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Regional modeling and the logics of sustainability – a social theory approach for regional development and change

Abstract

EU regional policies have essentially influenced regional development across Europe. These policies and the implementation of programs also have impacted research and have led to several development strands supporting regional change. Diverse concepts, like learning regions, creative milieus, network approaches, transdisciplinary case studies are targeting socio-economic and environmental adaptation. These approaches are focusing on informal cooperation and interaction, voluntary participation of stakeholders and the wider public, best practice applications etc., but are not tackling question of regional identities and values, and are using more casual methodologies in terms of structured learning and knowledge transfer. Therefore, our concept tries to initiate change on the basis of a common set of values and beliefs, which is directing the endogenous, self-organizing and self-sustaining development measures/actions to achieve value-led results. The introduction of two social theory approaches, adapted from Neuro-Linguistic-Programming (NLP), namely the concept of logical levels and the concept of regional modeling will result in a value-led and participatory regional development. On the one hand, logical levels will be used as natural hierarchies in communication, learning, project development and transfer processes, but are also necessary to integrate social, economic, ecological and institutional sustainability along these levels, resulting in value-led logics of sustainability. On the other hand, the application of the modeling concept in connection with logical levels will bring about a structured and appropriate transfer, and implementation of best practice examples from model regions, mainly by focusing on the compatibility of transferred ideas, innovations, imitations with the environmental, social and economic value system of the modeling region.

Keywords: sustainable development, participatory approaches, logical levels, NLP.
JEL Classification: Q56, R11.

Introduction

Over the last decades regional policy has played an important role in the European Union. Although, the origins of cohesion activities can already be traced back to the Treaty of Rome. Major impact on regional developments was happening since 1989, when the first regional development programs where launched by the EU, followed by three successful program periods, the current one lasting until 2013, focusing on growth and jobs, mostly in "convergence" regions. Parallel to this, the European Spatial Development Perspective (ESDP) (1999) was elaborated and signed by the responsible ministers as a framework for sustainable urban and regional development, also across borders (Zimmermann, 1999), in order to reduce interregional inequalities and, moreover, support the biggest enlargement of the EU with 10 new Member States having joined in 2004 and two more in 2007.

The regional and structural policies of the EU have been strategic vehicles to support change and improve cohesion, causing a strong impact on regional development and have also influenced the "spatial" scientific community and its research activities, especially in the late 1990s and beginning 2000s (see, for example, Zimmermann and Janschitz, 2000; 2001; 2002; 2004). Dommergues is already discussing the emergence of a new spatial paradigm in 2001 by recognizing the increasing territorial complexity. He proposed the use of new methods (like systemic approaches, integrated strategies) supplemented by common beliefs (like the three pillars of sustainability), to cope with global challenges and the growing intricacy in our society. After decades of specialization with improvements in theory, methodology and techniques, a strong tendency for more involvement of stakeholders and the wider public in decision-making developed leading to an increasing cooperation between environmental, economic and social disciplines, which consequently resulted in more inter- and transdisciplinary research (Cutter et al., 2002; Hobson, 2003; Novy and Bernstein, 2009). Parallel to this, there is a renaissance of space, which comes mostly from outside the "spatial disciplines", e.g. in a new regionalism where welfare development is declining and neoliberal entrepreneurial development strategies are intensively entering the political, economic, cultural and academic stages during the last 10 years. Furthermore, there is a new "sustainable spatiality" and an increasing reorientation towards regions/regional identities (like the Europe of regions), where developments are based on objective regional strengths, but enriched by subjective approaches of the new cultural critics (Soja, 2009).

Research in regional development is nowadays massively endorsed through a new role of universities, leaving the ivory tower and taking responsibility for the economic well-being and the quality of life of their home regions, especially by producing, exchanging and transferring cutting edge knowledge from research, by community engagement or by private public partnerships (Zimmermann, 2007[1]; Rutten and Boekema, 2009; Cochrane and Williams, 2010; Lehmann et al., 2010).

