

Change and commitment: beyond risk and responsibility

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Risk and responsibility have always been linked philosophically in the Western tradition. The purpose of this article is to discuss possible alternatives to the centrality of the risk discourse, arguing that such alternatives call for a revision in the concept of responsibility, decoupling it from the aspirations of control over Nature and the future. It implies also a more complex relation between knowledge and action. Rather than believing that contemporary global challenges will be sufficiently met by being responsible under risk, we will explore how to stay committed in times of uncertainty and change.

Keywords: risk; uncertainty; responsibility; Hannah Arendt; post-normal science

[...] I think that any discussion of the new technologies of life must begin not with an attempt to evaluate their ethical, economic, and political implications for our future, but with a critique of the ways in which these technologies are already implicated in global patterns of inequality and injustice. (Jackson 2002, 148)

Beyond risk and responsibility

The ultimate questions of science and engineering ethics, or indeed any ethics, are: What is good? What is right? What should we do? Such questions can be difficult enough, giving rise to hard ethical dilemmas or deep value conflicts already in cases where the nature and consequences of the action are known and well-understood. However, when facing the many challenges involving science and technology and its effects on and interactions with man, society and the natural environment, one is often confronted with deep uncertainties regarding both the essential nature and the future consequences of action. This is true of the development of novel technologies, such as bio-, nano- and convergent technologies; it is also true of the governance of counteracting, remediating or adapting to the problems created by our civilisation and its technologies, including environmental pollution, degradation and other large-scale change, such as the apparent ongoing changes in the climate of the Earth.

The purpose of this article is to discuss possible alternatives to the centrality of the risk discourse. We shall argue that such alternatives call for a revision also in the concept of responsibility, decoupling it from the desire for control over the future and re-coupling it to its relational dimension: that of how humans ask and respond to each other and more fundamentally live together. Rather than believing that contemporary

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global challenges will be sufficiently met by being responsible under risk, we will ask how to stay committed in times of change.

An example will serve to illustrate our point: climate science has informed politicians and citizens about the threat of climate change for almost three decades now. Still, greenhouse emissions and rates of energy consumption are decreasing only very slowly or even increasing in many parts of the world. For some, the solution is to strengthen the influence of the scientific advice given by IPCC and others, for instance by arguing that political debates over climate change uncertainty now ought to be a past and finished stage (Brundtland 2007).

Although we agree that uncertainty is sometimes used strategically by economic and other interests in the climate issue as in other environmental and also health issues (Michaels 2008; Oreskes and Conway 2010), the problem remains that there appear to be valid claims about non-trivial uncertainty of climate model predictions. These models belong to a category of technical tools which some authoritative commentators have already labelled as trans-scientific (Brooks 1972).

Given the vastness of the perceived cost associated with dramatic emission reductions, we fear that the legitimate doubt about the predictions may remain until they have been empirically verified, that is, when it is too late. In other words, when a considerable amount is at stake, the inevitability of uncertainty destroys the grounding of legitimate action in a prediction of future states. If the underlying principle of action in a modern state with its focus on risk and responsibility is that *prediction of the future is needed to act in the present*, another principle of legitimating public action is needed.

The concept of responsibility has a number of aspects, such as that of accountability. However, we think it is fair to say that the aspect of *control of consequences* has been and still is the dominant one when science and technology are involved. To provide responsible storage of nuclear weapons would typically not mean that one is willing to open the books to the public and be held fully accountable when the missiles are stolen and launched. It would rather mean that the continued storage is under control and that the missiles are safe (unless a really extraordinary event takes place).

Since the emergence of the modern state, science has become the undisputed provider of reliable knowledge. This knowledge expressed quantitatively has been the source of legitimate (rational) inputs to action and governance. The ability to predict and the transformation of knowledge into technology enabled the realisation of the aspirations of human control over Nature.

Certainty is an essential part of the endeavour and in order to achieve it, facts resulting from reason have to be privileged over expressions of passion. There is no doubt that this programme produced incredible advances in governance, science and technology, establishing growth and progress as key justifications of action.

