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ALL ROADS LEAD TO ROME? Vision-Based Scenario Evaluation concerning Sustainable Residential Areas.

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ABSTRACT

This paper introduces the methodological review and the concrete results concerning the scenarios for sustainable residential areas and their ability to reach the desirable vision in each case. The data collection for the future scenarios and for the shared vision took place during the scenario process facilitated by the writers of this paper in the context of ELLI project. The results will open new views to the future when developing energy efficient residential areas from sustainable perspectives. The results include also a methodological evaluation of the power of the vision and scenarios in the context of regional strategic planning. As a conclusion, a set of scenarios with various abilities to reach the vision will be presented.

INTRODUCTION

Futures research as a part of strategic planning will open new opportunities to the future (Meristö 1990), but that will also map risks and surprises concerning wild cards and black swans (Taleb 2006). The future is not facts “what will happen in the future” but more descriptions on “what might happen in the future”. The futures work includes not only possible and probable scenarios but also the vision of the desirable future (Amara 1981).

In this paper we will focus on the future of sustainable residential areas, which by definition are physical and functional entities containing building blocks, services and people. These all together will form an area with all dimensions of sustainability, i.e. economic, social and environmental aspects of it. Energy-efficient residential areas are in focus in the project ELLI, financed by ERDF and coordinated by Häme UAS, where we at Laurea have developed scenarios for energy-efficient areas to the year 2036. The process lasted from autumn 2016 to spring 2017, including three futures workshops with regional decision makers from various case areas in Finland (Laitinen & Meristö 2016 & Meristö & Laitinen 2016).

RESEARCH DESIGN AND FRAMWORK

The framework for this paper combines futures research, especially scenario planning to strategic planning and visionary leadership (Meristö 1991, Nanus 1992). The timeframe is reaching up to the future for the next 20 years.

The main research question in this paper is: *Do all the scenarios lead to the vision?* The sub-research questions are as follows: *Are there any missing opportunities or threats, which these scenarios do not cover? Who are the key interest groups committed to the vision? Whose voice matters?*

Vision is defined as a value-based perception of the future, where the actors concerning the subject in focus will commit to (Kamensky 2000). Vision is a guideline to the future and it helps decision-makers to make a choice between several alternatives and assumptions which are behind alternative scenarios (Meristö 1990). Vision is far beyond the strategic planning horizon, still the vision sentence should include concrete conditions of the future and the communication of the vision should be clear. Otherwise the commitment will not be complete: *only shared vision will come true in the course of time* (Nanus 1992).

Scenario is an alternative development path to the future in long run. Scenario as a word will come from the theatre world, where it means description of the play, detailed moves on the stage, actors' roles and positions during the play and so on. The same illustration includes to the future scenario, too. On the stage there will be the real world actors from different groups like companies, citizens, government or NGOs and the scene will base on alternative assumptions from the operating environment relevant to the subject in focus. As a result from scenario process there will be a wide range of scenarios from possible to probable ones, from desirable to unthinkable ones, if the process has been well facilitated (Meristö 1991).

Scenario selection as a basis for the decision-making and strategy formulation is not an automatic process, where only to calculate the best expected outcome in the future. Scenario selection is more sophisticated combination of art and science, where multi-criteria decision-making approaches are needed. From Amara's (Amara 1981) point of view, the future can be influenced by individual choices. In the reality, actors making these choices will form a complex ecosystem with many dynamic connections, having relationships with each other. Only a part of these connections are transparent, and a lot of reasoning will happen in black boxes behind closed doors or inside the head and heart. These hidden assumptions often will be called taboos, i.e. issues not mentioned loudly or even if any discussion will be hold, it does not lead to any practical consequences (Kettunen 2009). Scenario selection is therefore a process, where we have to estimate the interests and power game of actors in the ecosystem, but also to recognize the risk behavior profile of the decision-maker and the ability to carry the risks in the organization in focus (Meristö 1991).

