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Sustainable Development and Its Dependence on Local Community Behavior

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Abstract: The purpose of this article is to simplify and facilitate the bottom-up sustainable development of a local society where the dominant element is the residents' vision. Thus, the primary questions that we investigate here refer to the fundamental components and the derived difficulties that influence the behavior change attitudes. Following a literature review and discourse analysis, the components participating in the intervention system emerge by issuing suitable surveys, which are quantified by using conventional statistical methodology. The estimated desire for change was continuously monitored to dynamically exclude the cognitive bias in the nine-step change process. Coming from the business management area, a structural formulation analysis simplified and remodeled the equation of change used and revealed the factors to interpret the outputs. A pilot case study is presented followed by an extensive discussion of the results. The proposed methodology provides a powerful cognitive tool and may be further utilized and developed. In a local community, a strict distinction should be made between the trend to envision a change and the implementation of a real one. The results foster the discussion of a novel governance paradigm transition towards a transversal approach.

Keywords: local community; bottom-up approach; sustainable development; behavior change; cognitive mapping; transversal governance

1. Introduction

Global environmental changes and the existing failures of a local community to cope with the demanding and rapidly changing environment are very likely to slow down growth. In many cases, the practices applied for growth are not significantly related to the measures and policies needed for sustainable development. Thus, research about the local community's behavior attitudes is of significant importance. The overwhelming need to recognize and address the above discrepancies leads to the adoption and routing of an approach that will tackle the problematic development path of the community, ensuring future generations. The ongoing research on the sustainable development process highlights the emergency to recognize the important components. It also balances the current and future generation requirements under technical, socio-economic, and environmental issues [1].

It is anticipated that local-scale processes influence communities' evolutionary pathways, while the mechanisms responsible for more regional shifts are less clear [2]. Besides, it is worth noting that under the pressure of sudden changes, the existing cost sinks and values invested in human capital, real assets, and supply chain are threatened. On the other hand, new technologies and environments in transition reveal thoughts of a better opportunity in the future; they are therefore included in changing attitudes. Many people, due to the questionable current security of goods supply, do not see the need

for change and evolution ensuring their existence tomorrow. Let us always keep in mind the frog experiment: a frog in the water. If you bring water slowly to a boil, the frog relaxes and ... dies [3].

We are initiating a change by looking for something better, setting up measurable goals and defining actions. However, human interactions in local communities can be complex, and this complexity should be incorporated into hypothesis building, experiments, theory, interpretations, and forecasts in sustainable development. Such a comprehensive approach will be critical to understanding how regional shifts in local interactions can drive large-scale community change [2]. Building on existing approaches to understand and address problems, several new methodologies have emerged and affected the way communities solve problems. These methodologies have to be effective [4] in real-time monitoring and to capture the stakeholders' behavior changes in correspondence with the local community system [5]. Social networks undergo constant evolution of their community structure over time [6], and this leads to several questions that need to be answered. Overall, the ability to change is a crucial indicator for an organization or community to succeed in a transition process regardless of the process for change we adopted.

Change shifting dynamics are formulated in different intensities and the successful comprehension of the key factors is always recognized as an appropriate driver towards long-term sustainability. Developing this comprehensive perspective is difficult though, because different components' interactions are complex, interdependent, and dynamic through space and time. Typically, experiments focus on tractable subsets of the interactions most critical to investigate and explain the community's shift, but qualitatively base these choices on experience, natural history, and theory [7,8].

Furthermore, there are different interests within societies, and thorough campaigns require interlevel analytics to survey the behavior characteristics of cognitive responses. Hence, it is interesting to emphasize a multi-level equation, taking into account the individual's attitudes and the integrated responses of the local communities under a bottom-up approach. These relationships are embedded in both the self and societal drivers of the different cognitive flows and deserve to gain a better insight into the behavior characteristics and policy interventions.

This research study contributes to the discussion of sustainable development from a local community viewpoint, providing information that, to our knowledge, has been derived from that level and formula for the first time. The results meet the recent challenges of a new governance model, which is proposed so as to eliminate the existing drawbacks towards the more effective assignment of policies [9]. The transformation from a vertical to a transversal mode of public administration, participatory policy-making vs. the representative one, and the enhancement of tangible results for the citizens [9] are discussed here. The analysis and the pilot study go one step further to get a better insight through the key factors that influence the local communities' behavior motivation. An integrated consideration of the source of factors in terms of a cognitive questionnaire results in a comprehensive framework to further expand the investigation under different audiences.

A widely accepted model coming from the business organizational behavior change is examined, namely the change management equation, aiming to investigate the factors at the local community level; a case study is used to explore the real-world relevance with institutional research. It emphasizes that any desired change is justified by the dissatisfaction of the existing situation, compelling vision, and some practical first steps. The product of these three factors compares to resistance of change [10]. Section 2 presents a state-of-the-art literature review on the development of the change equation and other studies, which measure the attitudes and behavior variables in organizations. In Section 3 the methodology and materials used are presented. In Section 4 the main components of the system are depicted and a critical discussion follows. In Section 5 further research orientation is proposed regarding the limitations and boundaries of our research work. The main findings conclude this paper.

