



Innovative Business Models in the Anthropocene

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Summary

Innovations can make products faster, more efficient and more desirable, but they can also target the manner of conducting business. Hence the question: what goal do innovations serve? If we accept the notion that the current epoch should be viewed as the anthropocene (Crutzen and Stoermer 2000), then it is only logical for innovations to prioritize the goal of minimizing the socially and environmentally detrimental effects of business activities. This article presents an interview study of 17 small and medium-sized enterprises in Germany which pursue the goal of transforming their business models into an environmentally compatible and progressive organizational form. The principles and business practices they embrace are analyzed here. The results suggest that two widespread objectives, namely profit maximization and absolute pursuit of economic growth, impede sustainable innovations. It also becomes clear that the fundamental innovations associated with these new business models allow for a large range of innovative practices which have hardly any chance of establishing themselves in the framework of any conventional entrepreneurial mindset. It is striking that these progressive enterprises nullify the contrast between commercial interests and societal demands almost entirely, being active as integrated and integrative protagonists in business and society. In this way, they succeed in securing the existence of their business while serving the interests of the owners very well. As a result, they help to develop solutions to the greatest challenges posed by the anthropocene, namely the transformation of enterprises into socially equitable and environmentally compatible organizations.

Key words: innovative business models, sustainability, Economy for the Common Good

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1. Interface Inc. and the challenges of the anthropocene

“I stood indicted as a plunderer, a destroyer of the earth, a thief of my grandchildren’s future. And I thought, My God, someday what I do here will be illegal. Someday they’ll send people like me to jail.”
(Anderson 2009, 7)

In 1995, this insight prompted Ray Anderson to systematically transform the value-added chain of the company founded by him. Interface Inc. shares are traded on the US stock market Nasdaq. This shows two things: with the proper attitude it is possible to move an enterprise whose products (carpet tiles) are made out of mineral oil in the direction of zero footprint and to convey this as a value-creating strategy to investors. For the year 2014, the European Interface plant reported a 95% proportion of renewable energies, a reduction of fresh-water consumption and waste to practically zero and a 90% reduction of greenhouse gas emissions since 1996 (Elkington, Birchall and Arratia 2014, 18). In comparison, the EU strives for a 40% reduction by the year 2030 (European Commission 2014). These successes were reached through a series of process and product innovations over a period of just under 20 years.

Ray Anderson and Interface are pioneers of sustainable business. In this article, further pioneers and the business models and strategies they pursue will be introduced. What these pioneers have in common is the conviction that the planet is being subjected to ruthless and ruinous exploitation through the business practices of the industrialized world and that such practices must be transformed.

Current innovation strategies of enterprises should take into consideration the fact that in the anthropocene the impact exerted by humankind on global ecological systems has become dominant and that in several crucial areas, the basis of human existence is already endangered (Stoermer and Crutzen 2000). No enterprise should deny that the preservation of humane living conditions depends on the preservation and restoration of the environment, and that activities geared towards achieving this should be incorporated into any business model and most of all, any entrepreneurial innovation strategy.

Interface Inc. demonstrates that implementing a sustainable business model is feasible even when an enterprise is put under the financial expectations of the stock market. The standard argument put forth by representatives of conventional business is that the financial pressure of the stock market coerces all enterprises into adopting a strategy based on profit and growth maximization and that there is no room for sustainability-driven innovations. To be sure, the demand that enterprises contribute to securing humane living conditions through their business activities finds a large consensus and leads to the establishment of CSR departments and the issue of sustainability reports, but actual pro-sustainability decisions still fail on the grounds of a lack of financial ‘feasibility’, with the demand for profit maximization posing an insurmountable hurdle. Clearly, Interface Inc. manages to overcome this hurdle, meeting investors’ expectations AND achieving a systematic transformation in regard to sustainability.

In this article, an interview-based study involving 17 enterprises in Germany (Hofielen 2015) will be presented which have made fundamental innovations going even one step further than that taken by Interface, namely the step towards innovation of their respective business model. All of these enterprises abandoned the profit-driven business model and shaped their entrepreneurial objective cooperatively and transparently vis-a-vis societal demands.

Timmers (1998, 4) describes a business model as “an architecture for the product, service and information flows, including a description of the various business actors and their roles; and a description of the potential benefits for the various business actors; and a description of the sources of revenues.” Borrowing on this concept, this article will begin by characterizing the new business model. Then the fundamental innovative principles associated with this model and the business practices which evolved as a result will be depicted on the basis of interviews conducted during the study. The significance of these innovations will be described comparatively in reference to mainstream business practices. This will serve as a basis for developing ideas on how to shape conditions in such a way as to facilitate the dissemination of these innovative practices in the mainstream business world. The article will close with concrete recommendations for action directed at enterprises which wish to replicate such innovations.

