CAPITALIZING ON SPACE PLACE AND LOCATION
THE CASE OF REGENERATING NUREMBERG WEST

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Abstract

Numerous cities, in which industrialization had been the main stimulus for urban agglomeration, are experiencing urban decline. As the tide of industrial urbanization is ebbing, Nuremberg West (NW) is one such area in the State of Bavaria, Germany. Once the birthplace of Germany's first railroad between Nuremberg and Fürth, NW features today an oversupply of abandoned industrial space, which is coupled with low demand. The area features a disconnected and fractured urban fabric; it is a set aside and increasingly stigmatized area in transition. If the situation is kept unaddressed, the urban transformation process will likely bring redundancy and economic obsolescence to NW.

As public funds are diminishing, public authorities have an interest in sustaining the capital stock of cities. NW with its sunk-capital intensive infrastructure can surely be of added value if it is properly utilized than if it is left to decay. However, while the physical transformation is the most visual and, perhaps, apparently immediate task, the challenge for cities like Nuremberg is far greater than merely restoring the left behind debris of de-industrialization. Rather, the challenge is to find new rationale(s) for "being" and to set up mechanisms that work to replace the economic rationale that has been lost. This task is not simple, on the one hand, the success of cities today presumes connectivity to global networks of economic activities, in which bits and piece of goods and services are produced, assembled and consumed globally. On the other hand, cities continue to have a regional and everyday life dimension in which people are grounded as they socialize, study, and play, grow old, and get sick, etcetera. Area-based regeneration approaches often get lost within this two-tiered expectation, one emanating from local considerations and expectations and the other from considerations that are outside of the area proper. Frequently one expectation is addressed to the detriment of the other.

This paper presents the research methodology that the Chair for Spatial Development has devised to propose innovative, creative, politically unrestrained and impact oriented transformation possibilities for NW, set purposefully at the sufficient temporal distance of the year 2050.

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We propose a framework for identifying way(s) forward in area-based-approaches. Our framework takes into consideration (1) the different scales at which NW contributes in terms of functions and in return is exposed to impacts in terms of trends, namely local, metropolitan, regional and global, and (2) different perceptions of NW, as an object of analysis, which is simultaneously a *place* with meaning and socio-cultural attributes, a *location* anchored in a particular geographic setting and part of *spaces* of flows that transcend its administrative and morphological boundaries. We elaborate on our notion of impact-oriented interventions. We argue that area-based interventions and their associated impact might not necessarily be congruent in time and scale.

1. Introduction

Numerous cities, in which industrialization had been the main stimulus for urban agglomeration, are experiencing urban decline. As the tide of industrial urbanization is ebbing, Nuremberg West (NW) is one such area in the State of Bavaria, Germany (Figure 1). Once the birthplace of Germany's first railroad between Nuremberg and Fürth, NW features today an oversupply of abandoned industrial space, which is coupled with low demand. The area features a disconnected and fractured urban fabric; it is a set aside and increasingly stigmatized area in transition. If the situation is kept unaddressed, the structural transformation process will likely bring redundancy and decay to NW, a situation in which the externalities of decay would have far reaching impacts on Nuremberg at large.

The Municipality of Nuremberg has acknowledged the precariousness of the situation and has commissioned a number of studies with the purpose of identifying intervention possibilities. In a parallel track, the municipality has commissioned the Centre for Energy Efficient and Sustainable Design and Building (ENPB) of TUM with a research project, titled, "Stadtlabor Nuernberger Weststadt", whose mission is to propose ideas for the transformation of NW under the guiding theme of sustainable urban development. The ENPB has assembled an interdisciplinary team at the TUM, to work on this task. Among the interdisciplinary team, is the Chair for Spatial Development, where the authors of this paper work.

Figure 1. Location of Nuremberg in Germany

This paper presents the research methodology that the Chair for Spatial Development has devised in order to address structural transformation of NW. We define structural transformation

as the visible, profound and severe change of the share of the different sectors in the economy;– As opposed to a smooth, continuous change, this type of change alters the structure of the economy, the locational behaviour of firms and the workforce, and has widespread effects on the structure of society. Structural transformation is propelled by technological development, increased global competition, financial deregulation and the growing deregulation of global labour markets. As foreign labour markets become more competitive, NW as a location for industries has lost competitive advantage. Industries located in NW have been either forced to close or to move elsewhere where the conditions for industrial production are more favorable.

Our methodology is based on the premise that as *spatial* transformation lags behind *structural* transformation, NW today captures a mismatch between, on the one hand, the spatial capacities of NW based on what NW once was and, on the other hand, the role that NW is playing today[i]. In the context of role vacuum and lack of alternative futures, this mismatch cements associations of loss and nostalgia. Such a context demands interventions of strategic nature that look forward towards the future rather than lament the past. Interventions that are not committed to steering change fall into the trap of becoming city beautification. Palliative interventions are assumed to be preparing NW to many potential futures while, indeed, these interventions are just stalling the process of structural change. Our methodology is based on the belief that while the future is uncertain, proactive steps can and must be taken to shape it. Hence, we argue that the goal of interventions is to steer *spatial* transformation rather than an all-sweep "cleaning up" of the area. Selectivity, prioritization and specificity of interventions are crucial in this regard. We define spatial transformation as one that goes beyond the physical/morphological transformation of space to encompass also aspects related to functions and processes. Indeed, spatial transformation is about the transformation of the intricate multi-scalar workings of morphologies, functions and processes. .

In what follows, we first discuss the different conceptions of NW as an object of analysis and intervention that is as an area *of* and *in* transformation. Second, we lay down the working definitions of key concepts of space, place and location. Third, we elaborate on the challenges of planning in the context of change and highlight the peculiarity of area-based regeneration. We then elaborate on the notion of impact-oriented interventions. We argue that area-based interventions and their associated impact might not necessarily be congruent in time and scale. Fourth, we propose our methodology for identifying way(s) forward in area-based-approaches. Identifying evidence-based future alternatives for NW based on SWOT analysis is the keystone of our methodology. Our SWOT analysis is disciplined by the different perspectives of NW and includes various scales. We show how OT's can be derived from the analysis of trends.

Finally, we conclude that in order to steer the transformation process, spatial interventions must surpass addressing the negative symptoms of structural transformation as manifested through fragmented urban fabrics and decayed architecture. Rather spatial interventions must be geared at addressing the *spatial* transformation of the area in question.

2. Conceptions of NW as an area *of* and *in* transformation

A newspaper headline in the local Nuremberger Abendzeitung (2012) titles "Deputy mayor for economic affairs dreams of Masdar city in Abu Dhabi as a role model for NW".[ii] The Masdar

city allegory is ill conceived for many reasons, disproportionality of financial capacities of the municipality, investors, intuitional context, social context etc…. However, this reference to Masdar city is an indication of the potential view at NW as an object that can emulate an *other* object, one that can be packaged for development, marketing, commodification and other purposes. This view is frequently the case, when an area is *declared*, usually by a plan-making agency, as fit for regeneration; the term area-based regeneration, carries such connotation. Indeed, the declaration of an area, such as NW, as a base for regeneration focuses the attention of analysis and restricts intervention.

