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Behavioural Studies in Spatial Planning

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1 ABSTRACT

The main strategic planning policy in Flanders has in view to reduce the growth of the net settlement area. It is important to enthuse people to live closer together in the centres of villages, towns or in more dense urban areas to preserve open areas. The question is how to achieve this.In the last few years, there has been a growing awareness of the importance of convincing citizens to change their behaviour voluntarily. A crucial question is which behavioural change we can expect from the population, whether this can be met at once by everyone and what a government has to change or needs to provide to make the change possible.

In recent years, the Flemish Planning Bureau for the Environment and Spatial Development commissioned several behavioural studies, conducted by Endeavour. It concerns two studies carried out on compact housing, on travel behaviour, on choice of residence in relation to facilities, and a new study on the behavioural influencers of housing. Thanks to an approach that combines the fields of architecture, urban planning, sociology and design Endeavour created a methodology of participation and co-creation with citizens, aiming at different segmentations of the population. This method successfully brought a multitude of experiences to the surface by means of a variety of people who sufficiently represent the diversity in Flanders. Insights into attitudes and motivations of a broad public are the key to understanding how to change certain aspects of behaviour into something more sustainable.

This paper focuses on two themes. The first reflects on practices, tools and knowledge that are nowadays common in (regional) spatial planning and how they relate to human behaviour. The second introduces insights from qualitative research for behavioural change that focuses on how to approach different target groups within the population. The aim is to guide behaviour in function of an inclusive and sustainable spatial transition. As the paper shows, it is important that in this transition process people do not get the feeling of 'losing' something. such as comfort or choice.

Keywords: social innovation, inclusive and sustainable spatial planning, behavioural study, participation, lifestyle

2 INTRODUCTION

The Flemish territory is characterised by large urban sprawl to which great social costs are attached (Vermeiren, Poelmans, Engelen, Loris, & Pisman, 2018). Even over the last years, an additional 6 hectares of undeveloped space is being built on daily. As a consequence open space is highly fragmented in Flanders. Regarding regional planning in Flanders, the main strategic policies have in view to reduce the growth of the net settlement area (Departement Omgeving, 2018). At the strategic level, the Flemish government has decided that the land take should decrease to 0 hectares per day and that development is best done close to facilities and public transportation.

Spatial planning policy in Flanders is mainly based on a hierarchical system. In the past decades, the Flemish government for spatial policy has evolved from a controlling government that supervises the lower government levels (e.g. in the process of granting building permits), to a government that mainly defines the strategic lines in co-creation with the same lower governments. The Flemish government still takes the overall strategic decision on spatial transition, but it gives a lot of freedom to the lower levels on how to shape this transition. However, the Flemish government has not given itself much authority to implement this decision. For many years, the Flemish government's main target group for communication on spatial planning has been municipal authorities and spatial professionals[1], whose role is actually to translate

[1] Spatial professionals are people who are professionally active with spatial policy, planning and implementation: active in governments, research, design and development.

ISBN 978-3-9504945-0-1. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, G. STÖGLEHNER

strategic objectives into (municipal) policy and implementation. The Flemish government thus adopts a top-down approach, and does this also in order to tackle big challenges regarding sustainable spatial transitions.

In the last few years, the role of convincing citizens to change their behaviour voluntarily (e.g. by nudging) is getting more important internationally but also in Flemish policy. Examples of strategy for behavioural change in Flanders have been developed with a view to immediate behavioural change, namely to changing a habit (e.g. nutrition, waste, exercise, means of transport). Convincing people to change their behaviour is not an easy task, especially when it means breaking an ingrained habit.The accumulation of know-how on behavioural change is only at the beginning in the field of Flemish spatial planning.So far, this new target group, the citizen, is still strongly approached with the means employed by municipalities and spatial professionals. Spatial planners assume that the highly needed behavioural change is the change of housing behaviour. But, changing one's housing behaviour requires a real location move, something that most Flemish people seldom do: it is a decision that requires reflection (Slabbinck, 2017; Van Den Bergh, Aelterman, Mouton, & Engels, 2018). It requires a different approach than changing a regular behaviour.

Closing that knowledge-gab is why the Flemish Planning Bureau for the Environment and Spatial Development outsourced research to bring in knowledge from behavioural change specialists.There are several (research) questions waiting to be answered.

With these studies, the Flemish Planning Bureau for Environment and Spatial Development explores the potential and possibilities of a behavioural change strategy as a complementary strategy to the more familiar financial, rational and regulatory government initiatives. The first two studies have been completed. They provide first insights to shape such a strategy. A third study is ongoing. At this moment, the actual roll-out of such a strategy within the policy frame has not yet been decided.

