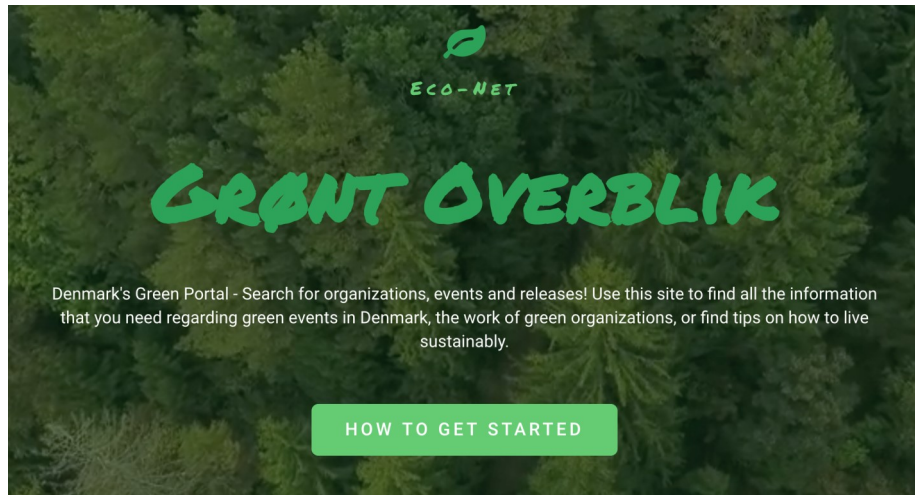


# The Role of Technology in Facilitating Community Action: Promoting Sustainable Development



October 13, 2018 (A Term)

## Abstract

This project, completed at the Copenhagen project center, aimed to assist a Danish grassroots environmental organization, Eco-Net, in redesigning their Grønt Overblik website to increase community engagement with sustainable development. The team researched the principles of how to engage individuals to act towards a specific goal, and more specifically, how technology could be used to facilitate this engagement. Based on interviews with Eco-Net's leaders and contributors, the team identified why people use Grønt Overblik and which features were most important to them. Additionally, local businesses in Copenhagen and non-governmental organizations in Denmark provided advice on how to encourage user engagement. In redesigning the website, the team sought to add a logical flow to the information to guide users to the most important features, streamline the content on the website, highlight the usefulness of the calendar, and add a social media element that would allow users to message each other, comment on posts, and contribute content.

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Sponsor:



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## Community engagement must be increased to improve community action

One of this millennium's most critical issues is climate change, as it directly affects the viability of life on the planet. As such, sustainable development, or “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”,<sup>1</sup> is needed to address this problem. People across the globe have recognized the importance of sustainable development to combat this problem, and many groups have taken it upon themselves to aid in the fight against environmental abuse. Grassroots organizations are one group supporting sustainable development that focus on the engagement of individuals working on the ground in communities. They recognize that change

needs to come not just from laws and taxes but also through educating and enticing individuals to take action within their communities. They accomplish this through a variety of strategies. Grassroots organizations provide useful information about the environment,<sup>2</sup> and they also bring many people together toward a common cause, which helps to establish a sense of community, thus encouraging them to take action.<sup>3</sup> Through the usage of information and a common cause, grassroots organizations are able to motivate individuals to take action towards sustainable development.<sup>4</sup>

In Denmark, the problem of environmental sustainability is also an issue.<sup>5</sup> Despite grassroots organizations providing resources about sustainable development, they still face the problem of how best to engage individuals and portray useful information to motivate them to make sustainable changes in their own lives. To address this issue, Eco-Net, a green organization in Denmark, is examining the ways in

which it can use its web-based platform to “inform, inspire and create broad public involvement and dialogue about ecology, environment and sustainable development”.<sup>6</sup> The primary means by which it seeks to address environmental issues within Denmark is through its Grønt Overblik website. This site consists of four main components: a green calendar of events, a directory of environmentally minded people, organizations, and a businesses, a blog or bulletin board, and a library of environmental resources. The Grønt Overblik platform allows users to add information about sustainable development, thereby creating a network of people with sustainable living in mind. While this idea is good in theory, there have been limited contributions from individuals to the website, issues with how people find content on the website, and declines in membership that have prevented Eco-Net from fully achieving its goal.

Our team worked in conjunction with Eco-Net to look at how it can use an online platform to establish online communities that encourage and motivate the members to make sustainable changes in their lives. To solve this problem, the team aimed to restructure the Grønt Overblik website to help create and foster an online community centered around sustainable development by:

1. Determining the purpose of the website to achieve the desires of the users and leaders
2. Gauging usability of the components of the website to best reflect those desires
3. Identifying ways that the components of Grønt Overblik can be used to engage individuals interested in environmental sustainability

These objectives were utilized to create three primary deliverables: a redesigned website prototype, documentation on the design and usability of the provided prototype, and a list of features to include on the website in the future.



Figures 1 and 2. Team learns more about sustainable living in visit to Danish folk high school and ecovillage.

## Using Technology to Facilitate Collective Action

In order to fully understand how a website like Grønt Overblik can help facilitate the process of engaging individuals to take action within their communities, it is first important to understand the mindset of community involvement. In the following section, we examine the ways in which community engagement lays the ground for social action. Community engagement refers to “the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people”.<sup>7</sup> This builds on the definition of a community as a group of people brought together through some sort of relationship over a particular idea or goal. Community engagement seeks to develop resources and bodies of information, promote a sense of trust within communities, and improve community outcomes.<sup>8</sup> As Eco-Net seeks to inspire community engagement through their website Grønt Overblik, we also analyze how technology, particularly websites, can be used to help facilitate community engagement.

### Community action is measured along a spectrum of community engagement

Community engagement requires participation of community members in projects that address the members’ issues. Meaningful community participation extends beyond physical involvement to include generation of ideas, contributions to decision making, and sharing of responsibility. Because there are many different levels of community engagement, it can be conceptualized as a spectrum. In particular, the

Community Engagement Continuum is a framework for designing engagement strategies, which was developed by the International Association for Public Participation (IAP2) in the early 1990s. The framework (Figure 3) characterizes community engagement as “a continuum of community involvement”<sup>9</sup> from passive to active. As communities and individuals travel along the continuum, they move from a passive sense of participation to more active forms of participation. Passive participation is sharing in the body of knowledge or experience of a community without contributing anything to it, such as reading a newsletter published by a community or organization but having made no impact on the creation of the letter itself. Active participation is the exact opposite of this, such that individuals of a community are generating ideas, contributing to decision making, and sharing responsibilities like leading community events.

The International Association for Public Participation (IAP2) classifies the spectrum into five main stages: informing, consulting, involving, collaborating, and empowering. Each stage seeks to build upon the previous and invite individuals to

### Table 1: Key Definitions

- **Community:** a group of people brought together through some sort of relationship over a particular idea or goal
- **Community Engagement:** the process of working collaboratively with and through groups of people affiliated by geographic proximity, special interest, or similar situations to address issues affecting the well-being of those people

participate more within communities. In classifying these five stages, it becomes clear that there are two main categories that all five stages fall into, as demonstrated by the following sections. These categories directly affect the stages of community engagement by providing information and developing community identities.<sup>4, 10</sup>

The first category centers around providing information. In order to inspire deeper levels of engagement, it is important to have a transfer of

