

REGIONAL PLANNING GAMIFICATION – A GAME-BASED APPROACH FOR ACTIVATING REGIONAL PLANNING STRATEGIES

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1. Introduction

While gamification has already been a topic of discussion for years (Scholles, 2005, p.326-333), the reality of planning does look different. In the presented work, issues of the formal regional planning in Germany are depicted in general and specific on the Stuttgart region. Well-known as the key economic region in Baden-Württemberg and southern Germany with global players such as Daimler, Porsche and Bosch in economically performing sectors like engineering, automotive industries and business services, even Stuttgart faces several challenges, which broadly can be subsumed as growth related pain. In the regions characterised by growth pains, actors in regional development, citizens and political decision-makers from various municipalities are confronted with one another in multiple constellations along with their positions and motivations. As an overall spatial planning concept, the regional plan has to take integrated account of the functional interrelations of the region and mediate between competing uses while it is often met with incomprehension, reluctance or even headwind, corresponding with negative consequences for the acceptance and appreciation of the plan. The current procedures, concepts and planning instruments of formal regional planning to ensure sustainable settlement development seem to have reached their limits. They need to be supplemented by persuasive instruments, among others, in order to convincingly convey the concepts in political decision-making processes (Stiewing, Mangels and Grotheer, 2020, p.1)

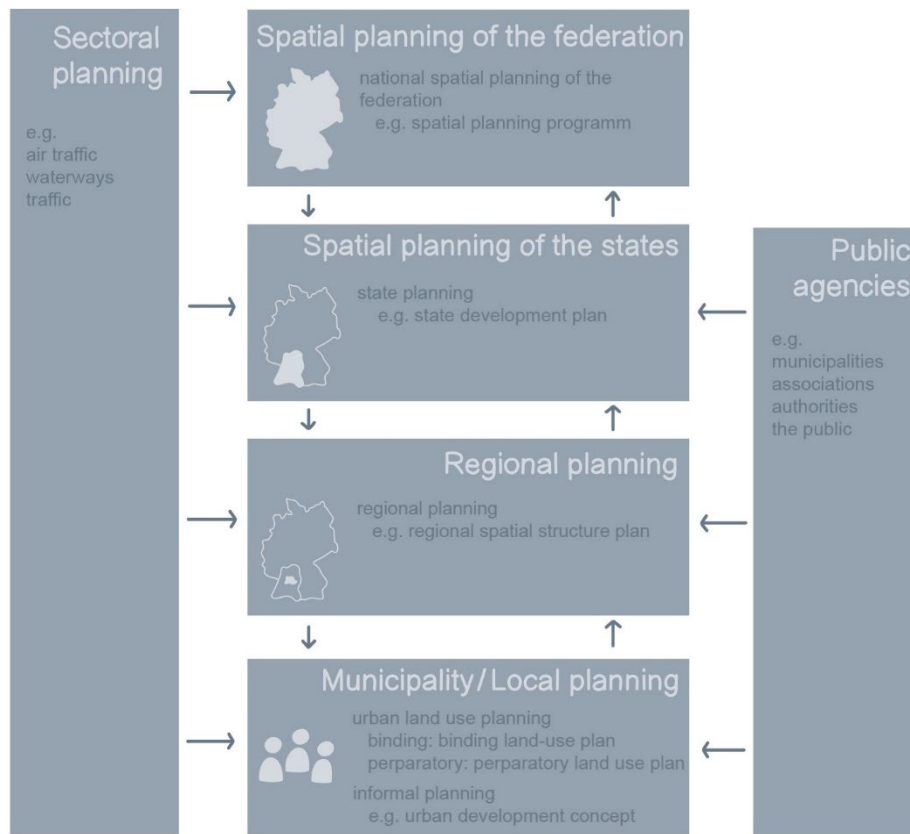
One persuasive, game-based approach for the above-mentioned issues with a focus on mediation, consultation and integration into political decision-making processes has been developed within the framework of a student project by students of the master's program in urban and regional development at the Technische Universität Kaiserslautern and will be presented in this paper. It addresses both citizens and political decision makers of the municipalities at the interface of regional planning and offers a possibility to present regionally relevant but locally rather intangible matters in a comprehensible way in order to stimulate an awareness-raising process. At the same time, this paper shows in which fields of practice the designed card-game can be used.