3 TOP-DOWN VIEW AND BEHAVIOURAL CHANGE: PRACTICES AND TOOLS

For its regular target groups, the professionals and municipalities, the Flemish government focuses mainly on offering tools, research, information and example projects. In recent years, much spatial planning research has been done to determine the 'best' places to live near facilities and public transportation through modelling: transit node value and facility level (Verachtert et al., 2016) and walkability (Vervoort, D'Haese, Verdeyen, & Van Acker, 2019; Vlaams Instituut Gezond Leven, 2018). The used criteria are population density, diversity of facilities and average bikeable or walkable distance. Municipalities are urged to direct development to the locations with the best scores. Next to that, a lot of effort has been put into design research and good practices selection to address densification on a qualitative way, with respect of Green Blue Networks (Smets & Stevens, 2019) and healthy living environments (Atelier Romain, Osar, & P.PUL, 2020). The Flemish government also provides information about participation methods in spatial policies and implementation projects (Devisch, Huybrechts, & Stieglitz, 2017).

Various campaigns are largely built around showing possible, desirable futures, based on overall policy goals, modelling (e.g. transit node value and facility level) or design. These futures are suitable for the spatial professional and appeal to rational reflection. Three examples of campaigns launched by different parts of the Flemish government illustrate this. The first is a four-year commitment of the former Flemish Government Architect Leo Van Broeck (2017-2020) to preach in the media the often-repeated message: "denser and more compact housing protects open space". He illustrated this statement by designs or picture of –for Flanders– rather dense development with appartements. The second is an online awareness-raising survey (for the campaign "At home in the future? Do the housing test") (Vlaamse overheid, 2020). After completing questions about housing preferences, the respondent gets a picture that corresponds to its answers. This image differed greatly from the existing situation in most parts of Flanders. The third is the Mobiscore(Van Den Bergh et al., 2018), an online tool to determine whether a housing location is 'sustainable' in terms of nearness to facilities and public transport. The tool gives the users a few possibilities to include their own behaviour in the score.

While the intentions are good, offering a picture of a possible and better future and giving scores to an actual spatial situation seem to strike a nerve. When the campaigns were picked up by the media, they evoked a lot of public resistance. It led to a polarised debate between urban and rural residents, older and younger generations and progressives and conservatives, good and bad. From a behavioural standpoint, people's

frustrations are not surprising: a housing choice is one that people seldom make, and can even be a choice they do not have. For many, it is a behaviour they cannot change easily.

All this recent attention to personal behavioural changes, raises some ethical questions within the Flemish planning community too. To what extend should citizens take the responsibility for systemic transitions? Van Eenoo argues that people do not always have the free choice to live somewhere or to use a certain means of transportation and that 'Urban Sprawl' is not just the result of a sum of individual –wrong– choices (De Maeyer et al., 2021; Van Eenoo, 2020). The 'ill-considered use of space' is according to several policy document analyses and expert opinions (from different fields, such as spatial planning, mobility,…) in significant part due regulatory instruments, built environment and financial mechanisms (Ryckewaert, Van den Houte, Brusselmans, Hubeau, & Vermeir, 2018). Current legal and fiscal policies work against sustainable spatial use. Another argument against the strategy of expecting too much from citizen behavioural change is, according to Van Eeno, that people do not always act consistently and that the place of residence is not the only aspect of sustainable (residential) behaviour.

4 FRAGMENTARY KNOWLEDGE ABOUT BEHAVIOUR IN AND PERCEPTION OF THE LIVING ENVIRONMENTAT THE START OF THE RESEARCH APPROACH

These discussions triggered the Flemish Planning Bureau to commission a first behavioural study: "The Experience study about compact living" (De Maeyer, Deprez, Cherroud, & Bambust, 2020). The aim was to call in external behavioural expertise. The literature section examines existing research on moving and residential motives in Flanders through the lens of behavioural insights. Besides a lot of images of possible physical forms, people have to experience it, to make that experience their own, so it becomes a lived story. For this, they not only need to see 'the' future and its imagined or calculated benefits, but also the path to and the connection with their own future, with empathy and guidance for the sometimes difficult decisions that need to be made along that path. To this end, the 7E/12E model for behavioural change (Bambust&Vanhove, 2015) is used as a theoretical framework and supplemented with theory on constructing narratives and using frames. A crucial question is which behavioural change we expect from the population, whether this can be met at once by everyone and what the government has to change or needs to provide to make it possible.

