Reimagining Systems
Seven Strategies for a Sustainable Future
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Introduction

Trade, technological development and economic progress have connected us, increased equality and lifted millions from poverty. By many measures, no generation in history has enjoyed this level of opportunity.

However, this breakneck economic growth is increasingly threatening the habitability of our own planet. Seemingly every day, urgent climate reports hit the presses. The Intergovernmental Panel on Climate Change tells us that we have fewer than 12 years to limit global warming to 1.5°C, the level at which our environment can avoid the worst effects of frequent extreme weather events and reduce the risk of suffering irreparable ecological damage.

Despite these warnings, carbon emissions continue to peak each year. As our global neighbours seek to enjoy the same standard of living that many of us are accustomed to, consumption only grows. April 4th marked Sweden’s Earth Overshoot Day for 2018, the day in which humans have consumed more natural resources than can be regenerated by earth’s systems in an entire year. This is the earliest Overshoot Day yet.

Earth’s population is expected to reach nearly 10 billion by 2050. Our existing economic and social systems are influenced by industrial development and consumption. They have helped increase the health and wellbeing of millions over the last century, but they must change drastically to allow humanity to step forward into the next century.

Though these challenges are dire, our first important steps to remedy them are clear. Disciplined research and technological developments are rapidly showing us new and innovative ways to do business efficiently while providing for the needs of all. We are quickly learning that we can profit and develop while renewing and refreshing, instead of just by extracting and exhausting. Passionate and talented citizens are tirelessly revitalising our regulatory and social systems to reflect these changes. These revelations are prerequisites for securing the type of future that allows succeeding generations to live healthy and rewarding lives. But unless we accelerate this societal and systemic shift and deliver the technical progress to underpin it, we may miss our last best chance.

At the International Institute for Industrial Environmental Economics (IIIEE), we are pursuing these solutions. Established in 1994 by a decision of the Swedish Parliament, the IIIEE’s vision is “to advance strategies for sustainable solutions through cutting edge interdisciplinary research, high quality innovative education, and effective communication and strong partnerships.”

This commitment brings us into contact with the firms and organisations making business and regulatory decisions which affect our common future. To develop and implement solutions which work for everyone, this close coordination, mutual understanding, and pragmatic dedication to continual progress is necessary.
This commitment sent us around the world to learn from and advise organisations grappling with these challenges. The Strategic Environmental Development (SED) course provided the opportunity to apply our learnings to this important mission and begin nudging systems toward more modern and less environmentally negative outcomes.

Some of us ventured to India to evaluate new business models and behaviour change opportunities in electronic waste recycling within extended producer responsibility schemes. In Karlstad, Sweden, we explored methods by which medium-sized cities can use the sharing economy to reimagine value generation in traditional economic systems. Our Stockholm team advised the city’s electricity distribution operator on grid modernisation strategies and business models which incentivise changes in electricity consumption. The Vienna team brought new perspectives and a clear framework for cleantech development in the developing world. Our colleagues in London helped evaluate and advise ambitious initiatives to reshape global sustainable finance systems. Team Slovenia promoted sustainable tourism and development initiatives with municipal leaders. The Portugal group helped wine producers comply with and succeed under changing European Union agricultural regulations.

In each of these projects, we worked closely with stakeholders to understand complicated and dynamic environmental issues and the underlying cultural and structural influences. We conducted interviews with academics, practitioners, citizens and business and municipal leaders to understand risks and benefits. We evaluated possible courses of action and advised interested parties on our conclusions. While we left behind plans for improvement, we take with us the lessons and experiences necessary to more effectively tackle these global challenges in our future careers.

Though the magnitude of these problems can be discouraging, our studies and experiences remind us that there are always solutions available to those who seek them. The problems are large, but so is our collective ability to rectify them.

For more information about our projects and findings, please read further. We hope you will join us in this pressing commitment to practical, systemic and cooperative sustainability improvements.

Thank you.

Written by Thomas Hallman on behalf of the master’s students of Batch 24 of the International Institute for Industrial Environmental Economics.
Alentejo, Portugal
Acknowledgements

A big thanks to the IIIIE for coordinating such a meaningful project and providing us with the hands on experience of sustainable consulting. We would like to thank CVRA for giving us the opportunity to learn about the viticulture sector and experience the beautiful country of Portugal. We would especially like to thank João for taking the time to coordinate all of our interviews and showing us the Portuguese landscape and cuisine. We appreciate your advice throughout the project and treating us to your region’s incredible wine. Special thanks to Åke for motivating us to produce our best work. We are also extremely grateful for your dedication to finding us pine nuts. We would also like to thank all of the people we interviewed for taking the time to speak with us and give us important insights, which were essential to our findings.

The Team

Robin Memelink is from Wehl, Netherlands. His background includes an undergraduate degree in Business Administration with a speciality in Logistics and Supply Chain Management and he worked for a couple years in environmental management. He is passionate for environmental management and policy, contemporary transportation issues, virtual water and water scarcity, as well as biodiversity with a specific fascination for biodiversity in urban environments.

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Madison Wright is from Seattle Washington in the USA. She attended the University of Washington with a degree in political science and minored in law and international studies. Madison has worked on promoting sustainable agricultural practices through education and as a program coordinator for a food cooperative. She is most passionate about food waste mitigation strategies and sustainable agricultural practices.

Edward Dickinson is from Durham, UK. He received his undergraduate degree in Economics from the University of Manchester. He is a qualified accountant (ACA, ICAEW) and has worked as a journalist, auditor and a forensic investigator before joining the EMP Program. Edward is interested in multiple sectors (urban governance, transport, wind power, water scarcity, business innovation) but ultimately is driven by the desire for sustainable solutions to implemented more rapidly and widely.
Prepared for the New CAP

Performance Monitoring as a Tool Towards CAP Compliance in the Viticulture Sector

By Edward Dickinson, Ásta Maack, Robin Memelink, Madison Wright

Introduction

Our client, the Alentejo Regional Winegrowing Commission or the Comissão Vitivinícola Regional Alentejana (CVRA), was founded in 1989 as a private institution dedicated to certifying, controlling and protecting the Alentejo designation of origin and Alentejo protected geographical Indicator wines. CVRA is also responsible for the promotion of Alentejo wines within Portugal as well as in international markets [1].

