



WINDESHEIM  
HONOURS COLLEGE

DECEMBER 2021

# ADVISORY REPORT

Smart Cities  
*Student project team*

## PRESENTED TO

Ian O'Hagan, Municipality of Zwolle

## PRESENTED BY

Dominika Szabóová, Mariana Tolkatser, Ylva  
Heijman, Bruno Renirie and Laura Rorije

## Table of Contents

I.	Introduction .....	1
II.	Research findings.....	1
III.	Possible scenarios .....	2
I.	Focus marketing on incentives .....	2
Steps need to be taken .....	2	
Data that supports the claims .....	2	
Advantages and disadvantages.....	2	
Time and finance.....	2	
II.	Holtenbroek.....	3
Steps needed to be taken.....	3	
Data to support the claims .....	3	
Advantages and disadvantages.....	4	
Time and finance.....	4	
III.	SensZwolle expansion plan .....	5
Steps needed to be taken.....	5	
Data to support the claims .....	5	
Advantages and disadvantages.....	5	
Time and finance.....	6	
IV.	Conclusion .....	6
V.	Researcher's note .....	6
VI.	Reference list .....	7

## **I. Introduction**

The advice given in this advisory report is a direct result of the research findings described in the research report. For any further information regarding the content and approach of this research, we refer to the full research report. This advisory report is made to execute the findings and increase the impact of the research to upscale SensHagen in the most efficient way. Three advises will be giving in this report. The first advice will mainly be focused on marketing, whereas the second and third advice will be focussed on potential expansion options. All advises describe both the advantage as the disadvantages, steps that need to be taken and the time and effort needed.

## **II. Research findings**

Based on the research conducted, we can conclude that in both neighbourhoods one of the central incentives identified are the low financial investment needed for participation, along with little time effort the project requires. People value their personal time and do not perceive information about the air quality in their neighbourhoods as an essential need. Nevertheless, some participants have expressed a high interest in the project due to their health conditions – having asthma or other respiratory issues. The participants of the study have shown interest in participating in SensHagen, however there is a need for additional information on the matter.

We have observed that people in Holtenbroek are more educated about sustainable practices and, compared to Diezerpoort, are already taking more action towards sustainability in their private lives. Based on this information, we can assume that there is less effort required from the municipality in regard to informing the residents of Holtenbroek about the importance of climate action and the SensHagen project. Contrastingly, more than a half of the respondents in Diezerpoort show little or no interest in sustainable initiatives, following that not many see a benefit in participating in these initiatives in the (near) future. Important to mention is that the research has shown that some of the residents in Diezerpoort are already involved in sustainable action, however, the numbers are low.

### **III. Possible scenarios**

#### **I. Focus marketing on incentives**

During our research we came upon a lot of participants who did not know about SensHagen. When explaining what SensHagen was, a lot of questions about SensHagen were raised by the participants. Knowing the answer to these questions could help people make the decision to take part in the project. Therefore, the marketing of SensHagen should take several things and concerns of the participants into account.

#### **Steps need to be taken**

The steps that need to be taken in the marketing strategy is including more information. The information which is advised to be included is as follows:

#### **Personal investments**

Personal investments are key in decision making for participants. Hereby is considered the costs but also zero maintenance and installation time.

#### **Size and place**

The size and the place of placement of the sensor are things that some participants consider as a factor of why they would not participate in SensHagen as seen in the research report. Participants are more interested when the sensors are small and easy to install and deinstall without making a permanent mark on the house or property.

#### **Health**

Health was also seen as an incentive to participate. Having more data about the air quality can increase awareness on how the air quality can positively, but also negatively contribute to their health. This specifically applies to participants with respiratory problems. By including this aspect in the marketing strategy, it could motivate this group of residents to participate. Marketing places could include hospitals or health centres, to attract more people for whom information about the air quality is essential.

#### **Privacy**

Some participants were concerned about privacy, being open about what information will be published can decrease the worries about this. This concern was mainly about their address since the sensor was implemented in their garden or some other place in their home environment. Having more of a blurry view of the sensors on a map can improve the feeling of privacy.

#### **Data that supports the claims**

The analysis of the research results show that these are concerns among potential participants. Implementing information to resolve these concerns from the beginning on would increase the willingness of citizens to participate. This will also lead to a faster expansion of the project through the neighbourhoods in Zwolle.

#### **Advantages and disadvantages**

Making the information supply during the marketing period more complete, could lead to a direct increase of participants, which is a positive outcome for SensHagen. This is because this could tackle the decision not to participate based on an incomplete information about the project. However, giving more information also means a lot of information for the participants. Providing the participants with a high dose of information could lead to an overload. This should be prevented as much as possible to avoid confusion amongst possible participants.