The objectification of NW is a hypothetical exercise and useful only for the purposes of temporarily drawing attention to a certain area in the city. Indeed, NW, as an object, is only conceived as such within the confines of this study. NW is neither an administrative entity, nor is it perceived or lived as such- to use Lefebvre's well-known triad of lived, perceived and conceived space (Lefebvre, 1991). The acknowledgement that NW is a temporarily and artificially conceived object, one that is not congruent with a perceived and lived dimension, forms the basis of our methodology. In addition, we distinguish between two conceptions of NW, as a hypothetical object, namely, first as an object of analysis and second as an object/area of intervention (Figure 2).

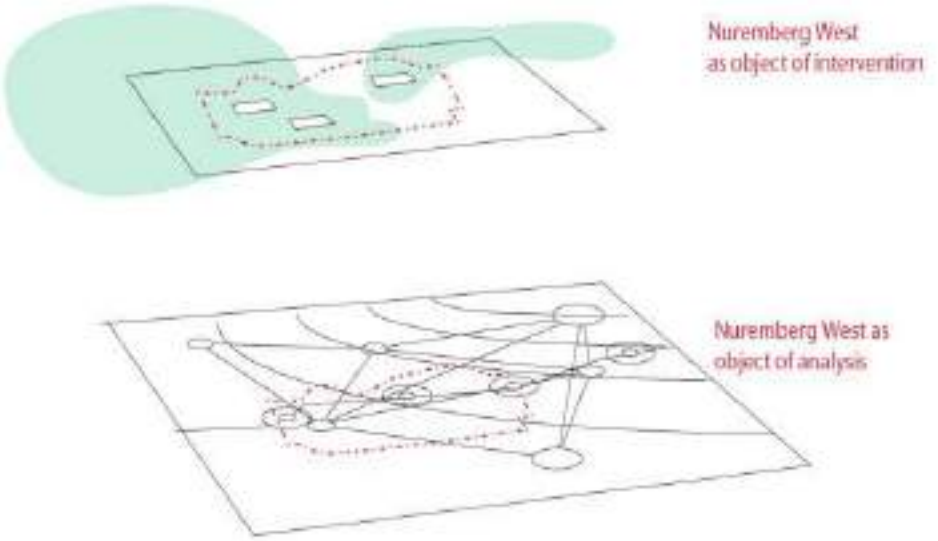

Figure 2. Nuremberg West as an object *of* and *in* transformation

First, as an object of analysis, NW is an area *of* structural transformation whose drivers emanate elsewhere. Globalization, ICT's, economic restructuring etc… are all factors onto which stakeholders of NW have no immediate agency. Nevertheless, as we analyze the problematics of NW it is precisely these outside factors that are identified as the root causes of structural transformation. Lest, the artificiality of conceived NW and the mismatch between its objectification and the lived and perceived reality haunts us we analyze NW by taking into consideration (1) its contribution and impact, at different scales, and (2) the different perceptions of NW, namely, as a *place* with meaning and socio-cultural attributes, a *location* anchored in a particular geographic setting and part of *spaces* of flows that transcend its administrative and morphological boundaries. The objective of analysis in classical spatial planning is to identify

change-induced spatial problems, in order to assess intervention requirements to alleviate spatial problems. The objective of our analysis is to identify the levers for steering change through spatial interventions. We hence shift focus from the spatial outcome of change associated with loss to the spatial prerequisite of change associated with the promise of gain.

Second, as an area of intervention, NW is an area *in* transformation. Spatial transformation lags behind structural transformation. Industrial production has ceased to exist in NW while the physical and functional spatial structure is still fit for such an activity. A mismatch exists between the capacity of NW as enabled by its physical spatial structure and the economic function of NW that is disabled by outside economic factors to which stakeholders of NW have no immediate agency. As intervention is restricted to the confines of NW, the objective of intervention is to push spatial transformation along a desired and possible direction. The possibility of this direction is confirmed through trend analysis. The intended effects of the interventions within NW radiate beyond its confines. Therefore a multi-scalar and systemic analytical understanding of NW is necessary (Thierstein et al., 2012). Hence, spatial transformation goes beyond addressing the left-behind debris of de-industrialization. Rather spatial transformation repositions NW within the metropolitan urban hierarchy in sync with the process of acquiring a new economic role.

3. Perspective and scale of spatial analysis: The concepts of space, place & location

A main argument that we make in this paper is that *spatial* transformation can be steered through strategic spatial interventions. We use the term *strategic* to describe interventions that are selective and specific; they are prioritized along an impact chain and sequenced along a time line.

Laying down what we mean with spatial transformation is a more complex affair and calls for a lengthier discussion linked to the complex definitions and concepts of space. Since it is beyond the scope of this paper to unflesh the broad spectrum of the definitions of space, we restrict ourselves to adapting the existent definition of Boesch and Weichhart (Boesch, 1989, Weichhart, 2008). In addition, we highlight the differences between the three seemingly similar terms, namely, space, place and location.

Boesch identifies three concepts of space, namely, Distance space (d-space), Function-space (f-space) and Process-space (p-space). Boesch explains the difference between these three different concepts as follows. D-space focuses on the physical and morphological aspect of space. Space here is conceived of as a container as a stage set. F-space focuses on the functionalities that space acquires. Space here is not just a container of activities, but has the props that enable actors to function in certain ways. P-space focuses on the processes that occur in space and on the interaction between the different actors. Actors on the stage set whose role-play is facilitated by stage props are the focus here. Boesch, however, does not make the important distinction between the static aspect of d-space and the dynamic nature of f-space and p-space. This is an important distinction. When we operationalize these three different concepts in the analysis, we discover that d-space can be bound geographically while f-space and p-space flow due to their dynamic and relational components. Last but not least, for analytic purposes it is convenient to

unbundle the different concepts of space, however, it is important to keep in mind that the intricate working of space is only understood as these different concepts are bundled back together again. Indeed, space that "works" is space in which the three concepts of d-, f-, and p-space "work" together, it is space in which actors, find the relevant props and relevant container to perform *their* act.

The notion of place is related to meaning, sense of belonging and collectivity emerging out of physical constellations that are geographically located, spatially related and lived in. To start with almost everybody has a *place* of birth that s/he relates to willingly or unwillingly. But place is more than that, place is what happens to a chunk of space when people inhabit it and acquire it as their own. Place evokes memories and emotions; stories get stuck in building facades, sidewalks and alleyways. Graffiti on walls make voices visible, however, the silent messages that place transmits are multifold. Place spawns collective action. People are brought together in place. The boundaries of place are flexible; a place can be a neighborhood a park, a street, a piazza, a playground or a building entrance. A place records histories, personal and collective ones. Places can therefore have symbolic significance. A place gets old and instigates good/old memories or ones that need to be forgotten. Place has also character, it can be boring or fun. Hence, place brings the emotional and social element of the physical to the foreground.