PSVA

CVRA established the Wines of Alentejo Sustainability Programme (PSVA) in 2015. PSVA aims to improve the sustainability of the viticulture of the Alentejo region. The framework consists of 18 chapters with a total of 171 criteria, each covering a specific element of sustainable viticulture production. PSVA offers a structured points system with four levels, ranging from low (1) to high (4) sustainable performance, where producers can evaluate their progress. Producers measure their progress by establishing a baseline and pursue continuous improvement. As of April 2019, the programme has over 325 members, totaling almost 7900 hectares of vineyards and producing 72 million litres of wine per year [2].

EU CAP

The current European Union (EU) Common Agricultural Policy (CAP) aims to ensure “food security, safety and quality in Europe” [3]. Since its debut in 1962, the EU has altered the CAP periodically to reflect the changing needs and rising challenges facing Europe. In 2017 the European Commission conducted a consultation with EU citizens on the functioning of the current CAP [4]. The findings highlighted a specific focus on protecting farmers wages, as well as drawing attention to protecting the environment and climate [4]. On June 1st 2018, a proposal for a new CAP was published with an enhanced focus on the environment and climate [5]. The new CAP is set to be introduced in 2021 and aims to promote results-based techniques until 2027. It focuses on more flexibility than the current CAP for each Member State to
implement their own agendas by incorporating a mixture of voluntary and mandatory measures [4].

Objectives
After consulting with João Barroso, the coordinator of CVRA, five main objectives were set for this project:

1. Acquire in-depth knowledge of CAP;
2. Evaluate and align PSVA with current and future EU CAP requirements;
3. Gather insights, concerns and views of relevant stakeholders;
4. Identify ways to aid PSVA in helping the Portuguese wine sector in general, and in Alentejo in particular, to achieve the successful implementation of CAP; and
5. Contribute to attempts to inform the Institute of Wine and Vine (IVV) and the Portuguese government [6].

Methods
In preparation for the task a literature review was conducted to gather relevant information on the current and future CAP, PSVA and background information on our interviewees. This helped inform our understanding of the viticulture industry in Alentejo and the compatibility of the new CAP to PSVA. We analysed the new CAP proposal 2021-2027, PSVA internal reports, policy documents and audit reports from the EU Commission, presentations and publications of CAP specialists, reviews by think-tanks and commentary from leading academics.

A variety of stakeholders were consulted to provide important insights into the sustainability aspects of the viticulture industry within Portugal. In total, 17 semi-structured interviews were conducted with 23 interviewees in Portugal, including producers, governmental bodies, regulators, policy makers, academics, regional development agencies, consultants and research institutes. We identified five overarching themes as outlined in Section 5 of the report. Please note that the term “farmers” and “producers” are used interchangeably throughout this report.

Limitations
A number of limitations have been identified. Firstly, given the unavailability of some stakeholders, some perspectives may have been unintentionally excluded from this report.

Secondly, regional viticulture experts informed us to be conscious of the sample of people interviewed, as they determined that the producers we interviewed were amongst the top performers with respect to sustainability [7]. Our interviewees were selected by CVRA on our behalf, with many interviews attended by João Barroso. Therefore, we are aware that our findings may not represent the entire range of producers in Alentejo in particular and Portugal over all.

Third, the high level of uncertainty regarding the new CAP meant that several interviewees expressed their limited or absent knowledge on what the new CAP will likely entail. This uncertainty constrained the quality of insights our interviews were able to produce.

Lastly, the scope of this project, focussing on sustainability and performance measurement within Alentejo, possibly excludes region specific elements of other wine growing regions in Portugal.
1. The New CAP Proposal

The new CAP proposal covers nine key objectives, including the environmental protection and rural development [5]. The new CAP proposal promotes results-based techniques, claiming to have an improved focus on the environment [5]. Figure 1 illustrates key features of the new CAP proposal. Although the structure is similar there are some key changes, including a budget decrease, shifting funding structures, adding enhanced conditionality and strengthening farm advisory services.

The following sections will describe the new structure of the CAP proposed for 2021 highlighting the mixture of voluntary and mandatory measures.

1.1 Strategic Plan

Each Member State is required to complete a Strategic Plan which informs the EU on how they intend to use CAP funds to accomplish achievable yet ambitious goals within the agriculture sector. The EU Commission reviews and approves each Strategic Plan to ensure that they align with the objectives of CAP. A Member State’s Strategic Plan must adhere to nine requirements outlined in the new CAP proposal, as well as covering matters such as financing, interventions and targets [3]. The plan employs the principle of subsidiarity allowing greater flexibility to Member States. The interview with Gabinete de Planeamento, Políticas e Administração Geral (GPP) or General Administration for Agriculture, Forestry and Rural Development, confirmed that Portugal’s Strategic Plan is at the early stages of development [8].

1.2 Performance Monitoring and Evaluation Frameworks

In order to facilitate the reporting, monitoring and evaluation of the implementation of the Strategic Plan, member states are required to establish a Performance Monitoring and Evaluation Framework (PMEF) [3]. The performance framework shall include:

- A set of common contexts, output, result and impact indicators;
- Targets;
- Data collection, storage and transmission;
- Regular reporting on performance, monitoring and evaluation activities; and

1.3 Enhanced Conditionality

Enhanced conditionality, a new term replacing “cross compliance” in the current CAP, seeks to strengthen the baseline environmental criteria that must be met before funding can be obtained. Enhanced conditionality has two main components; Statutory Management Requirements (SMR) and Good Agriculture and Environmental Conditions (GAEC). Farmers within Member States must meet SMR and GAEC standards to receive payments within CAP [9]. Examples of areas covered by SMR and GAEC include; environment, climate change and the good agricultural condition of land. In total there
are 16 SMRs and 10 GAEC standards in the proposed new CAP.