2. Sustainable business models – the basis for innovation

If one goes on the assumption that the purpose of business and entrepreneurial activity consists in satisfying needs for which there is a widespread demand, one notices that in many enterprises, generation of return on investment or sales deforms this original entrepreneurial objective. In many cases such deformation causes business models to evolve which, for one, change the original needs in such a way as to make them more profitable to fulfill by the enterprise in question, and secondly, often violate essential foundations of honorable and moral conduct on the part of these enterprises. In this context, reference is made to scandals like the bank crisis of 2007/8, the corruption affair at Siemens in 2006/7/8 and the emissions manipulation of Volkswagen in 2015 along with entirely routine practices in conventional business such as externalization of environmental damage.

The impression one gets is that the deformation of entrepreneurial objectives for the sake of the financial interests of business owners harbors a series of risks which also threaten the existence and long-term prosperity of such enterprises and societies at large.

The enterprises which participated in the interview study were selected because they oriented themselves profoundly to the principle of sustainability which Brundtland defined as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World

Commission on Environment and Development 1987, 41). On the basis of such externally observable conduct, they were asked how internal decisions are made. It turned out that these enterprises had suspended the principle of profit maximization. They make profits so they can exist in the market-based order founded on private property but in their mindset and actions, profit maximization tends to pose an obstacle to, rather than providing an orientation for long-term success. The same holds for the principle of growth. Whereas conventional business practice is subject to a clearly noticeable compulsion to grow, the non-observance of which can end with a hostile takeover by competitors of a market-listed firm, for example, the enterprises which participated in the study had a relatively neutral attitude towards growth. There are developmental phases in which growth is strived for, phases in which weak, organic growth is desirable and phases in which growth is avoided so as to limit the risks associated with it. When we speak of conventional enterprises and the mainstream, reference is being made to the currently dominant business model, which gives priority to financial yield and the interests of business owners when entrepreneurial decisions are made.

What we need in order to overcome profit maximization and a compulsive fixation on growth is a further, deeper-lying prerequisite. The demands of conventional business practices, which require that enterprises pursue the interests of business owners first and foremost – these being ones which are measured in financial terms alone – must be relinquished. Instead, the focus must be moved to the interests and needs of direct and indirect value-adding partners, otherwise known as stakeholders. In the inner circle these include not only business owners but also suppliers, employees and customers; in the outer circle they include financiers and government agencies along with nature and society at large.

From this perspective, any enterprise is viewed as an integral part of society, which as such registers, discusses and co-shapes what is required by stakeholder groups and society at large. Wishes of the public and the limits of the strain which may be put on natural resources are perceived, and in their business transactions such enterprises strive to take the needs of the stakeholder group into account and to satisfy them to the degree that this is reconcilable with the economic viability of their operations.

In business practices, this is reflected in stakeholder dialogues, employee co-determination, supplier, customer and environmental consultation bodies, cooperation with non-governmental organizations (NGOs) and participation in social discourses. What ramifications such integrative, sustainable business practices have for enterprises and their liberties will be elucidated in the following chapter.

2.1 Entrepreneurial freedom and ethical responsibility

The departure from principles of profit maximization and the compulsion to grow opens up new forms of entrepreneurial freedom. This allows enterprises to place higher, ethically¹ sound demands on the integrity of their business models and ask themselves:

- Does our business conduct do detriment to any of the stakeholder groups, including nature?
- If so, how can such detriment be reduced, compensated for or undone?
- Which risks associated with our business conduct have direct and indirect impact on others?
- How can these risks be absorbed before they do detriment?

If the anthropocene is understood as a period of ongoing change in our living conditions as regards the future as well, new fields of action come into focus too:

- How can we help provide solutions for the task of ensuring sustainability through our core business?
- How can we adjust business models and processes in such a way as to make an effective contribution?
- Which sustainability innovations are suitable for our business and promise future results?

Such an openness and willingness to embrace innovation opens up opportunities for new business models, products and services for which the demand will rise in the future, thus giving the enterprise in question a long-term economic foundation. Innovative enterprises which accept the categorical imperative of the anthropocene have an understanding of future-oriented social discourse and modify their business practices wherever it is purposeful and feasible to do so. They make a constructive contribution to social development by reducing ecological burdens and generating socially desirable effects.