The literature reveals that there is some knowledge about the importance of life stages and housing career. Behaviour can be very different over time. So a lot of young adults are attracted to the range of aspects that are part of city living (e.g. cultural and social events). There is a lot of research showing that households with (a desire for) children move to a more suburban environment. Housing preference research also shows that a majority of the population prefers less compact forms of housing. Little attention is paid to the results of those who express a different housing preference and/or live in a different type of housing. This leads to the dominant discourse of "Mr./Mrs. Average" who think of a house with a garden in the more 'child-friendly' suburban periphery as the most ideal place to live. There is also research that shows that Flemish people are not inclined to move once they are settled. As a result, the focus of research and policy efforts on housing is often (one-sidedly) on young people and young adults for whom an alternative to the suburban home is sought.

Subsequently the literature section of the second study "The Behavioural study on proximity of facilities versus travel behaviour" (De Maeyer et al., 2021) summarises the existing knowledge about the topic. It is clear that the presence of facilities, travel behaviour and place of residence choice are interrelated. The higher the density, the closer the possible destinations are to each other and the more opportunities people have, the easier it is to choose a sustainable means of transport. Although the spatial condition plays a role in people's choices, it will not automatically lead to sustainable behaviour. Reality is much more complex.

In spatial planning and mobility practice in Flanders the effect of the built environment (occurrence and distribution, density, distance) (Van Den Bergh et al., 2018; Van Meeteren, Boussauw, De Kool, & Ronse, 2013; Verachtert et al., 2016), socio-economic and demographic factors (gender, age, family composition, education level, wealth, income …), and car ownership –nowadays still encouraged in Flanders by company and salary cars– are widely accepted determinants of that complex reality. Whether or not people own a car and/or are attached to its use influences their choice of where to live in favour of residential areas that are easily accessible by car and where parking is easy and inexpensive. In literature this is referred to as the concept of 'residential self-selection': people select a residential environment where they can best get around by the mode of transportation they prefer. However, existing data on all these relationships are rather scarce

ISBN 978-3-9504945-0-1. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, G. STÖGLEHNER

in Flanders. Some data hardly exist (e.g. frequency of visitors to facilities), others are not available on a relevant spatial scale for reasons of privacy.

The literature review in both researches reveals that collecting data on spatial behaviour in relation to those psychosocial factors is still in its infancy. Qualitative experience research is an interesting method to gain more insight into these relationships. The behavioural studies on compact housing and facilities are intended to contribute to this knowledge.