2. State of the Art Review

The transition from a conservative Taylor's model to the participation-by-all model during a changing process is regarded as a significant system in the history of management; this is mainly due

to lower barriers between the interested parties and its usefulness to the reengineering process [11–14]. Worldwide, the practical applications have been based on the qualitative implementation of the concept and successful applications are found in areas such as information systems [15], schools [16], and among managers [17–19]. The building process of the equation concept can be regarded as three-phase planning, namely understanding the actual state, recognition of the future state and designing the transition state [20–22]. Therefore, the understanding of the complexity of the system under consideration is even more reliably facilitated. The methodology can be used when a restructuring process is applied [12].

In daily practices, it seems that the unpleasant perceptions of human behavior prevail over the pleasant ones as well as the events associated with them. Thus, we see the relationship outcomes, the social network patterns, the interactions and the learning process to have a rather bad predisposition to human behavior as opposed to satisfaction in the era of welfare. The drivers that are connected with these attitudes are still missing a clear interpretation, thus allowing stereotypes to present a quicker rate of formulation than the good ones [23]. It can be said that there is a faster rate of bad disposition and more resistance to a good one. An analysis made by Diener [24] stressed the importance of the interactions and adaptations with real-life circumstances to comprehend the causal pathways that influence variables of the pleasant and unpleasant effects [24]. Therefore, there is always a need to focus on a continuous update of each situation to gain a subjective consideration of the well-being characteristics of a local community.

Armitage [25] highlighted a quantitative study at the end of 1997 concerning variance analysis, and found, on the one hand, the significance of attitude and subjectivity in an individual's desire, and on the other hand, that the intentions or the self-predictions were better predictors of behavior. However, the study concludes by detailing the need for further factors' expansion.

In a meta-analysis study, four predictors related the measured subjective success to career satisfaction and the measured objective success to salary level and promotion. It was found that two of the predictors—the human capital and the sociodemographic predictors—were more strongly related to objective success than the other two, organizational sponsorship and stable individual differences, which were more related to subjective success [26].

Oreg [27] found four reliable sources of resistance to change components, namely routine seeking, emotional reaction to imposed change, cognitive rigidity, and short-term focus. In another study among 177 employees, both personality and context were found to significantly associate with employees' attitudes towards a large-scale organizational change. These attitudes were, in turn, significantly associated with employees' job satisfaction, organizational commitment, and intention to leave the organization [26].

Pereira [28] initiated an improvement change process in Brazilian market organizations, and concluded that hierarchy had no significant effect on the reduction of resistance to change. The structural equation modeling with partial least squares estimation of the implementation of 113 questionnaires also resulted in that only the trust in management significantly affects the employees' attitudes towards business process management implementation.

So far, as we have also seen in recent studies [9], the investigation of more effective models towards better policies to foster citizens' benefits is of paramount importance in large crowded cities [9]. However, there is a lack of studies connected with local communities and the quantification of the components for change behavior toward sustainable development in local communities. With the present work, we aim to fill that existing gap.

3. System Components Development

The primary questions that we investigate here refer to the fundamental components and the derived difficulties that influence the behavior change attitudes towards the sustainable development in a local community perspective [29–31]. The four factors most affecting the desire for change of the local society are subjective and their quantification could be tricky, according to the following analysis.

Firstly, when thoroughly reviewing all last years, the problematic development of some communities during the recent economic crisis became evident. The question was if the discontent became so specific that residents think change is unavoidable. Additionally, several questions that came up needed attention. How satisfied is the community with the evolution of the economy, with the existed opportunities in agriculture, with the craft, health and education, and the availability of finance in its day-to-day life? What about health services, personal safety, social welfare, cultural programs? How satisfactory is the way of addressing environmental needs, climate change, drinking water provision, recycling, waste management, fauna and flora management and protection, healthy eating, and the use of alternative forms of energy? The local society experiences all kinds of pressures due to local and global conditions concerning the economy, technology, legislation and regulations, changes in visitors' requirements, changes in social and cultural values, and population reduction. What should the reaction be? To stay still is meaningless. Either we prove to be proactive and seek change or take measures to overcome our dissatisfaction and thus seek change. We represent the hypothesis that D, the degree of dissatisfaction that can be recorded through questions of a close-ended form, is positively related to the behavior change.

Secondly, we consider that a common vision is the bottom-up process, which is a cornerstone of the whole sustainability development. This is because the goals to meet this vision and all the remaining elements of the process depend completely on the vision. Therefore, V represents the vision about how people imagine their region in 20–30 years. It describes an "ideal" future with dreamlike wishes and provides a roadmap that assists in the transition process. This vision is called for by the methodology, citizens, local government and local authorities during the change process. The common vision is the result of a cumbersome effort, extensive analysis and synthesis of the responses to open-ended questions, and is time-consuming for phases creation and adaptation. Difficulties include response coding, respondent's time and effort, and statistical analysis. We do not intend to sell visions since a local society is not an enterprise. The vision should rather be about co-creating the future, leading to a more inclusive, more attractive, and more compelling future for people. This takes time, but it helps a lot during its adaptation phase.

If at any point in time we wonder whether the change is possible, then the common vision has not yet become concrete. We can only assume the overall objective and the description of the path towards sustainability, i.e., that the main points of the methodology have been recorded and communicated. Since we are not ready to capture the vision itself, we can capture the potentiality degree, the ability, of vision creation, V'. This can be achieved by asking appropriate close-ended questions on their beliefs about the characteristics of a viable community.

In the third factor, we meet the term F, which represents the degree of confidence in the methodology presented to citizens as the first steps towards change. Several guidance approaches to sustainability have been developed worldwide. Questions concerning these first steps are of the close-ended form.