1.4 Pillar I & II
Beyond the enhanced conditionality criteria, Member States are required to determine and communicate how funds will be allocated between Pillar I and II. Pillar I consists of annual direct payments to farmers and eco-schemes, whilst Pillar II is dedicated to rural development, Agri-Environmental Climate Measures (AECM) and co-financing, aimed at farmers and other beneficiaries [10].

1.5 Eco-schemes
Eco-schemes will be introduced in the new CAP as a new form of funding under Pillar I dedicated to supporting short-term environmental and climate initiatives. It is up to the discretion of Member States on how to achieve targets while farmers participation is voluntary. The intention of a voluntary approach is to encourage participation and incentivise going beyond compliance [5]. Eco-schemes are specifically targeted at farmers and are not co-funded by Member States [5].

A critical issue is that, at the time of writing, there remains insufficient detail as to what types of schemes would qualify for eco-scheme funding. Also, no conclusion has been reached as to whether the Pillar I budget for eco-schemes will be ring-fenced [11].

1.6 Agri-Environmental-Climate-Measures (AECMs)
AECMs are longer-term environmental projects which have been called “by far the most important measure...for achieving environmental and climate outcomes, supported by knowledge transfer and cooperation” [11]. AECMs are part of the current CAP, however it has been found that with some of the relevant schemes there has been a lack of environmental ambition by countries, as states seek low-cost schemes for which a higher number of farmers can qualify [11]. Article 65 of the new CAP proposal, states that recipients of funds can include farmers and other beneficiaries, as long as they are able to demonstrate that their commitments will contribute to the nine overarching EU objectives [5]. Furthermore, these commitments must go beyond the criteria stipulated for enhanced conditionality and are anticipated to cover five to seven-year periods. Member States are expected to provide access to knowledge and information to help relevant persons to carry out such commitments [3].

1.7 Farm Advisory Services
The current CAP has an obligation for Member States to set up a Farm Advisory System to provide Farm Advisory Services (FAS) to help “farmers to better understand and meet the EU rules for environment...and the GAEC” [12]. A European Commission in 2010 report found that FAS are “an essential tool for a successful implementation of the CAP” [13]. The new CAP proposal explicitly calls for FAS to be “strengthened” and for strategic plans to outline how advisory services will work with research and rural networks [3].

2. Available Funding
Scenario for the Wine Sector
The European Court of Auditors has expressed their concern as to the ability of the new CAP to accomplish its enhanced environmental intentions [14]. In February 2019, the Environmental Committee of the European Parliament voted in favour of measures aimed at improving the
environmental and climate focus of the new CAP proposal. They called for an increase in Pillar II funds and ring-fencing of the budget for eco-schemes in Pillar I [15]. Whilst the CAP proposal for 2021-2027 is still under development and liable to change, an analysis has been performed of the provisional budget allocation per Member State [3].

The following scenario [Figure 2] provides a rough indication of the funds to be allocated to the Portuguese viticultural sector for the period 2021-2027 under the new CAP [3].

3. A small share of Pillar II funding is specifically dedicated to support and attract young Portuguese farmers [3].
4. The new CAP dedicates a specific part of the budget to the viticulture sector [3].
5. The estimated €1.2 billion budgeted for the Portuguese wine sector is based on the share of vineyard hectares of the total arable and permanent crop agricultural area (11%) plus the total wine specific fund [16].
6. The Alentejo region covers 21.861 hectares, or 11% of the total area of Portugal. This is equivalent to an estimated €138 million of funding.

3. Comparing CAP and PSVA Criteria

The new enhanced conditionality criteria of the new CAP proposal, comprised of 16 SMRs and 10 GAEC, was compared with the 18 chapters in the PSVA to determine its compatibility with CAP requirements [3]. It is important for PSVA to market their service with the understanding that it aligns with EU regulation and helps producers navigate the complexity of the new CAP requirements.

Each chapter within PSVA was matched with a corresponding theme, if found within the SMR and GAEC categories, to identify if the PSVA is in compliance with EU CAP enhanced conditionality section. The findings revealed that the PSVA had no instances of non-compliance and 11 of the 18 chapters are beyond the compliance.

This methodology only focused on the new CAP proposal. This comparison did not include investigating current CAP criteria or other national regulations outside the CAP that could apply to the other 11 chapters of the PSVA demonstrating beyond compliance. Another key finding is that half
of the SMRs do not apply to the viticulture sector due to the focus on registration of animals, animal diseases and animal welfare [3]. Our findings indicate that PSVA covers all areas expressed in the mandatory enhanced conditionality criteria of the CAP proposal. However, PSVA incorporates other components of the CAP besides the elements described in enhanced conditionality as it helps producers identify and prioritise environmental objectives. Despite the assurance that PSVA covers the elements of CAP, it is still up to the members of PSVA to ensure adequate compliance.

4. Sustainability Concerns of the Viticulture Sector

In their interview Direção-Geral de Agricultura e Desenvolvimento Rural (DGADR) identified key qualities that a prospective eco-scheme should have [17]:

1. Quantify the effects of the intervention;
2. Demonstrate causation between the intervention and the results claimed; and
3. Establish a baseline against which to score producer performance.

Furthermore, DGADR stated that in their view, eco-schemes will need to be regional in nature and that time is running out to define eco-schemes in the Portuguese context [17].

It is apparent that there is current uncertainty as to what types of eco-schemes and AECMs will qualify for funding under the new CAP, suitable schemes will need to be identified by policy makers in Portugal. As such, the decision was taken to ask all interviewees what they considered to be the most pressing sustainability issues in the Alentejo region and Portugal.

