

**ERC Starting Grant 2014:
Enacting the good economy: Biocapitalization and the little tools of valuation
(short version)**

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What shall we live off in the future? Where will our food come from and what will form the basis for our economies? A blue revolution, where fish becomes farmed rather than caught, is increasingly presented as an answer to the above questions. As TIME magazine said on its front cover a few years ago; “The Future of Fish: Can Farming Save the Last Wild Food”? (Walsh 2011). This transformation of the economy is a significant example of efforts to produce new forms of capital out of the ordering and reordering of life. It is intimately related to the expanding life sciences, the bioeconomy and what is sometimes called new forms of biocapital. TIME’s feature story is already an apt example of expectations in the making with respect to this form of capital and how farmed fish is being valued as a particular good.

“The economy” is often presented as a given, driven by unknown forces that simply determine contemporary and future ways of life. The objective of this project is to open up “the bioeconomy” and explore how such new versions of the economy come about in practice. One of the important concepts I will use is biocapitalization, not only to underline that the bioeconomy needs to be seen as an on-going practice, but also to grasp how efforts to produce values in new versions from life in the sea are not linear and smooth. They create friction and resistance and also indeed sometimes fail. To be able to closely study efforts to biocapitalize, this project will take its point of departure in a farmed species in the making, analyzing the policy visions, innovation and research strategies that have been pursued since the early 1980s to successfully transform the Atlantic cod, the *Gadus morhua*, into a farmed species and viable market product.

Because how do such natural and social transformations actually occur? And by which means? Some would perhaps argue that such large-scale transformations must be studied by large-scale means, such as statistical analysis or the surveying of global, regional or national trends. Others would argue that we must study major success stories in life science and aquaculture that have already altered our economies, such as the stories of the farmed salmon or the tuna.

The current project eschews both approaches. First, it will instead analyse *little tools*: modest, material-semiotic entities or artefacts that are inscribed with meaning and that also enact new orders and realities. Little tools are technologies that act locally but that are linked to external agencies, machineries and valuation regimes. Examples include innovation strategies and policy visions that seek to act upon the economy, research programmes that outline what must be solved, and projects applications that promise to deliver. But little tools are also lighting technologies that work upon the reproduction cycle of the Atlantic cod; tools that act upon the researcher, such as curricula vitae and indexes that assemble her performance; and tools that design and act upon the consumer, such as surveys and experimental setups to test consumer preferences. In other words, material-semiotic tools are world-modifying entities.

Second, in order to explore the work of little tools, the project will examine precisely the troubled story of the Atlantic cod and the efforts both to scientifically map and to farm it. The Atlantic cod is scientifically described by its integrity (Skulstad 2011) and its particularity (it lacks a proper immune system). It has to date been reluctant to being farmed; it is famous for escaping from the net, for being difficult to control, for sometimes becoming deformed and turning into a “monster cod”, and (in its farmed variant) for not being particularly appreciated by consumers (Kole et al. 2003). The Little Tools project will address such frictions, and even failures, which are integral to biocapitalization.

Third, the project will address how the bioeconomy is increasingly presented as something other than simply the supplier of new forms of consumer goods and a factor in producing economic surplus. Helped by the new life sciences, the bioeconomy is also increasingly supposed to *be good*, that is, to be part of the solution to societal problems, while also being responsible and sustainable, acting within limits and providing welfare both to humans and the non-humans involved (e.g. EC 2012). This suggests that values and practices of valuation must be studied as part of biocapitalization practices: i.e. practices by which bioentities are being infused with and enact value.

These three approaches point towards the main hypothesis of the current project: the enactment of the good economy can be studied by valuation practices performed with the help of little material-semiotic tools.

The project will explore this hypothesis at three privileged sites for biocapitalization: the market, in science and in funding and policy institutions. A core hypothesis is that these sites enact different versions (Mol & Law 2004) of the good economy. Exploring the production of such potentially different versions and how they interact, encounter, and clash and confront one another (Asdal 2014b) will be integral to the project.

1. *The first main objective* is to provide new empirical insights about how biocapitalization processes are enacted in practice and at carefully selected strategic sites, using cross-disciplinary methods from actor-network theory, the humanities and economic sociology. The economy is often presented as a given, driven by unknown forces or large ideological programmes such as “neoliberalism” or large capital flows such as “biocapital”. Our objective is to provide insight into how the bioeconomy is not so much about “a force” but rather a series of on-going valuation practices that are not linear and smooth, but cause friction (Tsing 2005) and even resistance and that may fail or develop in unexpected ways.

2. *The second main objective* is to provide an analytical and methodological framework that can respond to certain core challenges and opportunities in contemporary science & technology studies, STS, particularly stemming from the influential tradition of laboratory studies or actor-network theory. Hence, STS resources will be employed as tools but also discussed, fruitfully critiqued, and further refined.

