15. Using Indicator-Based Models for (Re) Orientating Enterprises Towards Ethical Behaviour

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15.1 Abstract

In the age of fundamental disruptions and in search to overcome current dominating economics paradigms, orientating and re-orientating organisations, especially companies, can be best driven into new directions by means of new economic models „beyond the mainstream". Such mostly bottom-up constructed models aim to compile indicators serving as subgoals for defining the discrete steps of changes to be achieved. In the spirit of mastering challenges going far beyond today's predominant materialistic paradigm (denoted as neo-liberal) which is currently governed by finance, these models intend to add non-financial indicators guiding towards more ethics in entrepreneurial activities, especially for serving for the common good.

This article discusses currently emerging new models as well as the question, if such models complementary to the classic financial ones can be merged or superseeded by new supermodels under discussion.

15.2 Theory Building, Model and Method Construction

Since this article ultimately will discuss, how any operational unit, typically an enterprise, can become orientated towards a business strategy which is accepted as ethical, the discussion conducted is about a potential theory behind such model, about the model itself and the method to apply it.

To begin with, the three key terms: theory, model and methods shall be elaborated discoursively, not attempting to provide general definitions rather than specific ones fort he purpose of this paper and its roots.

Starting with what theory is underlying to the models employed, the shortest definition the author could elaborate has been issued by the American Association fort he Advancement of Sciene (AAAS) [P1]: *„A (scientific) theory is a well-substantiated explanation of some aspect of the natural world, based on a body of facts that have been repeatedly confirmed through observation and experiment. Such fact-supported theories are not "guesses" but reliable accounts of the real world. The theory of biological evolution is more than "just a theory." It is as factual an explanation of the universe as the atomic theory of matter or the germ theory of disease. Our understanding of gravity is still a work in progress. But the phenomenon of gravity, like evolution, is an accepted fact".*

Since the subjects treated in this article are not real in terms of material, rather than immaterial and intangible, and since we have to face that the applicants of such theory are practitioners, the definition above has to be adapted after Clay Christensen and David Sundahl [P2] (Quote): *„A theory is a statement of what causes what, and why, and under what circumstances. A theory can be a contingent statement or a proven statement.*
Many managers shy away from using the word "theory" because it is associated with the term theoretical which suggests impractical. But managers use theory every day. They make decisions on some basis of cause and effect, often without being specific about their reasoning".

Building a theory is a process which, in science, usually takes a long route, starting from observations, going through classifications, then abstractions and finally ending in a description most often formulated and represented as a model. Once a theory is settled and converts into a commonly accepted and respected understanding, the theory expands into a commonly governing paradigm – as shown in Fig. 1

Figure 1: The process by which theory is built

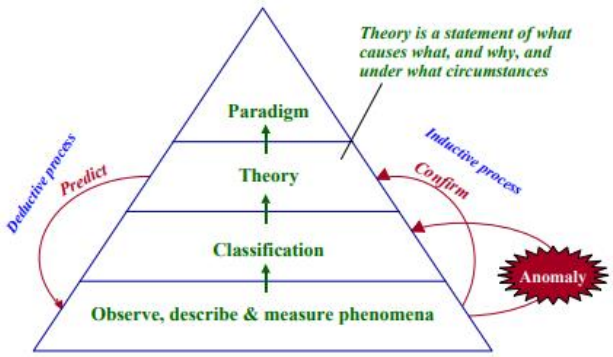


***Figure 1**: The process of development of a theory*

A theory may not be "stable" from on its birth. In its application in practice, "anomalies" may be discovered, which would falsify the theory and its validity. If the model can be "repaired" it will survive, if not, the theory needs to be replaced by a new one (as was the case in history when the geocentric model of our planet had to be replaced by the heliocentric). (Here reference must be made to K. Popper [P3])

Most theories in social sciences – and in this article we consider the management of organisations as a subdisicipline of social sciences – are being developed bottom up, i.e. from observations through abstractions towards a general set of statements. A typical process of developing a theory in this way is the "Grounded Theory" [P4]. Generating a theory by the method of Grounded Theory means that its definition is developed by inductions. (Although we may expect that Grounded Theory building is a qualitative method, in fact it is not. It is a general method guiding a systematic generation of a theory through some systematic research, following a set of rigorous research procedures leading to the emergence of resulting conceptual categories).