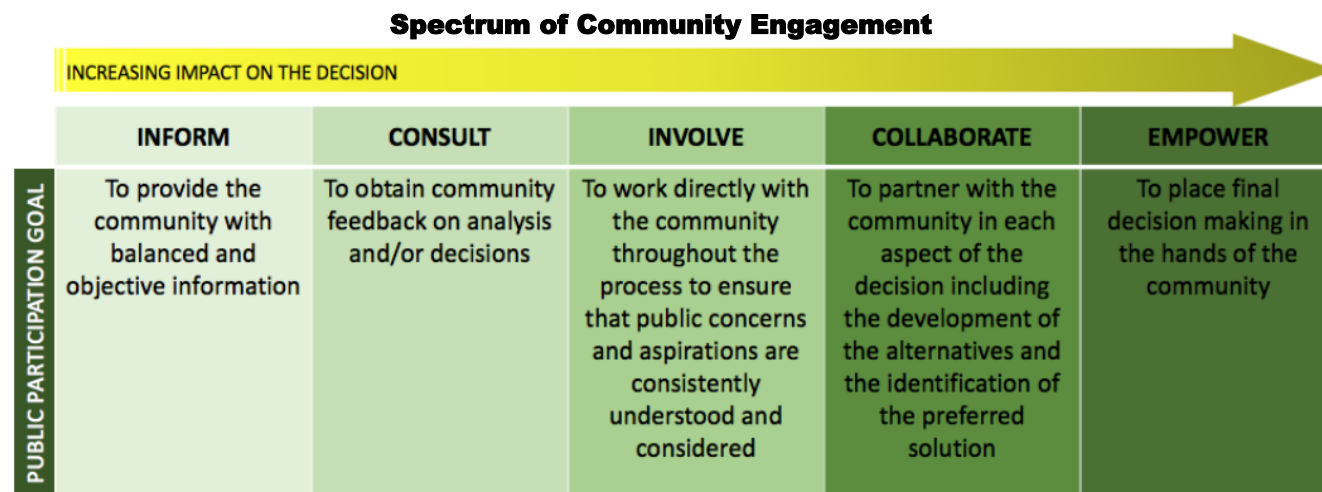


Figure 3. The spectrum of community engagement, from the IAP2<sup>9</sup>

information at every level. As such, informing is at the heart of all the other stages of participation, as informing is a fundamental component of consulting, involving, collaborating, and empowering, the next of stages on the Community Engagement Continuum.<sup>11, 12</sup> For example, in order for the government to obtain public feedback on a divisive issue (Consult Stage) or collaborate with individuals on creating public policy (Collaborate Stage), individuals must first be informed about the issue. If a citizen does not understand the issue or is not made aware of alternative solutions, then citizens cannot advise the government on the best course of action to take.<sup>13</sup> Informing also allows for accountability to be demonstrated to the community.<sup>14</sup> As communities share knowledge, have meetings, and make decisions, the community needs to be informed of what transpired or what new information was learned. While informing is important, it is not what drives individuals to community action, hence “inform” is only the first stage of the Community Engagement Continuum.

The second major factor that increases community engagement is feeling a need for a sense of community.<sup>3, 15</sup> This centers around the concept of social identity, which explains how in many situations in life, an individual acts not as an individual, but as a member of a group they identify with. An example of this is someone who identifies with a particular political party but is not informed as to the candidates running or the issues they are campaigning on. As such, these individuals often vote along the party lines simply because they identify with the beliefs of the party they belong to. According to social identity theory, one implication of identifying with a particular group is that individuals feel closer to the members of a group or community. In other words, individuals tend to associate their own identity with that of the community. Doing so fosters a sense of ownership that empowers individuals to reach the stage of active participation.<sup>16</sup> A number of studies have indicated that citizens' felt sense of their community is reflected in the way individual residents think about themselves

and interact with their community.<sup>17, 18</sup> Furthermore, studies show that the sense of belonging with members of a community is directly connected with their ability to understand and help shape the vision for their community.<sup>19</sup>

It is important to see how this group identity occurs as a result of community engagement. Although created through informal social processes,<sup>20</sup> community identities are connected to tangible environments and events. For members of a community, “certain environments and events function to link the past with the present”<sup>18</sup> resulting in “a felt sense of coherence.”<sup>21</sup> As members of communities make these connections, the environments and events become synonymous with stories residents tell about themselves to explain their personal values and life contexts. Therefore, the environments and events of a community act as the engagement platform upon which an individual associates their identity with that of the community.

An example of environmental-based identity is how a student at a university may identify with their sports team during contests with rival schools. The environment of the sports competition creates an atmosphere such that an individual at the school chooses to support their school even if they are not on the sports team itself. Rather than saying “Our sports team beat the team’s rivals,” an individual is more likely to say “We beat our rivals.”<sup>22</sup> Here the environment is also the form of community engagement as the competition serves as the platform that brings together disparate individuals into a single team/school.

The example goes to show how the environments and events of community life have the potential to create and reaffirm community identities through adopting individual identities. And as stated before, this adoption comes directly from effective community engagement.

Because of this sense of shared identity and the feeling of belonging, as well as through the spread of information, there is a tendency for individuals to

increase their level of participation within communities. The shared identity between individual and community helps to directly associate the needs of the community with the needs of the individual.<sup>21</sup>

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As a result, individuals will participate more in order to address these needs. Thus, by establishing a common identity that permeates an individual’s sense of identity, individuals will contribute more to their community because doing so is in their best interest, as helping the community also means helping themselves.<sup>17</sup> Likewise, providing information to a community can help educate its members and inspire them to take more active roles in the community. This process can be increased by including community members in helping to spread information, as well as the decision-making process.

An example of how both providing information and a sense of community can lead to community action is the Don’t Mess with Texas campaign in the 1980s. At the time, the state of Texas in the United States had a litter problem. The state was spending \$25 million per year on cleanup, and the costs were rising 15 percent per year. The state encouraged people to stop littering with fear campaigns and “Don’t Litter” signs, but nothing was working. The profile of the typical litterer in Texas was an “eighteen- to thirty-five-year-old, truck-driving male who liked sports and country music and did not respond well to authority.”<sup>23</sup> It was determined that the best way to get the Texans not to litter was to appeal to their self-identity, through the campaign “Don’t Mess with Texas.” One of the earliest TV commercials of this campaign featured two Dallas Cowboy players who were famous in Texas: one picks up a can and crushes it menacingly in front of the

camera, while the other adds, “Don’t mess with Texas.” Another ad featured Houston Astros pitcher Mike Scott. Scott says that throwing stuff away is “the Texas thing to do.” He demonstrates his “split-fingered trashball,” hurling some litter into a roadside can. The campaign featured athletes, celebrities, and musicians, most of whom were not household names outside Texas but were all well-known to Texans as Texans.

The campaign was an instant success. Within a few months of the launch, 73 percent of Texans polled could recall the message and identify it as an anti-litter message. Within one year, litter had declined 29 percent. During the first five years of the campaign, visible roadside litter in Texas decreased 72 percent and the number of cans along Texas roads dropped 81 percent.<sup>24</sup> In 1988, it was found that Texas had less than half the trash found along the roads of other states that had run anti-litter programs for comparable periods. This campaign was successful because of its appeal to the Texan identity. By engaging Texans through their sense of community identity, Texans were motivated to take action. Litter decreased in Texas because it became socially unacceptable to litter, as littering conflicted with a “true” Texan identity.



Figure 4. Example of community engagement

## Technology provides a platform for community engagement

While there are many methods to increase community engagement, technology is aptly poised to do so, as it has changed the process by which people interact. It was not long ago that the only way to share opinions within communities was to call town hall meetings, or go door-to-door to spread ideas. Now, due to modern technology, it is even easier for people to share their opinions without even being asked. Because technology gives individuals a platform to make their voice heard, there is a growing trend towards civic participation, localism, and being active in community-based decision-making.<sup>4, 25, 26</sup> For example, various towns in Minnesota have employed the use of neighborhood e-watch programs that allow everyday citizens to monitor public cameras, allowing citizens to actively participate in crime fighting by identifying and then reporting suspicious activity.<sup>27</sup>

The possibilities of technology and the trend toward community involvement have spurred a renewed interest in community engagement. This revitalization in community engagement has occurred because of two main factors: first, the communication methods available to the public have grown significantly, and second, technology has made deeper engagement possible online, which can expand the breadth, depth and quality of engagement.<sup>28</sup>

Technology is an enabler of involvement within communities. It allows people to participate

“In Ramsey County, Minn., you don’t have to be a cop to fight crime. In fact, you don’t even have to leave your desk. All you have to do is join the county’s virtual neighborhood watch network and you’ll be able to lookout for suspicious activity from your computer.”<sup>27</sup>

across the globe and without physical or time-based barriers. It allows people to share their ideas within networks, and advocate for change in ways that were not previously available. Online surveys, polls, and voting platforms are very easy to set up and monitor compared to physical or in-person versions. It is often much cheaper to use online platforms rather than offline methods. Most online platforms even provide analysis tools capable of analyzing the input data, thus reducing the need for manual work.

## New technology provides increased opportunities in communities

Many forms of engagement and knowledge sharing are possible in online platforms due to the advent of newer technology platforms, such as Minnesota’s use of e-watch programs. Communities can be engaged through various means such as crowdsourcing, online mapping, online budgeting, and online decision-making. PollTown and CrowdGauge are two examples that both employ many of these methods such as crowdsourcing by allowing individuals to vote on various questions and news stories as well as rank the importance of different actions. If users feel it is more important to live in a community where taxes are low more so than living in a community where an individual can bike to work, they can rank a list of options accordingly.

