Relations

BEYOND ANTHROPOCENTRISM

6.2
NOVEMBER 2018

Energy Ethics: Emerging Perspectives in a Time of Transition

Special Issue
Edited by Giovanni Frigo
Part II

STUDIES AND RESEARCH CONTRIBUTIONS

Comments, Debates, Reports and Interviews

Reviews

Ethical Risk and Energy*

Bertrand Andre Rossert

World Bank Group, Washington, DC - USA

DOI: http://dx.doi.org/10.7358/rela-2018-002-ross brossert@worldbank.org

Abstract

Defining ethical violations as acts or situations excluding individuals from choices, and ethical deterioration as an increase in intensity or number of ethical violations, the ethical risk is defined as the risk of ethical deterioration. Ethical deteriorations and improvements often coexist and share the same causes, and the net ethical impact is often difficult and controversial to assess. In the energy sector, the ethical risk appears to have five key determinants: (i) personal accountability, i.e. our responsibility in decisions and actions; (ii) fairness, i.e. the consequence on the choices of others; (iii) usage, i.e. the impact on the social and natural environment; (iv) addiction, i.e. the dependence that is created as energy is used over time and (v) danger, i.e. how the force of energy sources can be unexpectedly unleashed and what effort is made to mitigate these.

Keywords: ethics; ethical violation; ethical deterioration; ethical improvement; risk; risk management; energy ethics; accountability; responsibility; energy.

1. Introduction

The concept of ethical risk is emerging in the business ethics literature. For instance, Tremblay et al. (2016) or Merle (2016) use the concept to explain that if a situation is left unmanaged, it will lead to ethical criticisms or be assessed by at least some, as unethical. Ten years ago, Hermansson and Hansson pointed out that "Ethical aspects are crucial in the analysis of risk, but they have often been neglected" in part because of the "lack of operational tools for the ethical analysis of risks" (2007, 129). Besides the lack of tools for assessing the ethical risks, there is not yet a

* The views expressed in this paper are solely those of the author and cannot be attributed to the institution he works for. Errors and omissions remain the sole responsibility of the author and cannot be attributed in any way to the institution he works for.

consensus on what is meant by ethical risk, and the concept itself may need refinements and qualifications.

The stakes are high: a good definition of ethical risk would create a bridge between business ethics and risk management, and allow incorporating ethical considerations into a risk management framework. It is also a possible path towards developing ethical considerations into sectors of human activities that have not yet, or barely, developed a specific ethics. While there is bioethics, genetic ethics, or the ethics of artificial intelligence, the ethics of the energy sector and activities is in its infancy. I will give examples from this sector specifically, to illustrate how the application of the concept of ethical risk can constitute an early step of developing an ethical framework.

In the energy sector, many risks have an ethical dimension. For instance, an offshore oil platform blowing out or a sinking oil tanker will lead to oil spillage, contamination of the marine flora and fauna, and potentially contamination of a whole stretch of seashore. An oil spillage is significant by its collateral effects first, and by its impact on the production of the well, or the loss of revenue from the sinking ship, second. In other words, the impact on others exceeds the impact on the organization that owns the platform or the ship. It is, as a result, a social and ethical issue. Therefore, the risk of oil spillage is in part an ethical risk of offshore oil operations. How to isolate the ethical risk from other types of risks will also be discussed.

The present paper proposes to explore the concept of ethical risk and its components, taking specific examples from and focusing specifically on the energy sector. Examining how the ethical risk should be managed in the energy sector should constitute the bulk of ethical considerations regarding energy-related activities.

2. Defining ethical risk

The definition of ethical risk requires additional concepts and needs to be built gradually. I will start by defining the concept of ethical violation, will then proceed to define ethical deterioration and its nearly complete opposite (ethical improvement) and then define ethical risk. The conceptual build up can be summarized graphically in the following way (*fig. 1*):

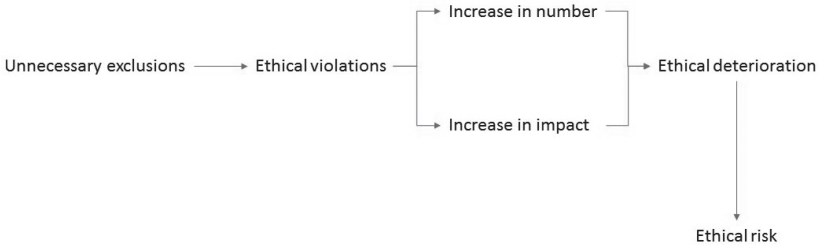

Figure 1. – Conceptual map.