#### **Time and finance**

For SensHagen to adhere to this advice both costs and time investments are needed. However, the exact amount of this will be depending on further made choices in the marketing strategy.

## **II. Holtenbroek**

Based on the research conducted in Holtenbroek and Diezerpoort, we can conclude that the safest option for the expansion of the project would be to focus firstly on Holtenbroek out of the two neighbourhoods. Looking at the data it is visible that the residents of Holtenbroek are overall more aware of sustainable projects as well as active in them. The residents living in Holtenbroek showed more interest in learning more about the air quality of their neighbourhood and also more interest in participating in the project by adopting sensors and supporting the project. Due to the difference in the amount of people interested to participate and learn more about these subjects we determine that the success rate in Holtenbroek is much higher and would therefore advise to begin the expansion of SensHagen there.

### **Steps needed to be taken**

We think that the municipality of Zwolle should begin the expansion in Holtenbroek by a wider marketing campaign including opportunities for citizens to inquire more information on the project as needed, for example in the form of a public forum organised by the municipality in the neighbourhood. This way the citizens have the opportunity to gain information about the project, the motivation of the municipality, future plans etc. Following the marketing stage, we would advise to put the execution phase into motion by offering and supplying the sensors to the interested residents.

Furthermore, we advise to improve and strengthen the already existing network of participants. Based on our findings multiple residents are interested in more in-depth information about the purpose and outcomes of the SensHagen project. This includes more detailed information about the sensor itself and the collected data. Possible ways of providing this information could be through information brochures, social media updates, more frequent newsletters and/or expanding the information provision on the website.

Next to this, one-page factsheets could be used to keep the participants updated on a regular basis. These could be consisting of data collected over that period of time, highlights, improvements made, possible solutions to improve air quality, new involved neighbourhoods etc. Personal experiences of already existing participants of the project can be highlighted and included in the chosen form of information provision. By giving residents an insight of how a possible future participation could look like in practice, residents might be more motivated to follow this example. Since there were still some participants who thought of the project as 'too good to be true' it would be in their interest as well to hear about experiences from a third party, to tackle these concerns. These personal experiences could be shared through the suggested options above but could also be a part of the hub where information can be found on the collected data and the project.

Lastly, participants showed interest in a more individual approach to the project. This individual approach could mean individualizing results and collected data, but also stress the importance of their participation in the project. Answering questions such as, why their input and participation is valuable for receiving the goal. By approaching participants this way and keeping them informed and involved in the project, after placing the sensors as well, the feeling that a lot of participants expressed of 'doing something good' when participating is more likely to remain. This will be a step in the right direction to improve the project and to increase the interest of citizens in participating whilst keeping the current users satisfied.

### **Data to support the claims**

As can be seen in the research report although both neighbourhoods showed interest in the project, it is Holtenbroek that is more active and concerned in the matters of climate change. Therefore, we assume that the long-term participation is more secure in Holtenbroek.

### **Advantages and disadvantages**

The advantages involved in this scenario are firstly the higher interest of the citizens of Holtenbroek as compared to citizens of Diezerpoort, resulting in a higher success rate of the project. Furthermore, the long-term interest and participation of citizens is also one of the advantages.

Some of the disadvantages of this scenario are the increased amount of time, effort and finances required for the expansion of the SensHagen project, as well as the active long-term involvement of the municipality in the execution.

### **Time and finance**

As it has been stated before this scenario is quite demanding when it comes to time and finances. Given that the municipality will be putting long-term trends in motion that will require regular sharing of information it is safe to say that the amount of labour and resources will increase considerably as compared to the original project in Stadshagen. This is also something that should be taken into account in the decision process.

### III. SensZwolle expansion plan

When reading the research reports conclusion, both neighbourhoods consist of both usual and unusual suspects. However, the participants in Holtenbroek showed more interest in participating in the SensHagen project than the participants in Diezerpoort. However, when looking at the risks involved in expanding across the entirety of Zwolle at once they seem to be minor to medium. And it could be successful, it just depends on how much risk is acceptable to the project and what degree of speed is required for expanding across Zwolle. We researched the neighbourhoods of unusual suspects, and there is enough interest in SensHagen in these neighbourhoods to warrant expansion. That means there is enough interest among the usual suspects to expand SensHagen across Zwolle!

#### Steps needed to be taken

If the goal is to rapidly expand across Zwolle and make SensZwolle a reality then starting with the neighbourhoods of usual suspects would be most effective, as these neighbourhoods would be kickstarting the initiative and raising further awareness among other parts of the city.