It is ironic to notice that a programme devised to cancel the role of values in the process of decision-making depends so crucially on trust and its maintenance. According to Giddens (1990), trust implies not just cognitive understanding but a commitment to some form of action enabling, for example, the modern person to feel safe, protected by the expert systems created by science and technology. It also applies to the contemporary citizen going with confidence to an airport to take an aeroplane or to a hospital to face a surgical intervention. Under the umbrella of trust, diversification of functions and roles can take place, and there is no need for everybody to become a pilot or a surgeon to feel safe. In either case, the main point for our discussion is the ideal of control and safety that is maintained in this understanding of responsibility.

It became slowly clear that it was not always possible to have instant certainty in some governance issues, such as consequences of the application of a technology or interventions into the environment. This was considered a transitory state because the progress of science would eventually produce exact and crisp numbers.

In the meantime, the absence of certainty was remedied by ‘taming chance’ (Hacking 1990); the estimation and calculus of probabilities and risks was the particular solution that the European (and later global) civilisation provided as a device to maintain modern rationality and re-establish responsibility under uncertainty. Such a conception of responsibility appears to break down if there is no reliable prediction of the future, if the extraordinary (accidental or ill-willed) event occurs or if the complexity of the systems involved falls beyond the scope of the technical and scientific tools that can be applied in risk assessment.

Since Alvin Weinberg (1972) coined the term trans-science to describe risk problems which cannot be resolved by sound science or evidence-based risk assessment, a whole literature and practice has been developed over the last 20 years to show the pervasive presence of values, uncertainty and complexity in many, if not all major technological and environmental challenges (Funtowicz and Ravetz 1985, 1991; Wynne 1992). Hence, the question emerges: Is it responsible to govern, say, the storage of nuclear weapons, the release of genetically modified organisms or the development of commercial nanometre-sized particles by state-of-the-art risk assessment and risk management procedures, when suspecting that the results of these procedures will be invalidated in a few years by the discovery of novel, unforeseen and surprising consequences of action?

Furthermore, does the responsibility of this type of governance hinge upon the objectivity (value neutrality or independence of vested interests) of the risk assessment – in the sense that risk assessments are able to predict the full range of undesirable consequences and not just the ones falling within a certain cultural frame, societal outlook and moral perspective? If so, the cultural studies of risk provided by Douglas and Wildavsky (1982) and others appear to have dealt a decisive blow to such an idea (see also Schwarz and Thompson 1990). The question of how resilient will be the trust necessary for the legitimacy of this governance paradigm requires urgent reflection.

Critics have compared the centrality of risk assessment and management approaches in governance to the anecdote of the drunken man under the lamppost: he had lost his keys and kept on looking for them under the lamppost, not because he had a reason to expect that they were there, but because this was the only place that was lit. More philosophically, one might argue that this centrality amounts to the attempt of reducing politico-practical issues (*sensu* Ravetz (1971/1999) and more fundamentally, Aristotle) to technical issues – the so-called ‘technical fix’. The defence against such criticism would typically fall within one of two categories: the metaphysical type, arguing that the universe is a rational and not too complex place where the methods of science eventually will provide adequate answers, or the pragmatic, desperate type, asking back: What else can we possibly do? Absurd as it might be to continue to rely on the light of the lamppost, no rational alternative appears to be in sight. Both answers ignore that the light of the lamppost is not eternal, and that it is becoming weaker as the underlying trust that makes it credible fades.

Funtowicz and Ravetz, when introducing the concept of post-normal science, have argued that stakes and uncertainty cannot be analysed separately (1992). High stakes imply that a larger effort will be made to identify uncertainties, for good reasons. High

stakes also mean that conceiving of parties as disinterested is problematic. Indeed, only an extraterrestrial could be materially disinterested in global problems. Uncertainty, therefore, relates in the public sphere not only to internal questions of validity of scientific knowledge, but also to external questions, including those of the roles of expertise. When competent citizens in the knowledge-based society understand that neither expertise nor knowledge can be entirely value-neutral in the old positivist sense, the failure is not just of the technocratic principle for action. Citizens might also become aware of the equivalent flaw in the sound science-informed concept of precautionary action, in which risk management may be democratised, but risk assessment is maintained as a technical task (European Commission 2000; Funtowicz and Strand 2007). The result is once again a loss of trust and consequently a loss of legitimacy of action.

