

# Seven Reasons For Integrated Emerging Technologies Governance

by Seth Baum

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This past December I was at the [2012 Annual Meeting](#) of the [Society for Risk Analysis](#). Several sessions focused on emerging technologies governance. Each presentation nominally focused on one technology, mainly synthetic biology and nanotechnology. But most of the ideas discussed applied equally well to any emerging technology.

One conclusion is that it would be much more efficient and effective to have a single governance regime covering all emerging technologies. Right now there are governance programs for just a handful of technologies that do not come close to covering all the important benefits and risks. A single regime would cover all the technologies and all the issues they pose. A similar conclusion is also reached in a recent law journal paper [Minimizing global catastrophic and existential risks from emerging technologies through international law](#), written by my [Global Catastrophic Risk Institute](#) colleague [Grant Wilson](#), which he summarized at IEET in [Emerging technologies: Should they be internationally regulated?](#)

Here are seven interrelated reasons to have one single integrated emerging technologies governance regime, covering all emerging technologies together, instead of a piecemeal approach of several regimes each covering one technology. This list is my own, but many of the items follow from conversation at the Society for Risk Analysis conference.

*Forecasting.* Effective emerging technologies governance requires some idea of which technologies could emerge. However, future technologies are difficult to forecast. The challenge of technological forecasting is a rich field of study, even with its own journal, [Technological Forecasting & Social Change](#). All technological forecasting shares some common themes, in particular the fact that new technologies come into existence through some sort of research and development process. An integrated governance regime could have one quality forecasting operation and apply it to all technologies.

*Politics.* All emerging technologies face some similar political challenges. One is the mix of interest groups: NGOs concerned with preventing technological disasters, universities interested in protecting academic freedom, industry seeking competitive advantage, and labs seeking funding. Another is the degree to which legislators are conversant in science and technology – see discussion [here](#). A third challenge is the across-the-board challenge of passing legislation. An integrated governance regime could handle all of these challenges once for every emerging technology.

*Relationships:* Effective emerging technologies governance depends on productive relationships between the entities involved. This includes relationships between

government, industry, academia, NGOs, think tanks, and other interested parties. Each technology will need some unique relationships, but the process for forming and harnessing them is similar for each technology.

*Dual-use technology:* Any governance regime should weigh the possible benefits of the activity to be regulated against the possible harms. Most emerging technologies are *dual-use* in the sense that they could be used for both benefit and harm. For example, synthetic biology could be used to synthesize new vaccines or new pathogens. The evaluation of dual uses is similar for any given technology, including questions of if and when to apply a precautionary principle. An integrated governance regime could have expertise on evaluating dual-use technologies and apply this expertise to each emerging technology.

*Risk driven by research and development.* Protecting society from risks is a core role for governance regimes. Each emerging technology poses a different risk: novel pathogens for synthetic biology, novel toxics for nanotechnology, etc. However for each technology, the risks are driven by a research and development process. This puts emerging technologies risks in its own category. In contrast, environmental issues such as climate change and biodiversity loss are driven by the ordinary actions of ordinary people worldwide. And so while environmental governance could focus on these ordinary actions, emerging technologies governance must focus on very specific actions by very the specific people involved in research and development. An integrated governance regime could have capabilities for engaging research and development in general, capabilities that can be leveraged for each emerging technology.

*Lab transparency.* Effective emerging technologies governance requires knowing which labs are developing which technologies, in particular to help avoid the development of risky technologies. However, the labs that develop each of the various emerging technologies all face similar pressures regarding transparency. By keeping their technologies secret, labs can be first to publish, patent, or enter markets. Hiding technologies also thwarts would-be regulators from restricting their activities. An integrated governance regime could have one standard for lab transparency and one protocol for monitoring labs while protecting their proprietary interests.

*Whistleblowing.* Imagine you are an emerging technologies researcher and you are concerned about the risks your technology could pose. Now imagine that you observe someone else in your lab developing a technology you believe to pose great risks. You want to stop it, but your lab doesn't want you to speak up. You are in a classic whistleblower situation. All emerging technologies face this, and face it in similar research and development circumstances. An integrated governance regime could have one whistleblowing policy and one outreach program for all emerging technologies.