concerned groups, procedural and institutional arrangements.

What qualifies the advancement brought by the book is the introduction of the concept of measured action, to which is dedicated the entire chapter 6. Such concept is rooted in the fact that "actors avail themselves of the means to be able at any moment to return to abandoned options, and that evaluations are constantly revised in terms of new knowledge and points of view" (192) and it founds an empirical existence in what is known as the "precautionary principle" (ibidem), adopted as policy line in many EU contexts, and that applies to situation of uncertainty. This chapter is also the one that shows the weaknesses of the analysis carried out in the book. The whole chapter looks like the trial to convince the politicians (and the general public) to open up the space for hybrid forums, and dialogic democracy based on them, through the undermining of opposing arguments, more than through an empirically sounded discussion on under what conditions the hybrid forums can be established. Shortly, it is more advocacy than analysis. This is why, going back to the High Speed Train between Turin and Lyon, the book has a low explanatory and interpretative power: the conceptual tools it provides are good at describing the initial phase of the emergence of the concerned group opposing the train (like solving the uncertainties related to the effectiveness and the effects of the train itself) but they are insufficient

in order to understand what were the conditions obstructing the strong concerned group in bringing a dialogically democratic process into the controversy, that remains in the domain of delegative processes.

Reference

Latour, B. (2004) *Politics of nature: how to bring the sciences into democracy,* Cambridge, Harvard University Press.

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Science, Design and Everyday Life

Donald A. Norman

Living with Complexity

2011, MIT Press, 298 pp.

and

Matthias Gross

Ignorance and Surprise. Science, Society and Ecological Design

2010, MIT Press, 240 pp.

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New technologies do not just consist of artifacts but perform as social design acts, so shaping and re-ordering people's everyday life.

Current examples can be the Smart Phone diffusion, and in Italy the NO-TAV protests in Piemonte as well as the recent Referendum on nuclear plants.

The two books reviewed here make evident the multi-level analysis in play when inquiring the intertwining of society, human beings and technology. The joint reading and comparison of the two texts allows us to take in consideration the two poles of the debate: the micro-interactional and the macro-political level.

Donald Norman's book is clearly on the 'micro' side of the analysis. Following a successful approach started with The Design of Everyday Things – translated in Italian with the awful title "La Caffettiera del Masochista" – the author focuses on how interfaces of new technologies meet the users' needs. The book is pleasantly written as an exercise of sophisticated popularization. This makes it a smooth and interesting reading, even if slightly erratic and dispersive. The core of Norman's argument is in the question he poses: why is our technology so wrong-footing? To answer it, the author formulates another, more general, question: how do individuals cope with the world disorder from a cognitive viewpoint? The distinction between 'complex' and 'complicated' is introduced as a key to face with the questions. 'Complex' is a state of the world, whereas 'complicated' is a state of the mind. To quote an ironic motto from the book, 'complicated is something having a wrong-footing complexity'. Two further theoretical

arguments are then carried out. The first emphasizes the role of the underlying structure, which when works out, reduces complexity or makes it marginal. The second argument concerns design: how do technological artifacts make their underlying structure visible? .

Referring to fields such as psychological ecology (James Gibson), situated cognition (Jean Lave), distributed cognition (Edwin Hutchins), the book analyzes various notions and cases of daily technological objects. The recurrent theme is the cognitive role performed by social signifiers: the subtle signals offered by other people' activities as guides for individual action. According to Norman, individuals' actions have always side effects. They leave traces behind so that others can go back to paths and activities which have been performed in the environment. Artificial Life biologists and theorists label such a phenomenon as stigmergy: a type of indirect coordination based on traces of past activities. The existence of these signals leads and constrains future activities, so producing complex structures through a self-regulatory process which has no central orientation or planning. Such a digression allows the author to underline the conceptual difference between signifier and affordance. Criticizing the use of the concept of affordance by various designers, Norman circumscribes it to the practical and operational quality of a material structure towards a specific user. Then Norman proposes the

notion of 'signifier' to indicate the perceptible (visual, audible, tactile) dimension which makes the affordance visible. This notion is able to take into account the role of local practices and cultural traditions to interpret the traces in the user's perceptive landscape.

More than in Norman's previous work, the book reflections are not only theoretical but also explicitly practical. Beyond his socio-psychological research, Norman's consultancy work is at the boundary between user-friendly technologies and the human-centred approach to technology design. Stating that complexity is part of our world does not justify designing wrong-footing or misleading technologies. If a good technology design cannot handle complexity by producing less complex things, as complexity is necessary to certain activities, it can still manage it in an effective way. According to Norman the key to face with complexity is twofold. First, does the object have an internal logic which can be implemented without ambiguity to make it work? This dimension goes back to solutions such as structure adding (e.g. dividing a task in simpler modules) or re-conceptualization (to substitute a task with a simpler or more precise one). Secondly, how does the real user experience set up the object structure? Here Norman's usual critique to an 'engineering' approach to new technologies emerges. The cases presented in the book highlight how interface designers' logics are blind to real people life practices.