One way to represent a theory in an easy to conceive way is by condensing it into one or a set of graphical models fort he ease of ist condense represetantion – see Fig. 2

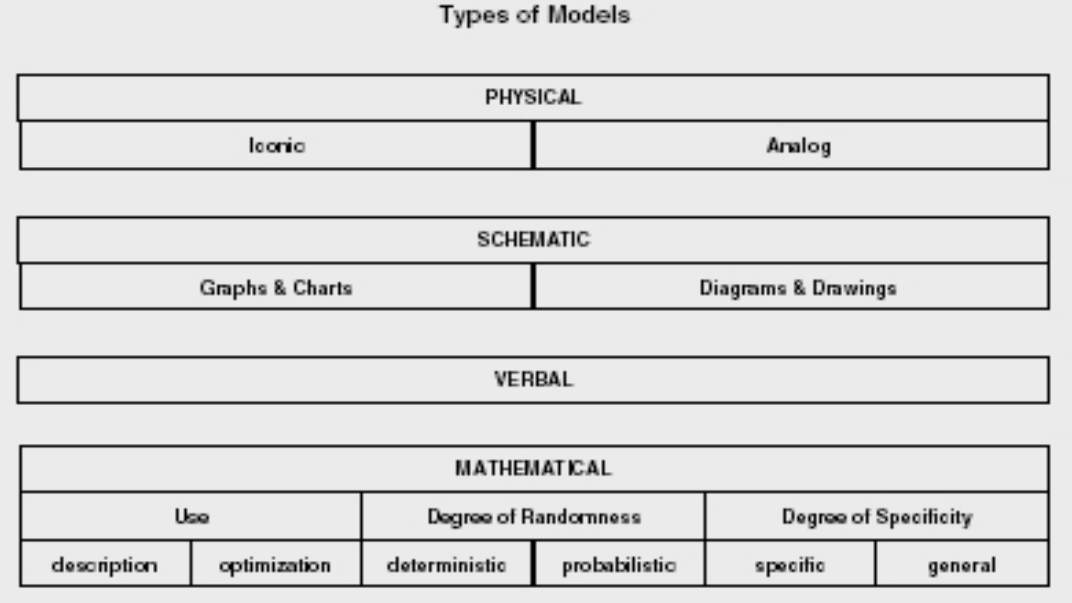


***Figure 2**: Types and representations of models*

After the „Encyclopedia of Management“ [P5] the quality of models is defined by their accurarcy: (quote*): „The accuracy of the results of the model analysis is dependent upon how well the resuming model represents reality. The closer the model is to its actual „real“ counterpart, the more accurate the conclusions drawn and the predictions made about the object of attention. Hence, the model user must strive for the most accurate representation possible. Model users also must be careful to identify the decision variable values that provide the best output for the model. This is referred to as the model's optimal solution. However, the model user also must be careful not to include irrelevant variables that may cloud the picture and cause inaccurate conclusions or force the model user to spend an unnecessary amount of time in analysis“.*

15.2.1 A rough survey on a) a history of methods and b) methods classification

Frameworks as models for defining methods for managment processes have been invented and introduced first time after World War 2 and since then to our days exploded in numbers. Today, we have to observe, that quasi every week an new model is being published and promoted as *the* ultimate cure for turning an organisation to become more efficient an profitable (see Fig. 3).

***Figure3**: Increase in numbers of framework models (for visualization purpose only. Copied from "Frankfurter Allgemeine Zeitung))*

15.2.2 Author's history in method developments

The author of this article himself has experienced and managed several projects in which he was responsible for the development and roll-out of management models. This history which is comprised in Fig. 4. started with the inventionn of a formal language for requirements engineering, then was continued with the invention of a model for identifying the maturity level of a software producing organisation, e,g, sofware enterprises - this metthod became an ISO standard - then continued with building a model for the identification oft he intellctual capital of any organisation.