Location is related to geographical proximity vis-à-vis other areas. While the geographical location of a certain area cannot be altered, its connectivity and accessibility can. Distance is related to geographical distance measured metrically, and to travel distance measured in time. Cost of travel and environmental impact of travel are criteria that can also be considered to further sensitize this concept of location. Location is affected by political and psychologically constructed territorialities. NW is located adjacent to the town of Fürth; however, the psychological boundary between Fürth and Nuremberg expands this distance beyond the actual metric reality. Whether in NW such psychological boundaries are carried into the future through tradition and senses of belonging is questionable. Political and administrative boundaries such as those of NMR squeeze distances as the pressure to compact growth accentuates. Location is a given while accessibility of a location can be altered.

Space, place and location can be perceived at different scales. Analyzing NW at the scale of the city quarter scale along the different concepts of space, place and location, yields different findings than analyzing NW at the municipal or metropolitan scale. Hence it is important to superimpose also the notion of scale as an additional organizing structure of analysis (Figure 3).

Areas undergoing structural transformation exhibit an operational mismatch between the three different concepts of space. D-space and f-space are capable of operating but deficiencies in p-space inhibit the capacity to operate. To use the theater allegory, a functional stage and functional props are paired with actors of a different play. Areas undergoing structural transformation are prone to loose on the place dimension. The transformation process is accompanied by a high turnover of people. Decline or rapid increase of people translates in fewer or fewer proportion of people with claim to place. Dialectic develops between saving/keeping old places versus bulldozing the old to make room for inventing new places. Interestingly, it is only location that is a constant; therefore the locational aspects in terms of competitiveness and specificities of areas in transformation becomes one of the guiding factors that are taken into consideration in both analysis and intervention proposals.

Scale	Concept				
	Space			**Place**	**Location**
	D-	F-	P-		
City quarter					
City					
Metropolitan					

Figure 3. Matrix of the different perspectives and scales of spatial analysis

The above matrix is useful for organizing our analysis and focusing our investigation. However, it is important to keep in mind that the different concepts are not mutually exclusive but they overlap. Indeed it is the workings of these different concepts together and their overlaps that provide richness to analysis. Hence, in the matrix we isolate the various concepts only temporarily for the sake of clarity. Figure 4 visualizes these overlaps .The important role of visualization in capturing these complex overlaps on maps and diagrams is highlighted.

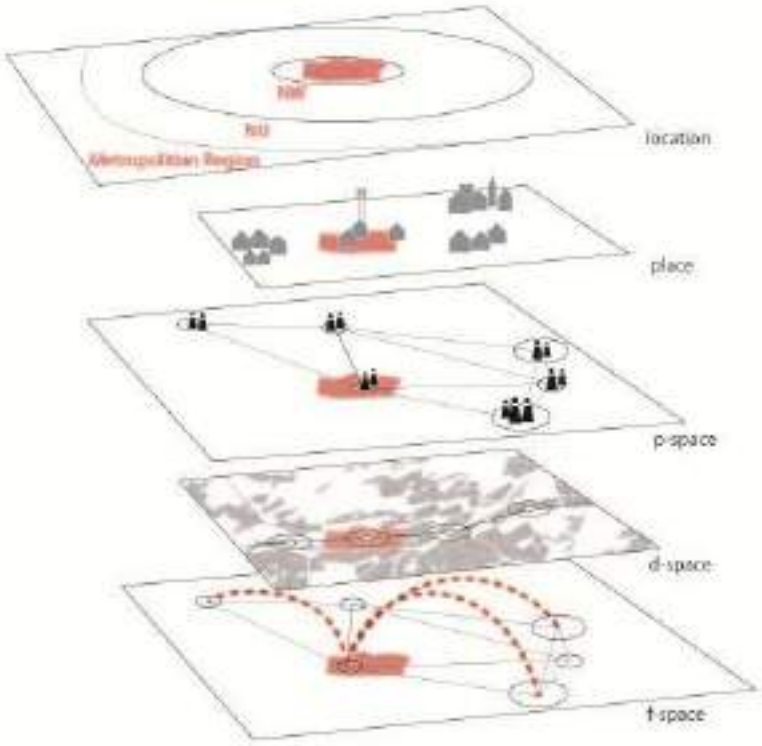

Figure 4. Visualization of the different perspectives and scales of spatial analysis

In the previous section we have highlighted the dual *conception* of NW as an object of analysis and as an object of intervention. In this section we have unbundled the different *perceptions* of these objects of analysis/intervention aided by the various concepts of space, place and location. In the next section we superimpose the different *perceptions* of NW - on top of the conception of NW as an object of intervention. This helps in organizing our understanding of the relationship

between intervention and associated impact. This is particularly important in contexts where change has a “hyper-dynamic” nature.

4. Planning in the context of “rapid change”: Formulating the problem is half the solution

Structural transformation is associated with change. Change can be related to growth, decline or stagnation. In addition change can be experienced at various speeds, intensities, scopes, scales and certainties. Growth can be fast paced but volatile, isolated, local and fluctuating. Decline can be slow, but widespread, global, intense and certain. In the case of NW, structural transformation is related to economic decline related to the loss of economic base. This decline has been intense, covering various sectors and certain.

Within the context of rapid change, political pressure builds up to devise equally rapid responses. In fast growing industries, such as China, we can identify a planning paradigm built around panicking; one that relents to the pressure of fast paced change and becomes enslaved to it. Pressured by the influx of population movements, demography, economic growth and the need to deliver, ad hoc spatial planning becomes the order of the day. However, matching the speed of response to the speed of change is not an appropriate approach. Institutional mechanisms within democratic regimes circumvent adhocracy by working their in-built valves that introduce patience into the system. Citizen consultation is one such example; constant negotiation within institutions is another.