3. The study – innovations connected with sustainable business models

In the summer of 2015, an interview-based study was conducted which involved 17 enterprises from various sectors. The partially standardized questions addressed the respective business models and practices. The goal of the study (Hofielen 2015) was 1) to characterize the business conduct of enterprises which focus strongly on the demands of sustainability in their business practices and use them, in part, as a guiding principle, 2) to understand the business practices of such enterprises and 3) to describe ways in which these differ from conventional business practices.

1 Here the Kantian categorical imperative is formulated as an ethical principle. Kant (1781, 1978) writes: "Act only on that maxim through which you can at the same time will that it should become a universal law."

In the course of the study it became clear that such enterprises embody a new type, one which lies outside the realm of any conventional business model and constitutes comprehensive innovation. From the innovation of their business foundations, diverse innovations evolve regarding the way in which they interact with stakeholders including society and nature.

Table 1 – The participants in the entrepreneurial interviews

Name and sector	No. of employees	Sales in mill. €	Innovative orientation
Neudorff, garden supply	210	80	Organic garden products
Bethmann; wood processing	3	<1	Ethical trade
Ökofrost; deep-freeze wholesale	25	12	Organic deep-freeze meals, self-organization
Börlind; natural cosmetics	206	38	Natural cosmetics
Bodan; organic wholesale	200	60	Organic foodstuffs
Göttin des Glücks; fashion attire	24	<2	Ethical attire
Graf; plumbing	27	4	Ethical trade
KWB; EE from solid biomass	400	70	EE from solid biomass
Schachinger; logistics	550	187	Ethically reflected logistics, self-organization
Sparda Bank München	740		Ethical banking business, self-organization
Farfalle; natural cosmetics	100	12	Natural cosmetics
Stähle; law firm	5	<1	Social commitment
WBS; advanced trainings	900+ 500	80	Socially ethical commitment
GLS Bank Bochum	520	75	Ethical banking business
Naturstrom; EE	240	240	Renewable energies
Memo AG; mail-order business	130	19	Sustainable office supplies
Merzpunkt; design agency	8	<1	Design for sustainable firms

3.1 The principles and practices of innovative enterprises

In the following, the innovative principles and practices of sustainable business models will be presented. The responses placed in quotation marks and italicized stem from the interviews. They have been grammatically adjusted by the author for purposes of better readability.

3.1.1 Definition of success

The enterprises which participated in this study do indeed use finance-oriented indexes such as return on sales to define success. *“Healthy growth through self-effort”* was also cited as a success indicator, which could correspond to a conventional understanding as well. But this criterion is supplemented by statements like *“We define success with the help of the economic concept of the Economy for the Common Good”* and *“We want long-term economic success coupled with responsibility towards other human beings and the en-*

vironment and strive to achieve a reduction of energy and resource consumption.” One company successor expressed it this way: *“We are re-orienting the firm to make it sustainable in regard to society and the environment.”* The fact that economic success is not the only factor taken into consideration, with emphasis also being placed on human qualities, is reflected in statements like *“As far as orders are concerned, it is important to have good relations with the customer”* and *“We are mindful of relationships – of respect for others, nonviolent communication and perception of others and their needs.”* The definitions of success cited here demonstrate that the entrepreneurial activity in question is grasped as a holistic task embedded in society as a whole. Financial measurement of success is not frowned upon, but other values constitute an equally important part of the picture. Just how important they are becomes clear when the goal system of business management is depicted.

3.1.2 Description of goal systems

The envisioned goals of any given enterprise are the notions which define conditions and forms of conduct realized with the help of one or several actions. As for the definition of success, financial and economic aspects play a large role for the goal systems as well, namely *“in the area of Finances & Controlling: sales, business results, liquidity, accruals; in the area of Research & Development: research quota, sales of new products within the first 3 years; in the area of Marketing & Distribution: sales figures per product, market share per product, profit margins of products, customer satisfaction.”* Above and beyond this, holistic goal systems are applied, as expressed in statements like *“We use the Common Good Matrix² as a goal system and promote organic farming”*; *“We have developed a 6-step decision matrix for all entrepreneurial decisions”*; *“We filter entrepreneurial decisions using a Green Score Card”* and *“We manage every area down to the level of individual employees and agree on goals on the basis of our Social Ecology Economy goal matrix.”* Economic realities are taken seriously; the enterprise does not jeopardize its own existence. But for one the goals are broadly defined and encompass the societal and ecological dimensions of business, and secondly, profit is not considered the primary goal.