Figure4: The author's involvement in developing and launching method models

15.3 The „Intellectual Capital Report“ model – as ultimately applied to Austrian Universities

One of the models from the previously presented history which even became subject of legislation in Austria [P6] was the Intellectual Capital Reporting model – in German called „Wissensbilanz“ – which defines the framework for an analytical report applicable in first place to „knowledge organisations“ such as research centers or universities, but as well to any company producing intellectual products and services as might be software, web design, content stories etc. This model is presented in Fig. 5. It has four subsequent „domains“ and its interpretation implies a methodogical flow from left to right following an „Input – Process – Output“ (IPO) pattern.

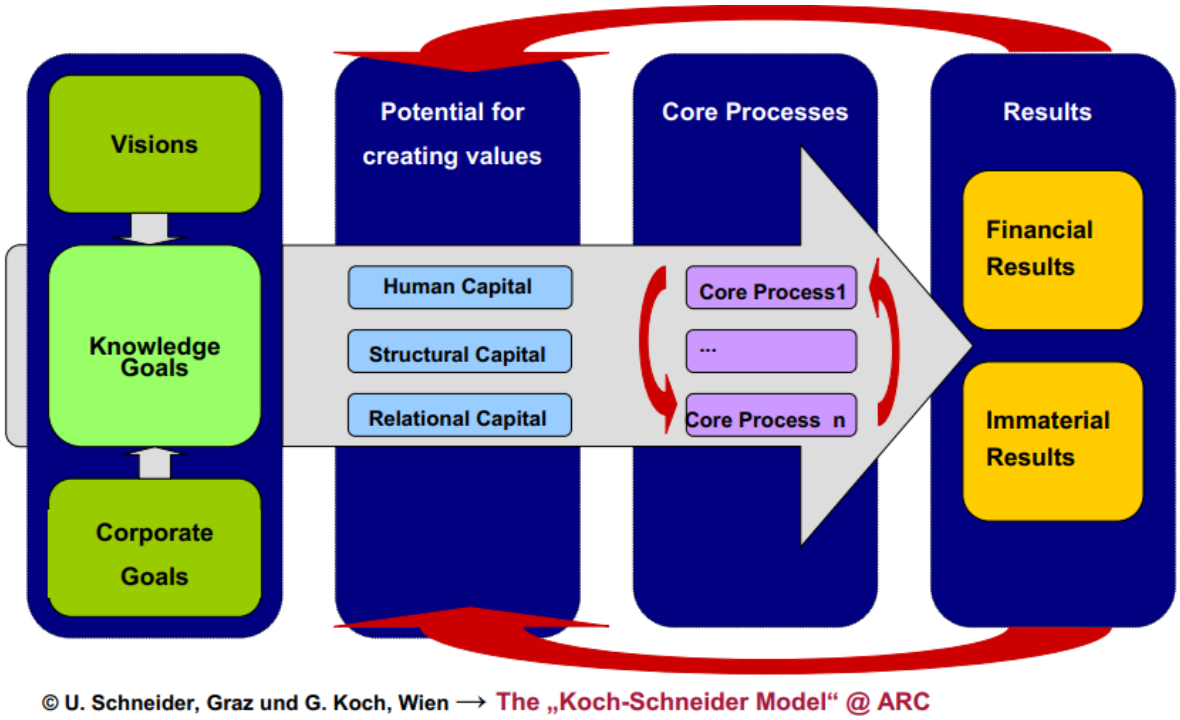


Figure 5: The so called Koch-Schneider model for representing an organization as a knowledge organization, creating intellectual capital

This model also forms the basic reference for a reporting standard which has been condensed into a legal reporting obligation for all public universities in Austria.

The „philosophy“ of this Intellectual Capital Reporting (ICR) model is to describe „knowledge assets“ such as Human, Relational and Structural Capital values of an organisation, its key processes and results which, besides financial results, cannot be expressed in monetary terms, i.e. in addition and complementary to criteria which can be captured and transformed into financial data which usually are presented in a classical and formalised financial report.

The presentation of this additional and non-financial dimension is tricky insofar the critera and values associated with cannot be expressed in one single „currency“, rather than through a more or less well defined structure of many indicators.