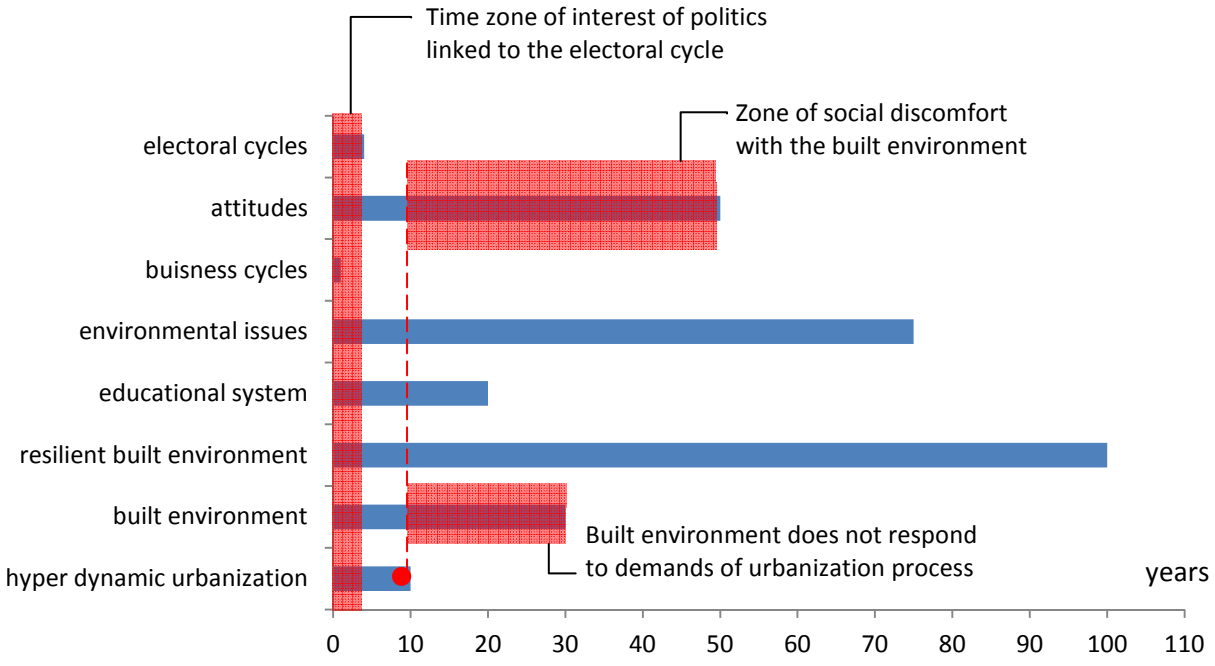

Figure 5. The speed of change of some driving factors of spatial transformation

However, the issue is not stalling response or buffering it. Rather, the issue is to analyze the various driving factors of change, relational and stock factors, in order to identify different rhythms of urgency and thus necessity to cater for in planning. Figure 5 illustrates how a hyper dynamic context of change within the urban environment, set at 10 years, supersedes changes in social attitudes, educational systems and even the life cycle of built environments. Hence, within hyper dynamic contexts of change, we frequently witness the bulldozing of functional buildings to give way to new ones; changes within social attitudes on average lag behind, frequently resulting in severe social problems as societies cannot cope fast enough along the speed of change. Figure 5 also illustrates how political actors have high stakes in changes occurring within their electoral cycles. This helps explain the disinterest among politicians in kick starting changes whose results are manifested way after their political cycles have been completed. As a result, it does not surprise that issues, such as environmental ones, which beg for a long-term approach are addressed within a short-term perspective for fast results.

However, if we consider change as an evolving process that occurs within cycles, it is possible to identify the intersections of cycles of change as windows of opportunity. For example, Figure 6 depicts a hypothetical situation in which the urban fabric has reached an end of a cycle, where refurbishment is necessary. This end of cycle coincides with the need to address pressing environmental concerns and the beginning of change in societal attitudes. To make things even more opportune all of this happens within an electoral cycle. Hence, in our figure all the factors of change have come happily together. We can also add the fact that the different cycles can support each other positively, for example, it is possible achieve faster cycles of environmental change if societal attitudes change in a way that support this. Hence, as we consider the intersection of different cycles of change and the possible mutual reinforcements, we become able to identify historic coincidences as such. As a result, it becomes possible to utilize all the available levers for steering change within a intended direction.

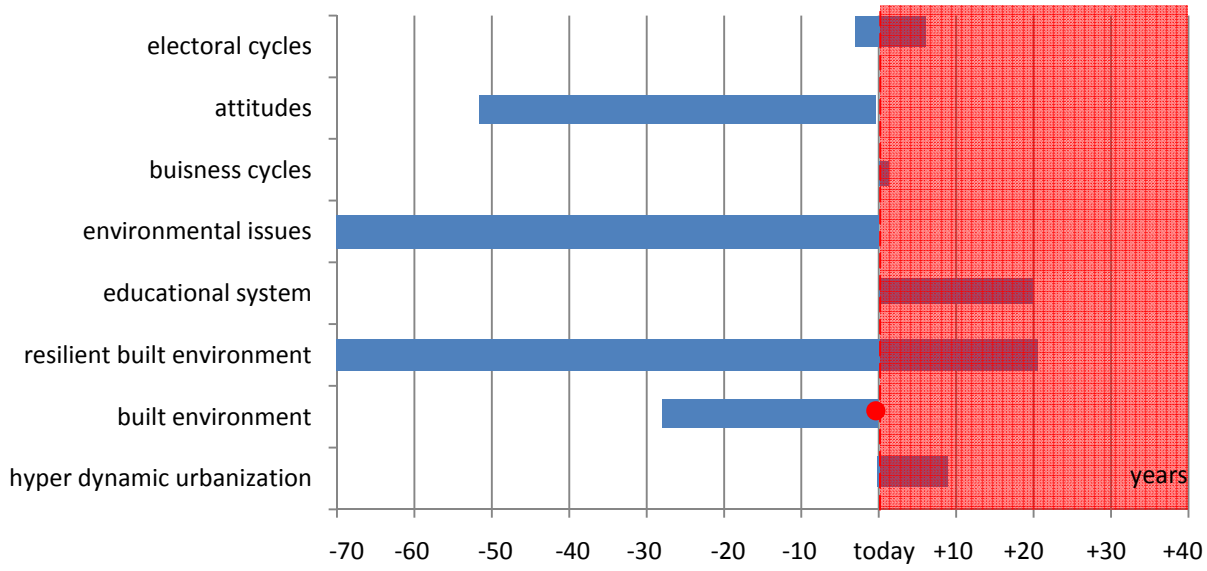

Figure 6. The intersection of cycles of change open windows of opportunity for spatial transformation

Formulating the problem in areas undergoing structural transformation around the element of change, the nature, scope, scale and speed of change and ways to deal with it, rather than restricting the view to spatial problems induced by change, is literally half the solution for tackling structural transformation in urban areas. In NW we have started from an area delineated as fit for regeneration by the municipality. However, NW is one site in Nuremberg in which the negative externalities of change are concentrated. To identify the opportunities presented by change it is vital to zoom out to larger scales in order to understand the capacities of the functional urban area to which NW geographically belongs.