2. Regional planning in Germany and the Stuttgart region

2.1 The system of formal spatial planning in Germany

The political and administrative system in the Federal Republic of Germany is marked by the basic statutes of democratic principle, principle of the rule of law, social state principle and federalism principle. Characteristic for the system of spatial planning in Germany therefore is the federalist state order with the tiers of the federal government, the 16 states and local governments in 294 counties, about 10.700 county municipalities and 107 county-free cities. Considering that the latter are again spread over 22 administrative districts and 111 planning regions, spatial planning in Germany is accordingly decentralised and differentiated (Henckel and Pahl-Weber, 2008, p.13-39). The distribution of competencies and functions corresponds to a system of three planning levels of legal, organisational and substantive differentiation. The levels are at the same time interlinked by multilayered requirements of notification, participation, coordination and compliance as well as the mutual feedback principle (or: principle of countervailing influence), which applies to all levels and is characterised by mutual feedback and adjustment. In several rounds - partly mandatory, partly informal - also public agencies (e.g. municipalities, associations, authorities, the public) and sectoral planning (e.g. transport, nature and landscape, energy supply) are involved (Turowski, 2005, p.895-898).

Figure 1: The system of spatial planning in Germany (Henckel and Pahl-Weber, 2008, p.71)



While the role of federal spatial planning is mainly the development of guiding principles and action strategies for spatial development, state spatial planning develops state-wide spatial structure plans laying down principles and binding goals on the basis of spatially significant sectoral plans. The comprehensive, supralocal and intersectoral state instrument implements federal planning principles as well as the state spatial development goals and ideas, including specifications on the desired settlement and open space structure, securing locations and routes of infrastructure and the central-place system. Federal and state authorities are interlinked through the Conference of Ministers of Spatial Planning (Henckel and Pahl-Weber, 2008, p.69-73).

Regional planning, as dealt with in this paper, has to specify the state development plans for the individual sub-areas of the federal states by means of regional spatial development plans as an overall spatial planning concept of a region. Regional plans thereby 'coordinate land use matters of supra-local interest transcending municipal boundaries' (Henckel and Pahl-Weber, 2008, p. 73). More even, as medium-term concepts they are intended to illustrate the envisioned development of a region for a period of ten to fifteen years. Due to its sandwich position, regional planning not only mediates between state spatial planning and local spatial planning as well as sectoral planning (Priebes, 2018, p.2051-2052), 'it defends the general interests of a region against the particular interests of local authorities.' (Henckel and Pahl-Weber, 2008, p. 73). At the municipal level, the concretization through urban planning and urban land use planning takes place as an essential prerequisite for the realisation of projects.

The practice of regional planning varies from state to state, due to different shaped planning regions, various forms of organisation or the regularity of plan preparation and updating (Priebes, 2018, p.2051-2052).

