Three Models for Ethical Governance of Nanotechnology

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- Presentation based on a work done in the framework of :
  - - a European FP7 project called EGAIS (finished in last February).
  - - a French National Project called PARTHAGE.

In particular : presentation is the summary of an article to be published in a book called « Ethical Governance of Emerging Technologies Development » (IGI) . Paper can be given.

Ethical questionning in western tradition : often embodied in an *issue*, and organised according to a recurrent tri-partition.

- An issue or a dilemma impedes action : “what to do” or “how to act” in a given situation ?
- This essential discomfort leads to a reflection on the principles, values and ethical theories to implement or to follow in the given case (which is, this way, related to other cases of the same kind).
- Ethics’ last stage lies in the implementation of the rules identified and chosen to the particular given case. This has the effect to allow a return to action.

Expression of this tri-partition concerning ethical governance of nanotechnology

- **Question Q1** : How to identify ethical issues related to the development of nanotechnology ?
- **Question Q2** : On which principles, norms, values, ethical theories, etc. shall we found and establish an answer to ethical issues related to the development of nanotechnology ?
- **Question Q3** : How to implement the retained solutions to resolving the issues related to the development of nanotechnology ?

Three Models for Ethical Governance of Nanotechnology

- We think possible to identify in the litterature three different models, which distinguish themselves by the way they suggest answering these three questions (and in particular the questions Q1 and Q2).

- We propose to distinguish a ‘conservative model’, an ‘inquiry model’, and an ‘interpretative model’ (which is still to build in a large extent).

I. The ‘Conservative Model’

‘Conservative’ in the sense that it answers question Q2 (and sometimes even Q1) in a conservative manner : the ethical issues related to the development of nanotechnology can and must be resolved by the implementation of principles, norms and values already known and implemented.

Various forms of this model

- For some authors, nanotechnology only restate recurrent and almost *a priori* identifiable ethical issues in a new form (questions of safety, sustainability, privacy, dignity, equity, right to know or not to know, etc.), which are already benefiting from reflections within well-established disciplines (bio-medical ethics, environmental ethics, business ethics, neuro-ethics, etc.).

- For other authors, in general agreement with the previous ones, a few issues are nonetheless new (ex : nano-devices introduced into the body and capable of autonomously deciding on the attack of detected cancerous cells).

- For other authors, ethical issues of nanos can be new, but must be identified according to very traditional ethical methods (for example exchanges between ethical and scientific experts).

- For other authors, ‘ethical reflection on nanotech requires that we apply ethical principles to new domains, but it does not demand new principles’. So, once the identification of ethical issues is made clear, the second phase (question Q2) consists in the implementation of certain well-established and already known ethical principles.

Connection to the model of bio-ethics

- Connection of the ‘conservative’ model with the bio-ethics one (claimed by some authors to be the most fit for nanotechnology) : s*ystems* of ethical principles.

- The principles, norms and values supposed to be sufficient and supposed to be applied to nanotechnology issues are often inherited from bio-ethics. (For example : informed consent, risk minimization, protection of vulnerable populations ; or autonomy, charity, equity, etc.).

Various difficulties of this model

- All the limitations of a deductive conception of applied ethics.
- Problems of contradictions between different principles. (Ex : in the case of nano-robots introduced in the body, the principle of nonmaleficence and the principle of beneficence enter in conflict).
- Problems of different possible interpretations of a same principle. (Ex : concerning human enhancement, ‘respect for human dignity’ can benefit from conservative interpretation forbidding any intervention on human beings, or from liberal interpretation promoting the informed consent of individuals).

Conclusions on the Conservative Model

1) MOST OF THE TIME : CALL to the PERSONNAL INTERPRETATION of the ETHICAL EXPERT to solve the CONTRADICTIONS between the principles of a same ethical system of principles.

2) Despite its limitations, the conservative model is much represented in the practices of governance. Its success is due to its simplicity, and to the fact that it assumes the traditional conception of moral labor's division (ethics is made by ethicists, science is made by scientists, etc.).

II. The 'Inquiry Model'

- In this Model, one considers that the traditional repertoire is not enough anymore, and that ethicists can not be considered anymore as the sole depositary agents of the answers to the questions Q1 and Q2 above.

- 'Inquiry model' in the sense that it aspires to answer questions Q1 and Q2 above through *inquiry*. Considers that : (Q1) The ethical issues related to the development of nanotechnology can and must be identified through different forms of inquiry, and that (Q2) their resolution can and must be done through the implementation of principles, norms and values which can and must be identified through diverse forms of inquiry.

Identification of ethical issues through inquiry (question Q1) – Numerous methods in practice and in the litterature.

- Focus on the anticipation discourses, used as a basis to identify aspects of the future problematic from an ethical point of view (trend criticized by Nordmann and others under the label ‘speculative nanoethics’).
- Call to diverse ‘participatory panels’ to express their concerns to the future, ‘anticipatory governance’, etc. (stigmatized by Nordmann and others under the labels ‘conversational mode’, ‘symbolic proceduralism’, etc.).
- Etc.

Identification of ethical principles through inquiry (question Q2) - Numerous examples.

