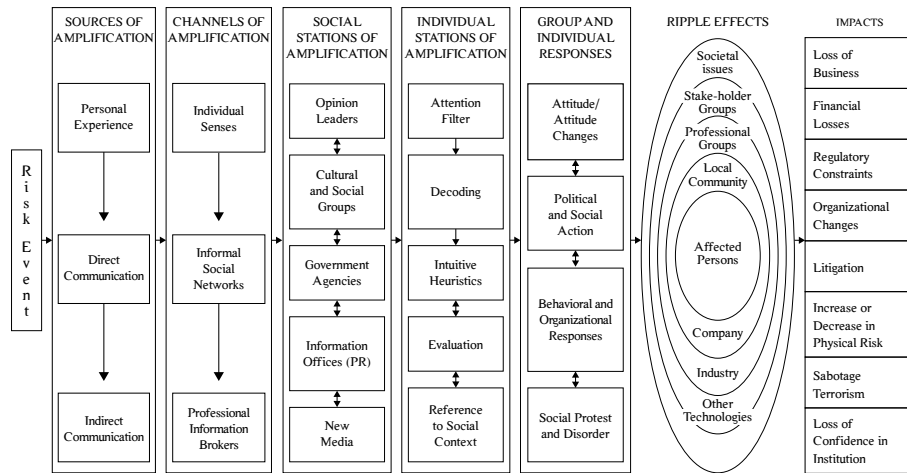


Figure 1

A model of the social amplification of risk

Note. Adapted (translated) from Kaspersen et al., (1988). The social amplification of risk: A conceptual framework. *Risk Analysis*, 8(2), 177-187. <https://doi.org/10.1111/j.1539-6924.1988.tb01168.x>

In unsuspected times, I spoke of the urgency of educating and training *hybrid figures* – instead of a one size *fits all* – (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020), a *complexity manager* (a definition that I used in the past to simplify with an awareness express in all works and publications, that *managing complexity* is almost an oxymoron; even more so if we refer to social, relational, and human complexity): a *hybrid figure* educated and trained not in a culture of control (in a culture of this type) but to interact with that *unpredictability* that is an essential connotative element of social, human, and vital systems. Without transforming education and training, in a radical way, we will never be able to confront and interact (*dwell* is the concept verb that I have always used, for various reasons) with this hypercomplexity; and it will not be the technologies and the digital that will allow for this to happen and, likewise, it will not be technologies that will re-establish social ties, reactivate social mechanisms of trust and cooperation

(Coleman, 1990/2005; Putnam, 2000/2004) to determine the demands for truly *inclusive* innovation. At this level of analysis and practice, there also is the complex issue of the *culture of communication*. We must work to reestablish, *re-mediate*, the social bond.

In this type of context, managing information and communication means more reasons (to try) to manage/govern complexity (an oxymoron that I implement only for synthesis needs), while being incredibly careful not to fall into the disintermediation and simplification rhetoric understood as absolute values. We can no longer perpetuate “the greatest mistake”: *treating complex systems as if they were complicated systems* (Dominici, 1998, 2005/2011, 2008, 2010, 2014a, 2014b, 2014c, 2015a, 2015b, 2015c, 2016a, 2016b, 2016c, 2017a, 2017b, 2017c, 2018a, 2018b, 2018c, 2019a, 2019b, 2020). There are no shortcuts (*simple solutions to complex problems*) or other solutions to achieve this goal in the *long run*: the crucial issue is a strong and multidisciplinary education (with a systemic perspective and linked to complexity) that must integrate the traditional technical and technical-linguistic skills currently held by professionals such as communicators, journalists, bloggers, *opinion leaders*, and *opinion-makers*.

EPILOGUE. COMMUNICATE INSTEAD OF SIMULATING

As I wrote years ago, communication and life itself cannot be reduced to mere strategy; a set of rules and techniques, endless sequences of data, and statistical and/or epidemiological (although important) models; ethical reflection, once more so necessary, finds a universe of discourse as vast and articulate as ever in the practice of communicating (and informing) and, therefore, is urged to embrace the “new” hypercomplexity, constituted by totally original and innovative acting modalities that intertwine with a dense network of rights and duties. These are complex dimensions strongly highlighted by the Covid-19 emergency. *The starting point is to recognize that communication and information currently represent the only elements capable of uniting a complex and unpredictable problematic reality*. And, in doing so, we must not fall into the ambiguity of the indistinction between instruments and methodologies, technical rules, and moral norms: that is, the ethical problem and the issue of *responsibility* must be addressed without simplification and reduction of the complexity of communication to a set of rules, criteria, good practices, and guidelines that would have no other effect than returning a perfectly “simulated” and reproduced communication, yet *perfectly* incapable of... communicating. ■

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