As we take into consideration the temporal and multi-scalar aspects of the impact of spatial interventions, it becomes evident that area-based spatial interventions and their associated impact are not necessarily congruent in time, scale or scope (Figure 7). For example, proposed interventions might target the function space of NW. Such proposed interventions could result in an impact onto the function space of Nuremberg Metropolitan Region, but have only a minor impact on the physical space of NW. Also, intervention proposals can be bundled or unbundled. For example, in the NW project, intervention on all spatial levels can be proposed only within the confines of NW – the mandate of the project – hence, area-based. However, the associated impact of interventions spills over; some of this impact might not even happen or be felt in NW itself.

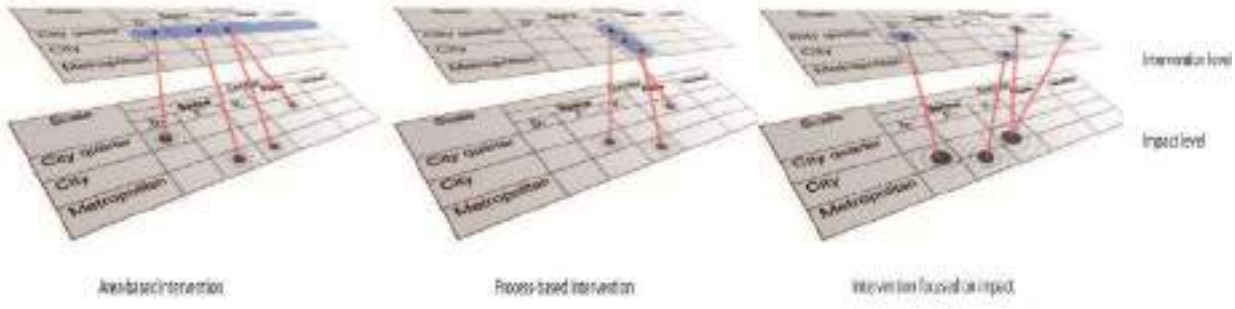

Figure 7. Interventions and associated impacts

Hence, spatial restriction of interventions by area-based mandates impedes the consideration of the full potential of space. Conversely if intervention can be proposed throughout the city, planners could start by deciding what kind of impact they want to achieve. Do they want to have an impact only on NW, if yes where should intervention occur? It can be the case that intervening in the process-space at the level of Nuremberg city can have a positive impact on the distance-space of NW.

This calls for putting the consideration of the impact of spatial interventions at the very forefront of any proposal for addressing structural transformation of areas in transition. Not doing so, risks moving problems from one part of the city to the other at best; at worst, the identification of good solutions to structural urban problems is severely restricted. For example, starting from the

consideration of the impact of spatial interventions, it is possible to conceive of a strategic concerted effort throughout the functional urban area of Nuremberg to address structural transformation in NW (Figure 7). It is equally possible to consider the impact of spatial interventions in NW on the town of Nuremberg.

Hence, we conclude, that if formulating the problem around the element of change is half of the solution, then the other half is formulating intervention proposals along the capacity to steer change at various scales, speeds and scopes rather than respond to it. Steering change through impact oriented spatial interventions is an approach that clearly diverges from approaches that put physical transformation at the fore.

5. A framework for Way(s) forward for NW: Methodology

Our previous discussion highlights that NW has a double handicap. Economic restructuring inhibits NW from assuming its old functions that its spatial structure enabled it to perform quite well in the past. Simultaneously, NW is inhibited from assuming new functions sustainably as its spatial structure has not yet adapted to new functions. This is precisely what characterizes areas in transition everywhere. The old [function] is dead while the new [structure to contain new functions] cannot be born yet. In the case of NW, structural transformation is associated with economic decline. In areas of transition experiencing rapid growth the new function is born while the old structure has not adapted yet. It is within this context that we propose our methodology for identifying way(s) forward for NW. The objective of our methodology is to enable the birth of the new. This we argue can be done by identifying possible future alternatives that become goals that selective impact-oriented interventions could aim to realize.

4.1 SWOT analysis

Our SWOT analysis of NW takes the different perspectives and scales of NW into consideration. By utilizing the conceptual structure of space, place and location, we organize analysis and discipline synthesis. As a result we identify the linkages between the different perceptions of NW. Since the scope of this paper does not allow a wide elaboration on our findings, we show the SWOT findings in an exemplary form to highlight our methodology.

To start with we analyzed the strengths and weaknesses (SW's) of NW. We focused on the functions of housing, economy and social cultural networks. The conceptual frame of space, place and location provided an organizing structure to our analysis. One of the key strengths identified for NW is its strategic location within the municipality of Nuremberg, that is, at close proximity to both, the centre and to transportation nodes that connect it to high-speed roads, high speed trains and to the airport. This strategic location is a strength that the future of NW can build on. In addition, the location of Nuremberg within Europe at close proximity to Eastern Europe is also a strength that NW can capitalize on. The Metropolitan Region of Nuremberg might well become the receiving end of waves of population migrations. Already today NW is home to a diverse population. The current social diversity means that NW is well experienced and trained in mediating between diverse socio-cultural groups. Hence, the current social diversity within NW is also a strength. Within another perspective of analysis, the rich history of

NW, its associated tradition linked to industrial pride – with brands like AEG, Triumph-Adler, Quelle – leaves places within NW laden with value, pride and meaning that radiate at the scale of Nuremberg at large. These places are distinctive of NW. They provide a strength that can be built upon. On the other hand, fragmentation, spatial discontinuity, noise, physical barriers and quality of the existing housing stock were identified as weaknesses of NW. Interestingly; most identified weaknesses are linked to the physical urban fabric of NW. These SW's were listed along a scalar hierarchy (Figure 8).