Taking a closer look at research, which is designed to support regional development, at least five major strands can be named (Nijkamp and Abreu, 2009): (1) supply-side strategies with public spending in less favored regions; (2) growth pole strategies with concentrated impulses, mostly in agglomerations; (3) infrastructure policies, to enhance competitiveness; (4) self-organizing policies, encouraging endogenous strengths; and (5) suprastructure policies, providing R&D and knowledge facilities to promote self-sustained innovation processes.

The relevant concepts, which are especially important for our further statements, belong to the last two policy fields and rely on new directions in regional development since the 1980s towards more endogenous, bottom-up approaches. Tödtling (2009) argues that these approaches are not based on a consistent new theory but are comprised of some essential elements, like the mobilization of regional potentials, the inclusion of all economic sectors, the focus on SMEs and entrepreneurship, innovation based upon regional specifics, governance issues and last but not least on harmonized economic, social, and environmental goals in terms of a sustainable regional development. Without going into discussion about the lack of a theoretical framework for the complexity of what is called "sustainability" (Counsell and Haughton, 2006; Jabareen, 2008; Krueger and Gibbs, 2008), we would like to contribute another tessera to the facets of integrative methods to support sustainable change in regions.

The main goal of the paper is to supplement some of the current research strands fostering on endogenous regional development by implementing conceptual frameworks from Neuro-Linguistic-Programming: (1) Logical levels, as a hierarchy of thinking and an innovative approach in learning, training, project development and knowledge transfer in order to support environmental, economic and social change by implementing a method to support value-oriented developments; (2) modeling is applied as a method for the transfer and exchange of benchmarking results and best practice cases between regions, again underpinned by logical levels and the value orientation, and including participation of local actors.

1. From logical levels to "the logics of sustainability"

Change happens, change in regions permanently happens! Without extending the discussion about different perspectives on regional change, which was recently extensively summarized in the Handbook of Regional Growth and Development Theories (Capello and Nijkamp, 2009) with the critical review by Hanink (2010), we have seen in the lot of empirical work in towns and regions that development measures and projects are mostly implemented without analyzing the effect of single measures on the whole regional system. A structured modus operandi with a focus on the regional prerequisites, specifics and needs would be necessary to gain more success.

Here comes the first approach from Neuro-Linguistic-Programming, namely the concept of logical levels as a structured, hierarchy based methodology into play, which means that all development measures have to fit into a regional hierarchy of identity, values, beliefs, capabilities, behaviors, and environments.

But first we need to go back to the genesis of this concept. Dilts (1996) defined the logical levels as leadership skills in applying the concept of Bateson (1972) who recognized *"natural hierarchies of classification"* in processes of learning, change, and communication. Dilts (1990) called logical levels *"…an internal hierarchy in which each level is progressively more psychologically encompassing and impactful.''* Humans normally work with five levels: "(1) The basic level is your environment, your external constraints. (2) You operate on that environment through your behavior. (3) Your behavior is guided by your mental maps and your strategies, which define your capabilities. (4) These capabilities are organized by belief systems. (5) Beliefs are organized by values and identity." (see Figure 1). *"In our brain structure, language, and perceptual systems there are natural hierarchies or levels of experiences. The effect of each level is to organize and control the information on the level below it. Changing something on an upper level would necessarily change things on the lower levels, changing something on a lower level could but would not necessarily affect the upper levels"* (Dilts, Epstein, Dilts, 1991).

[1] As former Vice President for research and knowledge transfer at the University of Graz (2000-2007), the local and regional responsibility of the university and the appropriate knowledge transfer to support the social, economic and environmental development of the university region has had high priority on my management agenda.