Online decision-making is a very important method, as community-based decision making is the deepest form of engagement on the Community Engagement Continuum. The primary way to do community-based decision-making a decade ago was through voting.<sup>29</sup> Now, large scale decision-making has become possible and easy to conduct because of advances in online technologies and the intersection of data collection, data calculation, and social reach.<sup>30</sup> Platforms such as Ethelo make community decision-making possible. It combines functionality like surveying, commenting, and analytical processing to solve pressing community and organizational

challenges. With technology like this, there are many potential use-cases - from public consultations, to strategy development, planning, program and service design, participatory budgeting, fund distribution, dispute resolution, and policy development. For example, in Nova Scotia, the platform Ethelo was used by the non-profit Springtide Collective to engage several hundred Nova Scotians in evaluating different options for democratic reform, from establishing term limits for elected officials to lowering the voting age. The results of Ethelo became the basis of the Springtide Collective's research priorities and exploration of specific policy options that ultimately lead to a publicly validated action plan for lobbying Nova Scotia's provincial government.<sup>31</sup>

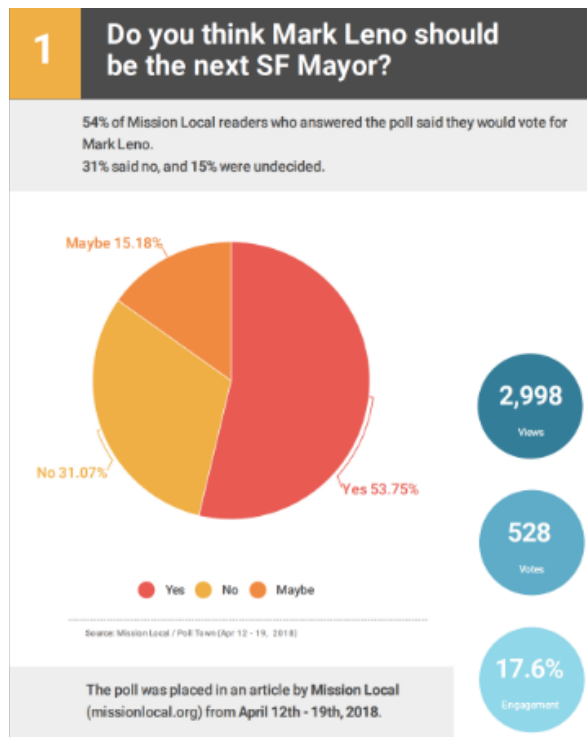


Figure 5. PollTown, an example of crowdsourcing and online decision-making tools

### Technology creates deeper engagement by reinforcing community identity

In addition to technology being used to provide information and additional types of engagement for online decision-making, it also can serve as a way to reinforce community identities. Social media is an example of how technology can be used to both form and reinforce community identity. Social media is successful because it employs two main concepts of social identity theory: self-categorization, which is how a user assigns themselves and others to categories based on beliefs, behavior, attitudes, and other characteristics, and social comparison, which refers to the process of comparing others to oneself and assigning labels based on those comparisons. Facebook is a site that employs these principles. A typical reason an individual will join Facebook is that they want to belong to social groups that reside on Facebook (an example of self-categorization), and they want others to see what they are doing and vice versa (social comparison).<sup>32</sup> An individual who creates a profile on Facebook is limited only by how they choose to self-categorize. Users can select the movies they have watched, the books they have read, the sports teams they support, and even the events that they attend. An individual can customize their profile such that the individual can identify with social groups they align with and allow others to easily connect with them.

For example, if a user's feed shows another person who shares an interest in the same sports team, the two can friend one another on Facebook and then proceed to directly message each other. As a result, technology, or in this case social media, acts as a platform for individuals to develop and strengthen their community identities, which are vital to moving individuals closer to taking collective action.

While social media can be good for developing community identities, individuals sometimes require additional support from their community to take action.<sup>33</sup> This is most commonly

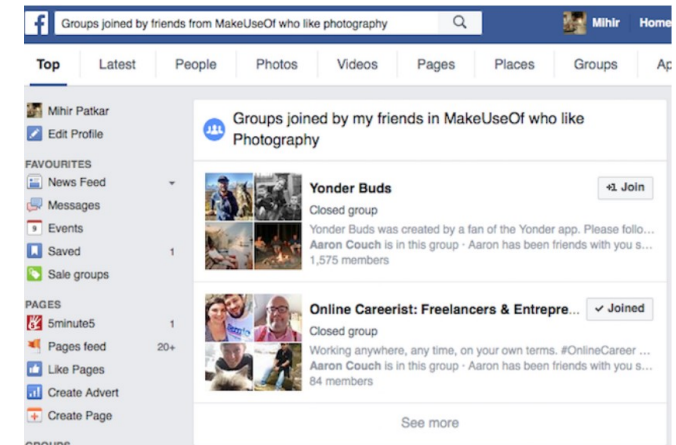


Figure 6. Example from Facebook showing how groups can be formed based on shared values

seen through online support groups, who use technology as a way to inspire members of their online community to not only stay informed but also keep working towards some goal.<sup>34</sup> The technology to accomplish this does not have to be very advanced. For example, in 1996, Robert Tollen was diagnosed with a rare blood disease. While seeking to learn more about the disease, Tollen emailed a physician to learn more about his disease. As time went on, other people started to want access to Tollen's conversations; Tollen started an email chain so that other people could benefit from his emails. Today, the email currently has over 2,500 subscribers worldwide who are looking to find information and support about how to live with a challenging disease.<sup>35</sup> The group continues to share information about various aspects of the disease and provide real-time support for patients and their families. Their primary mechanism for learning together is still an asynchronous, open-ended conversation, where participation involves reading and sending emails. This online support group, whose communication model is seen in other technology platforms such as RallyHealth, allows users to grow together as a community through shared

experiences and transfers of information. Members of the community are able to use technology to provide motivation to one another to take action, whether it be to receive treatment, share new developments about the disease, or to lobby officials regarding public awareness campaigns. Through these support groups, technology has been used to reinforce the concept of community identity by providing an increased incentive for taking action; by seeing other members of the community take action, it instills in members a desire to take action themselves.<sup>36</sup>

## The Current State of the Grønt Overblik Website

In looking to facilitate community engagement through technology, the team investigated how the Grønt Overblik website could be better designed to facilitate this engagement. There are four major components to the Grønt Overblik website: the green pages, the calendar, the library, and the blog. The green pages is a database that contains contact information for individuals, businesses, and organizations throughout Denmark who promote environmental sustainability. People, businesses, and organizations in the database as well as Eco-Net's leadership can post events that pertain to environmental sustainability in the calendar component of the website. Additionally, those users can upload different resources to the library. Finally, the blog, otherwise known as the billboard, allows users to post in a forum about topics of their choice.

While the Grønt Overblik website provides various articles, events, and discussions about sustainable development, it suffered from a difficulty in updating this content, an overwhelming amount of information, and attracting and retaining users. For example, the blog had a total of five entries, all of which were undated, putting the relevance of the data in question and making it unclear as to how this component should be used. Furthermore, the website

# GREEN OVERVIEW

Denmark's Green Portal - search for organizations, events and publications!

The screenshot shows the homepage of the Grønt Overblik website. At the top is a search bar with a 'SEARCH' button. Below the search bar are four main content columns, each with a green header and a list of items:

- THE GREEN PAGES**: - the ecological counterpart to the Yellow Pages. Includes: The latest in the Green Pages, Sustainability Science Center, Danish Free School Association and free schools House, The Green Student Movement, Plus 10 - Sustainable consumption.
- ECO DIARY**: - largest nationwide green calendar. Includes: upcoming events, HEALTHY Livsstilsmesse (September 28th, 2018 - September 30, 2018), Tina Clarke tells of sustainable communities (September 28th, 2018 - September 28th, 2018), 48 hours for the climate (September 30, 2018 - October 2, 2018), Students for Sustainability (October 4, 2018).
- THE GREEN LIBRARY**: - Knowledge Session on ecology and sustainability. Includes: Newest releases, Common foundation. Finance for housing communities and collectives, sustainable Agriculture, Fish can not speak, New on Environment and Development - 92 Group newsletter, climate Testament.
- THE GREEN BULLETIN BOARD**: - green, organic and sustainable spread!. Includes: latest bulletin, organic bedding, Free offers on legal representation, Boligadvokat24, Veganism - a healthy threat to an unhealthy industry, Carriage - in the doidrums and the north.

Figure 7. The original homepage for the Grønt Overblik

suffered from having too much information presented to users that made it difficult to find what users were looking for, as shown in Figure 7.

The original design of the website also did not allow users any form of active engagement with features or other users of the website, thus providing little incentive for users to return to the website. The original website needed changes to the organization

and presentation of information, as well as an increased capacity for interaction. For this reason, the team investigated how technology can be utilized to help individuals take action in their communities by fostering this community identity. More specifically, the team looked at how Eco-Net's website, Grønt Overblik, could accomplish this.



## Restructuring Grønt Overblik to Promote Community Engagement

The team's goal was to restructure the Grønt Overblik website to inspire further civic engagement by promoting quality information and developing online communities. To achieve these outcomes, the team wanted to make the website easier to navigate, simpler to use, and more interactive. Three objectives were pursued to accomplish this goal: determining the purpose of the website to achieve the desires of the users of the Grønt Overblik website and the Eco-Net leadership, gauging usability of the components of the website to reflect those desires, and identifying ways for Eco-Net to engage the existing community of users of the Grønt Overblik website.