In total, 38 unique sustainability issues were identified. These issues were then categorised by sustainability aspect (e.g. water, soil etc), with 16 categories identified.

Water issues dominate, with 15 of the 17 interviewees identifying them as a priority. The most common issues raised concerned water scarcity, the need for water efficiency and irrigation. Concerns regarding soil (10 out of 17) and personnel (6 out of 17), were the second and third most common sustainability issues identified.

If the allocation of sustainability-related funds within the new CAP reflect the concerns of the viticulture sector, we can expect there to be a focus on eco-scheme and AECM projects which address water, soil and personnel.

5. Key Issues Raised by Interviewees

5.1 Cooperation and Collaboration

A recurring theme from the interviews was the degree of collaboration and cooperation within the sector. However, the patterns within these messages were somewhat conflicting. There was to be a wide recognition of the difficulty to advance sustainability in the Portuguese viticulture sector amongst both organisations and producers. Many producers expressed a desire for best practices to be utilised and shared more widely. To help each other and avoid duplication of effort, but also to effectively build on each other’s ideas and advance the sector as a whole. Interviewees shared their experience of competitiveness within and amongst regions, as well as conflicting opinions with regards to how to develop the sector. It was claimed that some producers tend to operate in isolation. On
the other hand, good levels of cooperation and collaboration appears to occur amongst organisations and authorities. Overall, it was stated that trust plays a key role. It seems to be hard to get producers engaged, but when established, they generally are fully committed.

Another identified pattern is the behaviour of producers copying each other. Regardless of whether a producer is willing to collaborate or not, they generally observe what works for others and seem to follow their lead. This flags the importance of the role of leaders in the sector, who can be identified to lead by example and effectively influence their region. Several interviewees highlighted the importance of seeing how sustainable improvements or initiatives work in practice by means of allowing farm visits.

Sustainability programmes like PSVA appear well-positioned to foster cooperation and collaboration in the viticulture sector, as a number of farmers highlighted how it helps build trust, promotes sharing amongst producers and cooperation with other organisations.

5.2 Training and Farm Advisory Services

Overall, the interviews highlighted a growing need to support producers by promoting knowledge transfer. It was mentioned by several interviewees that it can be difficult for farmers to understand where to find relevant data and as such, guidance should be improved to help navigate an otherwise complex area [18]. The interview with INIAV (Instituto Nacional de Investigação Agrária e Veterinária) revealed that sometimes the problem is not necessarily stemming from a lack of information but from the means of communication [19]. Interviewees commonly shared the need for improved FAS to optimise the spreading of information from researchers and government officials to producers. Portugal’s Environmental Protection Agency (APA) identified a number of areas where FAS could be improved, specifically by providing farmers with the tools to use fertilisers more effectively, plant protection strategies, warning systems and promoting a more sustainable use of pesticide [20]. Consulai, an agricultural consultancy firm, communicated a limited transfer of knowledge between the government and farmers [21]. They highlighted the need for the private sector to provide FAS to better equip producers for adopting sustainable practices. In their interview, GPP acknowledged that significant work needs to be done to improve FAS currently provided. This was echoed by the Instituto dos Vinhos do Douro e Porto (IVDP), who also described how the existing services needed to be enhanced [22] [23].

The previous President of CVRA explained that producers need to be supported in order to determine where they need to improve and make the process less overwhelming to keep them engaged with the PSVA programme [24].

Given the increasing demands on farmers time, and the complexity of the system of data and funding that exists, there appears to be a strong need for resources or programmes like PSVA which can provide a single contact point where multiple data and knowledge sources are translated into simple, applied actions and plans.

5.3 Sustainability and profitability

In seeking to explain why more producers were not registering for sustainability
reporting in greater numbers, a number of interviewees cited a common perception amongst producers that sustainability and profitability are not normally aligned. It was claimed that some producers see sustainability in terms of additional time and investment required (i.e. additional costs), without consideration of subsequent benefits [18].

This contrasts with the experience of those members of the PSVA programme interviewed, who saw sustainability as a way to improve or preserve profits, through the identification of the potential for improved practices and thus resource savings (e.g. by identifying ways to reduce water use). In addition, the head of Research at Sogrape argued that sustainability can be a product differentiator for Portuguese wines in domestic and export markets [25]. Therefore, sustainability was identified by interviewees as a means to both reduce costs and improve revenues. This explanation is particularly relevant because a majority of producers interviewed claimed that other farmers are primarily motivated by financial considerations.

CVRA and other organisations seeking to promote sustainability practices should look to amplify the positive experiences of producers when communicating with more sceptical producers and organisations.

5.4 Research and Timelines

There is a discrepancy in timelines between research projects sought by those in the research sector and the funding periods stated in the new CAP. Research timelines often spans decades or more e.g. for researching new varieties of grapes [26]. In contrast, the new CAP only covers a seven-year period. Such a restricted timeline may make it difficult for scientists to pursue certain projects, especially considering the shifting priorities of each new proposed CAP. Constantly changing policies, and a reliance on short-term funding, creates uncertainty for future research and could be problematic when producers rely more heavily on crops that are more resilient to the negative outputs of climate change.

Another component of research that became relevant during the interviews was the concept of digitalisation and how helpful it can be when combating the urgent timelines of climate change. Instituto dos Vinhos do Douro e Porto, identified digitalisation as key to the success of the industry, while others found it to be relevant, but not a priority (see section 4). An argument against digitalisation was the fact that it may depend on a younger generation of farmers, who may take years or decades to assume ownership. Climate change is causing droughts and perpetuating the rise of diseases and pests in the present day. Instead of waiting for a younger generation, policy makers and stakeholders need to propose solutions which enable the current generation of farmers to act in addressing sustainability problems.