A model intended to be used as a working framework implies its application, i.e. a process describing how this model is a) to be interpreted and b) to be applied in practice. The Intellectual Capital Reporting (ICR) model as introduced above, is to be implemented along a sequence of steps as e.g. explained in Fig. 6. (This scheme has been taken over from the INCAS project [P7], a derivative oft he original IC Reporting method as first time published by the author and colleagues [P8]).

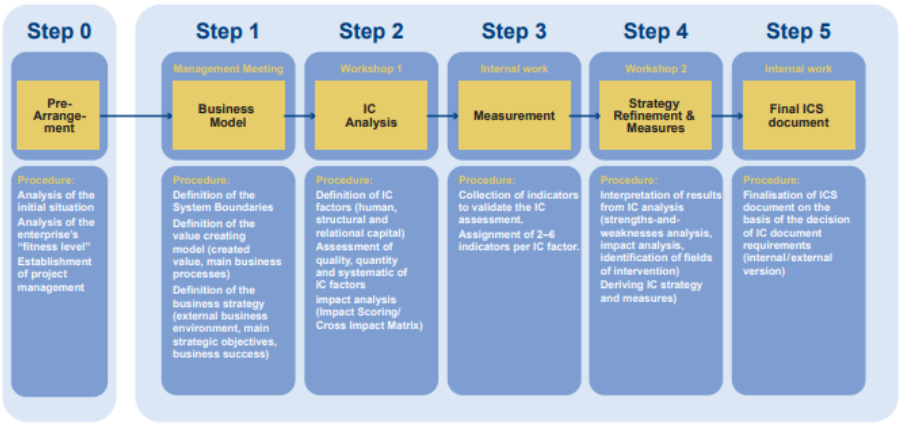


Figure 6: the methodological process implementing the Koch-Schneider ICR model (following INCAS)

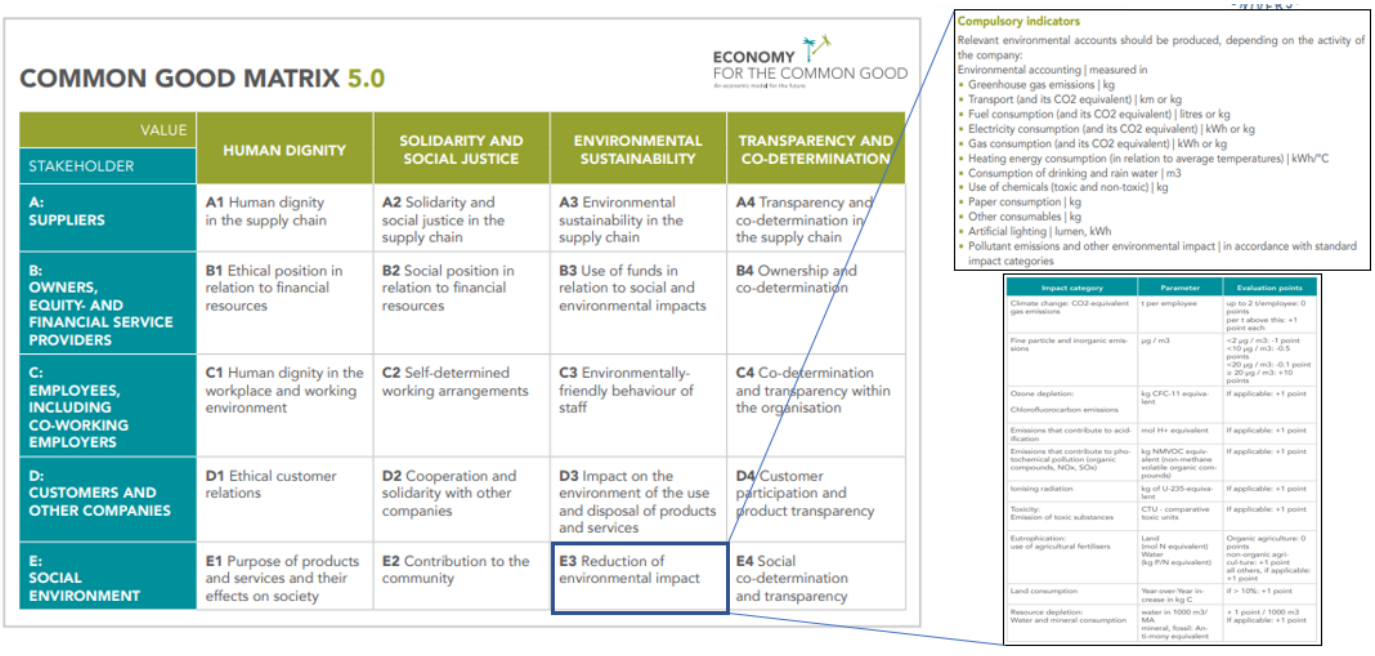
15.4 Models for „re-inventing economy and economics“