Finally, the fourth factor, namely the degree of resistance, is expressed by R. It is a diagnostic tool that can warn about the risk of failure of all efforts [29,30]. After all, every change we try to make is eventually made functional by the people who implement it. It is calculated based on close-ended questionnaires, regarding the resident's beliefs and support for the proposed change. Resistance could be evident due to reluctance to lose, a negative attitude towards possible involvement in the proposed process, overall rigidity, phobia of losing control, lack of mental resources, the endurance of old habits, intolerance to the adjustment period involved in change, etc. According to Oreg [31], the resistance to change scale was designed to measure an individual's dispositional inclination to resist changes. Exploratory analyses indicated four sources of resistance (reliable factors): routine seeking, with five areas of concern; emotional reaction to imposed change, with four areas; cognitive rigidity, with four areas; and short-term focus, with three areas. Since D, V, and F are multiplied in the formula, if any of them is zero or small number, the value of the product will be zero or small number and therefore the community is unable to overcome the resistance. Finally, to ensure successful change, it is necessary to use influence and strategic thinking to create the vision and identify critical initial steps in that

direction. The application of the formula could be used as a diagnostic tool and as a motivational change initiative. Most major changes in the human environment, like a new approach to community development, usually require residents to modify their behavior to cope with the requirements of the approach. We all demonstrate some resistance anyway, consciously or unconsciously. As a result, the inclusion of this change of behavior greatly increases the complexity of the change process and sometimes the degree of resistance to the coming changes. According to the aforementioned analysis, the successful implementation of the proposed change depends on how strongly the three multipliers D, V, and F affect R.

4. Materials and Methods

Initiation of the change process takes place when we have a strong indication that the local community is ready to embark on the process of creating a sustainable future. Therefore, according to David Gleicher's Formula for Change from the 1960s, later revised by Dannemiller [32], a change is possible when

$$C = D \times V \times F > R \quad (1)$$

where, as was described in Section 3, C stands for change, D denotes the dissatisfaction with the current situation, V is the vision about what the future will be, F indicates the first steps towards a different future, and R is the resistance to change. The calculation of C precedes the main change process.

4.1. Change Process Framework

A bottom-up change process methodology was chosen and already applied for planning the sustainable development of the province of Vytina, Greece, adjusted of course to its reality. The province of Vytina was meant to be a pilot project for the municipality of Gortynia. This kind of approach, shown in Figure 1, has proved effective in dozens of communities overseas, and this can easily be deduced from the monitoring and evolution of the sustainability indicators selected for the needs of these communities. Thus, it inspired the members and researchers of the local community to collaborate in developing the enlightened practice—a completely positive route to the different future we are forced to create anyway. The main stages of the process using this model are [33]:

a. Start to launch a public outreach and awareness campaign. All participants are volunteers.
b. Lay the foundation for Change: gather a core team or a consultative committee, provide access to leadership skills and the necessary infrastructure on which to facilitate decision making. Communicate the approach for community change.
c. Create a Common Vision for Citizens: to determine the route to community change, it is very important to adopt a common vision for the future. It requires research and the involvement of citizens in drawing the common vision, editing and drafting the final text, and making it public.
d. Define the visionary goals by area of interest: identifying needs, inventorying community assets, and evaluating, recording, and reviewing visionary goals that meet the vision, and checking for compliance with sustainability principles.
e. Define individual objectives: adopt systems thinking by analyzing the relationships between system parts to understand the potential for better decisions, and set sub-goal targets for improvement.
f. Bridge the individual goals with the current situation by defining the respective strategies that achieve it.
g. Proposals: create proposals and actions according to strategies meeting the objectives and the sustainability principles.
h. Sustainability indicators: define and select indicators for sustainability and thus monitor progress.
i. Revision and repetition of steps: a continuous process—evaluate progress, revise the drafted plan, and start again.

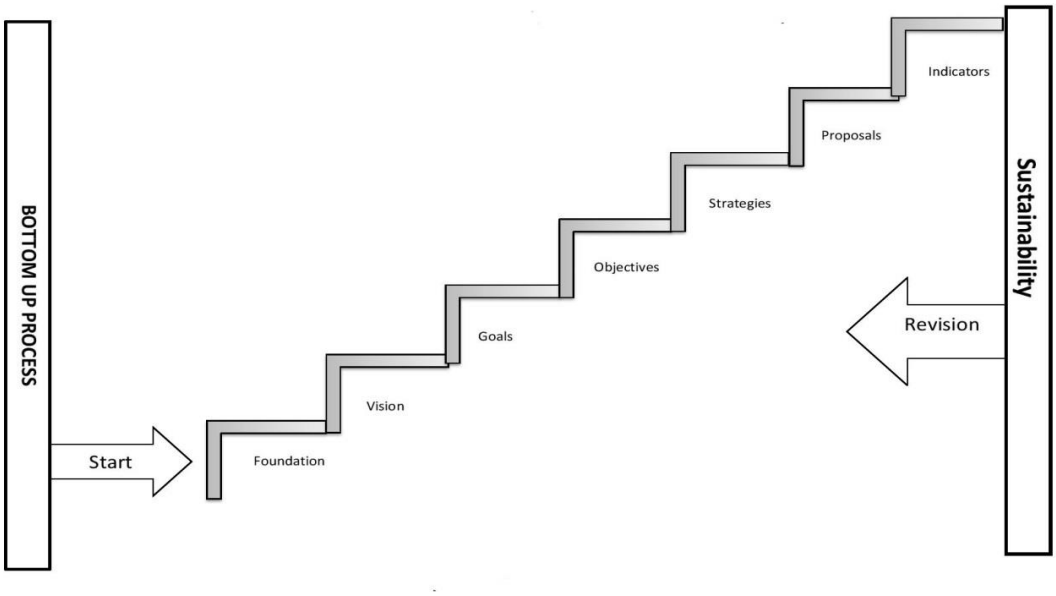

Figure 1. Framework of a local community's sustainable development—a bottom-up approach.