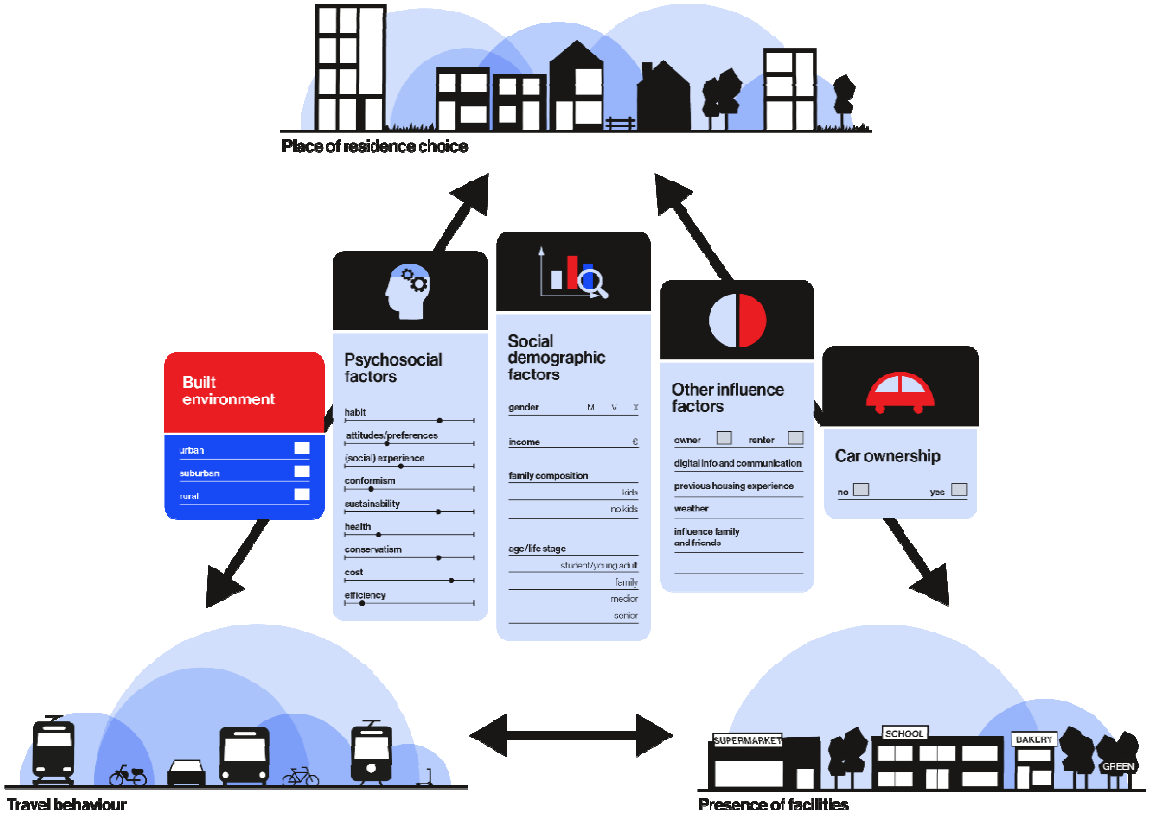

Figure 1: Summary of the different factors that influence people in their travel behaviour and housing choice

5 QUALITATIVE EXPERIENCE RESEARCH

Qualitative experience research is a bottom-up technique used to analyse knowledge of behaviour with the aim of integrating it into top-down planning policies for sustainable spatial transitions. In recent decades, participation has become inevitable in urban transitions in Flanders as people demand it more and more. While traditional public participation takes place through a public enquiry when the government has provisionally decided on a plan, the current trend is to consult those affected before the provisional decision is taken. In this way, the diversity of experiences and opinions of people participating in the pathway can help in customising decision-making. For more generic measures, instruments and policies in spatial planning that affect spatial transitions, the use of public participation is still less developed. By using interviewing techniques integrated into playful workshopsaimed at an audience that is as representative as possible of the population, the research attempts to transcend social desirability and reveal people's real preferences. In both studies, qualitative experience research was used through different methods.

The first study on housing aimed to understand the positive experience of compact housingbetter. Workshops were organised with local residents living in different typologies in five different compact neighbourhoods in Flanders and their experiences were translated into narratives and images of desirable living environments. A next round of workshops tested the appreciation of these narratives to a public living in spacious and sprawled areas and tried to understand how behavioural change could be implemented through storytelling.

Thetranslation ofqualitative data into useful communication and narratives are important. People have different values that can conflict with each other. Our choices do not always conform to the particular values we pretend to uphold (which is called 'cognitive dissonance'). That is why we want to legitimise our choicesboth to others and to ourselves. Narratives are used for this purpose. If people need narratives to

legitimise or validate their behaviour, they can be helped by providing (existing or new) narratives. For people who act against the values of their peers or against their internalised values, cognitive dissonance can be anticipated and the likelihood of intrinsic motivation increased. This can be done by framing the behaviour within the Values, Themes, and Concrete situations ('VTC framing') of the target group. For individuals where the values are already aligned with positive behaviour, stories can be offered as reinforcement as a means of self-telling. This framing cannot be just fiction, but needs to be built on true experiences to be successful, so that new choices must also fulfil the promises told in these stories.

For the second study qualitative experience research was used in two rounds. In the first round, as much personal information as possible was collected about past and planned residential choices, regularly used facilities and services, and the movements to these facilities. In between, we drew up hypotheses for psychosocial segmentation in the behaviour of citizens. In the second round, these hypotheses were tested, as was the willingness to undertake personal actions related to goals of Flemish policy. When testing actions and policies, this qualitative experience research comes close to the principles of a deliberative democracy (Bessette, 1981) and experiments with citizens panels like the G1000 that took place in Belgium and the Netherlands over the past decade.

6 A ROADMAP FOR SPATIAL TRANSITION

The research of the behavioural series has already envisioned that the transition needs both governance, including policy action and citizens behavioural change, but also the collaboration of shapers of our environment and society (De Maeyer et al., 2020, p. 93). In the first study, 'handles for behavioural change towards compact living' were elaborated in which both are linked to each other. One type of recommendations concerned communication and policy. Other recommendations were addressed to local authorities and spatial professionals who stressed the importance of qualitive neighbourhood- and housing developments from a user perspective. The study also formulated a working method based on psycho-social insightssuggesting to translate the strategic vision of the Flanders Spatial Policy Plan into Roadmap, a (operational) work plan supported by a motivation plan(De Maeyer et al., 2020, p. 89). The work plan is equivalent to an approach in terms of governance, the work that the government itself has to take up, changing laws, rules, mechanisms, etc. The motivational plan is necessary to keep (especially) citizens on board. The roadmap consists of 10 phases and going through them will take years.