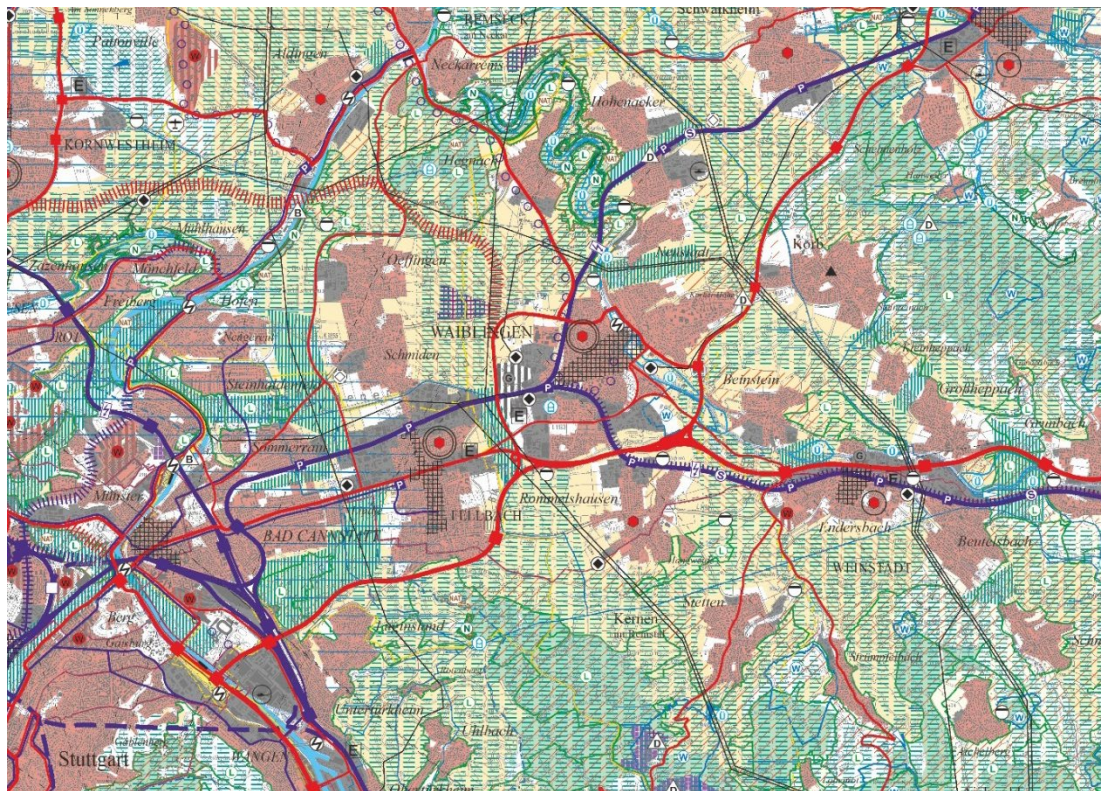
2.2 Regional planning in the Stuttgart region

In the Stuttgart region the regional planning authority is the regional association Verband Region Stuttgart (VRS) as one of twelve authorities in Baden-Württemberg. Representing the region on a political level since 1994, members of the regional

assembly, the parliament, are elected by the citizens every five years in regional elections. The association is headed by the honorary association chairman and the regular regional director. With the aim of ensuring the region's variety, high standard and quality of life, mobility and economic performance, the VRS works on a forward-looking and sustainable development of the region. As mandatory tasks, the VRS is therefore responsible for the regional planning along with landscape outline planning, concept and planning of the landscape park Stuttgart region, regional transport planning, public transport of regional importance, regional traffic management, regional economic development aid, waste disposal (partly) and regional tourism marketing.

The current regional plan for the Stuttgart region consists of three parts (text part, land use map and structural map), which were adopted as bylaws by the regional assembly in 2009. In the long term, the regional plan intends to ensure the region as a prospering economic area and attractive place to live by maintaining the infrastructure sustainable for the future, steering settlement development on the back of public transport and providing appropriate land in harmony with ecological and economic conditions. In terms of content, the regional plan is divided into the chapters 'goals and principles of the desired spatial development and order', 'regional settlement structure', 'regional open space structure' and 'regional infrastructure' (VRS, 2009a, pp.9-14).

Figure 2: Regional plan (excerpt) for the Stuttgart region (VRS, 2009b, p.1)



2.3 Challenges in regional planning and the Stuttgart region

General issues of formal regional planning in Germany arise from the structure of the regional plan as a comprehensive but due to periods of development and coordination inflexible instrument. As outlined, regional planning is based on legal requirements and specifications with a varying degree of coordination and integrated approach at local and supra-local levels. The implementation of the settlement development 'desired' by urban and regional planning varies at the municipal level and is reliant on the local self-governments (Stiewing, Mangels and Grotheer, 2020, p.1-2). While the conviction of the local level is essential for the implementation of regional planning strategies, corresponding to the differentiation of

regional planning, there is a broad heterogeneity of illustrations and plan symbols whereby differences occur even within the same state (Kistenmacher, Domhardt, Albert et al., 2001, p.79). The specifications of regional plans are not only therefore incomprehensible for non-experts such as citizens and political decision-makers (Tainz, 1992, p.369), but more even in general unsuitable for a comprehension of the sense or even the understanding of the complex planning specifications (Kegel, 2006, p.90-100). As a consequence, regional planning goals may not only become difficult to perceive but also the implementation of the plan's contents be hindered (Müller, 1999, p.244-245).