A crucial and necessary factor in convincing citizens about the above model is the implementation, right from the beginning, of a series of small deliverable works, short-term wins [34,35], which would be easily found later in the proposed actions of the plan. The correct promotion of the proposed roadmap as well as the series of small projects announced as the first steps to a sustainable future serve to provide confidence to the people that a way out towards the sustainable future exists.

4.2. Data Collection—Change Formula

The corresponding questionnaires to the system components (Section 3) address members of the society who are already exposed to awareness campaigns. This survey is complemented by interviews and a web-based survey to encompass the different technological streams of the local community.

To try out the applicability of the formula for change, we can use the data collected during the planning period for the sustainable development of Vytina Province, which is still available (pilot initiated in 2013 and the implementation phase is currently running). Data collected through numerous questionnaires regards vision, goals seeking, assets and needs, things to change, characteristics of a sustainable community. Questions regarding first steps were not issued but answers to the corresponding questionnaire can be estimated from the written comments by the audiences of numerous presentations. The characteristics of the sample responders used are:

Sample size = 136 citizens; gender: men = 47%, female = 53%; education: postgraduate = 9%, university = 26%, technical school = 6%, high school= 59%; age: 17–30 = 39%, 30–50 = 23%, 51–60 = 14%, >61 = 50%.

The population of Vytina Province is 1000 citizens and it is a rural area with seven villages belonging to the target municipality of Gortynia of 10,000 residents. Data handling and application to the formula for change are described in Section 5.

4.3. Cognitive Mapping Issues

In the questionnaires, two types of questions were applied to calculate the four factors of the equation. The first type is closed-ended questions with a five-point Likert scale [36] on which a respondent indicates the degree of agreement with a particular statement. The second type utilizes open questions on which the respondents indirectly measure their feelings about a statement [37–39]. In the following Table 1, we summarize the clustering questions we utilized to reveal the local communities' behavior attitudes.

Table 1. System components analysis, clustering interpretation and explanatory remarks.

Symbol	Source of Factors	Explanatory Notes and Remarks of the Corresponding Questions	Number of Statements/Questions	Type of Respond/Likert Scale (1–5)
V	Residents' beliefs	Notes: The questions were accompanied by an explanatory note that reminded the responders of the key features of a sustainable community in terms of the environment, economy, and society–culture. The questions: • What things are worthy for the community and we do not want to change? • What things need to change? • How do you imagine your village 20 years from now? • How would you describe it regarding the main features?	4	Open/free text
V′	Sustainability principles	There are four principles to be kept in any sustainable development. Issued statements address these principles. For example, "We can do things regardless of whether they force others to not meet their basic needs".	4	Closed/1–5
	People's behavior	People need to change their behavior to cope with the requirements of a new approach to a community's development. For Example, "There is a need for multiple community leaders who will constantly motivate their compatriots instead of manipulating them".	7	Closed/1–5
	Decision-making	The way we decide actions is complicated, but at the same time it is based on principles like long-term planning, system thinking, goals, and strategy setting. For Example, "Sustainable communities see their interests in the economy, society, and environment as complementary and interdependent, while traditional communities see them as competitive and independent".	4	Closed/1–5
	Environment, Economy, Society–Culture	Enable the community not only to express its opinion but also to participate in decision-making and action.	14	Closed/1–5
	Residents'	Transfer of power to residents—learn about environmental sustainability and act.	4	Closed/1–5
D	Social services, health, culture, Social welfare, Health, Public Safety, Recreation programs, Cultural programs	Does the community cover its basic needs regarding the social–cultural pillar of the local society? For Example, "Are you satisfied with the community's provision of a family health plan?"	25	Closed/1–5
	Economy needs	Does the community cover its basic needs regarding the economy? For Example, "Are you satisfied with the agricultural development in your community?"	6	Closed/1–5
	Infrastructure	Infrastructure should be an asset to your community. What is your opinion? For Example, "Do you feel covered by the internet services offered in your community?"	21	Closed/1–5
	Environment	Does the community cover its basic needs regarding the environment? For Example, "are you satisfied with the quality of the drinkable water in your community?"	16	Closed/1–5
F	Change Process	F could represent the degree of trust in the methodology launched. Issued statements address this trust. For Example, "Do you feel that the common people's vision will facilitate the anticipated change?"	4	Closed/1–5
	Short-term project	"Do you feel that the announced short-term project regarding the internal touristic trails in Vytina is in the right direction?"	1	Closed/1–5
R	Blocking factors to the community's sustainable development	Each community has developed some negative peculiarities regarding behavior over the years that are blocking the change. For Example, "Before I set a goal, I have to examine its consistency with other existing goals".	4	Closed/1–5
	Routine seeking	The issued statements try to detect resistance due to routine seeking. For Example, "Securing today's inhabitants does not guarantee their existence tomorrow without the need to change and evolve".	4	Closed/1–5
	Emotional reaction	The issued statements try to detect resistance due to an emotional reaction. For Example, "The degree of change that occurs in every citizen is directly related to the quality and quantity of volunteers who embody the common vision and engage in the effort".	4	Closed/1–5
	Cognitive Rigidity	The issued statements try to detect resistance due to cognitive rigidity. For Example, "The local change leader should be a permanent resident even if another resident citizen's change plan is by far superior".	4	Closed/1–5
	Short-term focus	The issued statements try to detect resistance due to short-term focus. For Example, "Often, I feel a bit uncomfortable even about changes that may potentially improve my life".	3	Closed/1–5