The experts in behavioural change confirmed that the polarised debate and current campaigns will not be sufficient to get enough people on board to make the necessary transition. In the current phase of policy making, it is too early to show images, or to give people the feeling that they are not compliant. It is time to wait until the government has decided about what is necessary and acts accordingly, so that change is actually possible or easier, and that the first initiators have gained experience.

In the current phase of policy-making about the transition (first and second phase), De Maeyer et al. (2020, p. 94) advises to work with prognostic and motivational frames: asking for help with ideas of what the future may look like. This could be a higher-bar approach: accepting the challenge and even raising the bar. Or an additional approach that counters fear of loss, identity, quality of life and therefore emphasises that multiple interpretations will be possible. In these frames, the emphasis is much more on preserving and strengthening residential quality than on higher density. Maybe it is interesting to show what people (the next generations) will lose without transition. In motivational frames, people are not framed as co-problem owners, but as solution selectors.

7 GETTING STARTED WITH PEOPLE WHO HAVE TO CHOOSE ANYWAY

Since a transition towards a more sustainable choice of transportation and of housingfor a large part of the population can only take place step by step, it would be rather counterproductive to mobilise everyone at once. The roadmap takes into account that the spatial conditions are not yet ready for a rapid transition. Pilot projects for resettlement and reorganisation of mobility to more desirable spatial conditions are already being implemented and will be scaled up step by step. Regarding Roger's adaptive model (Rogers, 2003), Innovators and Early Adapters are needed to mobilise a broader population in time, meaning the early and late majority and laggards. In addition, the behavioural studies have taught that not every innovative or desirable product (in this case, a house or a mode of transportation) will be equally attractive to different segments of the population. Behavioural theory additionally teaches us that behaviour is usually consistent.

ISBN 978-3-9504945-0-1. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, G. STÖGLEHNER

Breaking moments can trigger new behaviour. Preference for a new home and housing type is strongly influenced by life stage, which often goes hand in hand with age. Life stage factors such as graduation, starting work, moving in together or getting married, having children, etc. are often the cause of a move (De Bruyne&Iserbyt, 2011).

The "Experience study about compact living" discusses a socio-demographic segmentation not just by life stage (which is a frequently used method in literature) but via four important breaking moments that give rise to choosing a new home, often in relation to a specific target group. For each of these target groups, narratives were constructed. The first group is looking for independence. This usually involves young adults leaving their parents or adults dealing with a relationship breakup. The second group is looking for more space. This group consists mainly of young and new families who are expanding. A third group is looking for community and free time. This group of people is faced with more free time as children grow up or one retires while still living in spacious single-family homes and social life again takes more place outside. The last group is looking for security and accessibility to health care. This group usually consists of the elderly and those in need of care. Generally less drastic are the breaking moments that can cause a change in travel behaviour. A new job or having children are often triggers though that can influence this behaviour (e.g. picking up the children on the way to work). But apart from that, a choice of transport mode is a result of a complex system of factors that acts on the choice process. Acting on behavioural change, big choices like a new house are therefore important moments to nudge or inform people. To gain more insight in the key-factors that determine the decision making regarding housing, the new research that just started will collect more knowledge. Regarding the change of transportation habits, insights in breaking moments will be crucial as this type of decisionmaking is less drastic and easier to implement.

8 THE AVERAGE PERSON DOES NOT EXIST: ABOUT SEGMENTS AND MOTIVATIONS

If the Flemish government wants to encourage citizens to behave in a more sustainable way, it has to know what actions it must or can take with respect to certain segments of society. Not everyone acts for the same reasons or encounters the same barriers. What is an obstacle for one person is a motivation for another to live in smaller space or to change his/her mode of transportation. By taking into account the diversity of persons and better connecting to the living and mobility behaviour of the Flemish people, measures can be used more efficiently to stimulate certain choices. A better understanding of behaviour can therefore be an important factor in a spatial transition in Flanders.

