

# The value conservation concept – What is Green on ReUse-economy?

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## Abstract

*Value conservation networks contribute to sustainable entrepreneurship by using reciprocity as a way of interaction between enterprises. They focus on business opportunities according to a “towards zero waste” approach. Such business opportunities belong to an economic model, which we call value-conservation because:*

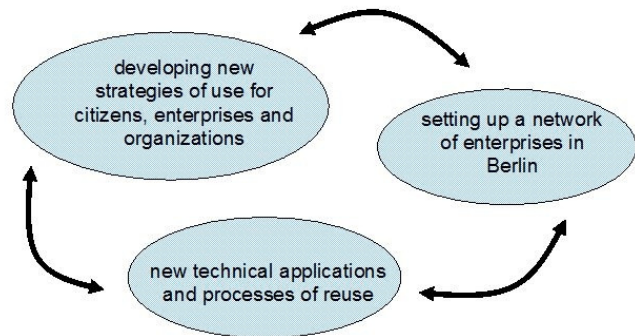
- *“Towards zero waste” means avoiding the need for resources, which is an inherent part of value-adding or value-creating processes.*
- *The idea of value-adding chains simplifies the real activities within ReUse-networks. The interdependency of all members of such networks put into practice the reproduction of the network by generating the output of reusable computers, bicycles or other goods.*

## 1 No waste

Enormous volumes of electronic waste are generated worldwide – and levels are still increasing at an alarming rate. In Germany, at least 200,000 tonnes of electronic waste are generated annually. But practitioners and experts have long been convinced that this so-called electronic waste contains numerous usable appliances and valuable raw materials. Alterations to the consumer strategies of use and attractive offers could result in a reduction in the burden on the environment, along with the conservation of resources the development of sustainable strategies of use in the computer sector.

Against this background, we began a trans-disciplinary research project in 2001 at the Science Shop of the Technische Universität Berlin - kubus which continued for 3 ½ years, and which was funded with EUR 1.1 million from the German Ministry of Education and Research (BMBF). In all, 17 project partners participated in the project and up to 27 companies were involved. The main goal was to establish a network of companies for the refurbishing, repairing, and re-marketing of valuable used computers.

Within the framework of the project, we applied methods from the social sciences which made use of systems theory to develop an understanding of heterogeneous social networks. Against the background of this inventory, computer companies (particularly SMEs) were recruited which were interested in targeting their market activities more towards the re-use and extended use of products.



**Figure 1: Project “ReUse-Computer” – aims and goals**

On the basis of statistical and scientific methods of analysis, the ecological rucksack of computer manufacture (or the material intensity) was investigated e.g. by Karsten Schischke and his colleagues of Fraunhofer IZM, Dept. Environmental Engineering ([www.izm.fraunhofer.de](http://www.izm.fraunhofer.de)). There had not previously been any reliable investigations in this field.

In parallel, surveys were conducted among private individuals and companies about their willingness to acquire used PCs. Our activities were rounded off with an integrated media strategy which informed key sections of society about the technical, social and economic aspects of our project. Various media contacts still exist and provide an important basis for the marketing of ReUse-Computers.

The key result of our project, however, is that we have indeed managed to establish a regionally-focused, decentralised network of companies for sustainability

in computer technology: ReUse-Computer ([www.reuse-computer.org](http://www.reuse-computer.org)) [1]

## 2 Networks of sustainability

The heterogeneity of our ReUse-Computer network is demonstrated, among other things, by the way in which agents from different areas of society work together in this network.

The majority of network participants are specialist computer companies, and in view of their specific size (1-15 employees and in part an annual turnover considerably less than EUR 500 000) we refer to these as micro-companies. Other participants include a publicly oriented environmental research institute (UfU), university research institutes (Fraunhofer IZM, TU Berlin), NGOs (Local Agenda 21 Treptow-Köpenick) and artists (Experience Art!).

Here I consider the contribution of the network to sustainable development, focusing on the concept of what I call **VALUE CONSERVATION NETWORKS**.

On the basis of the concept of *value-creation chains*, we have examined more closely the value-creation processes between the various network partners within the framework of the value creation process.

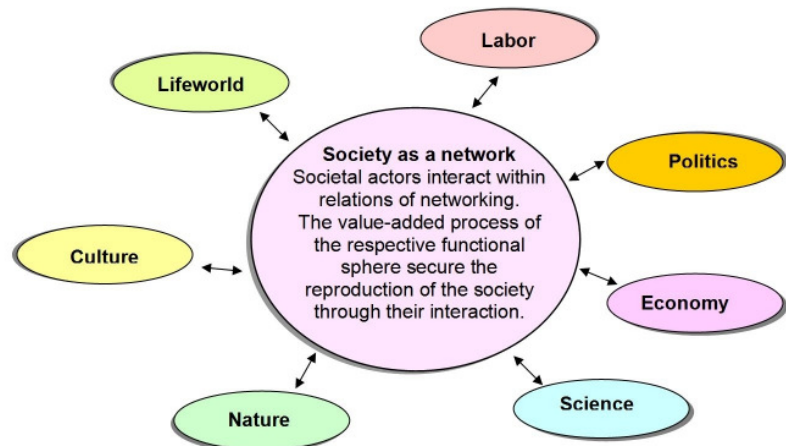
In view of the object of the economic activity and the underlying exchange process involved, the concept of *value creation chains* seems to be inappropriate for three reasons:

1. Existing values are conserved rather than new ones being “created”.
2. The processes are *not linear*, and working in networked systems also means that companies are involved in value creation *networks*.
3. Both companies and actors from various parts of society are involved in the value conserving and value creating processes in the ReUse-Computer network. This heterogeneous structure is what maintains the cooperation of the ReUse-Computer network.