5. Results

We applied the formula for change (1) in the pilot case study as follows:

Assumption: all four factors D, V, F, and R are calculated based on a questionnaire, and within each factor the questions consist of the same scale. The formula is calculated after all four factors have been found, as follows:

k_D, k_V, k_D, k_V : number of questions in D, V, F, and R, respectively.

n_D, n_V, n_D, n_V : number of responders in D, V, F, and R, respectively.

m_D, m_V, m_D, m_V : number of point scales (alternatives) in the specific questionnaire in D, V, F, and R, respectively.

Y_{ijD}, Y_{ijV}, Y_{ijF}, Y_{ijR} :the alternative chosen in question i of the responder j within each D, V, F, and R, respectively.

We define: $L_D = \frac{\overline{Y_{ijD}}}{m_D}$, $L_V = \frac{\overline{Y_{ijV}}}{m_V}$, $L_F = \frac{\overline{Y_{ijF}}}{m_F}$, $L_R = \frac{\overline{Y_{ijR}}}{m_R}$,

Then the formula for change we use is $C = L_D \times L_V \times L_F > L_R$.

The desire for change is reflected in the formula for change. In turn, the greater this desire, the greater the likelihood that a local community will achieve sustainability. The whole change process up to the drafted plan is at least time consuming, around two years to say the least. Hence, we have to reinforce the potentiality of success. It would be wise to make sure that before we go through all of the stages of the change process, as described in Section 4.1, the local community's desire for change has reached the highest possible level. In case of weak factors, we take improvement measures resulting in a more optimistic response, and perform a reduction of the deviation from the mean of the responses. In this way we reinforce our potentiality for success. Before someone starts the whole process for change, they address the residents with an effective communication program throwing light on the basics of the complex change issues. Needless to say that the assessment of the desire for change should be included in the change process framework, as show in Figure 2. The massive engagement and participation of the public in the process of sustainability and the sense of ownership of the process contribute to the degree of change that can be achieved [40]. We should drive change and not the other way around.

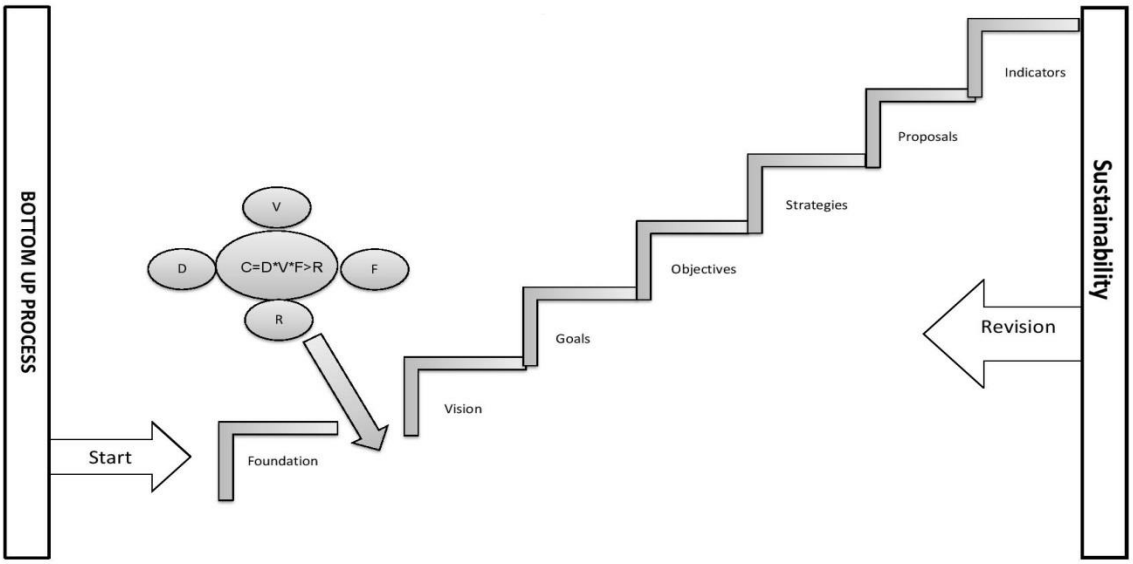

Figure 2. The framework of the local community's sustainable development—a bottom-up approach.

Data Gathering

In the Vytina pilot project, the derived vision was time- and effort-consuming for the volunteers involved with coding and applying a manual (Excel) text network analysis approach to analyze

free-text responses to questions about residents' vision. Text network analysis represents relationships between words, i.e., a corpus of documents, each node being a document, and the thickness of the edges between them describes the similarities between the documents [41]. Textual analysis is the communication method researchers use to describe and interpret the characteristics of a recorded or visual message [42,43]. Content analysis is used to identify, enumerate, and analyze occurrences of specific messages and message characteristics embedded in texts [38,42]. The network-based approach for automated text analysis is widely used.