2.1. *Defining ethical violation*

Most of business ethics is geared towards addressing ethical violations or breaches of rules. In the same way, most of the corporate social responsibility is geared towards preventing certain corporate actions or behaviors. However, the notion of ethical violation is often used without definition, by claiming that a situation is obviously wrong. In other words, ethical violation is often gauged by the sentiments that it provokes in interlocutors.

This "gut feeling" is triggered by empathy with a situation in which one would not wish to be. What, then, are the situations that human beings would often wish to avoid? These are situations where the individual is "cornered", has no choice, and is thus either instrumentalized or excluded. As soon as we have a choice that allows us to get out of a situation, then it is tautology to say that this situation is no longer imposed on us.

The notion of instrumentalization comes directly from the Kantian deontology principle of not treating someone as a means to an end. It is also part of the Kantian principle of not subjecting others to what one would not wished to be imposed upon oneself. This can also be expressed in terms of choice: if I am subjecting others to something that I do not wish for myself, I am using others, because I am putting them in a situation where I have chosen not to be. Instrumentalizing is different from using someone. For instance, if I have fallen into a deep ditch and someone helps me get out, I am using that other person but (i) the other person will generally be willing to help and (ii) I have no choice and would otherwise get injured or die. Instrumentalizing consists in restricting the choice of someone else for an advantage that is limited compared to the consequences it entails for the other person. If I employ someone and pay a salary which that person is willing to receive, we are both using

the other in some way, but it is not an instrumentalization as long as both have a choice, and both willingly chose to enter into this relationship.

The term of exclusion is rarely defined. Excluding etymologically means "leaving outside" or "not letting in". Most frequently it means not giving access, either to a relationship or to some goods or services that are supplied or distributed. Some exclusions are legitimate. Families of patients are excluded from the operating theater while the surgeon is making a surgical intervention on their relative, in order to prevent infections and to allow the surgeon to focus on an urgent and difficult task. Some exclusions are a necessary consequence of social interactions. If a sales attendant is processing my purchases at the cash register in a supermarket, the attendant cannot help someone else at the same time. In addition, the goods that I purchase are for use by my family: the purchase excludes other from using what I bought. Yet, there are also unnecessary, artificial exclusions, based on prejudices, abuse of power or overabundance of means. It could be argued that such exclusions could also be called injustices. There is no injustice without unnecessary exclusion, and reciprocally, there is no situation where it is just to exclude someone unnecessarily. Many discussions of justice will hinge on whether an exclusion is or is not necessary.

I define *ethical violations* as situations where some individuals are *unnecessarily* instrumentalized or excluded. Instrumentalizing is actually a form of exclusion: whoever is instrumentalized, is excluded from the community of human beings who have multiple choices; they have to do what they are told, or to follow the only choice left to them. An ethical violation is therefore what causes individuals to be unnecessarily excluded from choices, now or in the future. One of the most important choices is the choice of whether or not to exercise a choice. Reducing the possibility of choice is therefore an ethical violation.

This definition is consistent with the conception of justice as fairness presented by Rawls (1971). Arguably, further reducing the choices of those who are already excluded from many choices carries greater consequences than reducing the choice of those who have many. Exclusion, or injustice, is therefore cumulative.

The definition of ethical violation should not be construed as requiring self-sacrifice. An ethical violation is a not a trade-off between one's own preferences and the preferences of others. It is an absence of trade-off: what is given to the others comes at no costs (and even sometimes as a benefit) or at a cost that is considered minimal in regard of the benefit created. This is where, in the Humean tradition, ethics is inseparable of human sentiment and in fact, more specifically, of preferences. An ethical

violation occurs when the preferences of others would be fulfilled while the situation after helping others would still be preferred to the situation before helping by the person who helped. An ethical violation is not an unequal resolution of a zero-sum game; it is leaving rewards on the table in a non-zero-sum game.

How does this apply to energy? For instance, extracting natural resources can constitute an ethical violation if it does not leave enough resources for future generations. If using wood as a fuel leads to deforestation, i.e. to the destruction of the forest with no prospect of it growing back, this has to be defined as an ethical violation, as it is depriving future generations from the choice of using wood, as a fuel or for other purposes.