Still, of course, responsible risk assessment and management may be of high value, for instance as a way of organising prevention and contingency measures (Strand 2001), or as a background for later, post-hoc distribution of blame, guilt and liability. This can work well also under uncertainty when little is at stake. Global, complex issues, however, not only tend to involve high stakes but also multiple causes that are connected in partially unknown ways. Hence, everybody might be to blame, which means that nobody is to blame. Even if guilt or responsibility can be established, there is little that achieves after a catastrophe.

Inclusiveness and participation have been proposed and experimented with as means to address the governance of risks in times where trust (in particular, trust in expertise) cannot be taken for granted. Those experiments, in many cases, have produced frustration and fatigue and an emergent discourse of the 'new tyranny of participation' (Cooke and Kothari 2001). We should ask ourselves today, as Arnstein did before, what is being done in the name of participation (Arnstein 1969) and how far this should go in redefining existing constitutional and institutional structures, which were designed to solve political issues and to be applied to a political body quite different of those of today. The transition to new forms of participation has to include a commitment of change in the purpose and process of knowledge creation as a better standpoint than that of risk-based responsibility: commitment to the collective creation of knowledge about how to do good to preserve and extend humanity as a context to the prevention of evil.

All of the above is already recognised in many policy and expert circles. There is a need, though, to recognise the depth of the problem. Two well-known attempts at solving the problem may serve as an illustration. The first originates from philosophy: Hans Jonas's (1979) principle of responsibility. Jonas specifically addressed environmental global problems and proposed as a principle of action that one's acts should be compatible with (dignified) human life in the (distant) future. Interestingly, the English translation of Jonas's book has the title *The Imperative of Responsibility* (1985). The principle might appear to evade the problem of the limitations of risk-cost-benefit analysis by being cast in a deontological form. Nevertheless, it is easy to see that it depends upon prediction: how can I know that my actions now might have this or that effect in the distant future? In this way, his principle provides little or no guidance under uncertainty (see also Dupuy 2004), and in this sense it is equivalent to risk analysis. Indeed, all principles of sustainability appear to be susceptible to the same criticism.

The second example is that of reducing uncertainty into quantitative probabilities within a Bayesian framework. In that case, there will be no more talk about the

impossibility of ‘taming chance’, as probabilities always can be estimated as degrees of belief. Without entering the long and heated debate between orthodox and Bayesian decision theory, there is no doubt that this happens at the expense of the idea of control and accordingly, for some, of responsibility. The heated debates were not about that: they rather were for or against the in-principle possibility of acquiring objective probabilities and hence control.

At the end of the day, then, the problem of the principle of action remains unsolved. An indication that this is being recognised are the many attempts at experimenting with principles of precaution; with public participation; with more or less clear ideas of ‘broad’ governance; and with ‘ethical’ institutions such as committees, dealing with guidelines, checklists and ethical clearance of projects. Reviewing such developments is beyond the scope of this article; however, empirical testing is needed to show how they might help solving or resolving actual complex governance issues. We believe in the value of such experiments, but if they are not the result of a deep self-conscious analysis, they might actually be a way of reinforcing existing technocratic structures. ‘Ethics’ is then taken away from the democratic political process and normalised as another objectified expert discipline (Strand and Nydal 2008; Tallacchini 2009).

Intermezzo: grounding action in the construction of the future

In their scholarly work on what they called ‘ongoing normative assessment’, Dupuy and Grinbaum (2005) addressed the need for *commitment*. If the future cannot be *predicted*, a thinkable alternative is to *decide* how it will be. Accordingly, their solution to the problem of uncertainty is to exchange morally uncommitted forecasting and multiple scenario building with the building of the one desired future scenario. ‘Building’ is meant both metaphorically and literally. First, the desired future must be conceived and placed in ‘projected’ future time. Second, by the ongoing normative assessment of how things are developing, the goal will be reached by steering towards it, by continuous corrections of the course along the way. In other words, the idea is to construct the future rather than to predict it.

The idea of ongoing normative assessment is almost unique in the sense that it actually addresses and solves the problem of uncertainty at a conceptual level. It does so at the expense of realism, since it requires a unanimous and immensely powerful historical subject willing to commit itself to a specified positive goal. Already in Karl Popper’s (1945) philosophy, one may find grounds for the dismissal of the reliance upon utopias and other uniquely defined positive goals, suggesting as a wiser social and political strategy to learn by mistakes and advance by accumulating our knowledge of mistaken goals.