While goals of spatial planning lead to a restrictive character of the regional plan, the principles of spatial planning represent a declaration of intent, yet they do not have any binding effect on the local level. In the example of settlement development, the missing use of areas prepared and secured by regional planning as well as a lack of awareness of the housing shortage and an insufficient assumption of responsibility for the creation of housing are to be mentioned as obstacles. Thus, the influence of regional planning is limited. Municipalities cannot be forced to dedicate land, but rather can be prevented from dedicating land in suboptimal locations (Stiewing, Mangels and Grotheer, 2020, p.1-2). The formal instruments of regional planning prove to be effective when it comes to limiting the growth aspirations of individual municipalities to an acceptable level from a supra-local perspective. Nonetheless they are lacking more enforcing mechanisms in order to bring regional specifications to an implementation (Hemberger, Kiwitt, 2018, p. 33-35). The current configuration and standing of regional plans including a lack of understanding, doubts, reluctance and headwind by individual municipalities lead to the fact that many of the already integrated contents are not sufficiently activated and steering and guiding functions of regional planning determinations become ineffective.

With regard to the Stuttgart region, there are further challenges due to local conditions. On the one hand, there is a large administrative fragmentation with often insufficient cooperation within the city region, rather a widespread competitive thinking regarding residential, commercial and recreational spaces. An increased 'NIMBY' (not in my backyard) or 'BANANA' (build absolutely nothing around near anybody) phenomenon among citizens is also to be mentioned in this context. Regional needs for action may be recognised, but are not necessarily supported by citizens and decision-makers acting on their behalf. This is why decisions are thereby to an extent dependent on local political considerations and the goodwill of the electorate. Moreover, the narrow focus on the municipalities' own sphere of influence has an aggravating effect, whereby the local authorities' role in solving the housing shortage is often not perceived in a way that is adequate to the problem (Stiewing, Mangels and Grotheer, 2020, p.3). The strategic development of the region as a whole is thus hampered by intermunicipal competition, stagnation of saturated feel-good municipalities and plain unsolidary actions on the part of individual municipalities.

Yet regional approaches are particularly necessary in regard to the problems existing in the region and arise from the functioning as a labour market, passenger transport and service region around the centre of Stuttgart. Issues worth mentioning are the increasing traffic congestion caused by commuters, including side effects such as smog or traffic jams, the housing shortage with a strained real estate market in urban locations and the necessity of open space and climate protection in a largely densified settlement area. Further aspects are an inhibited economic development due to a lack of space for commercial and industrial expansion and restructuring, a brain drain due to housing shortage and missing 'residual space' for creative milieus and start-ups. In addition, the concentration on the automotive industry offers a vulnerability to structural transformation with regarding trends as sustainability and mobility change. Even though the regional plan serves as a strong inhibitor to maldevelopments and exploits the instrument's frame with restrictive regulations, it reaches its limits, lacking the ability to activate and enforce the relevant in order to keep the region's economic position. Likewise, regional planning, the influence of the VRS as a public authority and advocate of regional interests as well as its awareness among citizens is limited.