An ethical violation is always defined in a specific epistemic context: if I do not know that releasing smoke into the atmosphere can be harmful in some ways, then it is not an ethical violation. However, if someone releases, say, gaseous chlorine in quantities that will make it impossible for neighbors to breathe, and this is done in full knowledge of the consequences, then it is an ethical violation.

An ethical violation can exclude human beings from choices in the future. For instance, injuring someone is not only considered an ethical violation because of the pain it creates, but because of the loss of future opportunities, either during the recovery period or even afterwards if the injuries have long-term effects such as brain damage or the loss of a limb. As an aside, our definition of ethical violation is consistent with the general prohibition to inflict pain unnecessarily, because someone in pain has less choices than someone who has no pain: someone with a headache will not think with the same clarity, will not want to listen to music, etc. Someone with a foot injury will hesitate to perform any activity that involves walking, etc.

As ethical violations apply to future choices, there is no reason to restrict these violations to existing individuals. For instance, if someone were to destroy all possibility of life in a place that is normally inhabited, this would not only violate the choices of the existing population but of all future populations of this region. In this sense, multi-generational anthropocentrism may not share the same assumptions and intentions as biocentrism, but it may lead to outcomes that are close to what biocentrism would produce. It is a sort of intermediate between the outcome that an exclusive focus on the current human population would produce, and the situation that a biocentric approach would generate.

Another important feature is that an ethical violation is not necessarily the withdrawal of the possibility of choosing a specific alternative.

It can be that this alternative has been blocked in the past and continues to be blocked. It is enough for someone to block the emergence of a new possibility to create an ethical violation. I propose to call *active* ethical violation the fact of blocking an existing possibility and to call *passive* ethical violation the fact of not opening up a possibility when this would be easy. For instance, an electricity company that would cut off consumers solely because they do not like the customers would commit an active ethical violation, while an electricity company that would take over the business of another company and would continue to refuse to connect to the grid some customers who, as in the previous example, were refused connection on discriminatory grounds, would, in its turn, commit an ethical violation. However, as this would be the continuation of a violation rather than the creation of a new one, it would be a passive ethical violation.

This distinction shows that the precautionary principle is not a full-proof method to avoid ethical violations. The precautionary principle requires to avoid doing what could have adverse side effects and that has not been sufficiently studied to know whether this is actually the case. In other words, the precautionary principle states that the epistemic risk, the risk of not knowing the consequences of an action, must be avoided above all else. However, it is possible that stopping or slowing down the development of an activity will stop or slow down the development of new possibilities of choice. There is always a risk that the precautionary principle will result in a passive ethical violation.

2.2. *Ethical deterioration*

The notion of ethical violation is insufficient to define ethical risk. We need the intermediate concept of *ethical deterioration*, broadly defined as a worsening of the ethical conditions in which a population lives due to pervasive ethical violations. This deterioration can be the result of two series of events: either (i) the number of ethical violations increases or (ii) the intensity of the ethical violations increases. The number of ethical violations can increase because (1) the population affected by the ethical violations increases and their frequency remains the same, or (2) the population affected remains the same, but the frequency of violations increases, or (3) the population affected and the intensity of the violations both increase.

Let us take the example of electricity plugs that would be considered unsafe. The issue might be that people touching the plugs are getting

an unpleasant or even dangerous electric shock. If the number of occurrences of such incidents increases, the pain inflicted to the overall population increases and, whether in a strict utilitarian framework of pain and pleasure, or by most if not all ethical standards, it would be considered unethical for a plug manufacturer to lower standards consciously to the level where more people are gaining painful shocks. It would also be unethical to sell a batch of faulty plugs that would give electric shocks (thus intentionally increasing the size of the population affected). These are examples of *active* ethical deteriorations. If the number of unsafe plugs remained the same but the population using them would grow, this would be a *passive* ethical deterioration.

There is also an entirely different type of ethical violation. Continuing with the electricity plug example, it may be that people will generally not feel any pain when touching the plug, but on very rare occasions, the plugs will be installed in such a way that people will get electrocuted and faint unconscious. It would be unethical for the plug manufacturer to modify the design so that people who get electrocuted get a lethal shock. Anything lethal is an ethical violation because it reduces the choices of the individuals who get killed, which seems disproportionate with the additional profit a plug manufacturer can make as a result. This example shows two entirely different types of ethical deteriorations: an increase in the amount of small ethical violations, or the same number as before, but more serious violations.