Whereas with a socio-demographic segmentation, it is already known and broadly accepted, which persons should be addressed to make behavioural changes possible (e.g. young adults), it is much more difficult from a psychosocial point of view. Merely targeting behavioural change according to a socio-demographic segmentation would not be sufficient to capture the complexity of choices. An extensive segmentation based on psychosocial factors makes it possible to also focus on changing the behaviour of persons on the basis of their underlying motivation (whether or not unconsciously) that plays a role in making choices. In the second study a psychosocial segmentation three types of motivation are discussed that can lead to behavioural change, in relation to some specific target groups: socially motivated people, intrinsically motivated people and extrinsically motivated people.

By allowing policy measures to respond to these motivations, the framework through which people look at the world can be adjusted in order to establish new consistent behaviour. This is also called frame bridging. These measures are particularly important for intrusive questions such as finding a home or determining a lifestyle, but accompanying circumstances can also have a major influence. Behavioural studies conducted in recent decades have shown that these accompanying circumstances, which cannot be traced back to any of the above motivations, are more important than previously estimated. People do not always get around to testing the dilemmas or the possibilities against their value hierarchies, even when making important choices, because getting to the bottom of all the effects of choices takes a lot of energy and time. It requires a form of ‚meta-intrinsic motivation‘ to give priority to this. People prefer to be led by the path of least resistance. Thus, nudges do not interfere with motivational measures, but help them.

9 AN INITIAL PSYCHOSOCIAL SEGMENTATION FOR CHANGE OF RESIDENTIAL BEHAVIOUR AND USE OF FACILITIES

The behavioural studies not only allowed us to paint a more complete picture of a complex reality, it also gained us more insight into the relations between different factors for different people. The barriers experienced by the various persons were noted as well as the levers for making more sustainable choices. Because positive perception is an important lever for future behaviour, the focus is primarily on the motivations behind those choices, as social, emotional and cultural motivators can ultimately determine or impede someone‘s choice. The analysis of psychosocial factors led to very different groups of people motivated according to different categories; namely intrinsic, extrinsic and/or social motivation. Of course, special attention still needs to be paid to the various breaking moments in a person’s life.

First of all, it is important to recognise a group of people that is not yet motivated for the time being. This group may eventually find its way within other motivations but it is not easily persuaded to change its habits. We can find this attitude in Rogers' late adopters. Similarities can be found with a group of people that is more conservative, but can be guided by intrinsic motivation. The living environment where these persons grew up is often a crucial factor in the choice of a place to live. The home is preferably located near friends and/or family and in a quiet area with its own garden, where one feels secure. These people attach importance to traditions and conventions in which they are embedded and often see these as part of their identity. This behaviour is also often expressed when moving to facilities, usually using the most familiar mode of transportation, interwoven with their identity, even though it may not be the most efficient way. They prefer to go to already known facilities: "I feel comfortable in stores that I know and where I automatically know the layout. The same store can look totally different in another town, which makes me feel a slight panic". Because these people often show resistance towards what they can lose, it is important to frame (ENLIGHTEN) what they also lose within the non-engagement of the strategic objectives. The levers for choosing where to live and sustainable travel behaviour are therefore best explored within the 'Nudging area' as well as within motivation: we want to bring about a disruption within the identity of this target group and immediately present an alternative, consistent story. An example of this is making it impossible to drive your car up to the school gate (ENFORCE) while telling people that they will be fine with this because they are concerned about the safety of their children (ENTHUSE).

Besides that also other intrinsic motivations can be decisive in determining one's behaviour. People who value sustainability for example are concerned about the ecological and social consequences of their behaviour. In many everyday actions they make critical choices in favour of the environment in terms of mobility, type of (online) facilities but also place of residence. For another (and often partly overlapping) group, health is the most decisive factor. For this group, the (proximity of) a green and healthy residential environment is often a determining factor in the choice of a place to live. In terms of the home, criteria such as peace and quiet, air quality, availability of a (collective) garden and/or the proximity of green spaces therefore play a role. Health is also a factor in the choice of certain facilities and more effort will be made, for example to purchase organic products. This behaviour continues when moving to facilities where active modes of transport such as cycling are consciously and consistently chosen: "I really enjoy cycling immensely, because it's pure relaxation. It's a lifestyle which I also carry through into everyday life". These individuals are best persuaded by designing healthy urban living environments with proximity to facilities (ENABLE). The lack of this today often prompts them to choose more peripheral locations. With good and safe bicycle infrastructure (ENABLE), they are often willing to travel sustainably and cover long distances anyway. Mapping sustainable mobility options or technology to make goals measurable can help them do so (ENLIGHTEN).