3.1.3 The significance of profit

The spectrum of responses extends from *“Return on sales is a pre-defined target range within which we want to operate”* to *“We want to generate moderate profit but we expressly refrain from pursuing any profit maximization.”* Moreover, some responses reflect a stance on realization of profits which acknowledges economic necessities, like *“We want to have the best possible credit line; otherwise profit is a secondary goal”*, *“For me, success in the sense of quality and customer satisfaction has a high value. Profit is necessary and meaningful*

² The Economy for the Common Good places entrepreneurial activities in a value framework which provides orientation for entrepreneurial and societal decisions. For more information go to www.ecogood.org.

for the enterprise and it secures our capacity for innovation” and “At the financial level what applies is, the higher the revenue the better; this allows us to pay down accumulated debt. At the same time the firm should be sustainably re-oriented in regard to society and the environment.” One entrepreneur in the trade sector put it succinctly: *“We want to be able to make a good living, but what counts most are quality products, ecological products.”* Generating sufficient profit, which includes providing a fair employer’s salary and ensuring provisions for hard times as well as innovations is a condition for running any commercially oriented enterprise. The responses express this sentiment. More profit is better than less because it expands an enterprise’s latitude. None of the respondents formulated a demand for profit maximization, however. No one views financial returns as the main objective of business operations. This shows that once profit maximization is no longer a part of the goal system, the responsibility of an enterprise can be perceived in a farther-reaching, more comprehensive sense.

3.1.4 The significance of growth

Not much interest is taken in growth. Responses included the following: *“A 2.5% growth rate is okay”*; *“For us growth is necessary so as to reach an optimal size, allay worries and calm our nerves. We are in the set-up phase”*; *“We want to achieve international expansion”*; *“A large part of our growth derives from the growth of our customers”*; *“We have little ambition to grow, for fast growth creates capacity problems”*; *“We are afraid to grow fast. Experience with gardening shows – what what grows fast also rots fast”*; *“Growth is not a credo. We prefer to grow qualitatively rather than quantitatively”* and *“No compulsion. Sideways movement is fine too.”* Growth is neither defensively justified, for example as a means of keeping up with competitors, nor is there any indication of aggressive motives aimed at overtaking competitors. What drives growth are increases in customer demand, qualitatively convincing products and services and the search for optimal size. Forceful acceleration of sales as a means of seizing larger market shares and revenue or growth geared towards driving out competitors is not formulated by respondents as a strategy. The enterprises act as constructive market participants who do not want to do detriment to their competitors. The intention to replace non-sustainable goods with sustainable products is quite pronounced, however, but this does not lead to aggressive exclusionary strategies.

Definition of success, goal system, significance of profit and growth are categories which serve as crucial parameters for regulating entrepreneurial strategies. These parameters are determined by management, usually explicitly and sometimes implicitly, and they shape decisions and conduct on all levels of the enterprise. They are also the foundations of the ethical DNA realized in the form of entrepreneurial culture, which in turn becomes visible in the form of decisions and conduct. Among the enterprises participating in the study, conduct orientation and business practices manifested themselves which clearly contrast with those found in conventionally run enterprises. They incorporate ethically founded societal demands into their value-added

chains voluntarily and comprehensively and act as pioneers of sustainable business in their sectors. They demonstrate this clearly in the following fields of action: environment-related services, social and ecological superiority in supply chains, permanent improvement of sustainability in core production, promotion of employee participation and socially relevant contributions.

3.1.5 Environment-related services

The company's carbon footprint is a central concern for all of those who participated in the study. As they report, *"We want to achieve a gradual reduction"*; *"We strive to obtain CO₂-neutral business operations by 2020"* and *"With our product for production of vegetable carbon/pyrolysis we enable many enterprises to achieve low-carbon business operations."* Numerous and diverse innovations of other kinds have been achieved as well. They range from use of green electricity, installation of an in-company thermal power station, photovoltaic systems, water turbines, biogas and wind gas systems and environmentally friendly vehicle fleets to ecologically planned buildings, heat insulation, temperature-controlled warehouses and the purchase of climate protection certificates. Environmental innovations are made possible through investments in new processes, new products and facilities such as buildings and vehicles. The point of departure is a conscious desire on the part of executives to comply with the demands of responsible business management in the anthropocene. This is enabled through the innovation of the enterprise's business model vis-a-vis its definition of success, goal system and significance of profit and revenue. This creates the economic latitude needed for innovations not aimed at meeting conventional return-on-investment expectations. This also applies for decisions made along the supply chain.