Therefore if the “value creation process” consists of maintaining or conserving values, then it should be called a value CONSERVATION process. And because it takes place in network structures I speak of value conservation networks.

Looking at the material aspects of the activity of value conservation networks, we can recognise that value conservation, refurbishing work and repairs demand considerable expertise and are labour-intensive. This indicates that doing without the waste of more and more new resources and the use of energy provides the basis for demanding, useful employment which can be of benefit for the environment.

Value conservation networks include various social logics in their work, and on the other hand these networks thrive on the basis of beneficial interactions between politics, science, civil society, and the economy. Companies profit from the exchange with research institutions and NGOs, but at the same time the basic decisions taken also require the agreement of those in the network who are not market oriented. To this extent such networks also have a richly varied social capital.



**Figure 2: Society as a network**

In value conservation networks, social enterprises (e.g. a workshop for people with disabilities and a local job creation scheme) can cooperate with a profit-oriented company in a mutually beneficial way. In fields of reuse, fruitful cooperation can be developed between enterprises, science shops, NGOs, co-operatives and other social oriented businesses, e.g. focused on creating work for disabled people with the goal of developing a sustainable regional economy.

## 3 Spaceship economy

The value conservation concept is based on the idea of avoiding production and consumption, as formulated by the economist Kenneth E. Boulding in 1966 in his essay *The Economics of the Coming Spaceship Earth*: “By contrast, in the spaceman economy, throughput is by no means a desideratum, and is indeed to be regarded as something to be minimized rather than maximized. The essential measure of the success of the economy is not production and consumption at

all, but the nature, extent, quality, and complexity of the total capital stock, including in this the state of the human bodies and minds included in the system. In the spaceman economy, what we are primarily concerned with is stock maintenance, and any technological change which results in the maintenance of a given total stock with a lessened throughput (that is, less production and consumption) is clearly a gain. This idea that both production and consumption are bad things rather than good things is very strange to economists, who have been obsessed with the income-flow concepts to the exclusion, almost, of capital-stock concepts.” [2] ([http://www.eoearth.org/article/The Economics of the Coming Spaceship Earth \(historical\)#](http://www.eoearth.org/article/The_Economics_of_the_Coming_SpaceShip_Earth_(historical)#)). The value conservation concept owes much to the paradigm of the spaceship economy.

Even the latest low-energy computer is always only the tip of a pyramid of less energy-efficient computers, and the latest hybrid car is at the top of a pyramid of vehicles which are much less fuel-efficient. When considering questions of resource-related sustainability, such pyramids must be considered in their entirety in order to reach a realistic assessment. At the same time it is also necessary to consider the rebound effects of the steady, disproportional growth of the output quantities. In the cases of both computers and cars, the fact remains that they are additional new artefacts. They may have a lower environmental impact and consume less energy, but they still contribute to the increase in the consumption of resources.

#### 4 Sustainable entrepreneurship

The search for strategies of sustainable development and strategies for sustainable entrepreneurship should therefore be aimed more towards extending the period of use, re-use and further use, and the possibilities of optimising existing artefacts energetically and aim at optimising the environmental impact. A “towards zero waste” strategy takes those aspects into account which avoid the further consumption of resources. This perspective is directed to the material object of use. At the same time it is also directed to the exchange with other parts of society (see Figure 2).

The inwardly-directed element of the value conservation strategy involves the exchanges between the network partners. Here the value conservation networks differ from other economic units in that they have a greater freedom of choice between various economic exchange processes.

Both in their internal cooperation structures and in their external relationships, such value conservation networks represent aspects described by the economist Karl Polanyi, who refers to the disconnection of the economic exchange process from its social context as the “dis-embedded economy” [3], [4]. Market, barter, distribution and reciprocity are four basic elements of economic activity in the history of mankind:

**Reciprocity:** the exchange of goods and services takes place in accordance with a principle of mutual obligations; the goods and services are exchanged on the basis of pre-determined or freely negotiated relative benefits.

**(Re-)Distribution:** Goods and services are collected in a determined relationship, stored (as far as possible for the item in question), and redistributed.