Each objective focuses on a different aspect of the website redesign to improve user engagement (Figure 8). Determining the website's purpose meant the team could understand the original intent behind the website and the reasons people use the Grønt Overblik platform; this allowed the team to preserve the intent behind the original website and promote it better on the redesigned website. Examining the extent to which components are used on the website looked at the individual components and how they interact to accomplish the purpose set by the first objective; by knowing which components of the website are considered important or useful, the team was able to preserve and promote better those features on the redesigned website. Finally, identifying new ways in which the website can inspire community engagement allowed the team to identify how Grønt Overblik can be improved to acquire and retain users through various forms of online interaction.

### Objective 1: Determining the Motivation Behind Grønt Overblik

The first objective was to determine the purpose behind Grønt Overblik. To determine the proper direction for Grønt Overblik, the team interviewed seven members of Eco-Net's board of directors and other pivotal members of the organization as well as nine contributors to the website.

The team first contacted the Eco-Net leadership to gather insight as to what each leader thought Grønt Overblik was meant to achieve. Through semi-structured interviews, questions were asked involving who the website was being marketed towards and how they thought it was supposed to be used (see Supplementary Materials). Each team member separately annotated a transcription of the interview to perform a deductive coding of the responses. The team compared codes after, and for any differences in coding, the team discussed and then selected a single code from the different codes identified. The two main codes that were used to analyze the results were "education" and "building a community of people interested in environmental sustainability."

For the code of "education," the team found through inductive coding two different subcategories that classified why the Eco-Net leaders thought the website should be used for education: "too much information about sustainable living" and "consolidating information makes it easier to learn." Related to the first point, Eco-Net leaders wanted the website to be a platform providing information about specific topics on sustainable living. Leaders stated that there are too many topics in sustainability for any one person to keep track of on their own, such as sustainable farming, energy usage, and urban planning. One interviewee noted difficulty in keeping track of information centered around just a single topic, as "new things are discovered all the time that change what you are supposed to do to live greenly,

## REDESIGNING THE WEBSITE

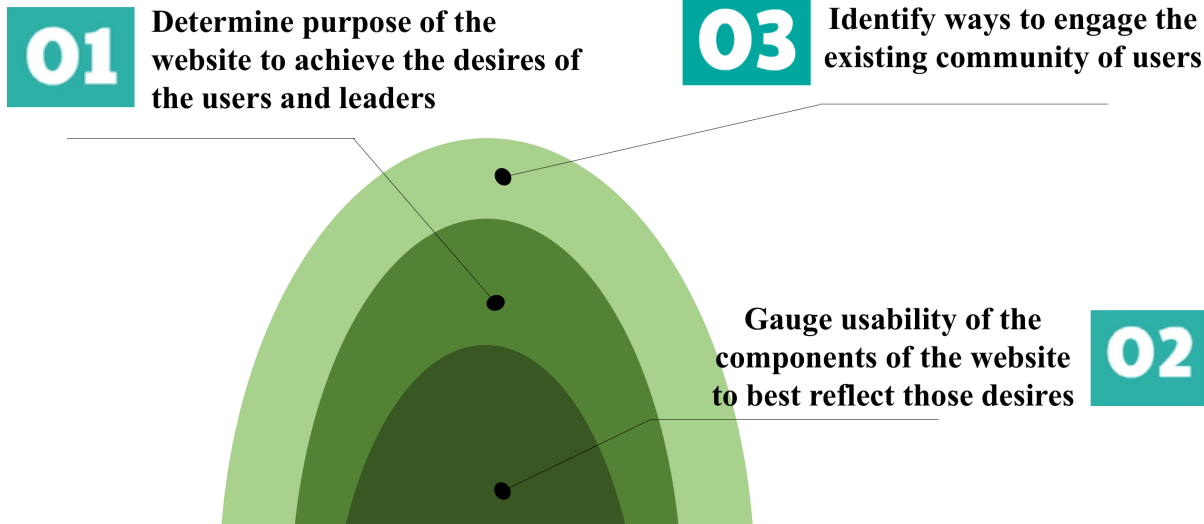


Figure 8. Flow of objectives and methods

and it is a big challenge to stay on top of the most recent findings.” Another interviewee stated that it is “confusing to find out what is going on in the world” and that they feel like they are being “bombarded with information.”

Related to the second point, which was “consolidating information makes it easier to learn,” Eco-Net’s leaders felt that by gathering resources on environmental topics, merging them onto a single website, and organizing them properly, it is easier to explore topics of interest. By making it easier to explore topics of interest, synthesizing information also presented users with opportunities to learn about new topics. For example, one interviewee explained that a student writing about the usage of solar panels could consult Grønt Overblik for resources about installation, maintenance, and legislation related to solar panels.

The second code of “building a community of people interested in environmental sustainability,” was broken down into the subcategories of “sharing ideas with others” and “connecting with others”. Related to the first point, leaders conveyed that Grønt Overblik was and should be a way to share ideas about sustainability. Interviewees stated that an ideal platform would allow users to see what others are doing to live a sustainable lifestyle. One interviewee who lived in a ecovillage described their desire to know what other ecovillages were doing, specifically if they had any of the same problems as the interviewee’s village, as well as their solutions to those problems.

For the second point, “connecting with others,” leaders described their desire to reach out to other people through Grønt Overblik. Three out of the seven Eco-Net leaders talked about wanting to “contact other people” using the site in order to facilitate communication between individuals. For example, one interviewee described that it “would be nice to be able to directly contact an organization (on the Grønt Overblik website) to ask them about volunteering.”

By processing and analyzing the data through the prior codes, the team determined a common identity for the project. The identity for the Grønt Overblik website ought to include both quality information (the “education” code) as well as a way to identify with and connect to others (the “connection” code). These two concepts were supported by the literature review, that to move a person further along the spectrum of community engagement towards increased community action, an individual must be provided adequate information to make informed decisions, as well as adopt some form of a community identity that furthers their participation. It should be noted that while there was unanimous agreement among the leadership as to the direction of the website, the leadership was divided as to the target audience. All of the leaders envision the website to be used by anyone interested in green solutions or ecology, however three out of the seven Eco-Net leaders identified a more focused audience targeting educators and students.

The team also interviewed nine people who had made contributions to or had shown interest in Grønt Overblik in 2018. Through semi-structured interviews, the team questioned them about their previous usage of and future aspirations for the website (see Supplementary Materials). Similar to the analysis of the leadership interviews, each team member separately annotated a transcription of the interview to perform an inductive coding of the responses, and any differences in coding were resolved through a group discussion.

Similar to Eco-Net’s leadership, contributors also conveyed the importance of having relevant and useful information on the website. For example, one interviewee whose response fell under the code of “relevant and useful information” described how “the internet gives me [people] so many options to choose from” and that “if a website does not have what I am [they are] looking for, I [they] will go to another site in seconds.” The same interviewee also stated that “because there so many options out there [on the

internet], it is important to have a single website that can consolidate this information.” Furthermore, interviewees explained how finding credible information can become a challenge. One interviewee noted that “inadequate or just plain faulty studies can be found on a lot of websites,” and that “for people who do not understand science or the environment well, they may not realize that they should not trust the [findings of the] study.”

In addition to seeking relevant and useful information, all nine interviewees expressed an overwhelming desire to connect to other people who want to live more sustainably. Within this overarching code, the team identified two discrete sub-codes: “interact with other like-minded people” and “find environmentally-friendly businesses.” Related to the first point, the team found that some people wanted to gain inspiration from the work others were doing and start a dialogue with them. For example, several interviewees expressed that it is very helpful to know what others are doing, and one interviewee stated that it is useful to have “in-house [website] solutions,” or solutions to common sustainability problems shared by others. Related to the second point, “find environmentally-friendly businesses,” the team identified a common desire to find ecologically-sustainable businesses from which to purchase supplies. For example, one interviewee had used the website to find places that sold environmentally-friendly roofing tiles as they wanted to make sure they were finding the “greenest option” available and that “Google was no help.”

Based on the above analysis, the team determined that the contributors desired similar capabilities for the website as the Eco-Net leadership. Both the contributors and leaders described their interest in either looking for information on the

“The website should let me feel a part of an online community of sustainably-minded people.”

website, or interacting with others on the website. Given this shared overall vision, the team concluded that the issues with the website were centered on the features and design of the website, rather than the practicality or usefulness of the underlying purposes of the website. The problems of the website therefore could not be attributed to a disconnect between the creators of the website and the actual users of the website as it is clear that both groups envision similar uses.