3.1.6 Responsibility for eco-social values along the supply chain

For some interview partners, the scope of action is limited by the company's size proportionate to the market and by widespread conventional business practices in many sectors. This is expressed in responses like *"In the logistics branch we have no direct influence; we have to use general forwarding agents"* and *"One third of the biodiesel we buy is regional and organic, while the origin of the other two-thirds is unknown since some international dealers are involved."* Wherever latitude is given, the businesses take advantage of it and expand it. Respondents report: *"Routine supplier screening in regard to quality, social factors and ethics is supplemented by ongoing exchange of information"*; *"Our code of conduct is oriented to core ILO labor standards. We know our suppliers personally. Having a cooperative relationship is more important than audits"* and *"We give preference to printers who employ no chemicals for printing processes, use recycling paper, are environmentally certified and apply cradle-to-cradle concepts. As regards our in-house canteen, only vegetarian and vegan organic and fair-trade products are used."* If the enterprise belongs to a sector in which absence of pollutants is one of the objectives of business, the procedure for ensuring this is prescribed, as illustrated by formulati-

ons like the following: *“Products all derive from organic agriculture, 75% or more. Wherever possible, we buy fair-trade products.”*

3.1.7 Sustainability of core products

Sustainability constitutes a business objective insofar as all activities are geared towards improving the sustainability of core products. The products themselves embody this endeavor. The objective is to satisfy customer needs with sustainable goods, as expressed in statements like *“Sustainability is the core concern of the owner. In the early years we consciously inhabited a niche – with a few employees. We did not envisage growth. Then organic products became the new trend”; “We invest 5-10 % of our profit in innovative research every year”; “We promote ongoing development of sector-specific certificates and help suppliers receive certification through trade labels. We develop products in cooperation with suppliers”; “We acquire certification which forces us to improve”; “The Green Score Card is used for evaluating and stipulating sustainability criteria” and “The ECG Balance Sheet has become one of our strategic tools and a component of our strategic orientation for the next five years.”* Some of the enterprises are active in the ‘green’ sector, where a company’s eco-social profile constitutes part of its competitive strategy, but enterprises in other sectors (banks, consultancy agencies and services, trades, etc.) make sustainability-oriented management in regard to products and services an integral part of their brand essence as well.

3.1.8 The role of employees

In the most progressive enterprises, the employees have a very extensive co-participatory role. This is strongly promoted by several management teams, one of which reported: *“We are transforming decision-making processes into structures of self-organization and want more self-determination, more bottom-up decisions. As concerns potential development of employees, we emphasize development of strengths.”* One pronounced contrast to conventional firms lies in the approach of foregrounding personal development, expressed in a statement like *“We are on the way to self-organization. Work is the framework in which friction is generated; we utilize conflicts for healthy development. If I (the owner) make a decision, I take away my employees’ chances to grow.”* Several firms have introduced employee-centered structures. One says *“Give them as much say as possible; we are currently testing the sociocratic decision system.”* Employees are no longer viewed as ‘human resources’ or implementing bodies, but rather invested with a role which redefines the relationship between management and operations. In many cases, this is still a field of experimentation and new territory, but it corresponds to the notion of accepting all employees as responsible individuals.

Not all enterprises are strongly committed in this area. One enterprise which does not go so far formulates it this way: *“We strive to achieve 100% transparency; as a rule, decisions are made by management.”* Forms

of employer-employee interaction customarily found in medium-sized firms are seen here too, expressed in statements like *“We are like a normal enterprise, with executives and employees. For many things we take the short path; there is open access to the owners.”* It is clearly possible to take a transparent, cooperative approach to societal demands using various management systems and entrepreneurial cultures.

3.1.9 Conflicts between eco-social and financial goals

Value-adding processes which prioritize eco-social aspects often call for special financial latitude. In principle, such latitude is provided by the participants in the study, for the principle of profit maximization is suspended. As they reported, *“We give priority to customer confidence; profit margins tend to be of secondary importance”* and *“No eco-social decision is deferred for the sake of profit. Balancing ecological and social aspects is important, and when in doubt, social aspects – human beings – are given priority.”* This applies to products and processes, as conveyed by statements like *“Products which fit the mission and vision of the enterprise and promise strong sales but fail to comply with our ecological footprint or working conditions are not added to the product line”* and *“We use the Common Good Matrix when making conflictual decisions.”* If a progressive brand or company image has evolved, this also obligates the enterprise to put financial considerations aside in cases of conflict. As one firm said, *“In general we decide in favor of sustainability, due to our own convictions and the inducement of the customers who demand this. Our customers observe the decisions we make quite closely.”* Financial latitude is not exceeded, however. As one company puts it, *“We do all we can afford to do.”* In weighing interests, decisions are sometimes made at the cost of eco-social aspects. As one company reported, *“We have eliminated use of company cars with gas combustion. We are currently considering compensation for CO₂-emissions but we are hesitant to acquire CO₂-certification because it is so expensive.”* This last formulation shows that there is not only one problem-solving direction where conflicts are involved.