5.5 Performance Monitoring and Evaluation

Interviewees were asked about their experiences in the PSVA programme and overall reacted positively. They praised the practice of monitoring and evaluating performance. It appears that PSVA has helped achieved a rebalancing of producer priorities by offering a programme suited to the needs of producers. Interviewees commonly said that a performance measuring framework delivers structure
and highlights focus areas, where producer awareness regarding sustainable improvement would otherwise be vague or general. Additionally, they expressed the need for a simple process with a focus on low hanging fruits to engage producers and attract participation. The framework allows for standardisation of performance measurement and benchmarking against other producers. Quantifying results into scores which enable comparisons amongst producers helps improvements to be identified. Such simplification is likely to drive continuous improvement, as producers are motivated to increase their score.

Theoretically, establishing a performance monitoring and evaluation framework could contribute towards regional or national objectives by allowing the alignment of producer day-to-day operations with their objectives. However, we have not tested this theory.

Some interviewees highlighted a lack of performance validation as well as easy cheating options with regards to evidencing environmental legislative compliance. Others highlighted the high possibility of Member States ensuring their compliance, by choosing less ambitious, simpler criteria of which they are confident in measuring. A performance management framework enables producers themselves to manage performance based on a wide range of criteria. It also provides incentives to producers instead of sanctioning. By aligning producer outcomes with sustainable performance (i.e. as sustainability improves, so does profitability) and by not offering direct, external incentives, sustainability programmes like PSVA may help to reduce the incentive to report erroneous metrics.

The monitoring and evaluation framework can be applied to measure sustainable performance on a producer, regional as well as national level. The framework is flexible in the sense that it can be adapted to meet changing or region-specific requirements. This matches with the expressed wishes of some interviewees for a comprehensive understanding of the regional situation to ensure adapted and suitable sustainable recommendations.

6. Future Areas of Focus for CVRA and PSVA

Our work has identified a number of areas for CVRA to focus on with respect to the new proposed CAP, PSVA and trends in the wider viticulture sector. Firstly, it is apparent that FAS currently provided in the agriculture sector need to be improved and that private organisations like Comissão Vitivinícola Regional (CVR) are in the position to provide these services. CVRA should explore opportunities to provide such direct or collaborative services in the Alentejo region, particularly given that Pillar II funding is available for “other beneficiaries”, which might include CVRs. Also, via the PSVA, CVRA can already demonstrate experience of having already provided similar services.

Secondly, it is clear that PSVA is well-regarded by organisations in the viticulture sector. A representative from IVDP [23] is enthusiastic about having a similar tool for the Douro region, INIAV sees potential for such a tool being used in other regions, after adjustments for local factors [19], and the APA stated they are in favour of tools like PSVA, which promote best practice [20]. We understand that CVRA is already in the process of trying to promote the adoption and implementation of PSVA, or similar
sustainability programmes, within Portugal. However, we understand that the interest expressed by organisations within the sector has not yet translated into action. We encourage CVRA to continue this work and seek stronger support from other organisations to share the task of promoting sustainability programmes, as our research suggests that there is support within the sector for such programmes.

Thirdly, climate change is driving the need for research within the viticulture sector. Given the complexity in accessing CAP funding, combined with the mismatch between research timelines and funding periods, there is scope for CVRs to initiate and coordinate research on behalf of its members. A programme like PSVA provides a good starting point to identify producer needs and suitable test areas, to accumulate baseline data and for sharing of knowledge acquired from research activities. Furthermore, the strong reputation of PSVA might help attract research partners.

Finally, whilst our report has identified that PSVA appears to address all of the enhanced conditionality criteria of the proposed new CAP, there is scope to update PSVA to update social sustainability criteria. A number of Alentejo-based interviewees identified personnel problems as a key concern, whilst other interviewees have provided examples of strong social sustainability practices. These include employing personnel on full-time contracts (as opposed to seasonal contracts), lunch breaks with food and seating provided for manual workers [27], earlier payment of suppliers, and work-life-balance policies in-line with the Spanish ‘Empresa Familiarmente Responsable’ or Portuguese ‘3 Em Linha’ programmes [23].

**Conclusions**

With respect to the proposed new CAP, our review identifies that PSVA:

- Incorporates enhanced conditionality of CAP environmental criteria
- Helps farmers share knowledge
- Offers training to farmers
- Continuous improvement, with a focus on small steps first
- Evaluates performance and assists alignment with CAP

Furthermore, the strong reputation of PSVA provides an opportunity for expansion, the provision of farm advisory services in the viticulture sector, the future inclusion of social sustainability criteria and a future role in assisting research in Alentejo. Ultimately, the demand for a sustainability reporting programme such as PSVA will be determined by the level of environmental and climate ambition within Portugal. If stringent policies and measures are implemented then the need for such programmes can be expected to increase. If policies are watered down in order to ensure mass compliance by producers without the need for changes in how they operate, the demand for sustainability reporting programmes will be weakened. In their interview, the APA explained that a National Energy Climate Plan for Portugal is currently being drafted, with specific policies and measures for sectors, including agriculture. It is the APA’s intention that this plan will be consistent with, and set baseline environmental criteria for, the CAP Strategic Plan, promoting both mitigation and adaptation interventions. It is therefore reasonable to expect that these policies and measures may have great bearing on the approach of the viticulture sector towards sustainability and thus programs like PSVA.
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Bridging the Gap

Assessing an impact measurement solution striving to close the SDG gap

By Jonathan Dennis, Felicia Gustafsson, Alicia Requena, Tyler Robinson

The Sustainable Development Goals (SDGs) have identified the most pressing issues that society must address by 2030. Unfortunately, there is a significant funding gap in achieving these goals. World Wide Generation (WWG) is developing a platform called G17Eco to monitor and measure the progress of organisations, funds, and initiatives towards the SDGs and coordinate these actors to accelerate the financing of and delivery of the SDGs. Our task was to validate the measurement methodology and provide feedback to shape further development. This was conducted via desktop research, stakeholder interviews, and an onsite workshop.