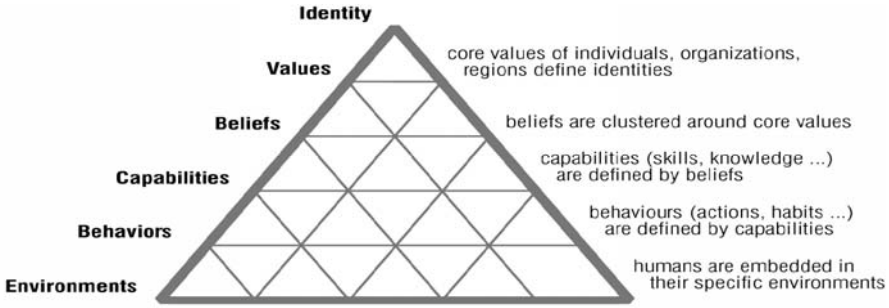

Fig. 1. Logical levels and their interrelations

Although, there are some critics with the terminology and the operability of "logical levels" they can be very useful tools in practice. If we assume that there are hierarchies of experiences and we further know that higher levels organize and control processes at the lower levels, we can say that the impact of higher level changes is more important and sustainable because the modulation effect of the system is working downwards. What we need to keep in mind is the fact that mostly interventions (measures) are done at one of the levels without encompassing the consequences of the intervention to the other levels. Mostly, the easiest, fastest and for everybody visible interventions are done at the lower levels but many of these measures do not have a proper effect and do not work, they even create problems because of the incompatibility with the higher levels. For example, if you would like to restructure an old mining area and do it with tourism infrastructure, you will not create a tourism region and the local population, will not become really engaged in tourism, they will still remain "miners". On the other hand, a higher level change always affects the lower levels - hence the higher level will govern, modulate, and organize the lower level. To continue our mining example: changing the beliefs and values of the people in a mining area will lead to a change of the identity of the region and will eventually support the transition from a mining region into a tourism region[1]. A similar problem arises when working in cross border regional development, e.g., in creating and implementing a regional tourism destination across borders, focusing on the complementary supply in a border area. Different cultures, languages, mentalities and in this course different identities create barriers, especially in identity and value questions, when a "new" regional tourism image should be created as a basis for all further actions (cross border marketing and organization, joint legal frameworks, mutual education and training initiatives, joint environmental strategies, etc.) (Zimmermann, 2001).

1.1. Some concepts in relation to logical levels. We have worked a lot with strategic development concepts in towns and smaller cities. In placing the actions according to the specifics of logical levels, one can see that a strategic development process is affecting almost all logical levels (Figure 2).

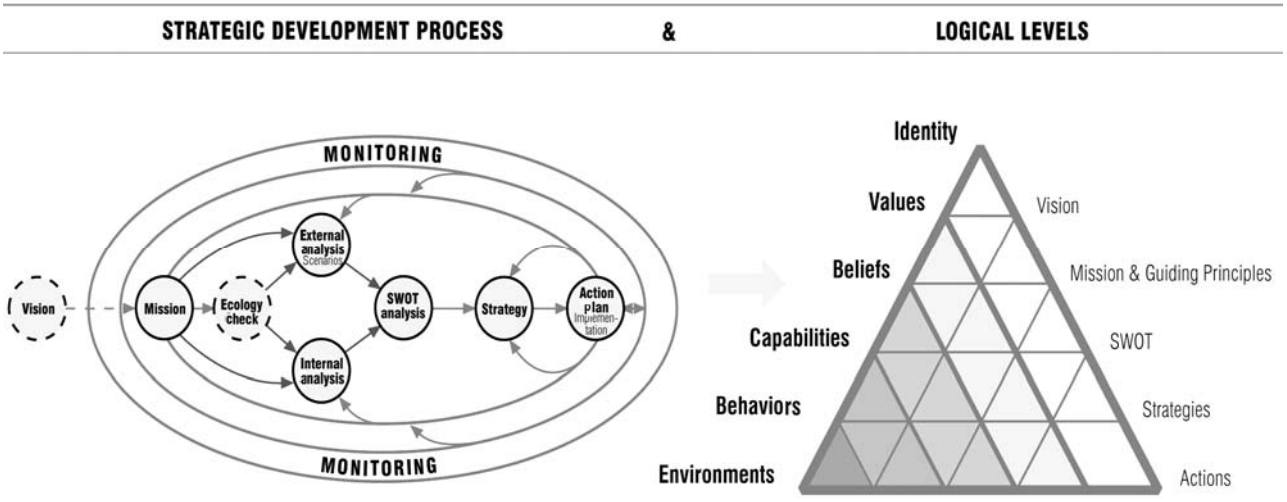

Fig. 2. Actions of a strategic development process and the relevance of logical levels

[1] This topic has been a core problem in the EU-INTERREG IIIB project "READY – Connecting Rehabilitation and Development in European Mining Regions," where the authors were involved.