2.3. *Ethical improvement*

On first examination, one would expect ethical improvement to be the opposite of ethical deteriorations, that is:

- the number of ethical violations decreases;
- the population affected by the ethical violations is reduced, assuming the frequency of ethical violations per person is not increased;
- the intensity of the ethical violations goes down and does not affect a broader population.

However, this leaves one category unaddressed: it is possible, through innovation for instance, to create new possibilities, new alternatives within an existing choice, or to create new situations of choice for existing individuals or for future individuals. For instance, some decades ago, I had only three possibilities to regulate the temperature in my house: (i) I could have a thermostat and let the thermostat do the work or (ii) I could stay at home and do it myself or (iii) I could ask someone

to come to my house and do it. Then, a new possibility appeared with the development of phone technology: I can now connect my thermostat to my phone, and modify the temperature remotely. If this possibility exists and a manufacturer can offer it at no cost, and customers value it, then it would be unethical not to provide it to customers. This can occur passively (the manufacturer has never offered it and continues not to) or actively (the manufacturer blocks the functionality).

An extreme version of the duty to avoid excluding people unnecessarily is the following: if I have so much bread that I cannot eat or store it and would have to throw it away, it is unethical to destroy it rather than to give it to hungry people if they happen to be present. Said differently: when altruism is costless, it is unethical not to be altruistic. As money is a proxy for a variety of choices, a cost is, in effect, reducing choices. Therefore, another formulation would be: when altruism does not reduce my own choice to an extent comparable to the increase in choice for others, it is unethical not to be altruistic. An extreme version of it is: if I do not value something, it is unethical not to provide it to others; in other words, wasting resources is unethical.

The difficulty is that I can only compare my choices to the choices of others, from my own preferences and my own vantage points. Preferences are not transferrable and thus we all impose a significant personal filter on ethical decision, which explains that what is immoral not to do for one individual, might be generous and altruistic for another, and simply unrealistic for a third. The cost formulation is more restrictive but more observable. In particular, when a company can provide possibilities at no cost to itself, and customers value such possibilities, it would be unethical not to provide these.

More generally, ethical improvement can result from individual efforts that do not only benefit oneself. However, the world is rarely as simple as that, and efforts can result in benefits for some and costs for others. The net effect of efforts on the overall environment would be difficult to assess. Individuals will usually make their decisions on the basis of a *narrow reflective equilibrium*, if we apply the Rawlsian terminology. Individuals will go back and forth between their assessment of the situation, the assessment of the impact of their efforts, the principles that guide such efforts, and the tentative broadening of their perspective to take more aspects of their environment into account. I will usually talk about ethical *improvement* when there have been some benefits in some way, of the action of an individual, a set of individuals or an organization, and talk of ethical *progress* if such improvement is not mitigated by new ethical violations.

Similarly, there are many situations where actively pursuing the disappearance of an ethical violation can potentially create other types of ethical violations. Energy transport specialists are well aware of this debate: there are many situations where new energy transportation infrastructure, such as power lines or pipelines, addresses the exclusion of some communities from access to cheap, safe and reliable energy such as electricity or gas, but creates environmental damage of varying extent in the process which itself excludes populations from choices. It becomes an issue of justice.

The cases where the arithmetic of ethical improvement and deterioration can be established are rare or arbitrary, as they would rely on valuations of life, of injury, of psychological upset, of modifications of the ecosystem. What is the value of the disappearance of a specific type of butterfly? Once again, the underlying algebra of choices is problematic because there is not a good gauge to measure the value of a change through the choices that it makes possible (and that may not all be visible) and the choices that it will eliminate (which also may not always be immediately obvious). Preferences are not epistemically transferrable and cannot be added or multiplied across individuals.

An analysis of both the extent and significance of the exclusion that creates an ethical violation may sometimes allow some comparisons between ethical violations. For instance, if less people are affected by the new violation and the violation is less significant for the individuals affected, then the change has constituted an ethical improvement. Yet, the more frequent situation will be one of uncertainty.

3. Ethical uncertainty and risk in complex situations

Since Knight (1921), economists distinguish between risk and uncertainty. While the risk is measurable, the uncertainty is not. This is therefore an epistemic distinction: if I have no idea about meteorology, I am uncertain about whether it is going to rain or not; if I am a meteorological expert, I might be able to assess the risk of rain. So, is it an abuse of language to talk about ethical risk rather than ethical uncertainty?

Our discussion of ethical deterioration and improvement has defined the concepts in very simple situations. In reality, ethical deteriorations and improvements coexist. There are situations where the severity of ethical violations will decrease but their occurrence will increase, or vice-versa. Should these be categorized as ethical deteriorations or improve-

ments? The short answer is that they constitute situations of ethical uncertainty.