Understanding the Problem

Societal Problem

In 2015, 193 countries signed the Agenda 2030, which defined the 17 Sustainable Development Goals (SDGs). These goals relate to the triple bottom line; environmental, social and economic issues that we, as humans, will have to deal with. The effort required to reach them is immense and current assessment points out that most countries and the world as a whole is off track to comply with the agreed Agenda [1]. Consequently, organisations and financial entities need to set goals and improve performance in terms of SDG achievement and to finance the projects and initiatives that are trying to tackle them.

The SDGs are overarching themes developed through specific targets. These targets are then systematised by the description of indicators that orient the assessment of whether a country or the world as a whole is getting closer to achieve a target and, therefore, a goal. The UN did not tailor the SDGs to organisational level when defining the agenda. Instead, the indicators in the Agenda 2030 refer to actions and metrics that are relevant or approachable mostly by public administrations. Private actors in particular need to find a way to adapt to the SDGs if they want to align their products and activities to the same objectives.

Sustainability in the Finance Sector

The finance sector, through its activities, imposes a dominant influence on the economy, society, environment and sustainable development. This influence is derived primarily through control of global capital markets; by deciding where money is allocated and enacting shareholder advocacy through the activation of share ownership rights [2]. The finance sector is also one of the most important and largest sources of funding. According to the United Nations Conference on Trade and Development [3] US $5–7 trillion is needed...
annually to finance the SGDs, of which private sources are an essential component [3].

However, there is a strong view that the finance sector is not fulfilling its potential in driving sustainable development and is slow to adopt sustainability principles [4]. Current investments to meet the SDGs fall far short of what is required; developing countries alone are experiencing an annual gap of US $2.5 trillion [3]. The reasons for this are various and often systemic in nature. For instance, despite more substantiated efforts towards providing data to the market, environmental, social or governance (ESG) related information is at times absent from investment decisions. Moreover, short-termism continues to perpetuate; with financial models rarely capturing developments beyond a one to three-year horizon, meaning analysts overlook long term sustainability risks and opportunities [5].

Impact measurement

In order to understand social, economic, environmental contributions towards the SDGs, progress must be monitored and measured over time. The most common way to do this is through some form of impact assessment, taking a baseline understanding pre intervention and the outcomes post intervention. Impact assessment techniques have been around for decades and traditionally applied by different disciplines to projects, plans and policies. In simple terms, impact assessment is defined as “the process of identifying the future consequences of a current or proposed action” [6].

More recently, private sector organisations have sought to better assess the impact of activities relating to the environment and society and its relationship to financial outcomes. A number of initiatives and reporting frameworks have arisen to support this development, such as the Global Reporting Initiative (GRI) or the United Nations Global Compact. On a voluntary basis, companies can use such initiatives and frameworks to identify, gather and report on sustainability information in a more comparable way. According to KPMG, 93% of the world’s large corporations report on sustainability performance to some degree [9].

The finance sector has also developed its own impact assessment techniques, through impact investing. Like conventional investing, this approach involves the provision of finance for anticipated financial return, but also aims for social and environmental impact [8]. This is achieved through a “…prescriptive emphasis on measurement and quantification of performance on the social and environmental agendas” [9].

Impact Challenges

The quest for robust impact measurement is hampered by a number of challenges. These challenges are particularly relevant for both organisations and the finance sector when evaluating impact towards the SDGs. Some of the main areas are summarised below:

Interpretation of impact. One basic but fundamental challenge is determining what constitutes impact. This interpretation varies depending on what impact should be measured; at what stage in the process it is measured (ex-ante, ex-post); who decides on key outcomes of success; and how it should be measured (qualitative vs quantitative) [10].

Lack of standardisation. The use of standardised indicators across the market is a useful approach that facilitates comparison. Even after overcoming
technical issues, creating consensus remains a considerable challenge. Due to the plethora of metrics available, there is a conflict of interests between selecting indicators that are most relevant to the investment approach and selecting indicators that align with standards of the market [10].

Time consuming and costly. Sustainability data collection, processing, impact assessment and reporting a time consuming and potentially expensive process; creating a barrier for market actors seeking impact return. It involves substantial efforts in collecting accurate data from a wide range of stakeholders (e.g. suppliers, investees, beneficiaries) and analysing results in relation to defined benchmarks and targets [11]. According to our interviews, such hindering factors in reporting practices often become an obstacle to the reporting processes itself.

WWG’s Proposed Solution

In light of the global challenges that all sectors face in achieving the SDGs as well as the specific challenges of measuring impact within the financial sector, WWG is developing the G17Eco platform to facilitate the coordination of public and private actors to effectively monitor, measure and accelerate the achievement of the SDGs. The platform brings together an ecosystem of SDG actors which can be categorised into financial and delivery partners as seen in figure 1. These actors are able to leverage the platform’s functionality to map, monitor, manage, measure, and market the financial and impact performance from their activities.

The stakeholders selected and platform design are in alignment with how WWG expects to facilitate causal events that will result in their desired societal change, known as their Theory of Change (ToC) [12]. Their ToC posits that if consistent, timely and robust social, environmental and economic impact data can be efficiently communicated to financial stakeholders, capital flows will be redirected to achieve progress towards the SDGs. The G17Eco platform aims to support SDG aligned investment decisions by bringing efficiency and standardisation to the monitoring, measurement, and management of social, environmental, and economic impact. If successful, it has potential to encourage the efforts of key decision makers to accelerate the financing of the SDGs.

The G17Eco platform is built as both a web application on the cloud and underpinned distributed ledger technology (DLT). The DLT use distributed independent computers to record, share and synchronize the transfer of information [13]. This digital architecture provides the attributes of security, transparency and immutability to the data collected and analysed. The platform can be categorised into three key processes: data collection, data processing, and data output (see figure 2). A brief
description of these processes will be provided in the following subsections.