Referring back to the pilot study for the sustainable development of Vytina Province we have a massive volume of data collected through various questionnaires sent to residents by mail, email, website, and personal contact. These questionnaires' aim was two-fold; either to educate the local people about sustainability, visions, strategy, goals, and climate change, or asking their opinions and statements about the community's matters, i.e., their vision, environment, local economy, recreation health, and things they worry about. On the other hand, in the change process we initiated, we had not included the formula for change. Having all these questionnaires with the answers, it is quite easy to move back in time, design the questionnaires according to Table 1 and calculate now the formula for change using the collected data.

We simply pick the right questions for each one of the four components in the formula: (a) questions about community's assets, economy, existing opportunities in agriculture, health services, day-to-day life, etc.; (b) questions about the characteristics of a viable community; (c) questions about the first steps; and (d) questions about the resident's belief on the proposed change, degree of support for the change, coverage of needs, personal involvement in the proposed process, etc. All questions used a 5-point Likert scale and are also available online.

Instead of estimating the vision, V, we estimate the ability of the community to create a common vision towards a sustainable future, V′. For the estimation, a suitable multi-choice questionnaire is used, which is easy to process (Table 1). This estimate substitutes vision in the formula for change. When the desire for change is bigger than resistance, we go ahead with the change process and with the actual vision.

Since all data gathered in the pilot study for Vinita's sustainability change process is still available, we can now return to 2013 and calculate the formula for change considering the ability for vision creation instead of the vision. The result explains some additional effort needed at that time to motivate people. Applying the formula above we find D = 0.72, V′ = 0.71, F = 0.70, R = 0.5 and $C \geq 0.72 \times 0.71 \times 0.70 = 0.35 < 0.5$. The resulting score $0.35 < 0.5$ was one of the reasons that the whole process took longer than expected and the additional measures we took to reinforce the ability to create a vision, V′.

6. Discussion

Community is a very complex system with various patterns of interactions and relationships among various sector leaders, residents, and organizations. A community's resistance to change can be developed because of external and internal factors. External tectonic shifts in trends worldwide and the community's complexity accommodate resistance to change, for example, shifts in energy as we run out of fuel, in populations and poverty, in climate, in food and water, in world anarchy, in technology (for example when artificial and human intelligence meet), in migration, in globalization, etc. [43–48]. The community also resists internal blocking factors to a sustainable future for which measures need to be taken. Blocking factors include short-term planning, lack of vision, individuality vs. team spirit, and local society, which is not encountered as a system during the planning stage. Proactivity is equivalent to the community's ability to live with change and shape the future. This is an imperative factor to secure a sustainable future since proactivity is the ability directly linked to diagnosis and goals settings, ensuring balance. It absorbs vibrations by extreme situations, as well as keeping a steady course to vision. When things go well, we look to take advantage of a favorable situation to make things even better [33]. The lack of proactivity can be a blocking factor. The influencing factors D, V, F, and R are also incorporated in a sustainable development methodology like the one used during the

sustainability planning of Vytina's Province in Greece. This methodology helps move the community from the current state to the future sustainable state through the transition state [34]. Needless to say, the assessment of the desire for change should be included in the whole framework, shown in Figure 2. The common vision is the driving force of the whole process of change. The corresponding methodology requires the local community to lead the program towards sustainability as in the pilot mentioned above. This program is imperative to be formed and adopted when the conditions are right, namely when we have received a strong indication that the desire for change has overcome the resistance for change.

7. Conclusions

Vision is a picture of an ideal future. In a bottom-up process, it is the starting point and driving force of goal setting and strategies for long-term sustainability. Vision could be developed in two different ways; with a short and powerful statement made up of one or two sentences that we can call a high-end vision, or we take it one step further.

The uniqueness of this research is that we combine in our analysis the concepts of a vision board and a vision book into a one-page vision of an abstract business plan, the extended vision, as the expansion of the high-end vision. This expansion takes into account the three pillars of a sustainable society, namely the economy, the environment, and society. A vision statement is involved in both the formula for change and the change process as it was described originally, and we can see it in the extended framework, shown in Figure 2. For the change process, we recommend using vision, V, since the community is a very complex system and it would help the following stages of the change process to be developed. In the mentioned pilot this kind of vision statement is used. However, it requires time and effort to be developed and adopted as well as special analytical skills like a network. However, if we use vision in calculating the formula for change, we face the possibility of its revision in the case that the desire for change is not strong enough. This, in turn, means redeveloping the vision. But even we redevelop it, it cannot be different from the previous one, since we cannot have two different views of the same reality at the same approximate time. Residents will also oppose repeatedly taking the same free text survey. On the other hand, in the formula for change, we recommend using the ability to form a vision, V', which is much easier to accommodate and repeat the calculation. In the data gathering section above, we calculated the community's desire for change using data collected during Vytina's pilot study, and the outcome validates the additional measures taken at that time. Needless to say, those questionnaires for the desire for change calculation depend on the local characteristics of the society. Therefore, we recommend that before we start a process for change in a local community, we make sure, using the formula for change, that the community is ready to change itself. The formula for change proved to be an easy and reliable enough tool when estimating the vision with the ability to form a vision.

7.1. Limitations of the Study

For the calculations of the desire for change in this study, we borrowed the questions needed and the corresponding answers from the various questionnaires delivered during the pilot in Vinita Province, according to the requirements of the current questionnaire design. The conclusions do not represent the current desire for change.

