Group Assembly Process (GAP) – Stirring Paper

A normative framework for the development and use of technologies in the degrowth context.

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The modern society is strongly formed and deeply pervaded by technology which affects all areas of human life. However, the dimension of technology (namely technological development, technological innovation or the use of technology) has been so far neglected within the frame of the debate on degrowth. Rather, visions on technology seem to be often drawn in a black or white manner: On the one hand, the pure idea of "technological development" may seem contradictory to the conceptual foundations of degrowth. On the other hand, technologies are regarded to offer specific potential which may significantly contribute to the transition towards a degrowth society. Currently, a debate on the role, use and impact of technologies within the context of degrowth is just is at its start. In the following paper, I will propose a normative framework to guide the further development and use of technology in the degrowth context.

The guiding hypothesis of this paper is that certain technologies can – in principle – support the transition towards a degrowth society. However, a cautious analysis of the (social) potentials as well as side effects of the technology use is necessary. The normative framework of Latouche (2009) will be proposed as a guideline to assess the development, application as well as the potential impacts of technologies within the degrowth context.

In today's society very often the use of technologies is equated with a way to achieve a fast efficient way to economic growth. Especially information technologies have caused enormous acceleration processes which deeply affected economically driven globalization processes strongly oriented on a growing world economy. These general economic trends are for sure strongly shaped by technologies, e.g. internet, electronic communication but also transport technologies, international logistics. What further counts to this argument is the observation that technologies are used to a great extent as a means of labor to create growth and thus an increase in (industrial) productivity. Also the development of new technological goods promote consumption and are thus again a driver for further economic growth, e.g. electrical products like computers or mobile phones which have an ever shorter lifespan and trigger new needs and even shorter production cycles for new goods.

However, in literature, technological paths in society are no longer regarded as deterministic and are thus not necessarily seen in a solely pessimistic manner of rationalization, destruction and un-sustainability. Rather they are regarded as socially constructed (Bijker, 2010) and thus shapeable in the one or other direction, see e.g. the case of ICT:

> "The relationships between information and communication technologies (ICT) on the one hand and with the values, principles and standards, the forms of communication, rules, laws and contractual forms on the other, are certainly not deterministic, but rather bi-directional: technology affects moral attitudes, but this – along with other factors such as political will and economic interests – can also control the choice of the available technologies. Technology can be used (e.g. software) for digital rights management to protect commercial market interests, but also for the development of open P2P projects to support the free sharing of knowledge and information." (Kuhlen 2012: 409f.)

Thus, at the same time, when we can state that technological development increases production and consumption rates (see above) we can also see that technologies can contribute in different ways to new forms of sharing of goods and to new production pattern (see also Helfrich, 2012 for examples).

Technologies depend a lot on societal factors and how they are politically regulated as well as individually used. Not least are the intended effects of technologies accompanied by unintended side effects (Gloede, 2007). From the perspective of technology ethics, Hans Jonas (1993) pointed out several "difficulties" in dealing with technology. Referring to him, technology is characterized by double-sided aspects, e.g.:

- *Ambivalence of the effects*: There are no "bad" technologies as such. However the concrete use of technologies is determining its effects. This can be illustrated by the dual-use dilemma which can imply the military use of technologies in extreme.
- *Inevitability of application*: If a technology is developed, it will be used. In economic terms, they often support the "economies of scales" logic of markets. After the introduction of a technology, decisions 'for' or 'against' often lie on the individual level, e.g. prenatal diagnostics: decisions against these medical technologies have to be taken actively (and sometimes against external resistance) by the individuals.
- *Global dimensions in space and time*: Technologies can have a global reach (which the example of Fukushima drastically illustrated) but they also have to be understood in local contexts (which is the case e.g. for handicraft).

Because of these "double-sided faces" of technology a normative framework supporting the social embedding as well as the social assessment of technologies seems to be central. For the context of degrowth, an appropriate framework has still to be developed, however there are already important starting points (cf. e.g. Latouche, 2009).

In the following, Latouche's vision for a postindustrial economy is used to illustrate how and under which circumstances technologies can contribute to a degrowth society. In his future vision human beings are less dependent from the market and are rather able and free to satisfy their real needs. According to Latouche, to reach this future, it is necessary to convert a set of conditions ("7 Re's") into reality to develop a new wealth on the basis of qualitative and not quantitative growth (Latouche, 2009, Pennekamp, 2011). In the

following the use of technologies will be integrated in his framework using findings of [Blättel-Mink and Hellmann, 2010](#), [Helfrich, 2012](#), [Nierling, 2010](#).

- Re-*evaluate*: Latouche demands a new alignment of values: Altruism instead of egoism, cooperation instead of unlimited competition, self-determination instead of heteronomy, being consistent with nature instead of control over nature. Hereby especially the concept of "commons" would be supportive from the perspective of technology integration, as it allows democratic technology development (software and hardware) implying new modes of cooperation, but also individual work autonomy and independence from global markets ([Siefkes, 2012](#)).

- Re-*conceptualize*: According to Latouche, the traditional concept of wealth and poverty needs a new definition. The current economy transforms natural affluence in artificial shortages, e.g. by companies privatizing public goods like water. In order to reach a new concept of wealth which is based on publicly shared 'affluence' again the concept of open source (commons) would contribute to that idea: It allows free access to knowledge and specific codes in different ways, e.g. how to construct large technical artifacts (like hybrid electrical cars, [Martin, 2012](#)), but also with regard to natural (re)sources ([Gallardo Fernández and Friman, 2012](#), [Sanchez and Helfrich, 2012](#); [Sow and Marmer, 2012](#)) or the transformation of the energy system in an 'energy common' (see [Lambing, 2012](#)). In this process, a high amount of voluntary engagement is involved. Here, the internet, especially web 2.0, provides a range of supporting possibilities, e.g. network activities, idea sharing as well as fast ways of communication.