Most framework models show „boxes“ representing specific categories of aspects which ensemble constitute either a theory or a selective model to be implemented for practical actions. One of the globally best known framework models is the structured collection of the 17 Sustainable Development Goals (SDGs) of the United Nations [P9]. Each of these 17 global macro goals is broken down again in about 10 indicators per each goal. The purpose of this model is to provoke a global change in economic, social/societal and environmental developments.

Figure7: The Sustainable Development Goals framework model and – as an example – one of its breakdowns into implementing indicators (“subgoals”)

15.4.1 The operational model for analysis on „Economics for the Common Good“ (ECG)

Like the SDG-model implies and intends to guide its addressees – first hand large public institutions such as governments and governmental bodies down to each individual person – i.e. that they take the indicators as measurable or at least qualitatively describable objectives. On a lower and practicable level one (out of several) methods may be chosen which is best suited to raise consciousness and motivation of business leaders and employees to aim at better moral direction of their organistion. The result of such refinement will be a balance sheet for identifiying and implementing ethical management standards beyond those for today‘s reductionistic, neoliberal, financial profit-orientation. Such a model has been developed in a group exercise under the intellectual leaderhip of Christian Felber [P10]. The result of their group work is model representing the „Balance Sheet for the Common Good“ [P11]. Its current version is presented in Fig. 8. This „balance scheme“ leads beyond the classical and currently used financail reporting standards – likewise did the Intellectual Capital Reporting (ICR) sheet introduced above. The balance sheet for analyzing the common good qualification of its users is intended first hand to raise awareness on aspects which are not captured in the usual offical and legally imposed prescriptions in business reporting standards [P12]. In the very end the intention of this reporting model is, that the categories in this balance sheet for the Common Good, once applied and „measured“, may serve as a foundation for re-calcualting tax levels or privileges depending on the results of the compound quantifications of the related indicators.



COMMON GOOD MATRIX 5.0

ECONOMY FOR THE COMMON GOOD

VALUE / STAKEHOLDER	HUMAN DIGNITY	SOLIDARITY AND SOCIAL JUSTICE	ENVIRONMENTAL SUSTAINABILITY	TRANSPARENCY AND CO-DETERMINATION
A: SUPPLIERS	A1 Human dignity in the supply chain	A2 Solidarity and social justice in the supply chain	A3 Environmental sustainability in the supply chain	A4 Transparency and co-determination in the supply chain
B: OWNERS, EQUITY- AND FINANCIAL SERVICE PROVIDERS	B1 Ethical position in relation to financial resources	B2 Social position in relation to financial resources	B3 Use of funds in relation to social and environmental impacts	B4 Ownership and co-determination
C: EMPLOYEES, INCLUDING CO-WORKING EMPLOYERS	C1 Human dignity in the workplace and working environment	C2 Self-determined working arrangements	C3 Environmentally-friendly behaviour of staff	C4 Co-determination and transparency within the organisation
D: CUSTOMERS AND OTHER COMPANIES	D1 Ethical customer relations	D2 Cooperation and solidarity with other companies	D3 Impact on the environment of the use and disposal of products and services	D4 Customer participation and product transparency
E: SOCIAL ENVIRONMENT	E1 Purpose of products and services and their effects on society	E2 Contribution to the community	E3 Reduction of environmental impact	E4 Social co-determination and transparency