Social motivations also determine location choice as well as travel behaviour. We distinguish two social motivations that differ greatly in their spatial behaviour today. The first group to which social motivation is important is that to which experience is the core of the behaviour. For this group, travel behaviour is often socially determined. Running into people, the chance to have a chat, discovering something new, etc are important to them: "We love cafés and restaurants, which is why we wanted to live in the city. We also like to walk because on the way we always meet someone we know.“ They are therefore more likely to use active forms of travel and public transport and are more likely to live in city and village centres. With this group, it is important to capitalise on that experience and also to highlight expectation (ENLIGHTEN).

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The fact that today in Flanders a majority does not live in village centres or urban areas means that people who are easily influenced by others, have limited reason to make that choice.This second group are people who seem to strongly conform with their peergroup and it contains persons who are strongly group oriented and who consciously or unconsciously allow themselves to be influenced („FOMO“) by the opinions and/or choices of their peers with regard to choice of transport mode, type of (online) facilities and choice of place to live. Behavioural changes occur in the context of the peer group and in imitation of role models, influencers and opinion leaders. If picked up by the "right people" they may be able to be steered. The timing of moving this group is important here: they may be difficult to address as a first sub-target group, but often come up in a second or even third phase, when we can show that 'others like you' are doing it too, an attitude that we find especially in Rogers' early and late majority.

In addition to social motivation, extrinsic motivations also play an important role for certain people. For example, cost is for many the most decisive factor in making choices. Cost plays a role in the choice of a home and place of residence but for some can also be quickly seen as an investment rather than "a home". It offers better value for money, so it is worth looking at the total cost (energy and travel costs, location, subsidies, etc.). For this group of people, this behaviour is also seen for movements to facilities, where cost savings usually take preference over comfort or time: "I regularly use 'Toogoodtogo' because it is cheaper. However, there is not so much choice in my own neighbourhood so I drive further for this. 15 km is the maximum though because otherwise it is no longer profitable." They seem to be late rather than early majority (unless there are economic triggers), and sometimes laggards - with a relatively low degree of reflection on their own behaviour patterns. This segment is most susceptible to extrinsic motivation linked to financial incentives (ENCOURAGE) such as a bicycle allowance. In addition, their behaviour can be steered by informing them about the financial benefits of desired behaviour or also by helping them visualise future profits (ENLIGHTEN).

For another group however, efficiency is the most crucial factor. The location of the residential environment is therefore often important in choosing a place to live so that family and work life can be organised well. The home is preferably located near an easily accessible centre with different facilities and work. 'Efficiency above all else' is their motto. This behaviour also sets in when moving to facilities where the easiest and fastest (or combination of) mode(s) of transportation is always chosen. These persons will also take other factors into account (travel time 'from door to door', parking space, infrastructure, ...) and often visit linked facilities so that time loss can be avoided. 'Win-win situations' such as exercising or working during a commute are nicely taken into account to make good use of their precious time: "I always try to look at where I need to go and how I can combine it so I can do it as efficiently as possible." This group is most sensitive to extrinsic motivation linked to time savings/convenience (ENCOURAGE) and, in addition, can be steered in its behaviour by informing it on the benefits of desired behaviour through data (ENLIGHTEN). Flexibility of the car pushes many in this group today towards unsustainable travel behaviour. Public transport is often impractical, the bicycle too slow and alternative sharing systems still too limited. By removing these barriers, the desired behaviour can be more easily achieved than the undesired behaviour (ENABLE). Efficiency often goes hand in hand with comfort, for example by making public transport sufficiently high quality (e.g. Wi-Fi) so that time can be used usefully but also by making car facilities (e.g. parking) less accessible. At certain breaking points, such as having children, this group is being 'pushed' into being efficient. At such a breaking point, it is important to be able to offer solutions quickly. Change causes discomfort and stress, which often causes people to hold on even more to what they do have. The panic button –named for the user's underlying sense of panic– then ensures that we not only unburden them by offering other solutions in this one area but also help them to integrate those solutions into their lives. Therefore it is advisable not to propose one single solution (the bicycle) but also multiple ones (car sharing, bus, car...) in search of what better suits them (ENTHUSE) and their social middle and status (ENGAGE).

10 CONCLUSION

Aspatial transition needs abehavioural change.This is a process that takes time and the ambitions must growstep by step, together with the group of people that is able and motivated to step into that process. To help politicians with this complex task we suggest the creation of a detailed roadmap for sustainable spatial transition. It contains a systemic approach in which a (operational) work plan is supported by a motivation plan. Every step within the plan has to be well defined and measured. To reach the next step the goals of the

previous have to be reached. We suggest an extension to the roadmap presented in the perception research of 'compact living'.At the same time it should also contain at least aspects regarding mobility and the provision of facilities and services. This roadmap should take into accountthe following advice:

(1) Which behavioural change by whom?