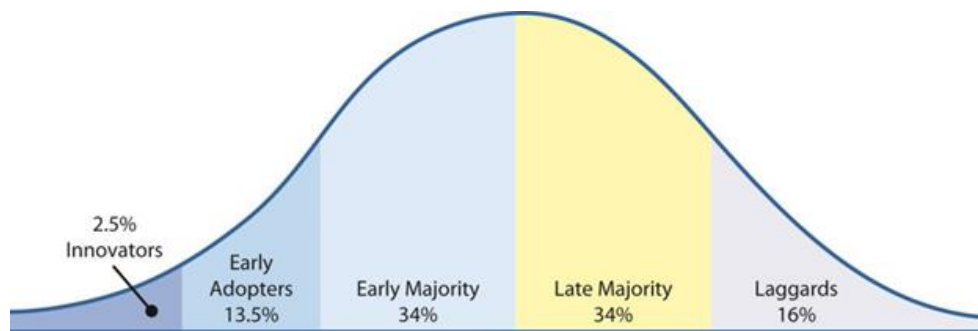


Figure 1 - Law of diffusion of innovation (Sinek, 2010)

This is the law of diffusion of innovation, it describes how products get adopted by customers. The law argues that there are several segments of customers, which all inspire the next segment to adopt the product. In the SensHagen project, citizens of Stadshagen would be considered the “innovators”, they have tried the new product and endorsed it. They would motivate the next segment; the so called “early adopters”. These customers would be the citizens of usual suspect neighbourhoods such as Assendorp. The “early majority” would be considered as unusual citizens, with interests to participate. Like we have seen in Holtenbroek, and the late majority would be citizens of unusual suspect neighbourhoods with less interest in the product, such as the citizens living in Diezerpoort.

#### Data to support the claims

The neighbourhoods of unusual suspects that we researched showed medium interest in SensHagen, if these neighbourhoods that would be among the late adopter crowd already show an interest into the SensHagen project and are already willing to participate in the project then there must be lots of citizens available in the neighbourhoods of usual suspects who would be willing to participate also.

#### Advantages and disadvantages

Following this adoption curve would be useful for the SensHagen expansion, because when a neighbourhood of Zwolle gets their turn to participate in the project, they also spread awareness and willingness for the next neighbourhoods to participate in the SensHagen project. This would therefore be the most natural & cost-effective way to expand SensHagen across Zwolle. Utilizing this strategy would be more resource intensive, and it has a higher risk than tackling one neighborhood at a time. However, depending on the perspective of the client and the status of the SensHagen project the risk factor changes.

## **Time and finance**

This strategy would be the most time efficient because the goal is to expand across Zwolle as fast as possible. Depending on the costs of expansion having a shorter timeframe could also be cost saving and improve the effectiveness of marketing strategies. However, depending on the effectiveness of the expansion strategy and the quality of the sensor. Expanding rapidly could cause unforeseen complications to arise. Potentially derailing the project and increasing costs. Making the right choice about the speed of expansion depends on many external factors outside of our project scope.

## **IV. Conclusion**

The most appropriate action to be taken depends on the next steps for the SensHagen project. However, the marketing advice should be followed regardless of what neighbourhood to expand to first. Because these are easy changes to implement, and they will optimize the sensor and user experience of SensHagen. They will only have a positive effect on the potential expanse of the SensHagen project.

## **V. Researcher's note**

While conducting this study, the research team have come to some subjective conclusions which have not been include in neither research, nor the advisory report. However, those observations can bring an important insight into the research and provide some more clarity for the people taking over this project in future.

As already seen in the analysis, few of the participants (unusual suspect) already had some knowledge about SensHagen. The information was spread by their family members who currently are or have been involved in SensHagen. The participants of SensHagen have mentioned that they currently lack access to information that is being collected by their sensor, and they would like to have more access. Consequently, such feedback has resulted in doubts from the possible participants' side, whether to take part in the project themselves.

This information is not supported by the data provided by this research. However, it can be used for evaluating the findings and conducting further steps in the expansion of the SensHagen project.



## VI. Reference list

Sinek, S. (2010, May 4). *How great leaders inspire action* [Video]. TED Talks.

[https://www.ted.com/talks/simon\\_sinek\\_how\\_great\\_leaders\\_inspire\\_action#t-1026786](https://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action#t-1026786)

Rorije, L., & Tolkatser, M., & Szabóová, D., & Heijman, Y., & Renirie, B. (2021) *Research Report* [unpublished manuscript]. Windesheim Honours College.