Appealing to Hannah Arendt (1951/1973), the criticism of Dupuy and Grinbaum’s solution could be made even more acute. Since the future does not yet exist, our theories of the future cannot be falsified. On the contrary, the history of Nazi Germany and the Soviet Union during Stalin shows that almost any future can be constructed as man is malleable beyond imagination. To lock society in on one particular goal and then eliminate plurality is accordingly a recipe for unlimited atrocities. The fact that there is such a structural similarity between ongoing normative assessment and totalitarian politics does not imply that the former is always morally wrong, dangerous or defective. We think the implication is that the approach is dangerous when with extremely high stakes issues, such as climate change.

Grounding action in the diagnosis of the present

The futility of predicting the future and the perils of constructing the future lead us to conclude that a new principle to justify action under uncertainty should be grounded in what exists, namely the present. Let us therefore say something that we believe is too rare in the academic ethics literature, namely that there is an immense amount of harm being done in the world today. People are being killed and molested in war and in exploitation, natural habitats and non-renewable natural resources are being depleted and destroyed at an increasing pace, the natural environment is being polluted by ever new chemicals and the extinction rate of other species may be higher than ever before because of human activity. In other words, even in the midst of scientific uncertainty about the future, the presence of harm or even evil may be quite certain. It may actually be possible to know the right thing to do, such as reducing pollution and consumption of non-renewable resources. The problem is rather that nobody, no state, no organisation appears able to mobilise for collective action – collective action which in the existing governance paradigm is something that requires scientific rationality for its legitimation.

Why predict? Scientific prediction was invented by Galileo and his fellow scientists: the calculation of the parabolic trajectory of a particle being thrown has for centuries provided students of physics with the truth about its future movement. Or rather, it provided the recipe for how to fire cannons in order that the balls hit their target. The suspicion arises that the role of predictions in climate change and other complex issues may not be to discover the truth to tell us what to do. In principle, we may know what we should do (say, reduce the consumption of non-renewable resources), even if it appears impossible to do it.

We believe that a valuable analogy to contemporary challenges is provided by the case of slavery in ancient Greece, as presented by Bernard Williams (1993). Williams discusses Aristotle's terrible philosophical mistake of trying to construct a moral justification for slavery, arguing that slavery is natural and that some people essentially are 'born to be slaves'. What Williams points out, is how Aristotle probably was out of tune with Greek society of his time:

Slavery, in most people's eyes, was not just, but necessary. Because it was necessary, it was not, as an institution, seen as unjust either: to say that it was unjust would imply ideally, at least, it should cease to exist, and few, if any, could see how that might be. [...] The Greek world recognised the simple truth that slavery rested on coercion. (1993, 117)

We are now ready to state how scientific knowledge of the Galilean type may be useful and how it may not. The Greek may be commended for not making Aristotle's mistake; on the other hand, slavery was upheld. Indeed, the Aristotelian mistake could be seen as a *reductio ad absurdum* contribution to the identification and awareness of slavery as a moral problem. Likewise, a global climate model, or a biological prediction about extinctions, destruction of ecosystems and loss of biodiversity may draw attention to contradictions, harms and to the values under threat, and help us raise critical questions about the necessity of fossil fuels, innovation policies or the belief in economic growth. The mistake is to believe that science will provide the solutions or even lend decisive authority to the mobilisation of collective action. To the extent that this is difficult to realise today, we are reminded of Husserl's (1936/1970) analysis of Galileo and the further development of European science: what originally was a method eventually was

taken for a world-view. Now, as the complex governance issues are clearly not solved by knowledge, the hegemony of that world-view should end.

The central issue: humanity

If the central challenge is the mobilisation of collective action to do what many know is right, what is stopping us?