There is no universal ranking for scenarios, rather, each case is connected to the decision-maker and his or her mindset, risk profile and reference group. The ranking list of scenarios can vary from one evaluation point to another: Regarding e.g. three dimensions of sustainable development (Bruntland 1987) the preferred future might differ from economic, social or ecological perspectives. Also the key actors in alternative perspectives will change. Action scenario approach will bring to the board key actors from the whole ecosystem of energy-efficient residential areas: citizens/residents and NGOs at the grass-root level, governmental actors from international, national and local level as enablers and regulators, but also companies and enterprises in planning phase, but also in construction phase as well as in use and maintain phase during the whole life-cycle of the buildings and residential areas as a whole.

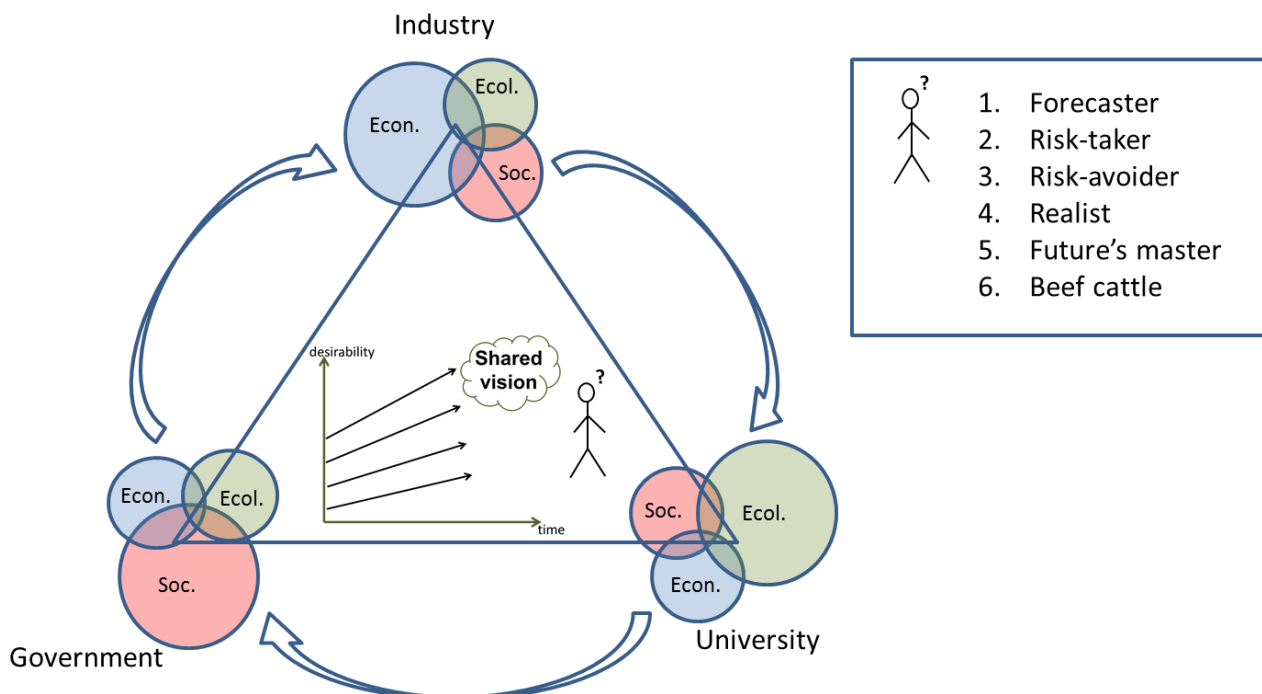


Figure 1. Framework for the study: combination of triple helix, sustainable development, shared vision and selection of scenarios (based on Meristö 1991; Meristö 1990 and Meristö & Laitinen 2014).

Triple helix context combined to the sustainable development dimensions (Meristö & Laitinen 2014) will give the first alternatives of the criteria for good decisions concerning the energy-efficient residential areas in the

real life, i.e. in the multi-actor context with different interests. Secondly, the decision-makers' and their organization's mindset have to be taken into consideration when developing criteria for good decisions concerning the scenario selection as a basis for the strategy development (Meristö 1991). Ability and willingness to take risks are the key elements of this mindset, which will define the result of scenario selection: Forecaster will follow the probable line with no risk, Risk-taker will choose the most attractive alternative with high risk, Risk-avoider will avoid the selection of scenarios, but will prepare himself for the future in all cases, Realist will focus on fast action with flexibility created for the alternatives not chosen, Future-maker will build a strong network to achieve the desired future whereas the last attitude is Beef-cattle focusing on waiting and hoping for a better future (Meristö 1991).