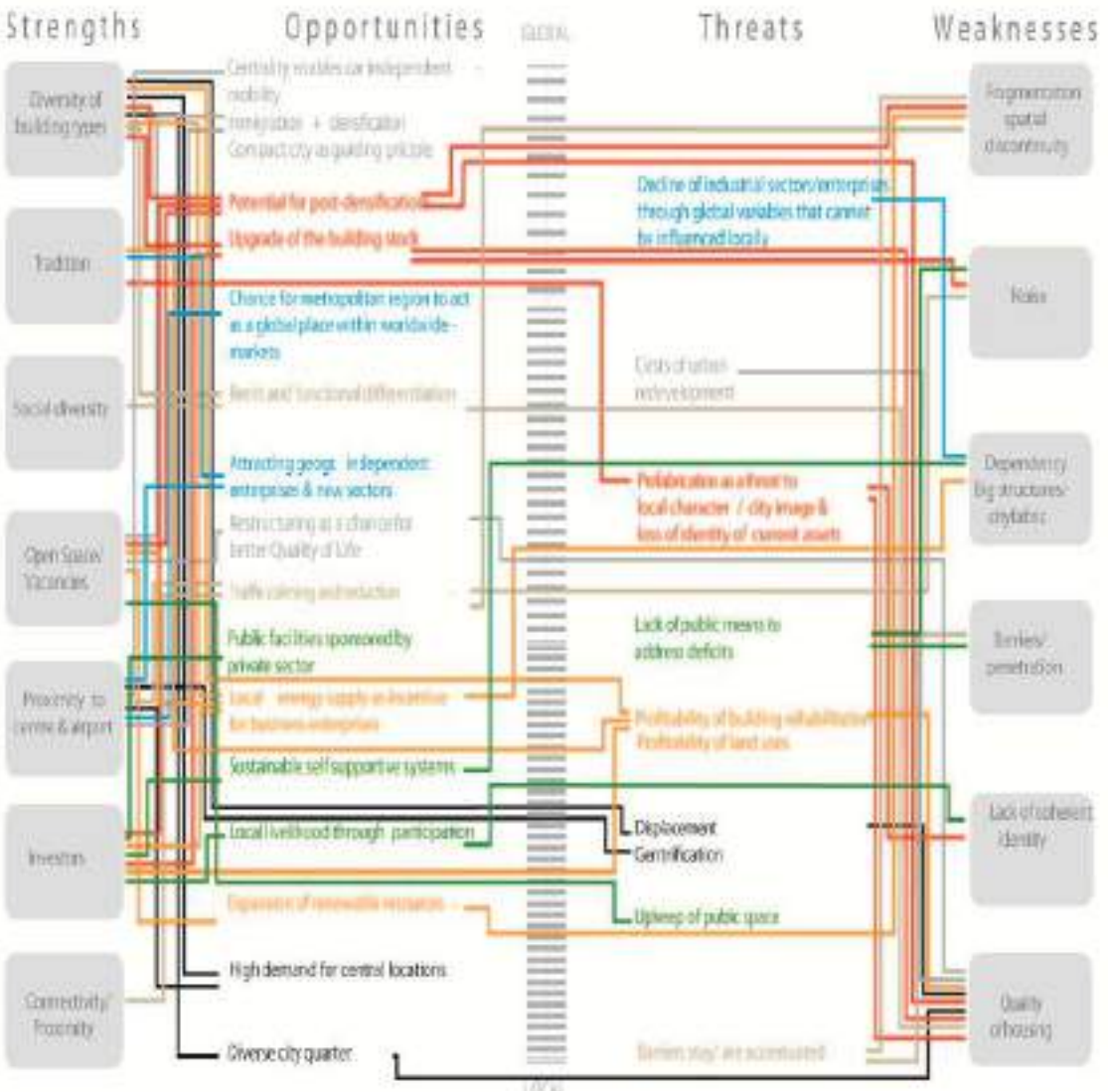

Figure 8. SWOT's of NW (Source: Student work)

In order to identify the opportunities and threats (OT's) we selected a number of trends from the trend document of the consultancy of Ernst Basler Partners Ltd (EBP, 2010). These selected trends were clustered thematically (Figure 9).

Figure 9. The clustering of trends

We applied these trend clusters onto NW with a view at the Strengths and Weaknesses of NW. The idea was to identify how Strengths and Weaknesses transform into Opportunities and Threats and how different trends reinforce each other (Figure 10). As the different OT's were identified they were listed again along a scalar hierarchy alongside the SW's (Figure 8).

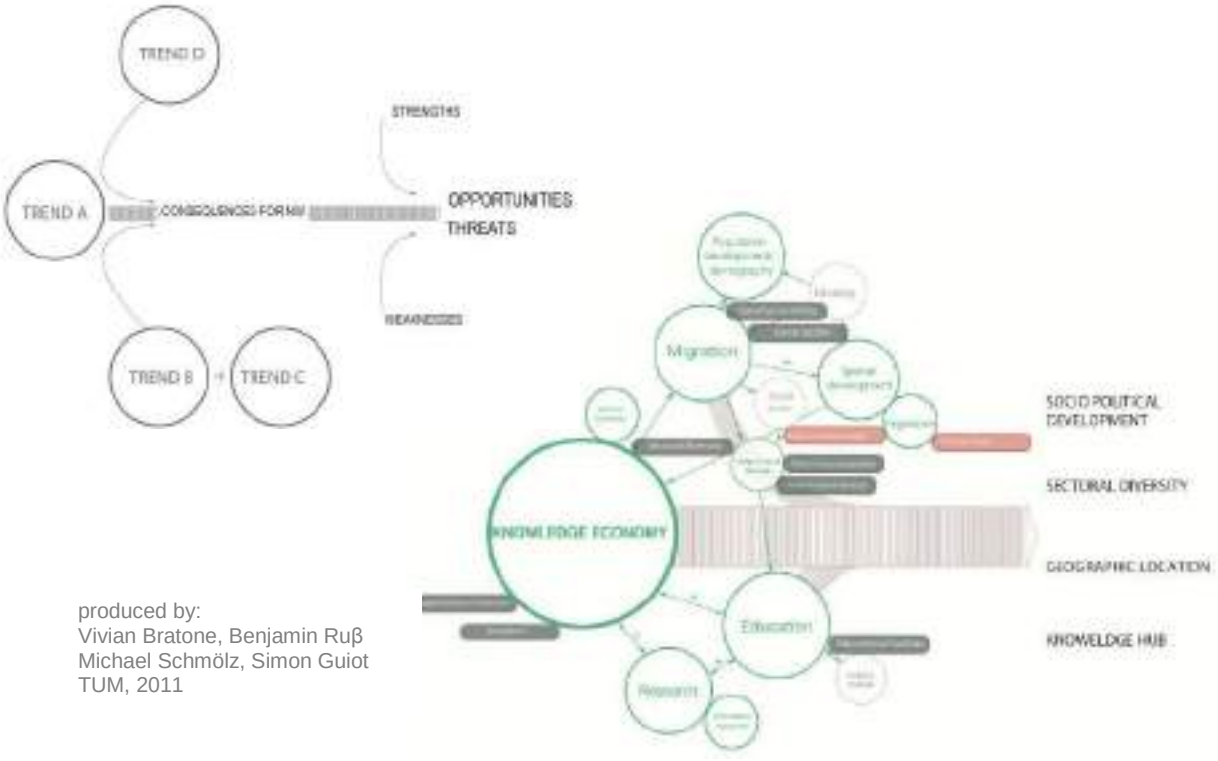

Figure 10. Applying the trends onto NW to identify OT's (Source: student work)

In addition, on hand of Frederic Vester's model of the paper computer, (Vester, 2002) we assessed these selected trends in terms of their role within the overall systemic context (Figure 11). The selected trends were listed on the horizontal and vertical axis of the paper computer. The effect of each trend listed on the horizontal axis on a trend that is listed on the vertical axis was assessed. This assessment was quantified at a value of 0 to 3, whereby 0 denotes no effect and 3 denotes a maximum effect. For example, does the trend of "changing lifestyles and values" have an effect on the trend of "mobility"? If yes, is this effect major or rather minor? As each trend is assessed against all others, the paper computer becomes complete. The values were then summed up for each trend on the horizontal axis and the vertical axis. The summations on the horizontal axis thus denote the active nature of a trend, summations on the vertical axis denote passivity.