The starting point is a vision and a mission statement at the level of values and beliefs, to create a value-based region and consequently influence/modify the level of capabilities and behaviors. This will further structure the content and the implementation of different measures in form of action plans which are responsible for changes at the level of the environments, but also iterates with changes at other levels, always according to the visions of the entire process. The problem is mostly that in participatory development processes the involved stakeholders and the public is mainly arguing at the lower logical levels, discussing and promoting a lot of concrete actions and projects, possibly arguing about strengths and weaknesses. They are hardly dealing with the strategy and almost not understanding the need for working on missions and visions, and consequently the need for adapting/changing beliefs and values which are evidently the most important elements for sustainable regional change. Therefore, specific communication methods have been applied in our transdisciplinary projects, e.g., future search conferences, simulation sessions, qualitative system analyses etc., where participation was structured along logical level guidelines.

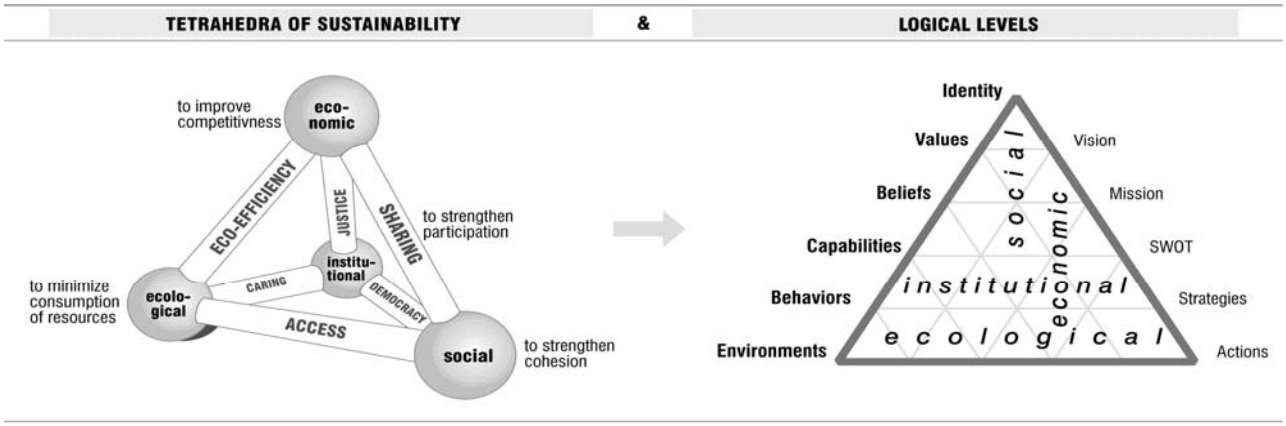

Fig. 3. The integration of sustainability, strategic development and logical levels: "The logics of sustainability"