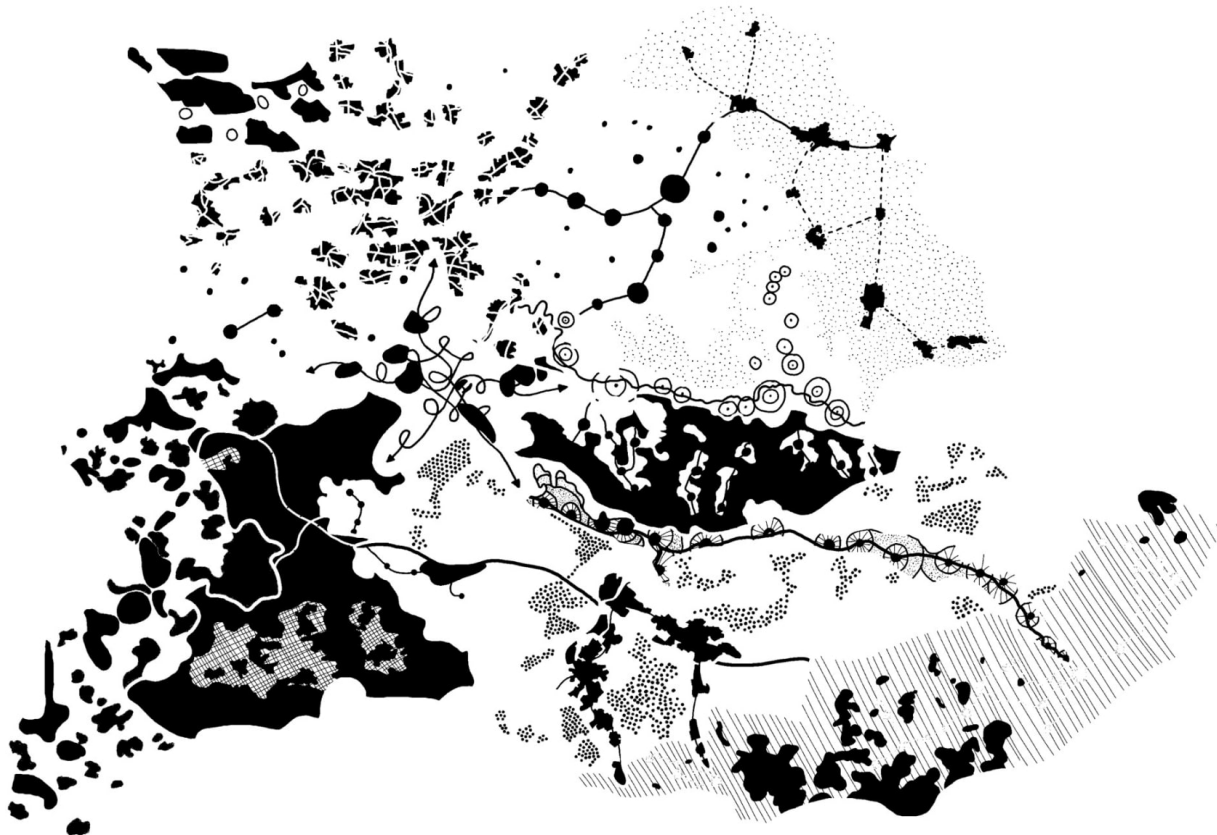
3. Methods and approach

3.1 Project-design and gamification as a strategy

Besides the rather restrictive specifications, regional planning has a legal development mandate as an opportunity to use formats of information, cooperation and awareness raising specifications to achieve a consensus on future developments. Strengthening inter-communal and regional cooperation, as well as building trust, is an essential aspect in this context and can complement the classic instruments of regional planning. Both the necessity and effectiveness of such persuasive instruments for consultation, persuasion and conflict moderation have already been discussed in the professional community for years (Stiewing, Mangels and Grotheer, 2020, p.3).

Thus, this paper presents a card game developed on the back of the Stuttgart region as an approach on tackling the outlined issues of regional planning strategies. The aforementioned challenges were identified in the course of a data-based quick scan of the Stuttgart region, an exploratory excursion and on-site expert discussions with representatives of the VRS. Following the further working process, four fields of action, future scenarios and potential maps as well as a spatial image and a map to point out spatial dynamics were designed for the region and its partial areas. In order to establish regionally responsible action among the municipalities, the problems and challenges must be known throughout the region and, above all, ideas, options and approaches to action must be supported by the respective decision-makers. Local politicians, administration authorities and citizens are therefore called upon to think regionally.