According to the author, the ideal, rational and omniscient user of ergonomics is an abstraction which does not fit the limited rationality, the scarcity of time and the situated cultural routines of real users. As a consequence, interfaces should be able to embed in their task structure the socio-cultural parameters of the historical, concrete user's practices.

Whereas Donald Norman's book focuses on the intimate sphere of the relationship between the individual and technology, Matthias Gross moves his analysis towards society at large, with particular reference to deliberative policies and strategies involved into scientific innovation.

The book is concerned with the current debate on reflexive modernity (Beck, Giddens, Lasch). In particular, it focuses on the management of unexpected processes of technoscientific innovation, change and invention. The leading idea is that "ignorance and surprise belong to each other". Due to its nature, scientific methods should allow researchers to surprise themselves and their peers. However, this produces an inevitable interruption of the continuum between accepted knowledge and future expectations. In this sense, as summarized in the 'expect the unexpected' slogan, any novelty includes elements of uncertainty and not- knowledge, which cannot be foreseen. The current explosion of knowledges and technologies typical of the so called contemporary knowledge society, therefore, has the following corollary: new knowledge also means broader

ignorance. In this perspective, learning to handle surprise and ignorance becomes constitutive of public decision making activities.

The other key assumption of the book draws from the work of the sociologist Howard Becker and is summarized as follows: "we don't have a conceptual language to discuss things we all know". In this respect, the author puts forward a double critique and a polemic remark. Notwithstanding uncertainties characterizing various scientific fields, Gross underlines how the ideal of truth and certainty offered by 'classic' science is still well present in official rhetoric. To ensure lay people, emphasis on further research or known uncertainties would be functional to state that risks in play are under control. According to Gross such an idea generates a cascade of uncertainty. For example, uncertainties in seismologic sciences are the bases for further uncertainties concerning emissions. This makes eco-sensitive intervention more and more difficult to anticipate, in turn generating uncertainties about how different social groups will react and so on.

The second polemic remark is instead directed towards those authors (for example Myers, Raffensperger), supporting the 'precaution principle' thesis in all cases where risks are scarcely known. Gross states that in practice the precaution principle has been often evoked only to prevent the government action in contexts of scientific uncertainty. Namely, it has been interpreted as a means to postpone or delay action. However, as Gross suggests, precaution concerns only what has not to be done, rather than what has to be done.

The first part of the book focuses on different types of knowledge gaps in science and everyday life, in the attempt to offer a more open and flexible approach to the issue. Departing from Georg Simmel's nichtwissen (not- knowledge), the author reflects on how unexpected occurrences can be embedded in a scientific model able to include an experimental management of 'surprises'.

In the remainder of the book, Gross develops his analysis of public management of surprise looking at the complex network of social interactions in the fields of landscape and ecological restoration. The analysis of ecological design as a social experiment outside the laboratory breaks common assumptions of certainty and predictability of science. In these fields the deliberative challenge very often stays in the fact that new knowledge and intervention projects create new options without providing new criteria to manage them. In particular, the book analyzes empirically the management of the unexpected in two cases: an ecological intervention in an urban context and a large scale landscape transformation in a post industrial area.

In the first case, Gross analyzes the story of the projects and interventions to transform the coast by lake Michigan in Chicago from the

19th century until today. It emerges that the appropriation of surprises has been the tool to produce more robust and reliable strategies of environmental design. The second case concerns interventions of revitalization of an abandoned area nearby Leipzig, previously used for coal extraction in the socialist Eastern Germany. In this case early success induced an increasing fragility of the intervention because of the minor attention given to the surprises emerging from the project.

The comparison between Chicago and Leipzig – as Gross states – is interesting for various reasons. Both the regions have been involved into public interventions of ecological requalification based on State funding. In both cases landscapes have been restored without any historical reference and interventions have produced a boundary work: a multi-voiced process of definition of social boundaries which distinguishes science from non science, as part of a rhetorical practice to gain epistemic authority and legitimation towards rival instances.

The whole frame points out that technoscientific interventions cannot be characterized as either a linear and top down activity, or a trial and error process of variations and selections. Rather, they are coordinated management processes of unexpected turns, able to take into account less or more rapid changes.

For the author the political morale of the issues inquired concerns knowledge production in what Beck and others have named as second modernity. In the contemporary world human societies started to understand that not all the risks of social action can be under control. Therefore, it would be necessary to develop strategies able to reflexively embed and face with those risks in development and planning policies. In the end, according to Gross, everyday life in the technoscience age is an inevitable, continuous and deliberate hazard.