By employing the notion “little tools of valuation”, we aim to add to the already rich literature on how life is enacted in the life sciences and the bioeconomy (e.g. Franklin & Lock 2003; Cooper 2008; Fortun 2008; Felt & Fochler 2012). But the primary aim is more specific, namely to draw this literature together with the turn to empirical studies of markets in STS and economic sociology (e.g. Karpik 2010). Here lies also the project’s analytical novelty, directed towards addressing three methodological challenges: 1) How to study markets without leaving out nature, materiality and the biology of that which is developed into commodities? 2) How to empirically and analytically construct the research process so that both the non-human and human parts of the bioeconomy are taken into account? 3) How in practice to study the bioeconomy with perspectives from STS and actor-network theory for exploring worlds *in the making* while also upholding a sensibility to time and timing and how the past plays into the enactment of the future? The research questions, methodology and work packages below are designed to respond to the above objectives and challenges, using the Atlantic cod as the primary example of a biocapitalization process.

The project’s overall research question (1) and more specific research questions (2-5) are thus:

1. How do material-semiotic little tools enact valuations in processes of biocapitalization, and with what outcome for the versions of economy that are produced at different sites?
2. How do valuation practices encounter one another within and between specific sites?
3. How do valuation practices enact conflicting versions of the good economy and different regimes of valuation?
4. How can the methodology of the little tools of valuation help us examine the economics (the fish market) and natural science (fish biology) together?
5. How can this methodology enable the study of how time and the modification of time is being enacted (e.g., for future expectations, the career of a scientist, or the Atlantic cod’s

reproduction time)? Hence, to what extent are little tools and valuation practices also tools for timing?

Organization:

The project will consist of four work packages that are centred around carefully selected sites for biocapitalization (science, the market, and policy and funding schemes), in addition to a cross-cutting theme that particularly addresses methodological development and draws sites, methods and materials together.

WP 2: Enacting biocapitalization at the market.

a) *Site and aim:* Markets exist in a very concrete manner, for example in the form of a fish-market in a large city. However, markets that negotiate and decide upon value exist in the form of very different practices, at different places, that are only partly connected. It is these markets, that exist at many places and many different times, that cannot be grasped as “site” as such, that is the object of study in this WP. The site that this WP will explore is played out at various places, for example, markets for the farmed Atlantic cod as these are intensively being enacted in market research, consumer tests (e.g. focus groups), and experiments pursued by behavioural economics since around 2000, as well as shifting and concrete innovation and marketing strategies, including packaging devices and branding efforts that have been tested out and employed in efforts to promote the farmed cod. Marketing strategies for cod will be compared with marketing strategies for salmon and scallop directed at the French and Norwegian markets. When Callon (1986) did his famous study of the scallops, arguing that nature objects had to be made part of sociological analysis in new and symmetrical ways, the market (in his case hungry French consumers waiting for scallops for Christmas) was taken for granted. The turn to markets in economic sociology tends to do the opposite, viewing some products and valuation practices as particularly interesting because they seem detached from the materiality of the object (Beckert 2011). The aim of this WP is to study the tools of valuation that actively enact markets as well as imagined market situations and explore how the materiality of the fish and versions of nature, such as the seasons and “the wild”, take part in valuation practices.

b) *Access and resources:* The materials that will be studied have partly been collected and a small pilot study of innovation strategies has been conducted (Asdal 2014a). The study will be primarily performed by a postdoc fellow or Phd-candidate.

WP 3: Enacting biocapitalization in policy and funding.

a) *Site and aim:* The aim of this WP is to address strategic policy and funding sites that seek to define, envision and enable biocapitalization practices at national and transnational levels. Several sites are involved: The first site comprises international programmes for the future bioeconomy in the EU, (e.g. the 2012 strategy plan). The WP will focus on how such programmes frame the bioeconomy issue as a question of “the good”, for example how a strong bioeconomy will help Europe to live within its limits (EC 2012, p.2), where seas and oceans are pivotal sources of such future value by providing “a vital contribution ... of smart sustainable and inclusive growth” (p. 33). The WP will analyse how science is valued as part of such strategies. A vocabulary of value is already highly present, for instance in how advanced knowledge on marine living resources is envisioned as “necessary to maximize its exploitable value in a sustainable way” (EC 2012).

Second, the WP will explore national policy visions for enacting values from the sea and how these are translated into programmes and funding schemes. This will be done with a point of departure in policy visions and strategy plans from the Norwegian government and Parliamentary proceedings, which will then be followed in the form of concrete funding schemes and programmes within the Norwegian Research Council. The WP will trace these policy and funding strategies through document analysis and interviews with key actors.

b) *Access and resources:* Materials have started to be collected as part of a pilot project to the current proposal. The study will primarily be conducted by a Ph.D. candidate or post.doc fellow.

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