Compulsory indicators

Relevant environmental accounts should be produced, depending on the activity of the company:

Environmental accounting | measured in

- Greenhouse gas emissions | kg
- Transport (and its CO2 equivalent) | km or kg
- Fuel consumption (and its CO2 equivalent) | litres or kg
- Electricity consumption (and its CO2 equivalent) | kWh or kg
- Gas consumption (and its CO2 equivalent) | kWh or kg
- Heating energy consumption (in relation to average temperatures) | kWh/°C
- Consumption of drinking and rain water | m3
- Use of chemicals (toxic and non-toxic) | kg
- Paper consumption | kg
- Other consumables | kg
- Artificial lighting | lumen, kWh
- Pollutant emissions and other environmental impact | in accordance with standard impact categories

Impact category	Parameter	Evaluation points
Climate change: CO2-equivalent gas emissions	t per employee	up to 2 t/employee: 0 points per t above this: +1 point each
Fine particle and inorganic emissions	µg / m3	<2 µg / m3: -1 point <10 µg / m3: -0.5 points <20 µg / m3: -0.1 point ≥ 20 µg / m3: +10 points
Ozone depletion: Chlorofluorocarbon emissions	kg CFC-11 equivalent	If applicable: +1 point
Emissions that contribute to acidification	mol H+ equivalent	If applicable: +1 point
Emissions that contribute to photochemical pollution (organic compounds, NOx, SOx)	kg NMVOC equivalent (non-methane volatile organic compounds)	If applicable: +1 point
Ionising radiation	kg of U-235-equivalent	If applicable: +1 point
Toxicity: Emission of toxic substances	CTU - comparative toxic units	If applicable: +1 point
Eutrophication: use of agricultural fertilisers	Land (mol N equivalent) Water (kg P/N equivalent)	Organic agriculture: 0 points non-organic agriculture: +1 point all others, if applicable: +1 point
Land consumption	Year-over-Year increase in kg C	if > 10%: +1 point
Resource depletion: Water and mineral consumption	water in 1000 m3/MA mineral, fossil: Antimony equivalent	+ 1 point / 1000 m3 If applicable: +1 point

Figure 8: The “Matrix Model” structuring the categories for a “Balance Sheet” of economics for the Common Good

15.5 Merging models

The idea of developing reporting models „beyond“ classical GDP-based indicator models is not new, as are not versions applicable to the economics on business

level. As had been pointed out in the introductory section x.2.1 and Fig.3. There exist innumerable many framework models. Also in „theory“ many different approaches have been published, the most relevant of those are represented in Fig.9.