In the next step sustainability issues will be introduced into the concept (Figure 3). Starting with the tetrahedra of sustainability and combining its four vertices: 'social', 'economic', 'ecological' and 'institutional' with the logical levels, results in a new picture of how to deal with regional development processes. (1) Ecological issues, like the minimizing of resource consumption, are mainly discussed at lower logical levels, the levels of environments (e.g., concrete energy saving actions) and behaviors (e.g., information about energy saving needs). The achievements of (2) institutional sustainability in terms of justice, social care, human rights are mostly affecting the levels of behaviors and capabilities (e.g., by formal and informal participation, governance etc.), and are leading to institutional change which does not necessarily mean that beliefs and values are affected. There are two main cross level aspects: (3) the economic sustainability, e.g. to improve competitiveness, needs to cover the levels of environments (like eco-efficiency actions), behaviors (change/influence habits by information), capabilities (improve skills by learning and training measures) and beliefs (trust-based networks in economy). The most important and most complex issue is (4) social sustainability, affecting the levels from capabilities to identity. This aspect is essential because participation is the guiding principle and the application of this concept lead to a value-oriented sustainable development. This means that the local population (under guidance) needs to create its own (new) regional identity, based on values and beliefs, which is determining all other logical levels and including all other sustainability vertices. This is the most crucial and time consuming but core part of the process because individual values have to be harmonized with regional values and vice versa. The result of this hierarchy based and value-led concept is what we call: "The logics of sustainability".

Based upon this "logics of sustainability" concept, the final results of one of our city development projects (Weiz/Styria), were based on a SWOT analysis and a system model to analyze the most important positive and negative effects on economy, environment, social issues, culture and education, sports and recreation, and regional cooperation. These results were detailed in an integrative way starting from values (energy-efficiency, self-sustaining) and beliefs ("city of/with energy"), leading to capabilities like nature oriented quality-of-life, region specific education and training, energy related industries, to behaviors like changing mobility attitudes, intensifying social interactions and intergenerational community life, and finally to more than 100 concrete measures/actions at the lowest logical level, harmonized with the higher levels.

2. Modeling and the logics of sustainability in regional development

The second approach deriving from Neuro-Linguistic-Programming is the concept of modeling. The idea to include modeling practices into regional development is based on the fact that for most of the development processes, the transfer of "best-practice cases" or "benchmarks" is essential. Top companies and top regions with their successful measures are ideals to be reached, but mostly the transfer of best-practice cases from model regions to modeling regions is by chance and less structured so that the effects are sometimes disappointing.

So far the term modeling is known mostly in connection with information technology and mathematical modeling at different levels, to mention simulations, organizational patterns and logistics, collaboration technologies, multi agents systems etc. In this study, we will implement modeling according to the social theory approach of Neuro-Linguistic-Programming.

The method of modeling in our sense goes back to Bandler and Grinder (1975; 1976) who can be seen as the founder of NLP. Before they created the label NLP, they modeled theories, methods, and therapies of famous psychotherapists. The combination of different research approaches like linguistic theories, communication theories, and the introduction of elements from family-therapy, gestalt-therapy, and hypno-therapy led to what is today known as NLP. It began as an exploration of the relationship between neurology, linguistics and patterns (programs) of behavior. NLP can be defined as "*a field of human endeavor concerned with empirically studying and modeling human performance and excellence, with the goal of creating transferable skill sets*" (NLP weekly, 2005). To use the concept of modeling, we need to define modeling according to Dilts (1994): "*Modeling is the process of observing and mapping the successful behaviors of other people*". Working with modeling means knowledge about different levels where modeling processes need to be placed. According to this, knowledge about different types of modeling, and about a variety of skills to perform modeling is necessary.

The application of this modeling concept has been restricted so far to social sciences, especially psychology, for the improvement of personal competencies and the change of skills, of human attitudes, and emotional qualities, e.g. by using excellent examples from living or historical persons. An application to organizations was done by Lawley (1998), who stated: *"The basic principle of modeling in organizations is to discover what top performers do that is different from their colleagues and to transfer those skills to everyone else, thereby 'skewing the curve' towards the high performer end"*. The concept has not been applied to modeling changes in regional, urban, or local developments so far[1].

2.1. Regional modeling, using the logics of sustainability: what it finally is and how to apply it? Regional modeling is the result of regional benchmarking and the process of transferring best-practice cases of successful regions (model region) at different logical levels to a modeling region. To perform regional modeling, a variety of development concepts and skills have to be applied according to the logical levels needs. Regional modeling, using the value-led logics of sustainability consists of different modeling processes to cope with the social, economic, ecological, and institutional opportunities and challenges of a region. Taking the view of actors of a region, dealing with innovative aspects of regional development, and trying to set up a new development strategy by applying the concept of regional modeling, using the logics of sustainability, means to discover what top performers do that makes them so sustainable successful.