## Objective 2: Gauging Usability of Website Components

The second objective assessed the usability of the website's components in achieving the two identified goals of Grønt Overblik, education and community interaction. Through the semi-structured interviews with Eco-Net's leaders and users of the website mentioned previously, the team asked about the existing and proposed website components. For both groups, the team focused on determining what the main features should be for the website and how to optimally present those features to maximize engagement with the platform.

Each member of the Eco-Net leadership provided feedback (in the same interview for the first objective) on specific aspects of the website. The questions focused on which tools currently available on the website were applicable to their idea, how components fit together, and how utilization of them could be improved (see Supplementary Materials). The team also asked the contributors questions (also in the same interview for the first objective) about the portions of the website they utilized, how they would like to utilize them, and if there were other missing components they were looking for (see Supplementary Materials). In particular, the team asked the users to explain which features they thought were important for the website and why.

The responses were deductively coded into

## Important Features of the Website

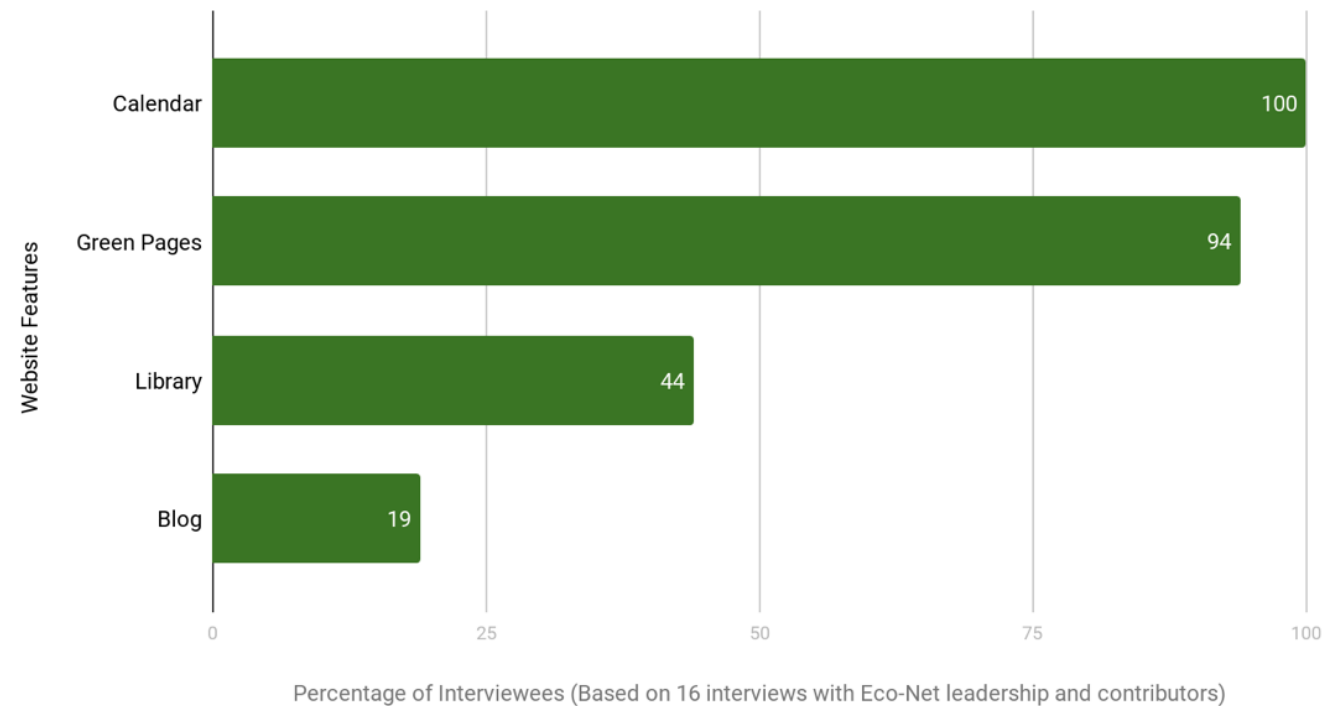


Figure 9. Most important features of the Grønt Overblik website

the existing website categories of “calendar,” “green pages,” “library,” or “blog” The results of this coding showed that both the calendar and the green pages were features that users liked and utilized. Between those two components, both were often rated as the two most important features (see Figure 9). As for the blog and the library, 44% of participants did not utilize either of those features, and more than 60% of participants did not find those features to be useful.

Despite the different ways people used the website, one of the most important features was the calendar of events, as every interviewee identified the calendar as the most important feature on the website. The calendar provided users with a list of events that

they could attend to learn about sustainability or meet other sustainability-minded people. As one individual mentioned, “it allows me and others to stay connected with others in Denmark.” Furthermore, the calendar is a way to become more involved or educated about sustainable living, as people can find lectures, seminars, or rallies about sustainable living through the green calendar. One interviewee talked about arranging lectures for students, and that oftentimes, the interviewee would be approached by students after the lecture who would say, “That was a really interesting lecture, I [the student] did not know it [the environmental topic of the lecture] was going on!” This interviewee liked that the green calendar could

“The calendar helps me plan lectures for my students.”

address this issue by letting students and others know about events in Denmark where they can learn more about green topics such as sustainable living.

In addition to the calendar, 94% of the leadership and contributors interviewed indicated that the second important feature is the green pages. Interviewees stated that this page allows individuals to get their overview of organizations in Denmark and learn from other individuals or businesses that support sustainability. An interviewee also stated that the green pages allow people to connect to others “interested in ecology and conservation” by “providing information that people can use to contact an organization they are interested in.”

Additionally, several members of the leadership indicated that the library and blog functions of the website were not vital to the success of the website, but there was common agreement that both features are useful and should not be entirely removed. These features were described by interviewees as needing to be “more user-friendly”, as one person put it, and that they could become more useful if they were made aware of the information in the library and blog.

### **Objective 3: Identifying Methods for Engaging the Grønt Overblik Community**

The final objective of the project was to determine how other environmentally sustainable non-governmental organizations and local businesses have created or used similar directories of people and advocacy groups and how they could utilize a tool like Grønt Overblik to engage the existing community of users of Grønt Overblik. To this end, the team conducted two sets of semi-structured interviews. The

team first interviewed the marketing managers from two NGOs. These interviews focused on the ways the managers found and organized people and information for the purposes of networking and expanding the organization, as well as the difficulties they had with those tasks (see Supplementary Materials). Next the team interviewed managers and webmasters from three local environmentally-friendly businesses and two well-established local environmental NGOs to obtain feedback on current and proposed features of the website (see Supplemental Materials for interview questions).

The team analyzed the transcripts from the interviews with NGOs according to two inductive codes: “market to individuals” and “streamline information” Related to the first code, both interviewees emphasized a marketing strategy that would convey the importance of the website to individuals instead of organizations. The two managers from the NGOs stated that they did not see an immediate need to join a website like Grønt Overblik because they were not interested in acquiring a “green overview” of Denmark. Both organizations had already developed their own databases like the Grønt Overblik green pages because, as one interviewee stated, a “market analysis [to see what organizations already existed] was one of the first things we [they] did” when the organizations were founded in Denmark. The managers did state that they saw an importance in presenting “green opportunities” to individuals, and that they advised the website be primarily marketed towards individuals as they could benefit the most from Grønt Overblik.

For the second code, both managers stressed the importance of simplifying information with the website and making sure content on the website is easy to find. One of the managers explained that a prospective volunteer for an NGO should be able to find opportunities in a matter of seconds. The same manager also emphasized the importance of maintaining relevant and up-to-date information, as “people will just as quickly leave the website as they

got on if they don’t see what they are looking for.”

Local businesses that focused on promoting environmental sustainability or selling sustainable products were also contacted. Of the sustainable businesses researched, three managers from businesses that fall under different categories of sustainable development agreed to participate in an interview. Several of the managers expressed interest in utilizing a website such as Grønt Overblik to find suppliers. For example, one manager talked about the difficulty they were having in finding environmentally friendly bags with which they could package their products in their store. This manager stated their interest in Grønt Overblik as a way to find the bags that they were looking for. Additionally, the managers stated that Grønt Overblik could not only be a way for them to attend sustainability events in the local community, but also to collaborate with the group hosting the event to further promote their own business. While having access to the information provided by Grønt Overblik is useful, these interviewees agreed that the website would not succeed without users being able to interact with one another, and that finding some way to “keep people using the website and coming back to it day after day”, in the words of one interviewee, was of paramount importance.