Trying to turn uncertainty into a well-assessed risk is what risk professionals do and, in my view, it would be unethical not to try to establish a risk framework for ethics, because it would prevent from prioritizing the ethical violations and ethical deteriorations that need addressing. In other words, there cannot be an ethics policy without a rigorous assessment of the ethical risk, or at least an analysis of all the ethical uncertainties that can be measured.

The ethical risk is the risk that ethical deterioration or ethical violation will occur. It is either linked to an intention, or at least to a lack of attention that demonstrates a lack of *care* or *concern* i.e. a lack of Heideggerian *Sorge* where the recognition of the needs of others is an essential step in the understanding of what being human means. This is also where the definition of ethical violation (as exclusion from choices by intention or omission), takes all its sense: it is through the discovery of our ethical being, through the search for ethical improvement not only of situations, but of our own behaviors, that we reveal our humanity. This is true of individuals and, in my view, also of organizations, including corporations. There have always been private firms that were incorporating ethical objectives into their strategies. Some firms even developed corporate strategies in order to fulfil ethical objectives (for instance chocolate manufacturing in the UK developed in the nineteenth century as an ethical alternative to alcohol consumption). Yet, there were also many firms that did not include ethical considerations in their activities or strategies. On this point, however, the tide seems to be turning and corporations have to give increasing attention to ethical issues, partly as a result of regulations (e.g. anti-corruption rules) and of the impact of civil society (corporate responsibility). Arguably, the incorporation of ethical risk in an overall risk management strategy is the next step in this historical evolution. In this sense, being able to assess ethical uncertainty in a risk framework, and thus including it with the same priority as other strategic or operational risks, is the entry door for ethics into corporate strategy and corporate operations.

The integration of ethics in strategy also allows a dynamic of ethics to develop. While a set of rules that need to be checked against will freeze a conception of ethics, and thus a conception of the community of reference (whose needs have to be taken into account), strategic ethics allows the deployment of a dynamic reflective equilibrium. Confronted with an increasing frequency and violence of natural disasters, society is coming to terms with the need to progress from anthropocentrism to biocen-

trism and beyond. This cannot be done by decree or by a set of rules that would limit what to do. It has to occur through a change of social and cultural dynamics, where, through the reflective equilibrium process, organizations adapt their principles and define their social roles in a way that does not simply avoid ethical violations but create ethical improvement and ethical progress.

Ethical risk, like any risk, has three key characteristics: the probability of realization, the significance of the ethical deterioration when the risk realizes, and the level of difficulty in mitigating it. The assessment of the significance of the potential ethical deterioration is possibly the most fundamental for integration in corporate strategy. The assessment of the readiness and ease to mitigate feeds directly into the risk of reputation.

Let us consider the case of an offshore oil well to identify what the ethical risk really is. The ethical risk is not the safety risk. The risk of an oil spill is composed of an epistemic risk and an ethical risk. The epistemic risk is that large-scale explosions or leaks may not have occurred in similar situations before and so may not be entirely predictable or controllable. The ethical risk revolves around the decisions where the oil company's own interest may differ from the interest of society as a whole, or in a biocentric approach, of nature as a whole. The decision to go ahead or not with the drilling includes an ethical risk. Similarly, the decision to implement or not each spillage mitigation measure will have an ethical risk component. Finally, the decision when to retire the well, and how, will also have ethical components. A practical recommendation would be for energy companies to subject their activities to the review of an internal but independent ethics committee that would focus on applying energy ethics to its operations, in the same way as the ethics committee of a hospital focuses on bioethics in its activities (i.e. in addition to any existing ethics committee of the board of directors, focusing on ethical issues related to governing bodies). At present, however, the onus cannot be on energy companies but on ethics research: when energy ethics is as developed as bioethics is today, then energy companies will be able to take it into account. In the meantime, developing the concept of ethical risk is perhaps the most practical and direct way for energy companies to incorporate ethical considerations into their strategies and operations.

4. How the ethical risk develops: conflicts of interest and conflicts of purpose

Why would an organization not care and put at risk the future of a community? I will review two types of considerations: those related to epistemic psychology and those focusing on the governance of ethics in organizations.