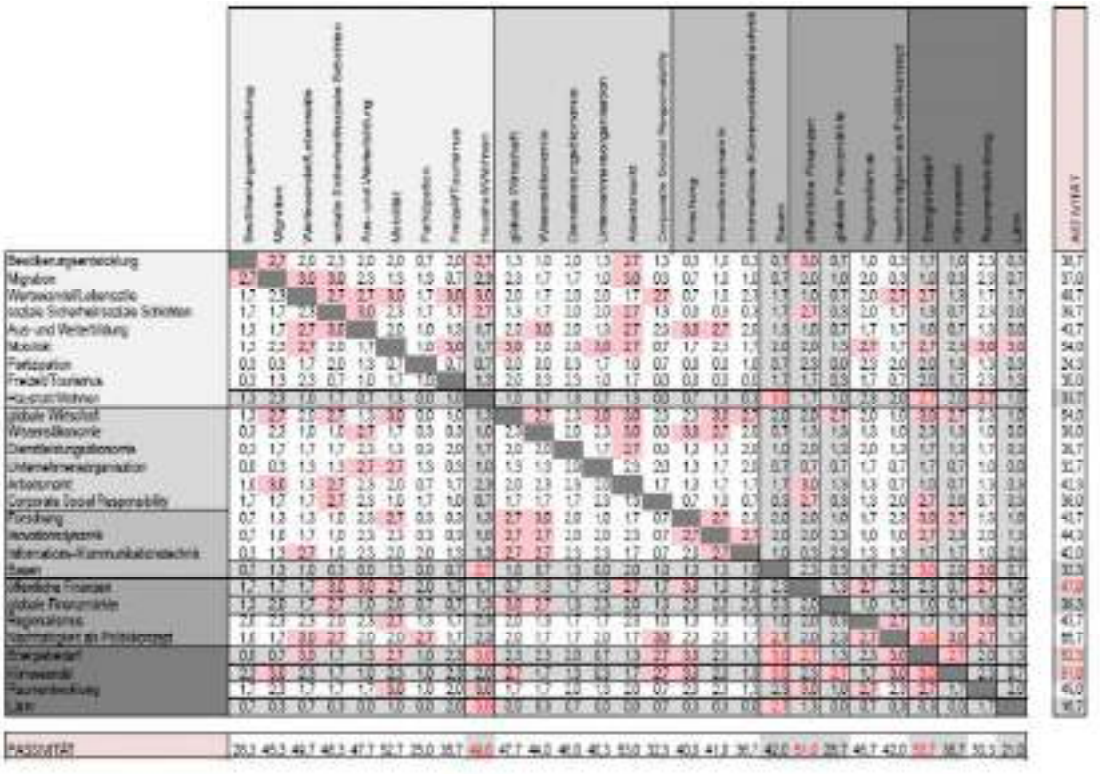

Figure 11. Paper computer

The idea of the paper computer is to identify reciprocal effects, levers of control and fields of action (Thierstein et al., 2008). Given the position of the different trends regarding their active or passive nature we classified their role in the overall system as active, critical, reactive or buffering. "Active trends have a strong influence of other trends and are influenced only minimally by the latter. Critical trends are heavily influenced by other trends and, in turn, exert an equally strong influence on the latter. Reactive elements are heavily influenced by other trends and only have a minimal influence on the latter. Buffering trends only exert a minimal influence on other trends and, in turn, are influenced only minimally by the latter. Reciprocal effects are significant with regard to political intervention. Without a sound knowledge of the

overall systemic context, isolated measures soon run “out of control” and have non-intended effects in other fields of policy ” (Thierstein et al., 2008).

The trend of global economy has transformed the process and function space of NW; as a result this has had an impact on d-space and NW as a place. NW is however still a well connected location. Is it possible to address such a trend and redirect its impact in NW? This is what we asked ourselves as we analyzed each trend. For example, identifying the physical fragmentation of the urban fabric of NW as a weakness impedes certain functionalities and processes to evolve. Hence, even if the municipality would intervene through, for example, tax incentives to encourage certain functionalities, deficiencies of d-space would still be a counter force.

Based on the SWOT analysis and our clustering of trends we were able to identify the possibility of three future alternative developments of NW.

4.2 Alternative futures

The keystone of our methodology is proposing evidence-based, possible future alternatives of NW based on a SWOT analysis that takes into consideration the various perspectives of NW. We propose innovative, creative, politically unrestrained and impact oriented transformation possibilities for NW, set purposefully at the sufficient temporal distance of the year 2050.

The year 2050 has been chosen, in order to break free from the short-run where almost all handles/levers to intervene are fixed and sticky. The temporal distance of a generation makes almost everything become fluid and flexible. At the same time 2050 is not too far in the distance. Trends of today can be used to help predict the shape of the future. Hence, the view to the next generation creates a condition, in which liberation from today’s constraints is experienced simultaneously to the engagement with today’s identified trends. This condition begs for an understanding of the inter-relatedness of factors and assessing of the relative speed of change in planning. As we elaborated previously, identifying the relative speed of change is the key for identifying windows of opportunity for planning.

These alternative futures are assumptions of the potentiality of a positive transformation of NW in 2050. Positive is judged by the fact that NW is *sustained* and recognizable as a *place* that contributes value to the city and region of Nuremberg. Our proposals of future alternatives are based on our belief that it is possible to negotiate in NW, future conditions proactively. As a result our proposals are (1) evidence-based, (2) positive, problem solving and impact oriented and (3) function oriented.

The future alternatives are evidence-based, because they emanate from the findings of the SWOT analysis. Future alternatives are not impulsive or spontaneous visions; they are systematic-conceptually drawn analysis (SW’s) of the current condition of NW and systematically developed-assessment (OT’s). Future alternatives are developed with a view at the opportunity presented by the municipality with regard to intervening in a proactive way today, in order, to address the threats posed by challenges and steer the transformation process in a way that conforms to current values (e.g. sustainability). Hence, future

alternatives are proposed based on the belief that a positive future for NW is possible and desired impacts are achievable.

These proposals for alternative futures of NW in 2050 provide the direction and incentive for "way(s) forward". They organize intervention proposals of various disciplines along aggregated desired impact. Hence, we do not propose one alternative future, but rather a number of ones. In the case of NW we propose three future alternatives. These future proposals have been useful in structuring the work within our multi-disciplinary team at the TUM (Figure 12). At the onset of this research project, the common ground in our inter disciplinary team was the aim to follow the guidelines of sustainability. However, sustainability as a value leaves out many grey areas. In addition, the pace and scope of sustainability transitions proposed by the various disciplines vary. The three alternative futures emerged as a good container to sort out various proposals of the different chairs involved in this project.