- Diachronic inquiries. (Based on the lessons of the past, identification of ‘patterns of moral argumentation’ (Swierstra & Rip (2007)).
- ‘Vision Assessment’ (Grunwald (2004), Coenen (2010), etc.), ‘Analysis of the Metaphysical Program of Nanotechnology’ (Dupuy & Grinbaum (2006)), etc. (Focus especially on the experts, the scientists, the promoters of nanotechnology, etc.)
- ‘Narratives’, and ethical inquiry to laypeople (*Deepen* Project, for example). (Focus especially on the laypeople).

On the so-called ‘narratives’ (for example in the *Deepen* Version).

- ‘Be careful what you wish for’ ; ‘Opening Pandora’s box’ ; ‘Messing with nature’ ; ‘Kept in the dark’ ; ‘The rich get richer and the poor get poorer’. (See *Deepen* Project).

- Ethical weakness of the so-called narratives. Can be considered as moral expressions (express humanism against many contemporary occurrences of ‘hybris’), but at the level of the saying, or of the tale (moral of the fable). Unable to deal seriously , for example, with the ethical question of transhumanism.

- Nevertheless, will of some of their creators to organize them in ethical ‘systems’ , as rigorously as for the ethical principles of our first ‘conservative model’ (See Dupuy for example).

For us :

The main interest of the explicitation of the ‘narratives’ is to prove that, behind the oppositions and contradictions of ethical principles (as they are manifested for example in our first model), there are often some deeper oppositions of ‘narratives’, conceived as general visions of the world.

Example :

- (Norm1) « Every human being must be respected as such by the applications of nanotechnology ».
- (Norm2) « Every human being must be able to benefit fully from the opportunities of nanotechnology ».

(Two norms of a same ethical system which can get into conflict on the occasion of their application to real cases).

To deal with this opposition, you have to reveal and analyse the underlying « narratives » in which this opposition is anchored.

(For example : Narrative 1 : « Nanotechnology *threatening* Nature » ≠ Narrative 2 : « Nanotechnology *treating* Nature »).

(Wickson, Grieger and Baun (2010) : Nine different narratives : 1) Nanotechnology as Nature ; 2) Nanotechnology inspired by nature ; 3) Nanotechnology improving on nature ; 4) Nanotechnology using nature ; 5) Nanotechnology transgressing nature ; 6) Nanotechnology restricted by nature ; 7) Nanotechnology controlling nature ; + the both above).

Opposition between Narrative 1 and Narrative 2 cannot reduce itself to a scientific issue, that new data or experiences would be able to settle : it is an opposition of *world views*.

So …

- The First Model : considered the application of nearly *sell-justified* ethical norms to new contexts, while resolving as it could the possible conflicts among these norms (and mostly by the call to « experts »'s appreciations).

- The second model : demonstrates that the choice of norms rests in *narratives* (and values) which are advisable to investigate, to identify and to reveal to the actors themselves, in order to improve the argumentation on the norms and to smooth out the oppositions.

But after ?

- The second model shows that the contradictions among norms and principles reveal in fact contradictions among underlying narratives. But, in the end, how can we settle between the conflicts in narratives, without having recourse to expert's interpretations (as in the fist model) ?

- Need of a « third model » : an « interpretative » model, able to fill the narratives of « meaning » (meaning based on subjective *values*). The idea would be to make try and test the narratives by the actors, to encourage the explicitation of the deep values which condition their belonging to such or such narrative, and to make them able to consider other systems of reference, other narratives, and, coming, other ethical norms than theirs. *Dynamic* Model, open to historicity, and to « techno-moral change » (Swierstra and others).

An *interpretative* Model (III)

- Project EGAIS : multiplicity of governance tools to provoke the destabilization ot the *contexts* of the actors, and the awareness of the relativity of their moral position : argumentation, but also narration, translation, experimentation, etc. Test the « axiological commitment » of the actors to their ethical systems of references.

- Use of the existing tools (construction of scenarios, real-time technology assessment, etc.) but with this new assumed aim.

« Model I » for Issues of Privacy in Nanotechnology

- 1) No new issue : classic concern (Internet ; smartphones ; RFIDs ; etc.).

- 2) Classic ethical norms are sufficient to deal with the issue : respect of autonomy and of integrity.

  Right to privacy = right to authorize or to decline access (autonomous choice) . Same justification as for the right to give an informed consent.

- 3) Issues of privacy as issues of oppositions between *privacy* (or freedom) and *security* : the ethical expert has to strike a balance between the both principles in concrete cases.

« Model II » for Issues of Privacy in Nanotechnology : *Inquiry* .

- Identify some pre-existing patterns regarding the relationships between technology and privacy (in history in particular).
- Explore the national and cultural variations concerning the concept of individual privacy.
- Explore the real privacy practices (« Privacy is no longer a social norm » ? ; Facebook, etc.)
- Reval some underlying narratives concerning Privacy (Toumey 2007 : recurrent models : 1) Panopticon ; 2) Big Brother State ; 3) « Underveillance »).

Toward a « Model III » : Interpret, Play, Test and Change our conceptions of Privacy

Some tracks :

- Explore the links between trust and privacy. (« A society that depends on trust needs to maintain privacy »).
- Differences between « possessing data about someone » and « knowing a person subjectively ».
- Etc.

- Thanks for attention.

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