Behavioral science has shown that one tends to be less attentive to arguments that do not fit with one's own opinion or analysis than to arguments than reinforce this opinion, what is generally called a *confirmation bias* and can be traced back to 17th century philosophers Francis Bacon as pointed out by Nickerson (1998). It has also been shown that information that is more readily and frequently available tends to be given more consideration as discussed in Gilovich et al. (2002). The ways in which collective behaviors lead to epistemic failures is a fascinating topic which goes beyond the scope of this paper. It is important to bear in mind that organizations and the governance of organizations do not always "decide" to disregard the consequences of their actions. Sometimes, they simply do not see what the result of their actions will be. In other words, what can at first appear as an active ethical violation can in fact be a passive one. It is easy, in complex situations, to take the forest for the tree or to be oblivious to the existence of impediments.

Other explanations are less frequently discussed and have to do with the governance of ethics situations. Sometimes, organizations fail to address ethical risks because of unaddressed conflicts of interest, especially in the private sector where the regulation of conflicts of interest is still, in many ways, underdeveloped. Many private organizations argue that conflicts of interest do not apply to them because they have, by definition, private interests. However, many such organizations have shareholders who have entrusted their investment to the governing bodies and executives of the organization. In such a context, the conflict of interest is embedded in the structure of the organization, leading to what I will call a "conflict of purpose", i.e. situations where the fact of occupying a position in the organization requires to pursue several, contradictory, objectives. For instance, a negotiator is inherently in the situation of trying to make things easier for himself by agreeing to what he knows his company can accept, rather than pushing the negotiation position a bit more, to the point where the interlocutor is at the limit of what her company can accept.

The concept of conflicts of interest is a direct challenge to virtue ethics. If an individual were systematically able to give priority to the

common good, even over and above personal interests, then "temptation", which in effect is what a conflict of interest creates, would not matter. Yet, explanations that would purely be based on greed, selfishness, or other similar sins, would be unsatisfactory in my view because they would be too systematic and lead to tautologies (such as "people do not care about others because they only care about themselves"). Resorting to conflicts of interest introduces a sort of probabilistic approach to character flaws or unethical intentions: while there is increasing evidence that people are happier when they intend to be or are altruistic, there are moments when they are not.

The concept of conflicts of interest needs to be extended to address not only a conflict between private interests and the interests of the organization, but between private interests inside the organization and the broader interests of the organization. Risk managers are very familiar with this situation. Let us imagine that the development of a new gas field is essential to the profitability of an organization. Let also imagine that the risk manager has information showing that the project is too risky and should be abandoned. There is a good chance that the risk manager will face a "shoot-the-messenger" situation if she argues against the project. There is also a chance that the firm would close down immediately, whilst the banks have otherwise given two years of lines of credit to develop the new field. She can therefore have two more years of employment under current conditions. The risk manager is facing an internal conflict of interest. In all those mechanisms, the fact of *naming a risk* is an important first step towards mitigating it.

5. Applying ethical risk in energy: identifying categories of issues

When a risk receives a specific name, it becomes a concept that can be put in relation with others. As soon as I say, for instance, "risk of explosion", I muster a body of knowledge related to what an explosion is, what is required for an explosion to take place and therefore … what is required for an explosion *not* to take place. There would be benefits therefore, in developing a family of concepts that would all relate to the overall notion of ethical risk, i.e. in building a taxonomy of ethical risks.

One of the key instruments of risk-management is the checklist, and it starts with the identification of the categories of risk. Gawande (2009) takes the example of hand washing to justify the need to create checklists.

Every health professional knows the importance of hand washing. Yet, Gawande provides multiple examples of situations where health professionals were failing to wash their hands. He finds the answer in the method developed by bomber aircrafts to avoid accidents: a checklist. Arguably, the same is required in the field of practical ethics. Because of heuristic or availability biases, because of the pressure that one part of an organization may impose on another, and generally because of the multiplicity of potential brain stimuli in the world at any one time, there is a risk that individuals would develop increasingly narrow reflective moral equilibria, where problems would be assumed away rather than resolved. The ethics checklist maintains a broad scope in the assessment of situations.

The checklist can either be a list of things to do, or a list of things to think about, with the possibility of deciding to ignore some of them, after deliberating. In the latter case, the checklist is basically a taxonomy of issues. Risk managers frequently develop checklists. So, what would an ethical risk checklist for energy operations look like?