RESULTS

Scenario work will always produce also alternatives which without special pressure do not lead towards the vision. The shared vision is the basis for motivation to make an ambiguous choice among scenario alternatives. Those alternatives not selected will need considerations against the selected one: need for flexibility for surprises have to be estimated (Meristö 1990). Surprises are often risks, but also opportunities which can be exploited if proactively in strategy prepared for the future.

Project ELLI defines the vision of the energy-efficiency in residential areas as "a residential area with carbon-neutral community strategy including sustainable values in construction, city-planning, labor and investment policy and citizen-centric service design..."

The constructed scenarios for the three different case areas and for the energy-efficient residential area in general will differ from each other concerning on one hand *the consumers' willingness to pay for green* and environmental friendly solutions, on the other hand *the society's support for the energy-efficient* regional development. Both from these two drivers can be positive or negative by value, i.e. consumers are willing to pay or not and society will give support or leave that to the market. These two axes will form a *fourfold table*, where each quarter is one basis for scenario assumptions. The case area scenarios and the scenarios in general have been put to the table in each quarter as follows (Figure 2). The case areas in focus are region called Askonalue in City of Lahti (A), another region called Engelinranta in City of Hämeenlinna (E) and third one Peltosaari area in City of Riihimäki (P). More generally described is still a common description of energy-efficient residential area in Finland (G).