In many conventional companies which also postulate sustainability as an entrepreneurial goal, clear limits are placed on sustainability activities for financial reasons. Such companies refrain from making any investments which exceed the normal amortization period of 3-4 years. This rationale often lies behind the postulate of the triple bottom line (Elkington 1997), according to which economic, ecological and social aspects are equally important. For many groups which formulate this postulate, economic aspects, which is to say, financial criteria, have primacy over the others when it comes to making decisions (Kind 2012).

3.1.10 Contributions to social initiatives

Whereas enterprises with conventional business models strive to prevent government regulation and sector obligations from adopting ambitious, binding standards, the enterprises which participated in the study were active and initiative in integrating ethically founded social and ecological demands into business practices.

They engage in lobbying for progressive practices, hoping in this way to contribute to their dissemination. In doing so they promote ethical business principles in their respective sectors such as Global Alliance for Banking on Values, and they influence the propagation of innovative production methods, for ex. through membership in the supervisory board at Demeter and in the Forum for Sustainable Palm Oil. Several enterprises address socio-political issues by engaging in the initiative “SMEs against TTIP.” Cooperation with NGOs is also defined by certain topics, for example those associated with the Clean Clothes Campaign, BUND (Friends of the Earth Germany) and the Economy for the Common Good. In addition to activities which strive to create ethically conditioned markets, philanthropic projects are implemented which aim to reduce poverty, offer development assistance and promote environmental protection such as a fair-trade project involving small farmers in Madagascar. The contributions made by enterprises in the social framework extend beyond philanthropic aims, however. As good citizens, enterprises mostly improve production conditions within their own branch to ensure that businesses do less to cause problems and more to solve them as well as making efforts to avoid detriment.

4. The institutional and human prerequisites for sustainability innovations

The enterprises which participated in the study make voluntary efforts and avoid externalization of environmental damage. Two prerequisites are necessary if efforts to generalize such business practices are to have a chance of succeeding. First of all, such practices must be generally binding, either through legislation or binding self-obligation, and second of all, a large-scale change in awareness among population groups is called for. In the following, this will be elucidated in greater detail.

4.1 The social effects of innovative business models – the end of externalization

Over the last decades, non-governmental organizations (NGOs) have acted as decisive initiators and premonitory authorities which have pointed out the detrimental, often unintended secondary effects and consequences of business activities. Today, the role played by NGOs in this regard continues to be beneficial and significant. They usually operate in reaction mode, however, calling attention to damage which has already been done. In this respect they fulfill an important function in society because they call the attention of enterprises to the detrimental secondary effects and consequences of their activities. Conventional enterprises usually pay no attention to these secondary effects, for their self-understanding is that of an organization which strives to make profit and is primarily obligated to their owners, i.e., to ‘private business.’ The secondary effects which do not manifest themselves directly as material influences in the cost account are ignored and the

systemic consequence is that they are passed on to society at large. This principle is called externalization of costs. The innovative business practices of enterprises which participated in the study make externalization an issue of company policy. The secondary effects and consequences are observed, evaluated and addressed as an issue of business action. This is an epochal, innovative achievement for it breaks with the habit prevalent over several decades, which has been to externalize environmental and societal damage. Such externalization has created a source for huge accumulation of wealth on the part of entrepreneurs in the extractive industries, for example. But since enterprises decide on the composition of their value-adding chains and consequently influence the extent to which ecosystems are damaged, they have the chance to do things right and reduce, avoid or compensate for the occurrence of such damage from the very start. The innovative pioneer enterprises which participated in the study show how such opportunities can be seized upon and most of all, they demonstrate that taking such a step is financially feasible in market-oriented competition and sometimes even turns out to be quite profitable.

4.2 Ethically superior products need a 'level playing field'

Superior solutions in the value chain often incur higher costs. Fair wages and good working conditions make for greater productivity, but little economic latitude. The distribution of ethically superior products and production methods relies on consumers who have an appreciation for the superiority of these products and are willing to pay for it. In the populations of all industrial societies there is an increasing awareness of the endangerment of the bases of life and this awareness manifests itself more and more in purchase decisions, albeit on a low level of demand as yet.³ Rory McDonald (2015), an associate professor at Harvard Business School, explains the concept of the level playing field as follows: "One definition that stuck most [...] about constructing a level playing field was that you didn't want to have any market participants that had privileged access or undue influence on any sort of regulatory process. We want to make sure that all companies have the ability and motivation to pursue innovation and anything that impinges upon it means [...] a playing field that is not level."