**Data Collection**

Custom data bots, known as Universal Trackers (UTrs), were developed to facilitate the process of data collection, simplifying the exercise of gathering often fragmented SDG related information. Supporting this process is a list of internationally verified questions adapted and synthesised from 50+ existing impact measurement frameworks such as the Global Reporting Initiative (GRI). WWG recognises the progress that other frameworks have accomplished in measuring impact; therefore, the platform aims to harmonise these measurement approaches and utilise existing questions and indicators instead of developing new ones.

**Data Processing**

After data collection, the information must be treated with various techniques to allow for comparability, aggregation and ultimately, meaningful analysis to inform investment decisions. WWG’s first processing step is data cleansing, which involves detecting and correcting erroneous data. Next, weighting is applied based on how significant the target or indicator is in impacting the SDG goal. Normalisation is then used to adjust values that are measured according to different scales. This normalisation allows for data to be aggregated first to the SDG target level and finally to an overall SDG score.

**Data Outputs**

The main forms of data output on the dashboard will be represented by an overall SDG score, PIC (Poverty, Inequality, and Climate Change) value indicator, and ESE (Environment, Social, and Economic) rating. The SDG score is a measure to what extent an entity (i.e. initiative, organisation or fund) is addressing a specific SDG; the PIC score communicates outcomes within the categories of poverty, inequality, and climate change; and the ESE score reports how holistically an entity is performing across the categories of environment, social, and economic. As the platform develops, the scores will be aggregated at the entity level, the country level, and the global level to better understand progress towards the SDGs at various stages of granularity.

**Our approach**

We approached the validation task by dividing it into four main blocks: data collection, data processing, data outputs and evolution (see figure 3). Within the first three blocks, we first identified current processes using internal documents and interviews with internal stakeholders. Secondly, we identified the main risks and challenges associated with each of the blocks leveraging desktop research and interviews with internal and external stakeholders. The focus in the evolution section was to provide the client with input on important aspects to consider related to the future evolution of the platform.

The following section will provide an overview of high-level methodological risks and potential opportunities, relevant to WWG.
Risks and potential opportunities

Data collection is an important initial step that can be completed in many forms, including questionnaires. A drawback of such processes is that many companies have been experiencing increasing reporting fatigue as they respond to disclosure requests from various stakeholders [14], as emphasized by one of our interviewees [23]. Since WWG’s solution relies on a questionnaire, it is susceptible to reporting fatigue risk. To mitigate this risk, direct requests for information could be used as a last resort for data collection after alternatives such as Application Programming Interface (API) integration at the organisational level, as well as data scraping from the public domain are implemented. This approach could reduce the scale of the reporting requests from companies, however, drawbacks include difficulties with data validation. Another potential tactic could be to prioritize questions in the event that reporting companies only have resources to answer some of the most pressing questions. Where disclosure requests are necessary it can be advantageous to first engage with asset owners or managers who have a significant stake in the company to leverage their influence and encourage companies to respond.

While the SDGs were not created with businesses explicitly in mind, and were instead developed as overarching global goals, some impact measurement initiatives are tackling the challenge of translating them to relevant business metrics. This is a daunting task as there is much debate around how to quantify often qualitative ethical issues. Therefore, there are risks when making design choices about how to map indicators/questions to SDG targets. Furthermore, there is a risk of double counting when questions address impacts that fall outside of direct business operations, such as supply chains.

To mitigate SDG mapping risks, it is important to develop a rigorous process for determining appropriate indicators that are representative of the SDG targets and goals. This process could draw upon experts in the field and/or methodologies of reputable frameworks. More specifically, it can be helpful to categorise if indicators are measuring inputs, activities, outputs, outcomes or impact (see figure 4 below).

Measuring impact is the ultimate goal. However, in the absence of impact data, information further downstream in the impact lifecycle can be used if there is sound justification to consider it as a leading indicator of impact. The risk of double counting can begin to be addressed by...
thoroughly defining system boundaries of the questions asked. If questions are explicit as to which area of operations is being measured, then data can be attributed accurately to various parts of the lifecycle and overlaps in data will become apparent, mitigating the risk of double counting. In addition, it would be helpful to encourage companies to categorise impacts into lifecycle stages so that the data can be attributed to the correct entity (eg. a particular supplier). This will help respondents answer questions more accurately and improve the ability to measure upstream or downstream activities only once.

**Data Processing**

After data is obtained from the different sources, WWG’s platform processes it so stakeholders can assess and compare the performance of companies, funds and initiatives.

In general terms, any scoring system will deal with heterogeneous data that needs to be computed to provide information in a more aggregated and understandable way, to form a somewhat simplistic score. Some schemes will try to obtain as much information as possible in percentage form, such as the RobecoSAM Corporate Sustainability Assessment (2019) [15], but even then some data will exist in absolute amounts and in different units, such as tonnes or m². Different units make data difficult to compute and compare. The options are either to distribute information to different theme buckets with all data in the same unit, such as in the Cambridge Impact Framework [14], or to normalise the data to appear as a unitless proportion or percentage that can be computed regardless of the theme.

Another aspect to consider when obtaining a rating or a numeric score is the comparability between the results of companies of different sizes, sectors and geographies. This normalisation that can allow for comparability is used in the case of absolute data and generally applies reference dimensions that can account for elements like company size, such as previous year profits. However, there is a risk in the choice of reference data for this normalisation. If the data is not relevant to the aspect that is under consideration or if it does not effectively represent the difference between companies or initiatives, the normalisation may skew the results; for instance, a larger company could proportionally be more efficient than a smaller one, but if this aspect is not properly addressed its results would be worse because its impacts are probably larger.

The scoring system needs to address weighing as well, as it is likely that not all aspects of the rating are equally important and that some of them should have a heavier weight in the computation or aggregation of the score than others. For instance, it is likely that a target measuring greenhouse gas reduction would be considered more important than one that tracks investment on awareness campaigns, because one has a more direct positive impact. The SDG Methodological Paper [16] recommends equal weights. Another main option is expert weighting, but it presents a risk of subjectivity and has shown low consistency in terms of the resulting weights. Clear objective weights provide transparency and might improve trust for stakeholders. However, according to some of our interviewees, there seems to be a general assumption that not all aspects can be considered equal, and depending on the
framework, weighting is equally defined for every type of company or by sector [15]. Some methods to define these weights are the Delphi method, that undergoes different rounds of voting and discussion with an expert panel which creates consensus but does not wholly avoid subjectivity [17]; or the distance-to-target method, in which the weight of an aspect depends on how far its current performance is from the target that has been set [18].