**Market:** the exchange of goods and services is based on a price established through supply and demand.

**Barter:** the exchange process is based on the usability of the bartered goods and services.

Alternatively, the German economist Niko Paech proposed four different economic-technological concepts:

**Renovation:** The reworking or refurbishment of existing goods for the re-use or continued use.

**Imitation:** The adaptation /supplementing of an existing good by transfer / adaptation / extension.

**Exnovation:** Taking an existing good out of use and disassembling it into its parts.

**Innovation:** The development of a new additional good with all its (production) technical pre-conditions.

	Reciprocity	Market	Barter	Distribution
Renovation				
Imitation				
Exnovation				
Innovation				

**Figure 3: Basic elements of economic activity**

The figure shows that the scope for the development of an economy of sustainable development is much greater. Polanyi and Paech cover a broad field of various possible economic activities. Value conservation networks include these various forms in their interaction processes.

A key element of the internal exchange relationships is reciprocity, because these allow exchange operations which are not money-based. Against the background

of a shared past and anticipated joint future, goods and services are only exchanged for approximate counter-performance. By means of the process mode of reciprocity, trust can be established within the network. The key impulses for the development of value conservation networks are trust and the fact that it is possible to be more successful in cooperation with other partners than when operating alone. Value conservation networks make contributions to create sustainable entrepreneurship by using reciprocity as a mode of interaction between enterprises. They focus on business opportunities according to a “*towards zero waste*” approach, as mentioned before. This means avoiding the need for resources, which is an inherent part of value-adding or value-creating processes. The idea of value-adding chains is bound together with the paradigm of fossil economics.

A “*towards zero waste*” approach, sustainable entrepreneurship and value conservation networks provide practical access to sustainability.

## 5 Social capital in networks

The interdependency of all members of such networks put into practice the reproduction of the network by generating the output of reusable computers, bicycles or other goods.

We have developed the strategy of value conservation networks through our work in the ReUse Computer Project. We are currently working on the extension of this approach to establish the company network *ReUseVelo* ([www.reuse-velo.de](http://www.reuse-velo.de)), which is concerned with the refurbishment and remarketing of used bicycles.

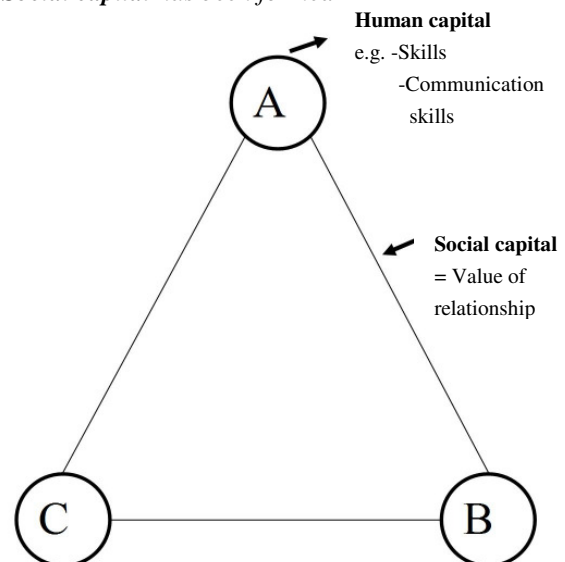
The *cooperation* of value conservation networks is confronted with the attitude “One against the other, and everybody against the environment”. According to Gregory Bateson in “The Roots of Ecological Crisis” [5], that attitude is one of the most important causes of the ecological crisis. Value conservation networks operate differently. On the basis of user profiles, which are developed using the tools of environmental psychology, they offer specific use values with a high level of customer contact. Service and consultancy play a more important role than in conventional businesses. In these networks there is an opportunity to maintain and develop regional expertise and human capital. This is firstly by the application of existing expertise. But at the same time it also involves the stimulation of demand, so that the human capital is financed by revenue from the commercial activity. The interaction between the network partners and with their surroundings builds up cohesion and social capital:

If **A** does something for **B** and shows trust that in future **B** will provide an equivalent performance, then

**A** has an expectation and **B** an obligation to justify the trust. This has the character of a **credit**.

If **A** has a number of these **credits** from a number of actors, this increases the value of the relationship resource, e.g. from **C** to **A**. **A** is then important for the progress of **C**.

*Social capital has been formed*



**Figure 4: Social and human capital in networks**

The value conservation networks can make a practical contribution to overcoming the idea of unlimited growth in a limited world. And instead of faith in the power of technology to solve future problems (Gregory Bateson) it presents the new paradigm of joint responsibility and joint action.

The ReUse-Computer and ReUseVelo networks are two practical contributions to this debate. With our work on this strategy we intend to investigate further how technological, social *and economic* processes can be modified so as to contribute to the goal of sustainable development.

## 6 Literature

- [1] Becker, F.; Endler, W.; Lorenz-Meyer, V.: ReUse-Computer – Ein Beitrag zur Entschleunigung der Ökonomie. Munich: oekom Verlag, 2005
- [2] Boulding, Kenneth E.: Beyond Economics. Ann Arbor: The University of Michigan Press, 1968, pp. 275 - 287
- [3] Polanyi, K.; Arensberg, C. M. and Pearson, H. W.: Trade and Market in the Early Empires. Glencoe: The Free Press, 1957
- [4] Polanyi, Karl: The Great Transformation. Boston: Beacon Press, 2001

- [5] Bateson, Gregory: Steps To An Ecology Of Mind. Chicago and London: The University of Chicago Press, 2000, pp. 496 - 501