For this reason, it is necessary for governmental organs to implement the scientific insights of the environmental movement and the social demands of human rights movements by creating minimum legal requirements which hold for all enterprises. The state has the task of providing good living conditions for the entire population and must minimize and sanction detrimental business practices. Conventional enterprises tend to insist on the voluntariness of efforts and reject any legal regulation. Those who speak of voluntariness often mean arbitrariness, as is shown by the fact that only a minority of enterprises actually takes volunteer action.⁴

³ In 2013, organic foods had a market share of 3.9 % (GfK 2014; accessed on 12/10/15) and in 2014, organic cotton had a market share of 1 % (Nipparel 2015).

⁴ The proportion of enterprises on German stock markets which issue sustainability reports is as follows: on the DAX30 93%; on the MDAX 46%; on the SDAX 28 %; on the TecDAX 10% (WeSustain GmbH 2015, 14).

Environmentally friendly business operations are an existential necessity for society and they cannot be subject to voluntary willingness on the part of economic operators. Payment of taxes is a good example; all tax contributions which are crucial for the existence of society must be bindingly regulated and non-compliance must be liable to penalties.

4.3 The new quality of awareness

New legislation for the protection of the environment and human rights must take yet another hurdle; established power relations must change as much as is necessary for new ideas to gain the acceptance or support that helps them to assert themselves vis-a-vis established interests. This is no easy or self-evident task for innovative enterprises, for the path dependency (Töpfer 2015) of the web of economic interests and the will to push through the economic interests of a sector, even at the expense of society, create considerable resistance and obstacles.⁵ And yet human creativity and assertiveness are inexhaustible and new dangers and opportunities always find a suitable channel for articulation, followed by a rallying of protagonists. Apparently insights and awareness-raising processes occur simultaneously which manifest themselves in civil society organizations, progressive enterprises and among committed consumers alike, making innovation possible. Innovations which change social habits always begin with minorities, because a profound capacity for insight and ethical conviction is required to oppose the mainstream, and initially only a minority is capable of tapping into it. In his work on moral development, Lawrence Kohlberg scientifically proved that the two post-conventional stages of development, the first of which is oriented to a social contract while the latter recognizes universal ethical principles, is only accessible to a small minority of human beings, – 5% according to his findings (Kohlberg 1969, 1971, 1996). Kohlberg's observations are supported by the perception that the women's movement, the fight for non-discrimination of race and sexual orientation, organic farming, alternative powertrains in the automobile industry etc. began as initiatives supported by minorities which were initially opposed by protagonists of the established order. It is not until a larger number of people realize the advantages of such developments that there is any chance of obtaining any generally recognized legitimacy, sometimes in the form of legislature.

Human beings can be viewed as error-prone creatures shaped by the experience of existential insecurity, resorting, as such, to superiority and subordination structures to secure their existence (Zohar and Marshall 2004, Hofielen 2014). Behavior based on solidarity and equality is the exception. The task of humankind is to create civilized societies, legal institutions and democratic states under the rule of law which enable all its members to live under decent conditions in the present and the future. These insights correspond to the innovative business models and practices followed by the enterprises which participated in this study. They

⁵ See the bank crisis of the years 2007 and 2008 and Exxon's funding of scientists who sowed doubt about the causes of global warming through combustion of fossil fuels.

shape entrepreneurial activity for the benefit of all participants in the value-added process, they watch out for the functionality of the ecological systems and they help to assert humane business practices.

5. Maxims of sustainable innovation

The insights and actions of enterprises which took part in the study are future-looking and they can be taken up by all enterprises in all sectors under adherence to ethically inspired prerequisites. Fundamental changes in business models allow for a large number of innovations to be made in all functional areas of business operations. The transparency of businesses vis-a-vis tasks and demands which are discussed in society with the aim of securing humane living conditions for present and all future generations leads to transformational bridging strategies which can be emulated by all enterprises. The primary concern is innovation in regard to utilization of resources. Polluting, non-sustainable resources must be replaced by renewable, low-polluting ones.

The **first strategic innovation maxim** is to achieve a **zero footprint**. The environment may only continue to be burdened to the degree that it is capable of renewing itself and the eco-systems are able to handle pollutants. Suitable technologies should support renewable raw materials and energies as well as promoting a recycling economy. Product lines which generate pollutants should be transformed or discontinued. The economic feasibility of such a conversion calls for creativity and resolve. The sooner these risky business fields are addressed, the easier such a transformation will be.

The **second strategic innovation maxim increases respect for human dignity and reduces ecological damage in supply chains**. This is particularly important when goods are purchased from countries in the global South. But in the USA and the European states enterprises also exist in which the workforce is not employed in accordance with ILO conventions. Delaying an innovative transformation is often bought at the cost of immense reputational risks and damages if the public's attention is called to this. The largest risks are connected with extraction of raw materials, the agro-foodstuffs industry, the textile industry and the electronics industry. Cooperation with progressive sector associations and NGOs is highly recommendable, since the scope of influence is particularly narrow for relatively small enterprises.