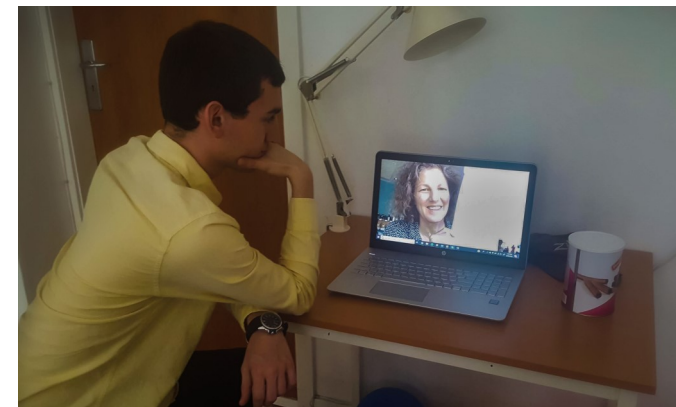


Figure 10. Team performing an online interview

## Consolidating the Results to Redesign the Website

The results were aggregated into a comprehensive list of desired website features (see Supplementary Materials). In particular, both the categories of promoting information (education) and connecting with others (develop communities) could work to complement one another. The website could be used as a platform to provide information regarding sustainable living for the purposes of education, while at the same time, connect like-minded people.

In analyzing the data from both the leadership and contributor interviews, the best way to promote these ideas was through the green calendar and green pages. The calendar drew people back to the website as it was constantly updated with new information that users were interested in seeing. In addition to providing quality information, the calendar was also shown to facilitate human connection by letting



Figure 11. The team presenting the website to members of Eco-Net

people meet together in person. Most of the interviewees stated that the way the calendar could be enhanced was by improving the layout of information and the connectivity aspect of it. Additional features such as being able to follow and track events, as well as exporting events and notifications to other websites such as Facebook would be quite useful.

The other essential component to the website was the green pages. Interviewees thought it was useful in that they were able to find environmentally-friendly products in one area. For example, one particular interviewee described that they were looking for organic food near them, and Grønt Overblik provided the information that they needed. As such, the green pages was found to be the best way to find green products in the user's local area, and was something that, based on the interview responses, no other website in Denmark provided. Interviewees provided several suggestions for improving the green pages to enhance the quality of information and best connect people, all centered on keeping the information "up-to-date so [that] the credibility (of the website) is not lost," as described by one individual.

Additional features that could be implemented include the ability to comment on posts and create threads. One interviewee described a scenario wherein a user could write a blog post, while other users could follow the post and comment on it, allowing them to start a conversation over the posts. This interviewee expressed a desire to share their thoughts with others and even help contribute to the content on the website, rather than simply reading about sustainable living. In this way, featuring a forum on the website would allow people to communicate with each other about different topics in sustainability, with the result of sparking social engagement through the website. As discussed previously, encouraging users to be more engaged with each other through commenting on posts can have a large impact on the number of people who will not only participate on the website but also start implementing the ideas they see into their own lives.

Users also described features that could help

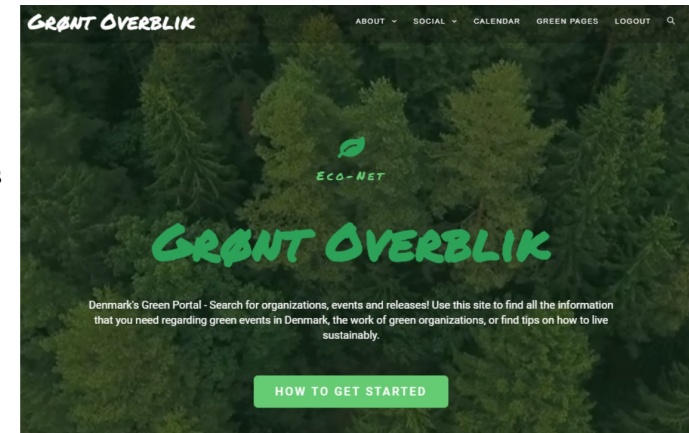


Figure 12. Welcome page of the website

connect people and motivate them to take action towards sustainable development. This included receiving notifications about topics of the user's choice, such as new product releases, as well as talking to other users on the website through direct messaging or in groups. Many comments reflected a desire to add a social media component to the website, or to make the website more like Facebook. As Facebook has a lot of the features that users stated, such as messaging users, creating groups, following topics of interest, and commenting on posts, it was considered important to follow the Facebook model closely in order provide those desired features. Furthermore, because many users stated that they use Facebook as a source of information, it was also considered important to be able to share content from Grønt Overblik on platforms like Facebook in order to maximize the number of people who might see the content.

It was also made clear from the interviews that the library and blog were two aspects of the website that were not commonly used. Most interviewees stated that they were unfamiliar with the content of those sections or that the information was not relevant to them. As such, the team decided that these components should not be featured as heavily on

the website. Archiving some of the information from these sections, especially the library, would allow users looking for specific information to still find the information they wanted without detracting from the experience of other users. Furthermore, a lot of the information from the blog could be added to the social media platform such that blog posts now appear in a user's activity feed.

## Redesigning the Grønt Overblik Website

Drawing from the list of recommended features, a new Grønt Overblik website was prototyped to improve upon the existing layout of the website and provide additional features to the website. These changes were made to improve the information provided on the website while also improving the engagement offered on the website. To accomplish this, several plugins (software that gives additional functionality to an already existing piece of software)

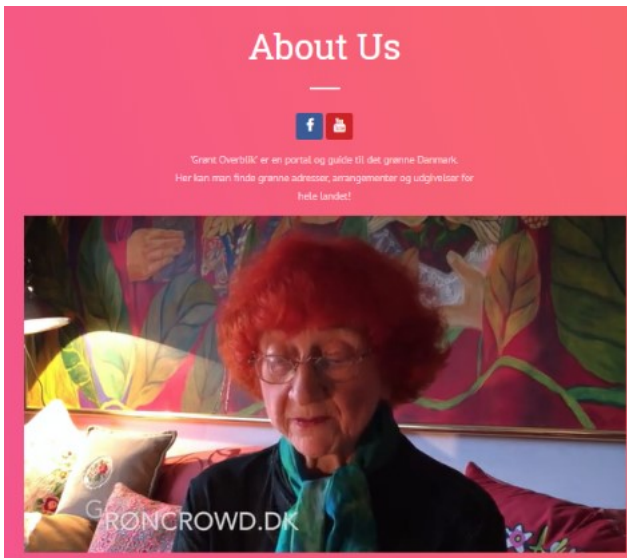


Figure 13. About Us page of website

were identified that could provide most of the features and layout changes to the website (see Supplementary Materials).

The first change was a redesign of the visual layout of the website. Upon first visiting the Grønt Overblik website, users are greeted by a new welcome page which identifies the information and features contained on the website. The top portion of the page includes a brief description of Eco-Net, as well as a large button labeled “How To Get Started,” which was a recommendation by the NGOs and local businesses to provide the users with easy access to information (Figure 12). Upon clicking the button, the user is guided to another page that shows how to get started with sustainable development. Further down, the welcome page includes a description of the green calendar, as well as some additional reasons that users should continue to use the site.

The welcome page removed direct access to the blog, library, and green pages so as not to bombard the user with too much information when first visiting the site. These components were added into tabs at the top of the website that a user could visit if they were interested, shown by Figure 12.

As noted previously, the blog was replaced by the social media functions of the website. This was a major change to the homepage of the website based on the recommendations of many contributors. Additionally, a majority of the text was removed and replaced with a video of an aerial view of a forest (a “green overview”) to give the user a more visually appealing experience (see Figure 7 for the original website and Figure 12 for the updated website).

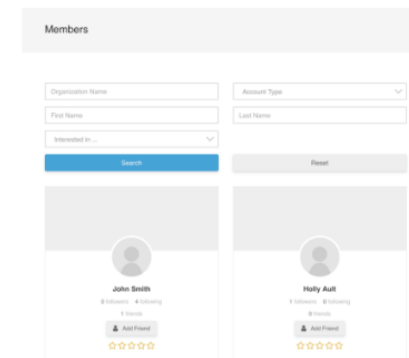
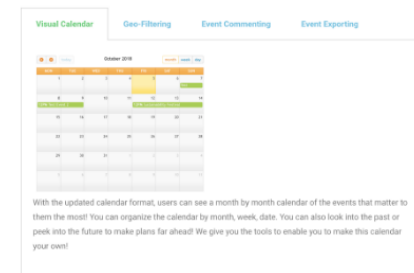
Both the “How To Get Started” page and the “About Us” page were designed in a similar fashion, where the information was kept simple, visually engaging, and easy follow. The “About Us” page provided a way to connect to Eco-Net through the website itself using a direct message, rather than just providing an email or phone number as well as a video explaining Eco-Net and its relation to Grønt Overblik.



## A Calendar Tailored For You

The people asked, and we provided. You wanted an easy to use calendar. One with visual integration, geo-filtering, commenting, and event exporting. Guess what? Its all here!

Find me an event! >



## Search The Green Pages

Search your vast directory to find exactly what you need. With the platform's new filters, you can decide to only search through people or businesses. We've also added a field which lets you filter by interest, so what you are searching for is exactly what you want!