Hundreds of similar papers follow more or less the same structure as the present one, performing a strongly critical exercise, deconstructing some aspect of modernity (its notion of risk, of science, of democracy, of justice, etc.) and showing the depth of the relevant issues. Then, at the end, the urge is felt for becoming positive and constructive – either felt by the authors themselves, the referees or indeed the audience: ‘So what is *your* solution to the problem?’ We have to admit that the final section, ‘providing the solution’, often was the weaker one whenever we succumbed to the urge for positivity. Indeed, in early versions of this work-in-progress, we wrote: ‘If the central challenge is the mobilisation of collective action to do what many know is right, what is stopping us? The question is wrongly asked. The problem is not so much barriers and hindrance; it is the lack of agency.’ Now we would like to say: the lack of agency is the problem; but so are the barriers and hindrance, in the sense of the perceived necessities of the lifestyles and economics of modern society. To deny their existence is to repeat the mistakes of those provided grand solutions, either they were conservatives (such as Aristotle) or radicals, in the literal sense of arguing for the eradication – tearing up the roots – of present society with its institutions, its traditions and, not least, the humans living in it.

We do not offer the solution of how to overcome the perceived necessities and systemic lock-ins of modern societies, their economics and institutions and also by the sheer size of human civilisation. We do not argue that there can be no solutions; indeed, one also has to be prepared for the possibility that dramatic changes may occur that were neither planned nor desired and that would render the old necessities obsolete. Still, we can propose a reflection on important values of humanity we wish to protect, and that we believe to be under pressure in times of scientific and technological hubris. Indeed, these values appear essential if collective agency is sought for.

Innumerable volumes have been written about the features of the broad type of civilisation called ‘modernity’ and the place of modern man in that world: empowered, perhaps, but also alienated. To us, Hannah Arendt’s (1951/1973) analysis stands out in its relevance. Arendt shows how loneliness follows from the uprootedness and superfluousness ‘which have been the curse of the modern masses since the beginning of the industrial revolution’ (Arendt 1951/1973, 475): how our societies produce a growing population of individuals who neither belong nor are welcomed and included anywhere. This is sometimes true in the literal and plainly cruel sense for the unemployed, the ones found unfit for work in the knowledge economy, the refugees, the stateless, the victims of war. At other times, it is true in the more indirect sense, perhaps as loneliness, unhappiness and distress in industrial and post-industrial societies. Indeed, Arendt shows how industrialised work not only affects those who are excluded from it, but also its workers whose recognised worth is measured in their labour, their initiative and agency in their community becoming ‘leisure’.

The analysis may easily be extended beyond the context of industrialised labour to that of the differentiated expertise of modern societies. As the banal counter-arguments to public participation rightly go, the brain surgeon should not plan his operations

according to democratic procedures. Expertise in this sense leads to an isolated form of agency: the knowledge and the truth must be isolated from the noise of the many unqualified opinions, the community.

We are now ready to state a deep connection between the lack of agency and the global crises as defined by catastrophic predictions, such as, for instance, in the climate issue: the expert catastrophic prediction, being the outcome of expertise, that is, people in isolation, is fundamentally apolitical in its nature. For this kind of knowledge, the pragmatic implication is another type of agency in isolation, namely that of technical intervention. The prediction is *for* the operator in the execution of the technical intervention. It is not for much else. Conversely, there is no collective agency created by the prediction.

The problem of lack of collective agency appears to be aggravated by an emphasis on the pending catastrophe, rather than being solved by it. For humanity – in the sense of all the people – to be able to act, action should be grounded not only in the present rather than the future, but also in that part of the present called our *praxis*, our political life, our community life, as opposed to in technical discourse (be it scientific or that of the political elite). Indeed, underlying the lack of action on complex environmental issues, there is a more fundamental problem which is that of the marginalisation of *praxis* as opposed to isolated, productive work. What questions can be asked about social, ‘unproductive’, political community life? Perhaps the first question is: Are we willing to sacrifice it? Arendt’s interpretation of the Nazi and Stalinist totalitarian regimes is that our preconceptions about what defines humanity and human life cannot be taken for granted. What Hitler and Stalin invented in the concentration camps was not only a new way of suffering. It was a new way of being: the human being deprived of all agency and eventually of personhood and identity.

Barring and bracketing the environmentalist talk – which also has been an important part of our own talk – of planetary dangers, we would like to propose that the planet is indeed not the object at risk. The object at risk is we ourselves as a collective (present and future) subjectivity and agency: the human right behind the human rights: that of personhood and hope. With personhood and hope in focus, the challenge is not the usual of what to do but, more importantly, how to do it as certain avenues of action are now deemed unacceptable.

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