The **third strategic innovation maxim** makes use of the **willingness to drive innovation on the part of employees**. In enterprises with strongly pronounced hierarchies and dominant top-tier executives there is a danger of resistance to new business developments and the company misses out on the opportunity for timely renewal. Apart from the risk of an insufficient willingness to adapt, enterprises which function on a primarily 'top-down' basis often fail to seize upon many ideas and creative contributions of employees. Investments in research and development are important for achieving sustainability-driven improvements

within the framework of existing business models. Moreover, an innovation-friendly entrepreneurial culture is called for. Innovative forms of organization allow for self-organization and keep top-tier hierarchical influences from affecting daily decisions. Sociocracy and holacracy are models of in-company decision-making processes which aim towards self-organization.⁶ They have been developed by innovative enterprises and are becoming increasingly widespread. They help activate the full potential of employees for organizing procedures and innovating products and business processes. In addition, business model innovations are supported by the creation of spin-off companies.

The **fourth strategic maxim** consists in **cooperation with customers, which supports the progressive course of the enterprise**. The customers serve as creative partners and early users of innovative versions of products and services. If an automobile manufacturer were to ask its customers today which innovations were important to them, it would be questionable whether the response would be recycling-friendly, light-weight cars with weak engines. After all, for decades customers have been trained by industry and its marketing strategies to focus on tempo, design and status. Thus the first step is to develop the sustainability-oriented innovation together with the customers who support this very concern. They are the partners for the products of the future. In terms of sustainability considerations, the focus should be placed on sufficiency, or frugal consumption of products.

Energy enterprises inform customers about ways to conserve on energy, textile manufacturers offer repairs and smart phones have modular design which allows for replacement of individual components. The manufacturers have the task of developing sustainable consumption patterns together with the customers so as to secure their own sustainability.

The **fifth strategic maxim** is to exert an impact on the **political transformation** of the sector and the legal situation. The innovative enterprises which participated in the study cooperate on efforts to raise voluntary and statutory standards to a level which protects the rights of human beings and nature. The cooperation partners are like-minded competitors as well as enterprises involved in upstream and downstream production processes. Due to their special knowledge and skills, NGOs are sought-after partners as well. The enterprises which took part in the study have founded initiatives to which they invite conventionally operating companies with the aim of gradually winning them over. They exert an influence on sector associations, municipal economic structures and legislators with an aim towards creating a level playing field for progressive, innovative practices. In doing so, their own business models play an exemplary role, showing how a transformation of the entire sector could be achieved.

⁶ For more information go to <http://www.sociocratie.nl> and Boeke (1945); also cf. <http://www.holacracy.org>.

The so-called free market economy, which allows enterprises to obtain cost advantages through practices which are detrimental to the environment and thus drive competitors out of the market should be replaced by the principle of an ethical market economy in which market participation is only granted to those who incur no damage to human beings or nature. Such interventions into entrepreneurial freedom have been customary since the beginning of industrialization and they are frequently associated with resistance and acute complaint by conventional enterprises. The introduction of the 8-hour workday, freedom of association as well as technological innovations such as catalytic converters for exhaust gas cleaning have always been depicted as threats, but ones which in retrospect turned out to be blessings.

We are faced with scores of new challenges for which innovative firms are on the starting blocks. The anthropocene has generated an imperative for innovation which will reshape and dominate all other imperatives of this kind such as digitalization, social media, globalization etc. It must be dominant if humankind is to preserve living conditions on this planet whose quality is approximately equivalent to that of our current base of existence. The fundamental innovation lies in new business models which can give birth to a multitude of ideas. Gradual 'mainstreaming' of such business models will change the nature of the economic order; this much we can venture to predict. Estimates as to just how much systems will change as a result differ. Some academics hope that sustainability can be integrated into the conventional economy. "Through a clearly drafted CSR strategy based on business economics, the competitiveness of the enterprise will be increased and long-term realization of profits secured." (Schmidpeter 2014, 1231). By contrast, Elkington and Zeitz (2014, 186) explain that "we're no longer simply talking about responsibility and accountability but also about the increasingly urgent need for system change." What can clearly be said is that if the free market economy is turned into an ethical market economy, the type of capitalism prevalent today, in which enterprises egocentrically pursue the interests of business owners as their top priority, will be transformed into a type of capitalism which generates ethically founded business models that serve all economic agents including nature. And this will not be to the detriment of the business owners.

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