Logical levels (change questions)	View of the model region (best practice, benchmark)	Sustainability in the modeling region ('my region')
IDENTITY (WHAT)	What is the model region in comparison with the identity of the modeling region?	What will "my region" be after having gone the way towards sustainability?
VALUES AND BELIEFS (WHY)	Why is the model region successful in sustainable development?	Why is more sustainability in "my region" necessary?
CAPABILITIES (HOW)	How can the modeled strengths be transferred and implemented in the modeling region?	How is sustainability implemented at different levels in "my region" so far?
BEHAVIORS (WHAT)	What is to be modeled and what fits to the setting of the modeling region?	What are the needs for change towards sustainability in "my region"? What will "my region" gain?
ENVIRONMENTS (WHERE)	Where are the (environmental) advantages of the model region?	Where are the environmental opportunities in "my region"?

Fig. 4. Regional modeling applying ''The logics of sustainability''

[1] Just for the sake of completeness the logical framework or logframe is mentioned. It is a project management tool, applying a matrix with objectives and activities on the y-axis and performance indicators, verification means and assumptions/risks on the x-axis. Applications cover agricultural research (Sartorius, 1996), and (strategic) planning (Australian Government, 2005; Finlayson, 2002, 2004). Critically discussed (Bakewell and Garbutt, 2005) and updated (Couillard et al., 2009), this approach is not comparable to our concept using different hierarchies.

Figure 4 provides some questions to be answered before the "best-practice" region (benchmark, model region) can finally be chosen. In many cases and because of different economic conditions, political frameworks, social and environmental aspects, there will be the necessity to choose from a variety of model regions to get best fitting modeling results for different development purposes, different sectors, and different development instruments.

To improve results and to implement the findings of the different development concepts like strategic planning (Mintzberg, 2000; Albrechts, 2006), learning regions (Florida, 1995; Asheim, 2001; MacKinnon, 2002), creative milieus (Ewers, 1990; Camagni, 1991; Maier, 2002, 2004; Maier and Obermaier, 2001; Fromhold-Eisebith, 1999, 2009) or transdisciplinary case studies (Scholz and Tietje, 2001; Stauffacher et al., 2008; Walter et al., 2008; Wiek and Walter, 2009), questions at all logical levels and also for several types of actors (leaders, managers, entrepreneurs) have to be answered, before the beginning of the regional modeling process (based on Figure 3):

1. The responsible actors of the modeling region have to start the modeling process at the highest levels of "the logics of sustainability", to proof the levels of identity, values, and beliefs of the potential model region in comparison with the overall vision and goals of the modeling region. Attention has to be paid to the fact that the social parameters are extremely important because they are able to generate best effects on the (lower level) economic, institutional and ecological measures. Only if the upper levels fit together modeling at lower levels makes sense.
2. According to this, the next step would be to ask for the potentials for an empowerment of the local people, i.e. the intellectual abilities, skills, competencies in the modeling region. Only if the economic and institutional prerequisites are positive, a transfer of the modeled systematic and structural capabilities into the modeling region is useful.
3. With the introduction of these elements by applying entrepreneurial quality management approaches, behaviors can be changed in the modeling region (like in companies) and consequently the measures at the environments level will be value-led and generate adaptation according to the new identity of a "changing region".

2.2. Stages of a typical modeling project in regional development. The design of a typical modeling project in regional development can be summarized as follows (adopted and supplemented according to the five steps, suggested by Lawley, 1998):