- Re-*structure*: As a third aspect Latouche claims the need to overcome the capitalistic system and to adapt productions modes to changed values. These alternative production modes should be organised much more as (high-tech) self-providing. Thus, in order to provide knowledge, skills and techniques to produce own food, own energy, own products and goods on an individual basis but also in local networks, 'old' handicraft techniques have to be reconsidered and re-actualised e.g. in urban gardening, do-it-yourself cultures, 3-dimensional printers or in fab-labs ([Bergmann, 2004](#), [Bergmann and Friedland, 2007](#)). Furthermore, do-it-yourself work can imply high levels of satisfaction for individuals which contributes to the restructuring of the system as well as to new values ([Nierling, 2012](#)).

- Re-*distribute*: According to Latouche, if the industrial society would be restructured, 'automatically' a redistribution of wealth and a free access to (natural) resources would take place – on a global level as well as inside national societies. If this is the case, the organization principle for a redistributed technology use would be the principle of the commons and its integrated technical options (see [Helfrich, 2012](#)).

- Re-*localize*: Latouche demands that the production on the local level should be increased. Hereby not only open source software and hardware development, as well as handicraft and its related knowledge and skills need to be applied to reach a higher level of production on the local scale (see Re-*structure*.). Furthermore, the internet provides enabling options for the marketing of locally produced goods, e.g. on portals like www.dawanda.com. Such options could be further expanded and could serve to build up local production networks which are not limited to local contexts but transfer the idea and the outcomes of local production to a larger audience.

- Re-*duce*: With the sixth claim, Latouche addresses the need to reduce over-consumption which harms the biosphere in different ways. Here again (high-tech)

self-providing would offer a solution, as products are less 'consumed' but more 'produced' (see Re-*structure*). Also strengthening the local level (see Re-*localize*.) would be helpful, as it would support consumption on a small-scale instead of large-scale consumption infrastructures producing lots of surpluses.

- Re-*use*/Re-*cycle*: Last but not least, Latouche proposes that the options for reuse and recycling should be strengthened. This can be done on an individual level by sharing knowledge on techniques to reuse materials for creating new products, but also by inventing, e.g. in the field of clothing, new designs from used materials in the process of self-providing.

The integration of technological options in Latouche's framework shows on a general level that there are a manifold ways to use the potential of technologies to support the transformation towards a degrowth society. Hereby, especially open source software and hardware development implying shared production pattern as well as (high-tech) self-providing resulting in changed individual consumption modes and production pattern contribute to a degrowth society. Both fields are closely intervened with each other. Furthermore, both fields are strongly based on information and communication technologies. These cannot only provide new options for unpaid work by supporting the production of (virtual) goods and services, but also by enabling networking activities by (new) options for communication, as well as by opening up new distribution channels for self-made products through web portals. Thus, information technologies can offer options for a degrowth society by the reconnection of knowledge, skills and techniques to actual trends which are embedded into modern everyday practices.

From a societal perspective, the potentials shown above are not limited to technological innovations. Rather they rely on changed societal settings, whereas especially the conception of work is challenged by a degrowth society. More specifically, the relation between paid and unpaid work needs to be changed and oriented much more towards voluntary and unpaid working pattern instead of paid work. This is important on the one hand to allow time for the changes mentioned above. On the other hand, it would provide a lower dependency from the capitalistic system by modes of subsistence (see further Bergmann and Friedland, 2007, Nierling, 2012). Both aspects are central for a societal degrowth transformation.

Vice versa, the use of (new) technologies also contributes to the further conception of work in a degrowth context. The above described potentials of technology not only give way for new forms of voluntary work, e.g. based on mental work. Furthermore, they might provide the basis to transform (traditional) industrial areas to local self-providing on a high technical level. More research would be needed here.

When thinking (positively) about technological visions in a degrowth society, as was done above, it is nevertheless important to keep in mind that socio-political effects of technologies can have complex and dynamic consequences which might turn in a negative and destructive direction. Therefore a constant observation of the use but also their regulation of technologies in different contexts is of high importance, as pointed out in the following citation:

"Intended effects of technologies are by no means automatic. Rather they are influenced by resistance, adaptation and appropriation of the actors in their social environment. […] A keen awareness of the social and political consequences of the use of certain techniques improves the chances that people pay attention to an appropriate development and to applications serving people's lives." (Tenenberg, 2012: 112).

Thus, it is central to "keep an eye" on the 'rebound effects' the use of technology can imply for the degrowth context, especially avoiding a commodification of technology development and use. With regard to the future development of technologies it will be promising to embed the idea of degrowth already in an early stage of technological design. Thus, the change of societal values, the degrowth context implies, could be integrated already in the design process of new technological projects as well as in technology-based network initiatives. With regard to further perspectives of the relationship between technologies and degrowth it will be important on the one hand to continue conceptually on this issue. On the other hand, it will be central to ground potentials but also barriers and challenges of open-source-approaches (hardware and software) as well as (high tech) self-providing in empirical analyses. Last but not least, the range of technologies and also the connected organizational models should be broadened within lively debates on the role, use and side-effects of technologies in the context of degrowth.

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