Try it for yourself! >

Figure 14. Components of the “How To Get Started” pages of website

The “How to Get Started” page provided a lot of information about how to use the website as well as a description of the different information that can be found on the website (see Figure 14).

Perhaps the most significant addition to the website was the creation of a social media component, based on the strong desire for users to connect with other people on the website. The social media feature incorporates the green pages directory function in the form of user profiles for both individuals and businesses or organizations (see Figure 15).

The social media function also provides several new capabilities for users. Registered members can comment on all posts and events on the website. Registered members can also interact with each other through friend requests, direct messaging, and the ability to create and join groups. For example, one member could send a message with documents and pictures to another user through a chat room. Registered members can also post their own information and status on the website, create their own forums, add their own events to the calendar, as well as have their own activity feed where they can see the posts and comments of their friends. Those who are not registered with the website are still able to see the

calendar of events and search for public profiles, but are unable to contribute to the website without an account. Furthermore, businesses can also create user profiles that provide the same information as the original Grønt Overblik website, such as the location of the business, but with the added benefit of the features mentioned above.

The user’s profile information allows users to search for others on the website based on specific keywords, as well as allows Eco-Net to provide tailored content to individuals on the website. This assures that the information on the site is relevant to all users, which Eco-Net’s leadership stated was a primary goal. For example, if a user profile specified that they were interested in topics and events in organic farming but not renewable energy, content can be tailored to that user such that they see information in their personal activity feed about organic farming first and not renewable energy.

The last major component added to the website was a redesign of both the green pages and the green calendar. Interviewees indicated that Grønt Overblik already provided the desired functionality on both the calendar and the green pages. The major change to the green pages and green calendar was a

redesign of the layout of information to be made more streamlined and aesthetically pleasing (Figure 16).

In terms of the calendar, much of the added functionality was to improve on the user’s experience. The information is laid out in a visual way on the new website while still providing a list that can be searched. Content provided in the list was simplified to make finding information easier. When accessing individual events, a user is able to not only comment on the event through the social media function, but also to request a booking to events with a size limit. Additionally, the events can now be exported to personal calendars such as Google Calendar, as well as published on social media sites such as Facebook.

The redesigned website should help Eco-Net meet its goals by expanding upon old features and adding new functionality. By incorporating comments and suggestions from both users of the website and third parties such as NGOs, the website should be optimally designed to provide quality information and effectively engage online communities to learn more about sustainable development. Redesigning the layout and aesthetics of the website will make it easier to find the information that people seek, and make the novelty and information on Grønt Overblik very

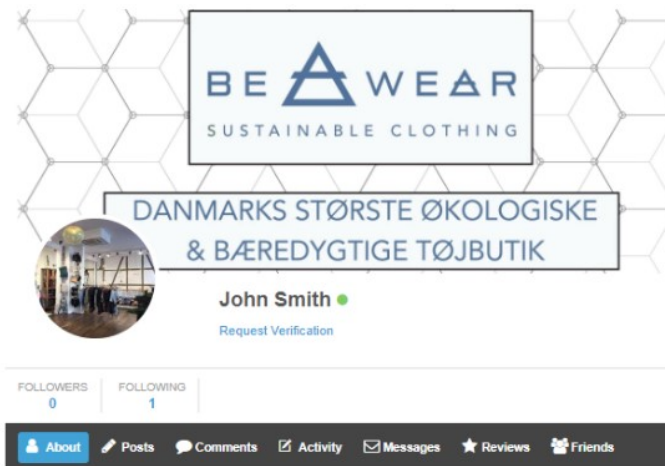


Figure 15. Some of the social media components added to the website



James Hendric

1 followers 0 following

0 friends

Add Friend

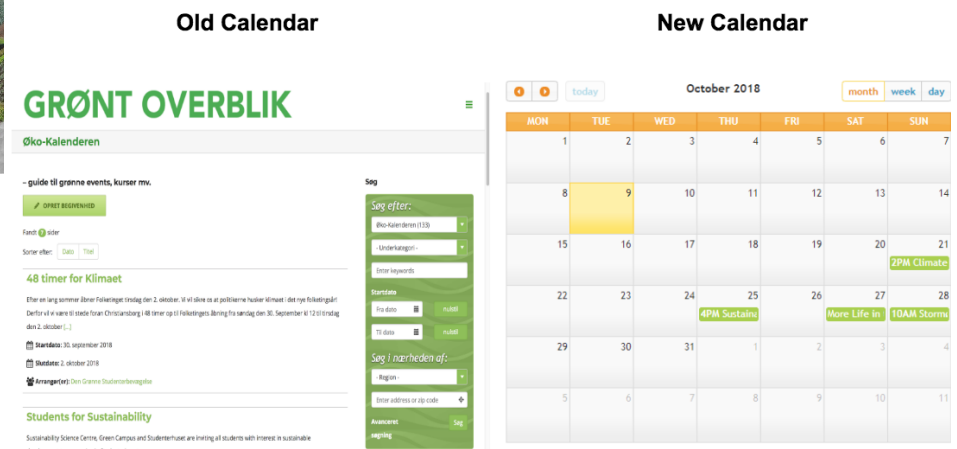


Figure 16. Old versus new calendar design

apparent. Furthermore, the added social media capabilities will allow users to interact with others in new ways that have not yet been done for a green platform in Denmark. By offering a website that meets the needs of its users, Eco-Net can achieve their mission of providing a “green overview” to all of Denmark.

## Recommendations

While the redesigned version of the website incorporates many changes to the original website, it is merely an example of what can be done to improve the effectiveness of Grønt Overblik. This section includes other general recommendations for Eco-Net on how best to maintain, improve, and market their website. For a full list of recommended features for the website, see the Supplemental Materials.

### Future Additions to the Website

Since the research showed that developing communities of people with shared identities was important for improving community engagement, another major addition to the website could be the ability to **form groups**. This new functionality could allow users to invite other people to groups of their creation. Group pages should allow members to send messages and notifications to all other members of the group and post information directly to the feed of users. Another important aspect of groups would be to allow groups to host events on the calendar, thus increasing their engagement with the calendar.

Furthermore, it is recommended to add **groups based on geography**. People who live together in an ecovillage, for example, could be part of a group on Grønt Overblik. Since the website is geared towards developing and improving communities, this would be beneficial as it would help to bring people in these locations closer together, something done by other community-based websites such as Nextdoor.com.

**Featured blog posts that promote the ideals**

**for sustainable development** could be added to the website as well. This could be anything from someone sharing the life story of an individual to a major development Eco-Net wishes to share regarding sustainability. For example, someone who has made the change to living in an ecovillage could be asked to write about their experience, which would then be featured at the top of the activities feed. Many interviewees resonated with the idea of seeing what other people have done to live sustainably. Users can read about stories that they might have a personal connection to and can help motivate them to start or continue living sustainably.

### Maintaining the Website

Eco-Net should **designate at least one person who is responsible for managing the website**. It is important to have this be a dedicated role in Eco-Net, as there is always a need to maintain a dynamic page such as Grønt Overblik. Part of this person's role would be to make sure content is up to date, ensure that users are satisfied with content through surveys, and maintain content so that it is relevant for years to come.

### Marketing the Website

**Green product pages** could be helpful in marketing the use and importance of the green pages. An example of this would be to have a small list of green products at the top of a user's feed based on the interests they have specified on their profile. Highlighting different products in this way shows users different environmentally-friendly products, benefits businesses by giving them more exposure, and shows what the green pages is capable of doing. However, there needs to be a balance between advertising and informing, as how this content is presented could either engage or disengage the user.

**Increase the search engine optimization of the website (SEO)** by improving the descriptions

and flags on the website so that searching for certain topics in Google will cause the website to be ranked higher. Because optimization strategies are very complex, a document detailing some basic principles on SEO can be found in the Supplementary Materials.

Another method for marketing the website would be to **allow information to be imported to and exported from the website**. The NGOs and local businesses the team talked to noted that they would be more interested in using the website if posting information to the website took no additional time. Pushing data from Grønt Overblik to other websites or pulling data from other websites would give people the ability to spread their own information more easily, giving them another reason to participate in the website.

Additionally, the website can be further marketed by **increasing the social media** presence of Grønt Overblik. This can be accomplished in several ways. First, ensure that Eco-Net has an account specifically for Grønt Overblik on all current social media platforms, especially Facebook, Instagram, and Twitter. Eco-Net can constantly update these accounts with information from and about Grønt Overblik. For example, green events that are on the website could also be posted on social media, which would utilize the pushing feature mentioned previously. Moreover, it is important to add a lot of visual information such as pictures to these social media posts, as studies have shown that the visual component to information increases viewers' comprehension and retention.<sup>37, 38</sup>

**Referrals based on the connections and friendships** of users can also work well to further expand the website.<sup>39, 40</sup> Typically, some kind of reward or benefit is provided to users who recommend a certain number of individuals that then register. This reward acts as an incentive to get other people to use the site. A starting point for Eco-Net might be to ask businesses to provide referrals, and if they refer a certain number of people who then become registered users, Eco-Net will feature the organization at the top of the green pages directory. In



essence, Eco-Net will be providing the incentive of advertising for businesses.