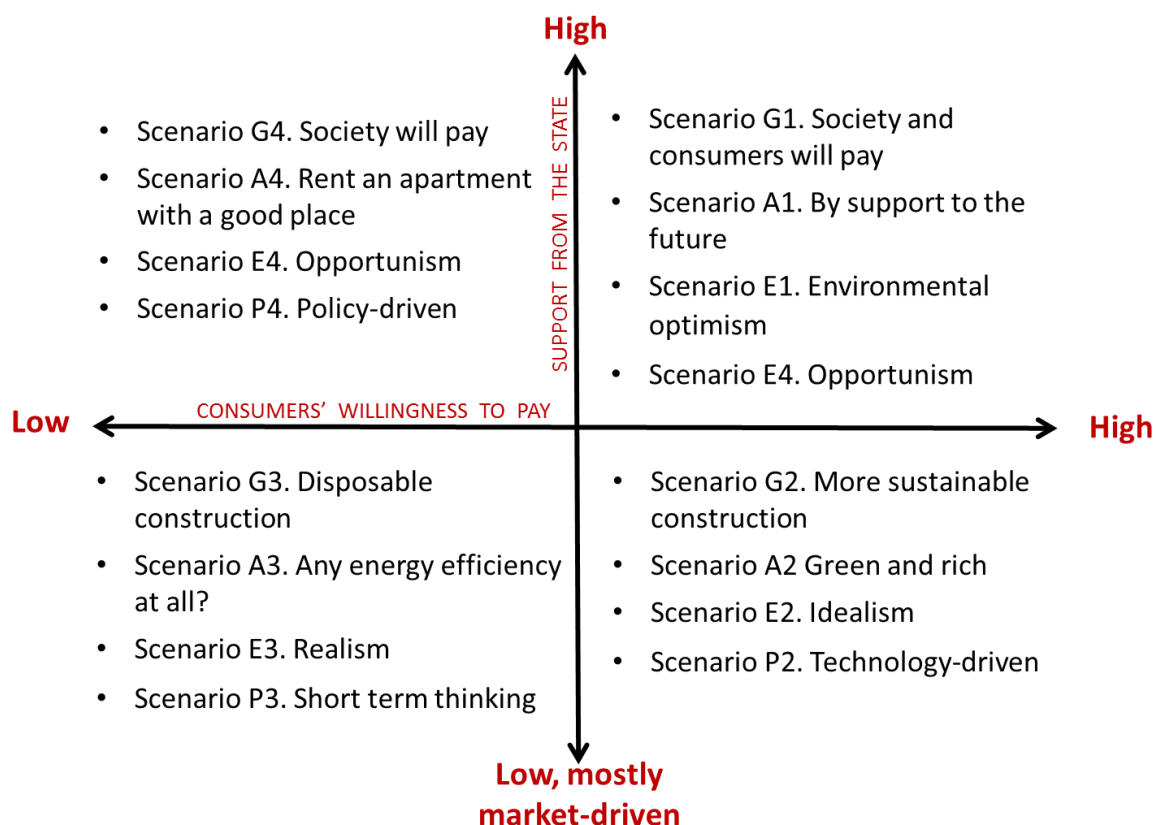


Figure 2: Alternative scenarios for the case areas in Finland: a summary.

Each area will have these four alternative scenarios to the future. All the constructed scenarios for the different case areas do not lead to the vision. Like scenario building process, also the scenario evaluation have been happened in the facilitated futures workshops consisting of actors from this field, including decision-makers from the specific residential areas in focus. In the table 1 scenarios will be listed based on their favorability towards the vision. The grey area in the table includes those scenarios no leading to the vision. A special threat for the energy-efficient residential areas seems to be a situation, where both society and consumers are reluctant to pay for the green and carbon-free solutions.

Table 1: Scenarios towards the vision in ELLI case areas.

Generally, residential area with energy efficient goals (G)	Askonalue Lahti (A)	Engelinranta Hämeenlinna (E)	Peltosaari Riihimäki (P)
Scenario G1. Society and consumers will pay	Scenario A1. By support to the future	Scenario E3. Realism	Scenario P1. Visionary view
Scenario G2. More sustainable construction	Scenario A4. Rent an apartment with a good place	Scenario E1. Environmental optimism	Scenario P2. Technology-driven
Scenario G4. Society will pay	Scenario A2 Green and rich	Scenario E2. Idealism	Scenario P3. Short term thinking
Scenario G3. Disposable construction	Scenario A3. Any energy efficiency at all?	Scenario E4. Opportunism	Scenario P4. Policy-driven

The results can be illustrated by a figure describing scenarios and vision in the same picture. It is easy to notice, how well or not the scenario alternatives will lead towards the vision in the course of time. As an example the general description of an energy-efficient residential area and its scenario alternatives towards the vision will be described in the figure 3.

Scenario 1 *Society and consumer will pay* will lead best towards the vision, and also Scenario 2 *More sustainable construction* will provide opportunities for the energy-efficient residential areas in the future. Scenario 4 *Society will pay* will slowly lead towards the vision, but Scenario 3 *Disposable construction* will clearly stay under from the desirable future with its challenging vision.