Which behaviour people need to change remains a complex question to answer, and relates to the wishes and situation of each individual. In today's reality, there are many people who have no immediate role to play in reducing urban sprawl, e.g. because they live in a city or village centre or in a home that is adapted to the size of their household. Other people(still) live alone or with their partner in a house that is suitable for a family. In their case, the behavioural change could be to move to a smaller house. Other people dream of moving to a newly built, open house in a non-urban environment. The behavioural change for them could be to buy an existing house instead of a greenfield. Situations differ among people and psycho-social factors also do. How to address the right people at the right time and facilitate desired behavioural change in an appropriate way is not yet clear in the current state of research. It will be addressed in further researchin order to feed policy.

(2) The choice of place of residence and mode of transport are two behaviours that are intertwined and ask for an integrated strategy

The concept of residential self-selection teaches us the intertwining of two behaviours. Understanding that the choice of a home is a long-term issue and is made less frequently than that of a mode of transportation means that we can assume that efforts to achieve more sustainable mobility behaviour will lead to more desirable spatial organisation in the long run. A focus on the accessibility of facilities and services can work complementarily to this approach to enable more sustainable choices.

(3) Positive experiences are key

Recent efforts to encourage people to cycle to work or use co-mobility (car or bicycle combined with public transport) may, through positive experiences, increase the general appreciation for sustainable modes of transport. Positive experiences can then influence the long-term choice of where to live. We need to emphasise "positive" in positive experiences. Bad experiences are detrimental to a sustainable transition. While today electric bikes are widely promoted, qualitative perception research taught us that many perceive it as too dangerous given a lack of safe or adequate bike infrastructure. Bad experiences with overcrowded and delayed public transport would also have that effect. The perception research also confirmed that quality control of new development is important in order to compete with the successful suburban alternative. Non-quality densification can even create resistance to desirable spatial transitions.

(4) Political courage is needed to create a financial shift

How does a strategy on voluntary behavioural change fit into the overall policy to bring about the transition? Behavioural science clearly shows that the government cannot expect a change in behaviour if there are great difficulties to overcome for the desired behaviour.Policy will have to remove the obstacles to make the demand for behaviour change credible. A financial shift will be crucial to create a multi-shift in our behaviour towards mobility and housing. If transport-oriented development is to be encouraged, the capacity, frequency and network of public transport and cycling infrastructure must also be significantly expanded and desirable housing conditions will need to be affordable. Next to that, financial incentives for unsustainable behaviour will have to be phased out while nudges for sustainable behaviour will need to increase. That means an overall consistent policy from different fields: all legal and fiscal policies (mobility, housing, salary cars, …) must work together to achieve a sustainable spatial use. A good deal of political courage will therefore be needed to implement changes that could provoke resistance, not least because these decisions will limit some acquired privileges of a broad population.

(5) Diversity in the modes of participation in the transition is needed

To convince politicians to make such drastic changes, a significant part of the population must already be convinced. Therefore it must be possible for everyone to be able to become part of this transition process. Contributing to sustainability sometimes risks being a story of the privileged creating aversion among a broader group. Therefore every small contribution counts and can be a stepping stone for a larger transition over time. By gaining good insights into the values, themes and concrete situations of different segmentations in the population, policies can work in a more targeted way and offer everyone opportunities

ISBN 978-3-9504945-0-1. Editors: M. SCHRENK, V. V: POPOVICH, P. ZEILE, P. ELISEI, C.BEYER, J. RYSER, G. STÖGLEHNER

to get motivated and contribute to the change. Therefore, pilot projects should not always seek the extremes, but also find common ground for everyday people. Within different segments it is also important to focus on all ages. A focus on different breaking points in people's lives will initiate a broad transition over time.

(6) Communicate empathetically

Accusing people of making the wrong decisions works counterproductively.Not everyone will or can be motivated to change his/her behaviour at an early stage of the transition process (cf. Rogers). Judging behaviours of the late majority and laggards will encourage demotivation and a sense of loss.It is better to give people opportunities and support to change aspects that they themselves can control and to communicate with them empathetically at the right times. It is important to understand that change can be difficult for certain groups of people: policies and context must help people understand that they do not lose but win something.

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