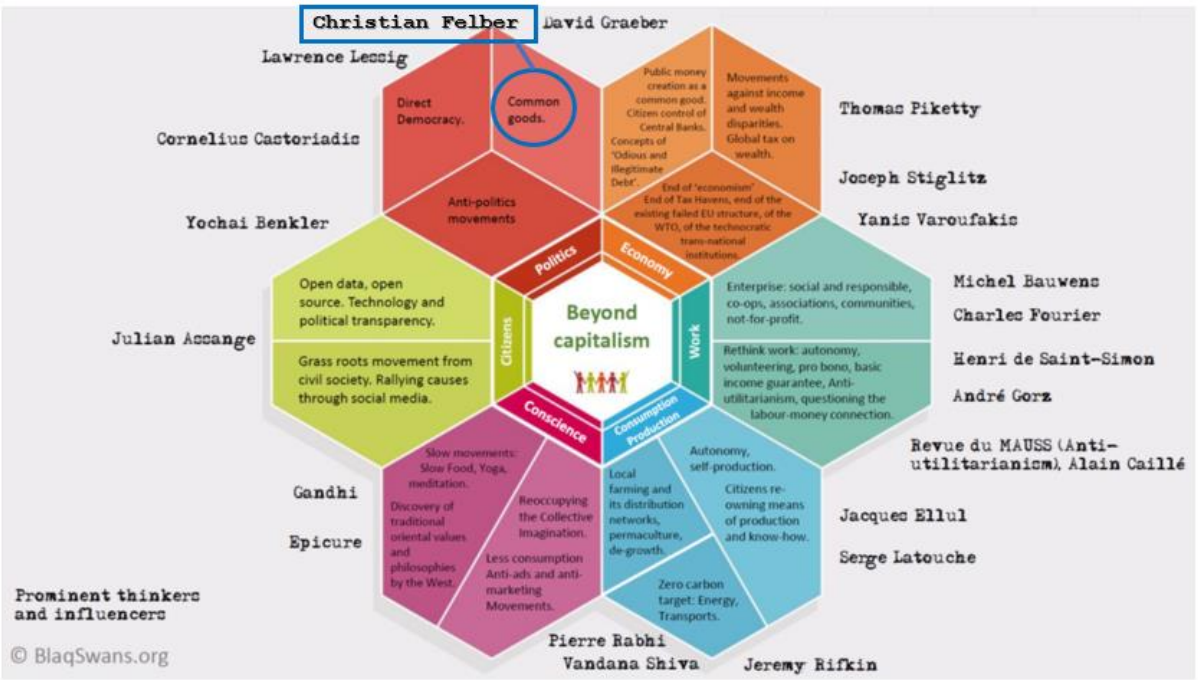


Figure 9: Main theories in alternative economy

All these different theories adress either only specific aspects in economy or intend to argue in favour of a new theory bulid on new and divergent observations, as e.g. the French economist Piketty did by collecting and interpreting latest historic data on „the wealth of nations“ – an intention to induce a new perspective in economy towards the post Adam-Smith-Age [P13].

On a more practical level he question would be, if and how economics models can be combiend, say merged, as e.g. the „matrix“ for representing an economic unit being qualified for its contribution to the Common Good with the ICR (intellectual capital reporting) model applicable to companies based on knowledge capital.

15.6 The „Doughnut Economics“ model as a supermodel?

One of the main criticism on the matrix model for identifying the qualification of being an organisation serving the idea oft he Economy for the Common Good, is, that its scientific foundations are not sufficiently sound. This cristicism is partly based on the fact that ist authors are no scientists (rather than, at best, „citizen scientists“) and that their model is more motivated by a strategic political idea implemented by a movement of convinced followers. The question valid to be discussed is with which scientifc rigour and mehod the matrix model has been developed and by whom. (W.r.t. the latter question, the ICR model had been declared to be „scientific“ for the simple reason that it emerged from a research organisation).

The initiator and promotor of the model of the „Economy for the Common Good“, Christian Felber, decided not only to establish a research association [P14] with the mission to collect „brains“ from the scientifc community supporting research for creating scientific foundations for this „philosophy“, he also suggested to link up with

Kate Raworth, a British scientist who published on „The Doughnut Economics“ [P15]. The model (or better: set of models) of Doughnut Economics is a composition made up from a wide range of insights, each of which captured in a partial model, which its author has gained in her very different life circumstances, as e.g. making practical experience in developing economies, in family economics and through scientific studies at research institutes and universities. In a way, Doughnut Economics serves as a reference model for the current discussion on how economy and enterprise economics can be redirected towards a more responsible and ethic direction without stressing a revolution.

C. Felber in a private communication worked out a long list of criteria comparing his own approaches versus Kate Raworth’s [P16], thereby demonstrating the high level of similarities in their basic concepts. K. Raworth by her personal history and her methodological rigour applied may claim to be better recognised and respected in the scientific community.

In order to better understand the Donough model and espcially how it applies in practical analysis, an intercative computer program of the University of Leeds [P17] must be recommended for experimentation thereby receiving insights on the advancements of national policies in conforming to the Doughnut profile. As an example, see Fig. 10.