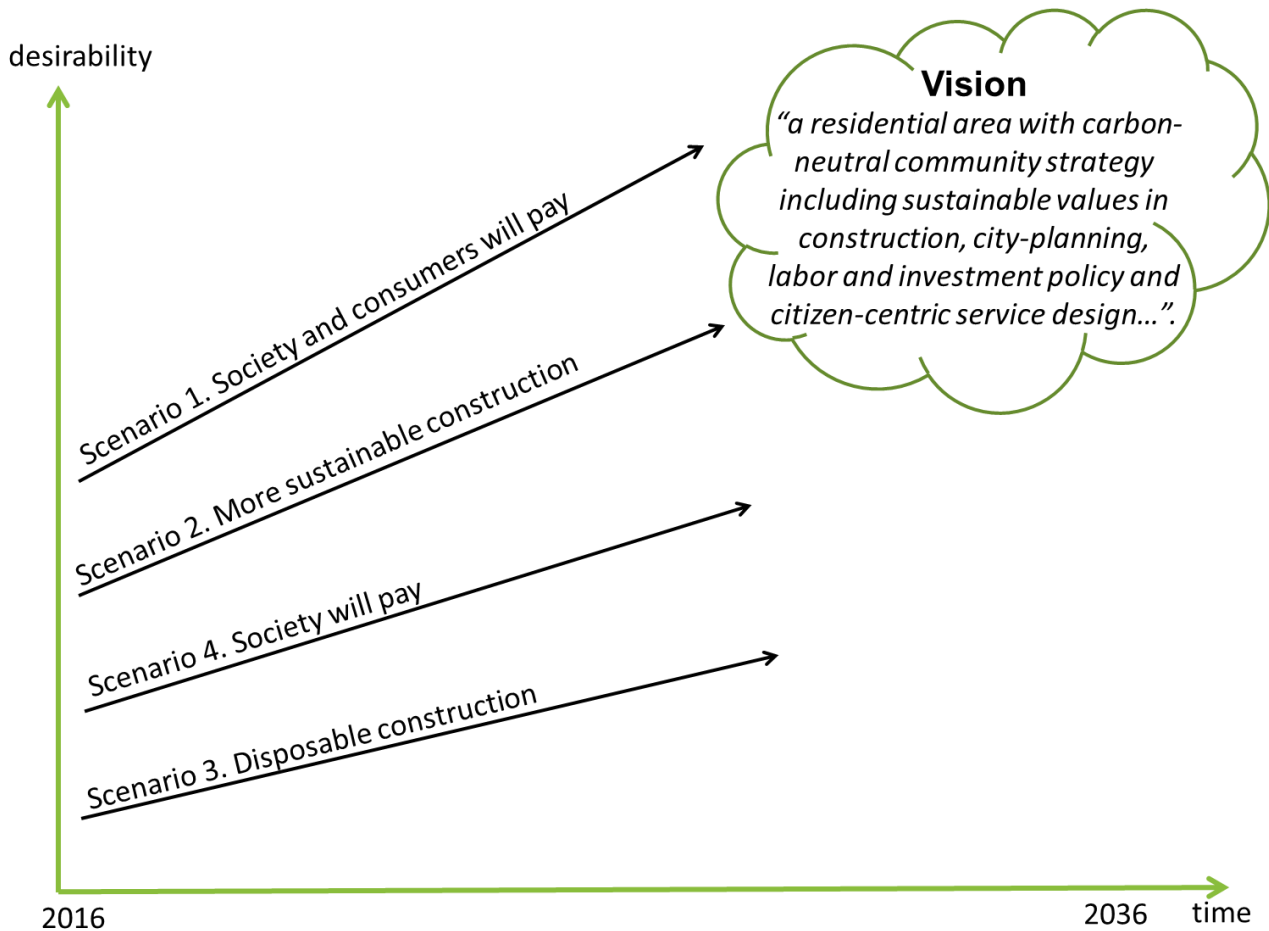


Figure 3: Vision of the energy-efficient residential area generally with scenario ranking towards the vision (based on Meristö 1990).

The best scenario will not automatically lead towards the vision, but it will require specific actions with careful planning and timing, too (see Laitinen & Meristö 2017).

CONCLUSION

The results will open new views to the future when developing energy efficient residential areas from sustainable perspectives. First the triple helix context have to be taken into consideration. Secondly, all the dimensions of sustainable development have to be checked through all different interest groups: citizens, NGOs, government, municipalities, companies from different business fields as well as international agreements states and unions have been committed. Third, personal features in decision making process are important to notice e.g. risk aversion vs. risk taking. Also, the commitment to the vision has to be clarified: only the shared vision can become real in practice, too.

The results include a methodological evaluation of the power of the vision and scenarios in the context of strategic regional planning. If the scenarios are too general by nature, they cannot act as guidelines towards

the vision. Also, when approaching the future only via one or two main actor groups in the governmental context, the regional planning cannot face all the challenges related to the energy-efficient residential areas. By open, citizen-centric and participatory design processes small and large opportunities and threats can be handled by scenario work. In the case of many disagreements of goals and tools, at least time-bounded prioritization can be done over the traditional planning period and beyond (see e.g. Kettunen, J. & Meristö, T. (2010)).

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