1. *Main questions for the selection/benchmarking of best-practice cases (model region):* Who are the top performers in regional development and are they comparable with my region? What is their identity? What are their value systems? What organizational structures are used? What is the scale of the development? What are the potentials? What is the budget?
2. *Information gathering:* Getting as much information as possible based on a SWOT analysis and according to the needs of the logical level approach (regional identity, vision and mission, strategies, skills and knowledge, measures and actions, environments).
3. *Model development:* Creation of a logical level based regional development model by using results of the comparative analysis in order to apply the best performing processes of the model region(s). A focus has to be set on the logics of sustainability and consequently the comparative and competitive advantages in society and economy.
4. *Testing, participation and PR:* The inclusion of regional stakeholders and the public is necessary to test the usability of the model and to redefine different aspects at different logical levels, agree on the identity and value sets and finally document the model. Further success factors are intensive PR activities to transfer new/adapted identities, values, ideas and achieve as much participation, acceptance for and ownership of the process by the local population as possible.
5. *Implementation, transfer and empowerment:* The implementation of the model has to be permanently controlled according to "the logics of sustainability". The institutional transfer of results has to be organized at different levels, like administrative bodies, enterprises, networks and clusters, NGOs, etc. The empowerment of the local actors through social networks, by information and decision influencing, as well as by learning and training is the key for the adaptation of a region according to the prerequisites of the logical level approach.

Conclusions

Values drive our human life. Therefore, two aspects of Neuro-Linguistic-Programming: the logical level approach and the modeling approach, are becoming more and more relevant for the self-development of individuals, for structured communication strategies, as a new learning approach, and also as a management tool for leaders and, in consequence, as a strategic tool for organizations. This paper aims at implementing these two concepts into sustainable regional development to achieve participation based on value-led regional changes.

Regions are extremely complex entities. The identity of the region is mostly shaped by its history and it is extremely difficult to cope with identity changes. Many development initiatives, therefore, are not tackling this issue although they pretend to enforce an integrative sustainable development. Our regions, prone to global influences and consequential uncertainties, are facing permanent pressure to change. For a proactive and sustainable development regional decisionmakers increasingly need a sense of direction. This means from our point of view to evaluate, adapt and eventually change the regional identity (sense of place), in order to provide a competitive entrepreneurial, organizational, institutional and consequently regional "company culture". The communication of (new/changed) regional values to stakeholders, regional actors and the public is necessary to make them to shared regional values. This will increase the participation of the local population, will enhance their capabilities and behaviors, and will positively influence the environment. Their skills, knowledge, actions and habits will be based on and oriented towards regional core values.

When implementing our concept, there is a need to combine top-down and bottom-up approaches: from top-down (presumably a small task-force) a few critical values as a basis for the discussion about identity changes have to be proposed. By using innovative communication methodologies, a bottom-up involvement of a wider public has to complement the discussion. Common principles need to be set up at the interface of "top-down meets bottom-up" to create appropriate room for business and society orientation as well as a strong orientation towards individual values and preferences. This is probably the most crucial point in our concept, the possible and inevitable clash between common and individual value systems. At this point mediation procedures to iterate between individual and regional values play an important role to achieve the joint value set for the development, and to support its diffusion into the region.

The implementation of our concept "the logics of sustainability" is possible for different regional development strands in research, like learning regions, creative milieus, and transdisciplinary case studies as well as best practice case oriented concepts. Especially for the last two approaches, the logical levels need to be complemented by the methods of modeling in order to guarantee best transfers of innovations, imitations, reproductions from the model region to a modeling region. Concretely this means that by observing and mapping what regional top performers do, the pure transfer of skills, knowledge, strategies, actions, is not sufficient. The selection of the best practice region, that should be modeled, has to go in line with a check of the identity and the value, and belief system of this region, and its coincidence with capabilities, and behaviors as well as its environmental constraints, consequently along "the logics of sustainability".

It is clear to us that this approach is neither a fast nor an easy option for regional development. It probably needs years of consequent work to achieve (sustainable) success and guarantee adaptation, and successful change in regions. This paper is written for applied scientists and regional development actors, who follow the paradigm of a respectful, human oriented, value based, transdisciplinary research, and who see regional development no longer as a discipline of "analyzing, constructing and optimizing a spatial order", but include the involvement of concerned people in order to attain logical hierarchy based and value-led results as a response to global challenges. Probably not everyone will agree with us our idea is to inspire and to continue discussion.

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