When pitching the website to others, it is important to **highlight the novelty of its features**. Grønt Overblik is not just a source of information but also a place for people to connect and interact. Most interviewees stated that the information found on the website was information that was hard, if not impossible, to find through Google. Furthermore, there is no other green calendar in Denmark that provides the range of events that Eco-Net currently has. When explaining the website to other people such as officials in the municipalities or other organizations, it is important to emphasize what makes Grønt Overblik unique, namely that it is a useful tool that provides features and information specific to Denmark that is not found elsewhere on the web. It is not just a source of information, but a way to connect with other people over that information. It is not just a website, but an online community.



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Thank you so much to Lars and our advisors for this truly life-changing experience, and we hope that through our work in helping Eco-Net, we can help the world get their own green overview.



## References

1. Community United Nations. (1987). Our Common Future: Report of the World Commission on ... Retrieved from <http://www.un-documents.net/our-common-future.pdf>
2. Head, Brian W. (2007) Community Engagement: Participation on Whose Terms?, Australian Journal of Political Science, 42:3, 441-454, DOI: 10.1080/10361140701513570
3. Robinson, L., & Phillips, J. (2016, March 30). What Motivates Citizens to Participate. Retrieved from <https://digitalpublicsquare.com/media/DPS-Motivational-Reportv9.pdf>
4. Dubow, T., Devaux, A., & Manville, C. (2017, August 07). Civic Engagement. Retrieved from <https://www.rand.org/pubs/perspectives/PE253.html>
5. World Wildlife Foundation (Ed.). (2014). Living planet report (Rep.). Retrieved, from [http://assets.worldwildlife.org/publications/723/files/original/WWF-LPR2014-low\\_res.pdf?1413912230](http://assets.worldwildlife.org/publications/723/files/original/WWF-LPR2014-low_res.pdf?1413912230)
6. Eco-net.dk - Forside | ØKO-NET. (n.d.). Retrieved from <https://eco-net.dk>
7. Centers for Disease Control and Prevention. Principles of community engagement (1st ed.). Atlanta (GA): CDC/ATSDR Committee on Community Engagement; 1997.
8. Shore N. (2006). Re-conceptualizing the Belmont Report: a community-based participatory research perspective. Journal of Community Practice;14(4):5-26.
9. Centers for Disease Control and Prevention. Principles of community engagement (1st ed.). Atlanta (GA): CDC/ATSDR Committee on Community Engagement; 2011.
10. Howard-Grabman, L., Miltenburg, A. S., Marston, C., & Portela, A. (2017, August 31). Factors affecting effective community participation. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5577661/>
11. Huysman, M., & Wulf, V. (2004). Social capital and information technology. Cambridge, MA: MIT Press.
12. Kilewo, E. G., & Frumence, G. (2015). Factors that hinder community participation. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4452651/>
13. Queensland Government. (n.d.). Community Engagement Techniques. Retrieved from [https://www.health.qld.gov.au/\\_\\_data/assets/pdf\\_file/0029/425576/33487.pdf](https://www.health.qld.gov.au/__data/assets/pdf_file/0029/425576/33487.pdf)
14. Molyneux, S., Martin, A., & Goodman, C. (2012, January 25). Community accountability at peripheral health facilities: A review of the empirical literature and development of a conceptual framework | Health Policy and Planning | Oxford Academic. Retrieved from <https://academic.oup.com/heapol/article/27/7/541/629205>
15. Streeter, R. (2018, July 3). What Motivates People to Participate in Civil Society? Retrieved from [https://ssir.org/articles/entry/what\\_motivates\\_people\\_to\\_participate\\_in\\_civil\\_society](https://ssir.org/articles/entry/what_motivates_people_to_participate_in_civil_society)
16. Community Tool Box. (2018). Developing a Plan for Assessing Local Needs and Resources. Retrieved from <https://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/develop-a-plan/main>
17. Lofland, L. (1991). History, the city and the interactionist: Anselm Strauss, city imagery, and urban sociology. Symbolic Interaction 14, 205-223.
18. Cuba, L., Hummon, D., 1993. A place to call home: identification with dwelling, community, and region. Socio. Q. 34, 111-131.
19. Wiesenfeld, E. (1996). The concept of "we": a community social psychology myth? J. Community Psych. 24, 337-345.
20. Greider, T., ISrannich, R., Berry, E., 1991. Local identity, solidarity, and trust in changing rural communities. Sociological Focus 24, 263-282.
21. Linde, C. (1993). Life Stories: The Creation of Coherence. Oxford University Press, NY.
22. Dam, L. (2015, August 07). The functionality of personal pronouns in constructions of communities. Retrieved from [http://vbn.aau.dk/en/publications/the-functionality-of-personal-pronouns-in-constructions-of-communities\(522d8bd2-b1c3-4b80-b749-4906f655522c\)/export.html](http://vbn.aau.dk/en/publications/the-functionality-of-personal-pronouns-in-constructions-of-communities(522d8bd2-b1c3-4b80-b749-4906f655522c)/export.html)
23. Heath, C., & Heath, D. (2006). Made to stick: Why some ideas survive and others die. New York: Random House.
24. McClure, T., & Spence, R. (2006). Don't Mess with Texas: The Story Behind the Legend. Idea City Press.
25. Adler, S., Fischer, G., & McFarlane, N. (2017, October 25). Technology Is Key to Local Citizen Engagement. Retrieved from <http://www.govtech.com/opinion/Technology-Is-Key-to-Local-Citizen-Engagement.html>
26. World Bank. (2018, September 17). Community-Driven Development. Retrieved from <https://www.worldbank.org/en/topic/communitydrivendevelopment>
27. Nichols, R. (2010, September 20). Neighborhood Watch Goes Digital in Ramsey County, Minn. Retrieved from <http://www.govtech.com/public-safety/Ramsey-County-Minn-Neighborhood-eWatch.html>
28. Smith, A. (2014, February 18). Civic Engagement in the Digital Age | Pew Research Center. Retrieved from <http://www.pewinternet.org/2013/04/25/civic-engagement-in-the-digital-age/>
29. Yearwood, J., & Stranieri, A. (2012, January 01). Approaches for Community Decision Making

and Collective Reasoning: Knowledge Technology Support. Retrieved from <https://www.igi-global.com/book/approaches-community-decision-making-collective/62629>

30. Ramey, K. (2013, March 14). The Role of Technology in Decision Making. Retrieved from <https://www.useoftechnology.com/role-technology-decision-making/>

31. Springtide-Make Democracy Better. (2017). Retrieved from <https://ethelo.org/campaign/make-democracy-better/>

32. Nadkarni, A., & Hofmann, S. G. (2011, November 26). Why do people use Facebook? Retrieved from <https://www.sciencedirect.com/science/article/pii/S0191886911005149>

33. Harris, K., & McCabe, A. (2017, January). Community Action and Social Media: A Review of Literature.

34. McCarthy, K. (2017, August 02). 6 major benefits of online support groups. Retrieved from <https://www.nuemd.com/news/2017/08/02/6-major-benefits-online-support-groups>

35. Wenger, E., Smith, J. D., & White, N. (2009). Digital habitats: Stewarding technology for communities. Portland, Or.: CPsquare.

36. Downes, P. E. (2015). Social contexts and motivation: The role of upward and downward comparisons. Retrieved from <https://ir.uiowa.edu/cgi/viewcontent.cgi?article=7216&context=etd>

37. Crestodina, A. (2015, June 07). Best Practices for Adding Great Pictures To Every Post. Retrieved from <https://www.orbitmedia.com/blog/blog-image-best-practices/>

38. Patel, N. (2018, April 6). How to Use Visual Elements to Enhance Your Blog Post's Engagement. Retrieved from <https://www.quicksprout.com/2018/04/06/how-to-use-visual-elements-to-enhance-your-blog-posts-engagement/>

39. Patel, N. (2018, July 10). How to Increase Your Referral Traffic by 77% in 90 Days. Retrieved from <https://neilpatel.com/blog/how-to-increase-referral-traffic-to-your-site-by-77-in-90-days/>

40. Kiel, M. (2016, September 22). How To Increase Referral Traffic And Get More Leads. Retrieved from <https://blog.hubspot.com/marketing/how-to-increase-referral-traffic-and-get-more-leads>

Supplemental materials for this project can be found at:

[wpicpc.org](http://wpicpc.org)

