



Observatories are – like Codes of Conduct – an important element in the toolbox of ‘soft’ regulation. Such institutions can observe different kinds of technologies. There are observatories for biotechnological developments, for standards of journalism..., and also for nanotechnologies. Such observatories are springing up everywhere, currently at the European level as well, namely the FP7-funded project “ObservatoryNano” whose aim it is to “create a European Observatory on Nanotechnologies, to present reliable, complete and responsible science-based and economic expert analysis, across technology sectors, establish dialogue with decision makers and others regarding the benefits and opportunities, balanced against barriers and risks, and allow them to take action to ensure that scientific and technological developments are realized as socio-economic benefits” (taken from the website).



Strikingly, the fact that there are more and more observatories for nanotechnologies takes us from a form of regulation based on industrial age technology to a much weaker model oriented towards the foundations of pre-industrial science – the idea of the lone observer processing information in his observatory. An observatory is usually a sealed room from which scientists look out using their telescopes. Everything that enters the observatory from the outside appears inside in the form of information that is used to make calculations, predict lunar eclipses, diagnose trends and define units of measurement. However, observatories are by no means always scientifically neutral or politically innocent institutions. Historian of science John Heilbron describes a series of mediaeval cathedrals built as observatories by the Catholic Church (2001). A ray of sunlight falling through a hole in the wall could be used, in conjunction with a meridian carved into the church floor, for

astronomical calculations, with the aim of calculating the date of Easter. With the fall of the church and the rise of business, it is no coincidence that today’s observatories are concerned mainly with technological developments and economic data aimed at maintaining economic competitiveness. And rather than making calendrical calculations, the main aim of these observatories is to process information in such a way that it can be retrieved from a website. Doubtless this passion for gathering information can also render visible worrying developments that need to be addressed by policy. Thus rather than seeking to assume the role of a regulatory institution, observatories are part of a regime of continuous vigilance that also includes social scientific research, citizen panels and voluntary codes of conduct established by companies or industrial sectors.

While the “ObservatoryNano” is currently being set up there are already other observatories in Europe that focus on different aspects of nanotechnologies. The “Observatoire des Micro et Nano Technologies” (OMNT) in Grenoble/France, the project “NanoTrust” in Austria, “NanoTrendChart” in France or “Safenano” at the Institute of Occupational Medicine in Great Britain – to name only a few – are examples.



The main aim of an observatory is to collect data. Among the observatories that already exist one can distinguish between different foci of observation, for example:

- (1) Economic data. Where are clusters of industry, who has a lot of patents, and where, who publishes the most scientific papers?
- (2) Scientific developments. Again, who publishes a lot of papers, and where, in which thematic fields of nanotechnologies or concerning which applications?
- (3) Risks of nanotechnologies (and especially nanoparticles) concerning health and

environment, occasionally with a focus on gaps in knowledge and controversies among scientists concerning toxicity issues.

(4) Societal aspects. Are there conflicts between scientific or economic developments and society, are there value conflicts, how can technology grow together with society or in society?

Not all observatories necessarily cover all of these points. The “Navigator Network” in New Zealand, for example, concentrates on scientific developments only in those areas that matter to New Zealand, that is agro technology. It also focuses on broader societal developments.

“NanoTrendChart” in France on the other hand concentrates exclusively on socio-economic aspects, trying to support competitiveness of industries. “Safenano” is mainly interested in effects of nanoparticles on health and environment concerning risk assessment issues.

There are also different methods of observation depending on the focus of the observatory:

How many patents are there and by whom? This is believed to indicate innovations in nanotechnologies and regional clusters where there is a lot of research in nanotechnologies. There are special databases for patents that can be searched according to categories of keywords. This way, researchers can generate statistics on how many patents there are in what categories and by whom they were taken.

How many researchers and scientific publications in a field, and are there any citation networks that would indicate networks

of researchers? Again, this can be found out by searching databases for publications in journals to generate statistics that show research areas where a lot of researchers are active.

How many new products are on the market and where are the companies that are most active in this field?

Some observatories also engage in citizen dialogues and stakeholder conferences to collect data concerning values involved.



All observatories have target groups. The observational foci and the output of the observatories are tailored to the needs of these target groups. In most cases, companies, industries, governments or governmental agencies are the customers, and in most cases they are also responsible for setting up the observatory and financing it. This, on the other hand, questions their neutrality and might hinder other stakeholders from participation.



Q: So observatories perform an important task – they help closing knowledge gaps and raise awareness concerning scientific and economic developments. **A:** Yes, but one has to keep in mind that the task of closing knowledge gaps presupposes that these are only temporary. One has to keep in mind that there are other kinds of non-knowledge that are systematic. These are gaps that one has to learn to live with, gaps that cannot be closed.



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Links to other Portfolio sheets:

 Code of Conduct  Risk  'Soft' Regulation

Literature: Print & WWW

Links to different observatories:

www.omnt.fr,
www.observatorynano.eu,
www.nanosafe.org,
www.rivm.nl/rvs/075_nanotechnologie/KIR_nano/,
www.nanotrust.ac.at/ ... and more ...