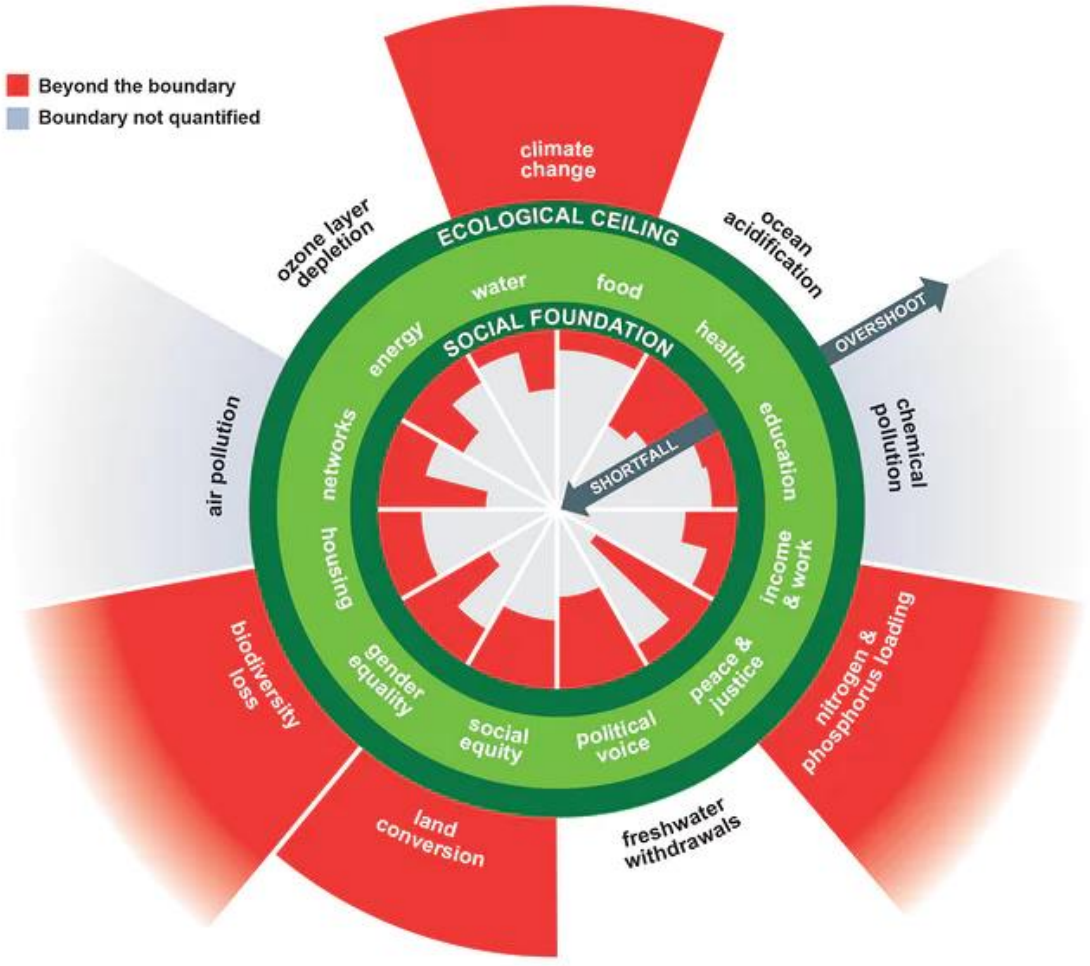


Figure 10: A template for a specific “Doughnut analysis” of a specific case

15.7 Conclusion

This article is more about describing a partial aspect of current endavors to identify, construct and apply new theories and, compliant with such theories, new models applicable for redirecting organisations, especially companies to engage in ethical management by applying such holistic models based on indicators „beyond“ classical standard reporting criteria, as currently applied in business practice and required by legal obligations.

The author does not expand on the question how such new methods for directing companies applying new indicators already are taken up in policy making processes as are e.g. investigated by relevant political decision making bodies such as the European Economic and Social Committee (ESSC) which decided to commit towards supporting the legal implementation of the concept of an Economy for the Common Good [P18]. Rather the subject of this article is on the question in which way new methodolgies can be created to identifiy or to construct a „supermodel“ of a new economy which may also serve for reference in future law making (where the European Parliament on a more abstract level may engage in creating a so called directive, in a first step as an extension towards improving the so called non financial reporting standards, already today mandatory for companies with more than 500 employees [P19]).

This paper therefore serves more for outlining a future program in developing future models for designing company directions by discussing questions such as merging models, inventing new models or adapting existing models [P20] as is pointed out in the last section introducing the Doughnut Economics framework.

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