Energy operations have intended and unintended consequences. The intended consequences can also entail an ethical risk, because what was planned is not necessarily what is effectively realized. For instance, one might know that drilling a gas filed may create noise and pollution for the immediate neighborhood but expect that the benefits of producing the gas will overcompensate this in the community at large. However, it sometimes happens that the geological assessment is proven wrong, and that no gas is found. Then, all what is left is the negative consequences of drilling unnecessarily. There are also unintended risks. For instance, if a gas platform explodes, it is the unintended consequence of a series of actions.

The challenge is then to isolate the ethical risk from other risks, so as to avoid double counting, or twice mitigating risks. Here we have to recognize that some risks have an ethical component that is not always well treated and that should be part of the analysis of ethical risk. For instance, the risk of physical injury related to the use of the very potent chemicals that constitute most energy sources, has an ethical component related to the level of risk mitigation that is put in place. Low level of protection against the risk of physical injury is a form of carelessness when applied to oneself, and of lack of care and empathy when applied to others. We are back to our definition of ethical violations as exclusions: has the risk realized by pure chance, or as a result of excluding oneself or others from our preoccupations? If injuries to myself have been excluded from the scope of precautionary measures, I have mistreated myself. This, in my view, is not more acceptable than mistreating others. Restricting the choice of a person, including oneself, is restricting how much that person

can contribute to the world, and hence the ethical improvements that this person can create in an immediate or distant environment.

Another way in which it is unethical to exclude oneself, is when disappearing under the veil of anonymity to avoid accountability or responsibility. This is part of what Heidegger was criticizing as the "They" as in "They have not foreseen the accident" or "They do not give this group access to energy". So, one key dimension of the ethical risk is what I call a *personal accountability component* which requires to think, when making any decision, what my span of power, and thus of accountability is, and whether I am taking all of it into account when making a decision.

A second fundamental component of the ethical risk is the *fairness component*. Poor access to energy should not be inherited from one generation to the next. In modern society, access to electricity is becoming almost as vital as access to air and water. It has become a precondition of knowledge acquisition, to be able to read at night and, beyond a certain level of learning, to use a computer. In our decisions, we need to wonder "Who am I excluding, by taking this decision?". This is not always easy to identify, and this is one area where, as Rawls defined it, a *reflective equilibrium* develops (1971).

A third component of the ethical risk is the *usage component*: my decision will make use of part of the world. Should I behave, as Descartes suggested, as "master and possessor of nature?". The usage component raises the Kantian question of what can be turned into a means to an end. As our understanding of the global impact of single actions develops, the question becomes increasingly problematic and the dichotomy human/non-human increasingly blurred. The risk approach allows to view our actions as producing a series of concentric circles, as when we throw a stone in a lake: as the consequences are further remote from the center, the intensity of the impact is reduced.

In the energy field, much more individual and organizational thinking is required on the usage component. Many energy savings do not take place, because the consequences appear too remote, i.e. they are excluded from our mental model and from the resulting reflective equilibrium. This is where we cannot continue to think of the consequences of our actions as isolated individuals, but have to recognize the cumulative impact of our decisions. While, for instance, many office employees do not think much of leaving their electricity light burning when they leave for the night, the impact of several hundreds of millions of office workers is enough to waste significant resources.

A fourth component of the ethical risk is the *addiction component*: my decision to use electricity today conditions the way I will organize my

life in future as well, and what I will enjoy. Any reader of these lines is, like me, addicted to electricity: we simply cannot do without it and would start having withdrawal symptoms if we were exposed to its absence for too long. An addiction restricts my choices for the present and the future, and, in this sense, is a form of ethical violation towards myself.

Finally, a fifth component is the *danger component*. It is possible that by using something, one is taking an uncalculated risk. One important ethical aspect is the range of population affected. Here again, the ethical criterion is the requirement to avoid excluding others. The more people can be put in danger, the less acceptable the risk is. This is very different from the Trolley problem of Jarvis Thomson (1976) because the inevitability of the trolley dilemma is not necessarily present in energy decisions. Here, we can decide whether to start the trolley or not. Still, the energy sector exposes decision-makers on a regular basis to a combination of the trolley problem with the reasoning presented by Derek Parfit (1984). If the well-being of 100,000 people depends on 5 risking to be killed by an energy operation, do you take the decision to start this energy operation? The decision is only delegated to the market up to a point. There are choices beyond those enabled by the profits that are made. Boards of energy companies and energy engineers take such decisions on a daily basis. In other words, addressing the ethical risk in energy is a daily reality, not a form of ethereal abstraction. The question then is whether the management of the ethical risk can be delegated to common sense. As G.E. Moore argued, common sense does not necessarily depart from what ethical theories would produce. However, even if we accept that ethical theories are grounded in common sense, I would argue that ethical theories form the guide that avoids individual decisions skidding away from ethics and veering into ethical violations.