Figure 3: Heterogeneity of patterns in the spatial image of the Stuttgart region



The need for an easily understandable medium to reduce the acquired insights about the region and its mode of operation as well as formal instruments like the regional plan then led to the design of the presented game. The methodological approach is based on the idea of pictorial and playful elements instead of classical specifications of regional planning. The mutual communication of different municipal perspectives as well as the realisation that problems cannot be solved by individual municipalities alone is to be promoted. Ultimately, the development of a regional consciousness and mutual understanding is intended to contribute to the discarding of communal egoism. Even though conceived on the back of planning in Germany and the challenges of the Stuttgart region, the approach can be applied in general regarding the subject matter.

3.2 Regional card game as an informal approach

As a low-threshold medium, the developed game is suitable to break down planning principles and their underlying interrelationships as well as (local policy) options for both good and bad regional action for a broad target group. It represents a tool to symbolize regional principles and possibilities with regard to thematic focal points. While playing, citizens and political decision-makers slip into the role of municipalities in order to determine their future development being shown the caused consequences of different (non)actions and spatially effective trends on 60 different illustrated cards. In a playful way, principles of the activation strategies outlined above are clarified and communities are motivated to act while unsolidary actions and violations of regionally coordinated strategies are sanctioned. The factual to humorous cards include both success and regression as well as no-way, trading and action cards representing different local-regional mechanisms and implementing good practices in regard to the four fields of actions. The game concept then requires the distribution of seven cards per player and the turn-by-turn discarding until one player has no more cards left to win the round. The 60 playing cards of the game with the German interim title 'total regional' are divided into

- 24 trading cards in 4 categories corresponding to the key fields of action,
- 4 regular and 4 regional progress cards,
- 4 regular and 4 regional regression cards,
- 16 action cards of various meanings and
- 4 no-way cards.

3.2.1 Progress and regression - good and bad regional acting

Both regular and regional progress as well as the corresponding regression cards are representative for positive and negative developments affecting either one player as an individual municipality (regular) or all players as the entire region (regional). The principles illustrate the effects of certain developments influenced by the municipalities actions and raise awareness for different consequences of spatially effective decisions.

When a regular progress card is played, the player on the turn (representing a single municipality in the region) is rewarded by being allowed to discard any other card in addition and thus reaching the goal of getting rid of all cards more quickly. Examples are the establishment of an economically strong company as a cash cow as well as the distinction with an award for excellent open space design.

In contrast, when a regular regression card is played, the player on the turn is in the position to hinder a player of choice (representing a competing municipality in the region) by handing over the regular regression card. The card must then be discarded on the player's next turn, a card must be drawn from the deck and no further action may be performed instead. Examples are the award for the region's worst public transport or the loss of young professionals as a brain drain due to lack of affordable housing.

Regional progress cards have a stronger regional reference regarding the matter and reward not only the individual playing municipalities but all players and thus the region as a whole. Played by any player, all players may discard a card of their

choice without any effect. Examples are a region of short distances or Stuttgart as a pilot region for innovative traction systems and mobility.

Regional regression cards again have a stronger regional reference regarding the matter and sanction not only the individual playing municipalities but all players and thus the region as a whole. Played by any player, all players must draw a card from the deck. Examples are a regional traffic collapse with smog and particulate pollution or missing out on economic changes regarding the characterising focus on automotive industries.

Figure 3: Sample of progress and regression cards



3.2.2 Trading cards - good practice in housing, economics, mobility and open space

As outlined, issues emerge from various thematic areas. Considering currently discussed trends such as changes in mobility, the necessity of an economic transformation, housing shortage, demographic change and climate change, the topics housing, economics, mobility and open space can be named as key fields of action. Within six trading cards each, good practices are depicted on the local government level in order to match regional strategies and resolving issues by scale. In terms of content, the cards illustrate for instance

- the designation of new building land, compaction of existing housing stock or promotion of social housing construction as strategies in the field of housing,
- the development of intermunicipal business areas, participation in research clusters or the promotion of innovative start-ups in the field of economics,
- the expansion of bicycle, public and alternative transport infrastructures, the improvement of the modal split or the promotion of the principle of short distances as strategies in the field of mobility and
- the qualitative and quantitative design of open spaces, measures for climate adaptation or the unsealing of sealed surfaces in the field of open space.