Alternative future 1	Economy	Housing	Social cultural	Open space	Transport	Energy	…
Role NW vis-à-vis NMR							
Functional Transformation							
Spatial Transformation							
Process of transformation							

Figure 12. Detailing of alternative futures

Proposing a number of future alternatives rather than just one can serve the political process as a platform for debate, as stakeholders ask themselves, where to, which way forward? As discussed in section 4 of this paper, in the context of hyper-dynamic change, it becomes difficult for public authorities to assess the impact of the decisions they take. In deed different decisions, which at first glance seem to be consistent, are frequently counter productive and end up pulling development in contradictory directions. Hence, proposals of alternative futures serve as goals, against which public authorities can continuously check the effectiveness of their decisions.

Of course, we are aware of the fact that the life cycles of cities transcend a future goal that is set today. The objective of setting a future goal is not actually reaching the goal but rather to sort out and organize interventions. In deed alternative futures are developed with the underlying idea of "Der Weg ist das Ziel".

As decision is taken for a direction and commitment is taken for one alternative future, strategic plans can be developed to get there. Committing to one future alternative demands a political process. Lack of commitment in the short run in order to leave out all options open stalls the process of achieving desired change. Such a reactive approach is likely to be adopted by risk avert municipalities. Future alternative proposals in this instance are not goals but rather are used as assessment tools for interventions.

4.3.Application on NW

We have identified three alternative futures as to the potential positive transformations of NW in 2050. Proposals identify the potential roles of NW within the metropolitan urban hierarchy and the associated functionality of the space of NW. We term the first proposal "NW sustains through managed care", the second, "NW transforms into a hub for the Knowledge Economy", the third, "NW transforms into the birthplace for the Subsistence Economy".

In the first proposal, NW sustains along a process of what we term "managed care". NW does not become a popular site for a particular sector of the economy nor does it assume a particular function within the metropolitan urban hierarchy. Rather NW sustains by responding to a plurality of demands that emanate from the Nuremberg Metropolitan Region (NMR). With NMR we are referring to the functional urban region of Nuremberg and not to the administrative metropolitan region. This proposal is one that acknowledges the "downgrading" of the role of NW, namely, from a site in which activities and production contributed to the economy of NMR, to a site of tertiary activities. Within this proposal the restructuring of space will play a crucial role. The configuration of space at present reflects the previous citywide role that NW has played. Its future "downgraded" role demands a reconfiguration of space that focuses on local connectivity in which housing and the local economy are important drivers of sustainability. It is within such a context that we talk of "managed care". The process of enabling a successful "downgrade" of the status of NW should be carefully managed to ensure that NW does not slip into decay and obsolescence but continues to provide value to Nuremberg albeit at a secondary level.

In the second proposal, NW is transformed as a hub for the Knowledge Economy (KE). The beginning of such a process is under way already; the objective of this proposal is to support this process. Within this proposal NW continues to have an active role at the citywide scale, although this role has transformed from activities linked to industrial production, to activities linked to the KE. Assuming a role at the city wide level means spatial connectivity and locational advantages must be bolstered. However, this is not enough. In deed, for NW to successfully acquire such a role, the local spatial fabric of NW has to respond to the changed clientele of people involved in the KE. The lifestyles of KE workers are different than that of people involved in industrial production. Different lifestyles are associated with changed demands on space. Hence, in this proposal, two important considerations are citywide spatial connectivity as well as the restructuring of the local spatial fabric to respond to new demands.

In the third proposal, NW is transformed into a hub for the Subsistence Economy (SE). NW becomes in 2050 what is envisaged in retrospect as the "birthplace" of the SE in Nuremberg. In

other words, the “sparks” for the evolution of SE in Nuremberg are set along a process starting in 2012 in NW. The acquisition of functions related to the operation, maintenance and management of a subsistence economy builds on the availability in NW of vacant land for development.

Each of the three future alternatives proposes a different pace and scope of “sustainability transition”. In “Managed care” transition would be slow; its scope narrow, especially in the short term. In “KE hub”, transition could be fast, but its scope not really dramatic. In “birthplace of SE”, sustainability transition would be slow but the scope vast.

5. Conclusion: Steering the transformation process through spatial interventions

In this paper we have elaborated on the role of space in addressing the challenges of structural transformation. We have provided a conceptual framework for both (a) analyzing areas in transition as hypothetically conceived objects of analysis and (b) for proposing impact-oriented spatial interventions that address change induced spatial problems.

Our conceptual framework helps shift the focus of planners from the spatial outcome of change associated with loss to the spatial prerequisite of change associated with the promise of gain. As we described the methodology that we have developed for addressing spatial transformation of areas undergoing structural transformation, we have focused on the importance of formulating proposals of future alternatives based on SWOT analyses. SWOT analyses take into consideration the different perspectives and scales of spatial analysis and development trends.

Anticipating the future and identifying how it can be shaped today in a proactive way is not a visionary exercise; it can be arrived at through systematic analysis of the current situation and the factors of change. Assessing the speed of change, considering the intersection of different cycles of change and possible mutual reinforcements, it becomes possible to identify windows of opportunity; those historic coincidences, which if seized become transformative. As a result, it becomes possible to utilize all the available levers for steering change within a desired direction. Based on this approach, we have argued for a spatial transformation that addresses structural transformation in a forward-looking rather than a submissive way. The objective of identifying future alternatives is to organize and assess spatial interventions along desired aggregated impact. Doing so helps planners to move away from proposing palliative interventions that seize the moment to searching for transformative spatial interventions that pave the way to the future.

While we have not in any way been dreaming of Masdar, which translates from the Arabic language into ‘source’, we conclude that space is the very source of sustainability transition. Spatial transformation is the purposeful transformation of space, one that takes into consideration the intricate working of space in all its aspects and scales of impact.

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[i] NW seems like an old muscle-packed wrestler. The muscles are all there, capable of function. However, as the days of wrestling contests are over the muscles cannot be put in use for wrestling anymore.

[ii] „Wirtschaftsreferent Fraas träumt von Abu Dhabi: Der Nürnberger Westen soll in den nächsten 50 Jahren umgekrempelt werden- Vorbild: ein Projekt in der Wüste“ Windschall, S., (2012). Wirtschaftsreferent Fraas traeumt von Abu Dhabi. Abendzeitung Nuernberg,) The newspaper article quotes deputy mayor for economic affairs, Fraas, for looking to Masdar city in Abu Dhabi for inspiration. Masdar city is an emerging urban development project designed to be built on a tabula rasa in the desert of the UAE. This planned city is currently being built by Abu Dhabi Future Energy Company, a subsidiary of Mubadala Development Company. Designed by the British architectural firm Foster and Partners, this city is planned to rely entirely on solar energy and other renewable energy sources (Source: http://www.masdarcity.ae/en).