6. Conclusion

The concept of ethical risk is likely to be a useful instrument to develop the ethical dimension of strategic decision-making and risk management. The energy sector is well-suited to the development of a risk framework applied to ethics. Doing so is likely to deliver on two promises: a better present and a better future.

Yet, there is no practical framework for analyzing ethical issues related to operational situations in the energy sector. This paper suggests that the interface between ethics and risk management, namely the con-

cept of ethical risk, may constitute a fruitful and practical approach. It also suggests that an ethical risk is composed of five elements: personal accountability, fairness, usage, addiction and danger. They can be turned into the skeleton of a risk-management checklist that would need to be designed specifically for each type of energy operation or for families of strategic or policy decisions.

In the field of energy, there is an added sense of urgency in addressing ethical issues, as there exists in that sector what Nick Bostrom (2013) calls "existential risks", that can put into question the very existence of humanity. Life could be wiped out of a region of the world by a nuclear disaster. Even a very large oil spill or the explosion of a refinery could make an area inhabitable. The same argument has led to the fruitful and rapid development of bioethics. It is time that a risk approach is used to develop energy ethics.

References

Bostrom, Nick. 2013. "Existential Risk Prevention as Global Priority". *Global Policy* 4 (1), February.

Descartes, René. 1937. *Discours de la Methode*. In *Oeuvres et lettres*. Paris: Gallimard.

Heidegger, Martin. (1927) 1996. *Being and Time*, translated by Joan Stambaugh. Albany: State University of New York Press.

Hermansson, Helene, and Sven Ole Hansson. 2007. "A Three-Party Model Tool for Ethical Risk Analysis". *Risk Management* 9 (3), July.

Hutchinson, Brian. 2001. *G.E. Moore's Ethical Theory*. Cambridge: Cambridge University Press.

Gawande, Atul. 2009. *The Checklist Manifesto*. New York: Metropolitan Books.

Gilovich, Thomas, Dale Griffith, and Daniel Kahneman, eds. 2002. *Heuristics and Biases: the Psychology of Intuitive Judgement*. Cambridge: Cambridge University Press.

Jarvis Thomson, Judith. 1976. "Killing, Letting Die, and the Trolley Problem". *The Monist*: *Philosophical Problems of Death* 59 (2), April: 204-17. doi: 10.5840/monist197659224.

Knight, Frank. 1921. *Risk, Uncertainty, and Profit*. Boston, MA: Schaffner and Marx.

Merle, Ojasco. 2016. "CSR Reporting, Stakeholder Engagement and Preventing Hypocrisy through Ethics Audit". *Journal of Global Entrepreneurship Research* 6 (14).

Moore, George Edward. 1959. "A Defense of Common Sense". In *Philosophical Papers*. London: George Allen and Unwin.

Nickerson, Raymond S. 1998. "Confirmation Bias: a Ubiquitous Phenomenon in Many Guises". *Review of General Psychology* 2 (2).

Noe, Thomas H., and Michael J. Rebello. 1994. "The Dynamics of Business Ethics and Economic Activity". *The American Economic Review* 84 (3), June.

Parfit, Derek. 1984. *Reasons and Persons*. Oxford: Oxford University Press.

Rawls, John. 1971. *Theory of Justice*. Cambridge: Harvard University Press.

Svensson, Goran, and Greg Wood. 2003. "The Dynamics of Business Ethics: a Function of Time and Culture – Cases and Models". *Management Decision* 41 (4).

Tremblay, Maryse, Marie Vandewalle, and Heidi Wittmer. 2016. "Ethical Challenges at the Science-Policy Interface: an Ethical Risk Assessment and Proposition of an Ethical Infrastructure". *Biodiversity and Conservation* 25 (7), June.

Van der Burg, Wibren. 2003. "Dynamic Ethics". *Journal of Value Inquiry* 37.

Wang, Yan Fu, Yu Lian Li, Biao Zhang, Pei Na Yan, and Li Zhang. 2015. "Quantiative Risk Analysis of Offshore Fire and Explosion Based on the Analysis of Human and Organizational Factors". *Mathematical Problems in Engineering* 2015. https://www.hindawi.com/journals/mpe/2015/537362/.