Trading cards may only be discarded in pairs as a combination of two cards of one category. Alternatively, in the sense of cross-section-oriented action, four trading cards with one card of each category may be played to discard.

Figure 4: Sample of the 24 trading cards



3.2.3 Action cards - entertaining elements with a scientific background

In order to illustrate local and regional significant principles and tendencies as an institutional framework as well as loosening up the course of the game the set is supplemented by 16 action cards in nine categories, conveying an additional raise of awareness for regional interrelations and the linkage between region and municipality. Principles and options as described are voluntary municipal twinning, funding programs and resource exchange in order to emphasise positive aspects of municipal cooperation and regionally compatible strategies as well as parochial thinking, compulsory merger of municipalities, municipal supervision, suspension, vote of the regional assembly and joint territorial reform to illustrate intermunicipal competition and sanctions by state authorities. Examples for consequences are the joint discarding, the drawing of cards from the deck, suspension for one turn or the redistribution of all playing cards in the game.

Figure 5: Sample of the 16 action cards



3.2.4 No way! - NIMBY as the crux of spatial planning

Mirroring the reality in planning, (almost) all of the outlined game actions are underlying the veto option of the public, by playing one of the four no-way cards. As public opinions diverge among different municipalities, also the no-way card itself can be vetoed by another no-way card of any other player. As the only exception both regular and regional regression and progress cards are excluded from the veto, due to their inevitability in reality and their strong importance to the region as a whole.

In terms of content, no-way cards are linked to existing hindering mechanisms such as the NIMBY or BANANA phenomenon among citizens, referendums, demonstrations and a shortage of political backing within the regional assembly. Drawing attention to this crucial aspect of planning, no-way cards are thus suitable for achieving a corresponding gain in knowledge among the players.

Figure 6: Set of no-way cards



4. Conclusions and outlook

Spatial and especially regional planning Germany show to be highly formal, decentral and differentiated by regions and municipalities. The VRS as one of the interconnected, innovative regional associations hereby is to be mentioned as a strong political actor in the region, given the possibilities regional planning has by law. Nonetheless, regarding the issues and challenges that are either existing or currently arising, there are increasing fields where formal regional planning in general cannot act in a targeted manner due to a lack of implementing competencies. The consequent need for informal accompanying instruments of activating nature are therefore inevitable, addressing both citizens and local political decision-makers of different political orientation and motivation throughout the region.

As presented, a game-based approach offers a promising, low-threshold medium in the informal sector for especially non-experts or those stakeholders with a sceptical attitude towards regional planning. By dealing with regional issues in a simplified, game-like manner, stakeholders can benefit from an increase in experience, comprehension and trust with regard to political actions as well as formal regulations in planning. Further, they are encouraged to cooperate and act collectively. Trying out, getting to know and experiencing topic-specific options for action and regional steering principles

is intended to convey fun in dealing with regional topics on the one hand and to trigger a learning effect in the players, at least subconsciously, on the other.

Essential target groups can be identified by means of three key fields of use. First of all, the game can serve as a communication medium that is intended to enable a further exchange between the regional and municipal level beyond bringing the municipalities together. Besides the local regional planning authorities, the aforementioned political decision-makers in the municipalities, such as councillors, honorary and full-time mayors as often non-experts have to be named here as relevant stakeholders. Second, game-based media may be used in the field of planning and political education, regarding students and practising experts of spatial planning as well as local decision-makers in terms of council retreats or workshops. In the long-term, the approach is moreover conceivable within the framework of participation processes of different types, for instance as part of the elaboration process of regional spatial structure plans or regarding citizens and local initiatives.

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