7.2. Future Directions

There are numerous local rural communities that are candidates for a sustainable future, which could use the complete framework of the bottom-up approach shown in Figure 2. The ability for change tool can prove to be an accelerating factor for community change aiming at the municipality's adoption of a sustainable future; especially nowadays with the financial, economic, and social crisis under pandemic conditions. The described bottom-up framework follows a defined execution protocol. If this

protocol is violated, we end up abolishing its participatory philosophy and roll back to representative policy. We have seen that. Protective measures could be developed and applied.

Yet, alternatively, more reliable methods of uncovering and strengthening the feeling of the change readiness criterion could be researched.

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References

1. Kapsalis, V.C.; Kyriakopoulos, G.L.; Aravossis, K.G. Investigation of ecosystem services and circular economy interactions under an inter-organizational framework. *Energies* **2019**, *12*, 1734. [CrossRef]
2. Morello, S.L.; Etter, R.J. Transition probabilities help identify putative drivers of community change in complex systems. *Ecology* **2018**, *99*, 1357–1369. [CrossRef] [PubMed]
3. Goldstein, L. How to boil a frog. *Analysis* **2000**, *60*, 170–178. [CrossRef]
4. Lawlor, J.A.; Neal, Z.P. Networked Community Change: Understanding Community Systems Change through the Lens of Social Network Analysis. *Am. J. Community Psychol.* **2016**, *57*, 426–436. [CrossRef] [PubMed]
5. Gill, A.; Tonkin, E.L. Understanding user communities from social network data. In Joint Proceedings of the Posters and Demos Track of the 12th International Conference on Semantic Systems—SEMANTiCS2016 and the 1st International Workshop on Semantic Change & Evolving Semantics (SuCCESS'16), CEUR Workshop Proceedings; 2016; Volume 1695. Available online: http://www.bristol.ac.uk/pure/about/ebr-terms (accessed on 19 March 2020).
6. Fond, T.L.; Sanders, G.; Klymko, C.; Henson, V.E. An ensemble framework for detecting community changes in dynamic networks. In Proceedings of the IEEE High-Performance Extreme Computing Conference (HPEC), Waltham, MA, USA, 12–14 September 2017. [CrossRef]
7. Eisenbach, R.; Watson, K.; Pillai, R. Transformational leadership in the context of organizational change. *J. Organ. Chang. Manag.* **1999**, *12*, 80–89. [CrossRef]
8. Johnson, D.M. Adaptation of organizational change models to the implementation of quality standard requirements. *Int. J. Qual. Reliab. Manag.* **2004**, *21*, 154–174. [CrossRef]
9. Nesti, G. Defining and assessing the transformational nature of smart city governance: Insights from four European cases. *Int. Rev. Adm. Sci.* **2020**, *86*, 20–37. [CrossRef]
10. Beckhard, R.; Harris, R.T. Organizational Transitions: Managing Complex Change. *Group Organ. Stud.* **1977**, *2*, 516. [CrossRef]
11. Beer, M.; Walton, A.E. Organization Change and Development. *Annu. Rev. Psychol.* **1987**, *38*, 339–367. [CrossRef]
12. Young, M. A metamodel of change. *J. Organ. Chang. Manag.* **2009**, *22*, 524–548. [CrossRef]
13. Cameron, E.; Green, M. *Making Sense of Change Management: A Complete Guide to the Models, Tools, and Techniques of Organizational Change*; Kogan Page Publishers: London, UK, 2015.
14. Al-Haddad, S.; Kotnour, T. Integrating the organizational change literature: A model for successful change. *J. Organ. Chang. Manag.* **2015**, *28*, 234–262. [CrossRef]
15. Candy, S.H.; Jacobs, R.; Koller, R.; Spalding, J. The change formula. *OD Practitioner* **2014**, *45*, 32–39.
16. Murphy, M. The Tug of War between change and resistance. *Educ. Leadersh.* **2016**, *73*, 66–70.
17. Hu, L.-T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Modeling* **1999**, *6*, 1–55. [CrossRef]
18. Chavez, E. The Change Equation: A Correlation Study of Status Quo Bias Managers. Ph.D. Thesis, University of Phoenix, Phoenix, AZ, USA, 2011.

19. Jones, R.A.; Jimmieson, N.L.; Griffiths, A. The Impact of Organizational Culture and Reshaping Capabilities on Change Implementation Success: The Mediating Role of Readiness for Change. *J. Manag. Stud.* **2005**, *42*, 361–386. [CrossRef]
20. Cudanov, M.; Tornjanski, V.; Jasko, O. Change equation effectiveness: Empirical evidence from South-East Europe. *E&M Econ. Manag.* **2019**, *22*, 99–114. [CrossRef]
21. Pearce, C.L.; Ensley, M.D. A reciprocal and longitudinal investigation of the innovation process: The central role of shared vision in product and process innovation teams (PPITs). *J. Organ. Behav.* **2004**. [CrossRef]
22. Roberts, C.P.; Twidwell, D.; Angeler, D.G.; Allen, C.R. How do ecological resilience metrics relate to community stability and collapse? *Ecol. Indic.* **2019**, *107*, 105552. [CrossRef]
23. Baumeister, R.F.; Bratslavsky, E.; Finkenauer, C.; Vohs, K.D. Bad Is Stronger than Good. *Rev. Gen. Psychol.* **2001**, *5*, 323–370. [CrossRef]
24. Diener, E.; Suh, E.M.; Lucas, R.E.; Smith, H.L. Subjective well-being: Three decades of progress. *Psychol. Bull.* **1999**, *125*, 276–302. [CrossRef]
25. Armitage, C.J.; Conner, M. Efficacy of the theory of planned behavior: A meta-analytic review. *Br. J. Soc. Psychol.* **2001**, *40*, 471–499. [CrossRef] [PubMed]
26. Ng, T.W.H.; Eby, L.T.; Sorensen, K.L.; Feldman, D.C. Predictors of objective and subjective career success: A meta-analysis. *Pers. Psychol.* **2005**, *58*, 367–408. [CrossRef]
27. Oreg, S. Personality, context and resistance to organizational change. *Eur. J. Work Organ. Psychol.* **2006**, *15*, 73–101. [CrossRef]
28. Pereira, V.R.; Maximiano, A.C.A.; Bido, D.S. Resistance to change in BPM implementation. *Bus. Process Manag. J.* **2019**, *25*, 1564–1586. [CrossRef]
29. Bovey, W.H.; Hede, A. Resistance to organizational change: The role of cognitive and affective processes. *Leadersh. Organ. Dev. J.* **2011**, *22*, 372–382. [CrossRef]
30. Boyatzis, E.R.; Rochford, K.; Taylor, S.N. The role of the positive emotional attractor in vision and shared vision: Toward effective leadership, relationships, and engagement. *Front. Psychol.* **2015**. [CrossRef]
31. Oreg, S. Resistance to Change: Developing an Individual Differences Measure. *J. Appl. Psychol.* **2003**, *88*, 680–693. [CrossRef]
32. Dannemiller, K.D.; Jacobs, R.W. Changing the Way Organizations Change a Revolution of Common Sense. *J. Appl. Behav. Sci.* **1992**, *28*, 480–498. [CrossRef]
33. Kapsalis, T. *Local Communities and Sustainable Development: How Easy is the Change?* Municipality of Gortynia Publisher: Dimitsana, Greece, 2018; pp. 42–43.
34. Bridges, W. Managing Transitions Making the Most of Change. 1991. Available online: https://www.amazon.co.uk/Managing-Transitions-Making-Most-Change/dp/0201550733 (accessed on 20 March 2020).
35. Kotter, J.P. Leading Change: Why Transformation Efforts Fail. In *Competitive Strategy*; Business Harvard Review; 1995; Available online: https://hbr.org/1995/05/leading-change-why-transformation-efforts-fail-2 (accessed on 19 March 2020).
36. Likert, R. A Technique for the Measurement of Attitudes. Ph.D. Thesis, New York University, New York, NY, USA, 1932.
37. Kelly, R.; Stephenson, R. The Semantic differential: An Information Source for Designing Retails Patronage Appeals. *J. Mark.* **1967**, *31*, 43–47. [CrossRef]
38. Hu, Q. Conducting Content Analysis of Documents in Network Research: A Review of Recent Scholarship innovation process: The central role of shared vision in product and process innovation teams (PPITs). *J. Organ. Behav.* **2015**, *2*, 83–102. [CrossRef]
39. Holt, D.T.; Armenakis, A.A.; Feild, H.S.; Harris, S.G. Readiness for Organizational Change: The Systematic Development of a Scale. *J. Appl. Behav. Sci.* **2007**, *43*, 232–255. [CrossRef]
40. Argyris, C.; Schön, D.A. Organizational Learning: A Theory of Action Perspective. *Reis* **1997**, *77/78*, 345. [CrossRef]
41. Bail, C.A. Combining Network Analysis and Natural Language Processing to Examine how Advocacy Organizations Stimulate Conversation on Social Media. *Proc. Natl. Acad. Sci. USA* **2016**, *113*, 11823–11828. [CrossRef] [PubMed]
42. Frey, L.; Botan, C.; Kreps, G. *Investigating Communication: An Introduction to Research Methods*; Pearson: New York City, NY, USA, 1999; ISBN 978-0205198269.

43. Haque, M.; Angela TitiAmayah, A.; Liu, L. The role of vision in organizational readiness for change and growth. *Leadersh. Organ. Dev. J.* **2016**, *37*, 983–999. [CrossRef]
44. Dietz, R.; O'Neill, D. *Enough Is Enough—Building a Sustainable Economy in a World of Finite Resources*; Routledge: London, UK, 2013.
45. Meadows, D.; Randers, J.; Meadows, D. Limits to growth: The 30-year update. In *Reed Business Information*; Elsevier Inc.: Amsterdam, The Netherlands, 2004.
46. De Cremer, D. *The Proactive Leader: How to Overcome Procrastination and Be a Bold Decision-Maker*; Kindle Edition; Palgrave Macmillan: New York, NY, USA, 2013; p. 150.
47. Dobbs, R.; Manyika, J.; Woetzel, J.R. No Ordinary Disruption: The Four Global Forces Breaking All the Trends. *Econ. Rec.* **2016**, *92*, 323–325. [CrossRef]
48. Greenberg, E.; Hirt, M.; Sven, S. The Global Forces Inspiring a New Narrative of Progress, Strategy and Corporate, Finance, McKinsey Quarterly. 2017. Available online: https://www.mckinsey.com/business-functions/strategy-and-corporate-finance (accessed on 19 March 2020).

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