Scores are generally calculated through aggregation of individual impacts. The aggregation can be sectoral, such as in the case of the Cambridge Impact Framework [14], or global, which is the case of RobecoSAM CSA [15]. In either case, according to one interviewee, the most important aspects of the computability are to keep transparency and consistency along the process to ensure stakeholder trust.

**Data output**

The primary purpose of visualising data for investors and other stakeholders is to easily communicate the performance of entities, provides a basis for comparability and influence investment decisions in line with the achievement of the Agenda 2030.

One of the most widely used metrics in the finance industry to evaluate sustainability issues is ESG, which considers environmental, social and governance factors [19]. Deviating from such well-established metrics may lead to lack of comparability between organisations and funds and be more difficult to introduce to investors.

The subjective nature of calculating and computing metrics into one score or rating is also at risk of being a crude way to determine entity performance and could be at risk of being distrusted again by the investors to make investment decisions. In 2018, an investigation showed a lack of correlation between ESG scores provided by different financial institutes [20]. According to one of the consulted interviewees, fund managers might therefore be more sceptical toward different types of scores that seek to indicate the sustainability of investments – even more so as it is often difficult to assess how and on what basis scores are calculated [23].

To mitigate the risk of distrust from fund managers and stakeholders toward different metrics, especially from newly established organisations, transparency is vital. This includes providing a thorough explanation of how scores are calculated as well as seeking to enable comparability with existing scores and measures, such as the ESG score. Also, to visualise the data on the platform in a user-friendly manner which clearly depicts how the measures shall be interpreted and used in investment decisions.

Another issue raised by an interviewee was the validity in indicating net impact by an aggregated score which considers multiple sustainability dimensions. As mentioned previously, the SDG Methodological Paper assigns equal weight to each SDG [16]. However, other frameworks have taken a slightly different approach.

For example, the Cambridge Impact Framework breaks down the 17 goals into six overarching themes (see figure 5). Instead of combining the six themes into a single impact score, values are segregated because assuming interchangeability of values can be questioned. Thus, questioning the validity of offsetting negative impacts in one area with positive impacts in another. This may be especially relevant considering
that companies and organisations tend to have a positive contribution in certain areas, e.g. on providing decent job opportunities, while having negative contribution in others, e.g. by the emission of greenhouse gases [14]. Thus, as a score indicating net-impact may provide a potentially inaccurate overview of a company or funds contribution toward the SDG’s, a risk which may be mitigated by breaking down the score into more elaborated themes as done in other impact frameworks [14,19].

Figure 5: Breakdown of SDGs into six themes. Source: Cambridge Impact Framework (adapted by authors)

**Evolution**

After better understanding the fundamental building blocks of WWG’s process (as covered above), the team was in a unique position to explore future evolutions of platform. Two areas were prioritised in this section, based on their relevance to WWG’s future vision and business goals.

The first relates to opportunities that will enable more comprehensive measurement of the net impacts of a company. Every company will have positive, negative, direct and indirect impacts that should be taken into account when evaluating impact. As emphasised in stakeholder interviews, capturing the *negative* impact of a company (rather than only positive), and across the entire value chain is especially important. This represents an ambitious step forward, given the likely challenges that will be encountered in quantifying and visualising negative aspects, particularly with regards to data transparency. However, to truly move closer to achieving the SDGs this is an essential hurdle to overcome and an area that WWG has the potential to lead on.

The second area of evolution relates to *regulation*. There are several recent developments in sustainable finance that have the potential to significantly influence the finance sector and mobilise the market.

The most significant changes have occurred within the European Union (EU). In March 2018, the EU Commission released its Action Plan on sustainable finance, outlining a series of regulatory proposals to connect finance with wider EU sustainability goals.

The Action Plan covers a range of financial market actors across the investment chain. One emphasis is on asset managers and the role that they have in driving progress towards sustainability. Most notably, the establishment of a unified classification system (the taxonomy) that will determine which economic activities are considered environmentally sustainable for investment purposes [21]. Furthermore, institutional investors will be expected to disclose to clients the methods in which they integrate environmental, social and governance (ESG) factors into their investment processes on a mandatory basis [22]. Both changes (operational during 2019/20) present significant challenges for the finance sector, but also opportunity. WWG as an intermediary could align with these regulatory demands and support
organisations, policy makers and financial institutions with this transition.

**Key Takeaways**

As highlighted in the previous section, there are several risks and opportunities related to the underlying methodology of platforms aiming to measure and visualise SDG performance of investments. The key opportunities are summarised below:

*Mitigate reporting fatigue.* As a first step consolidate questions to make it less taxing for entities to report and consider other solutions that reduce or avoid questionnaire-based information requests.

*Differentiate measurement types.* Categorize data collected from questions as inputs, activities, outputs, outcomes, or impact to achieve transparency in how accurately a question/indicator is translating to the SDG goal it is measuring.

*Be transparent.* The subjective nature of calculating and computing metrics is a risk which may affect the credibility of the selected metrics. Providing stakeholders with the methodology would avoid a black-box solution and mitigate distrust.

*Impacts may not be interchangeable.* Aggregating an entity’s performance in different impact categories may provide an inaccurate overview of their overall impact, as the validity of directly comparing different environmental or social issues can be questioned. Breaking down the scores into more elaborated themes, or visualising both the disaggregated and the aggregated values, can mitigate such issues.

*Get ahead.* To keep up with the fast-moving changes in regulation organisations and financial institutions will need substantial support. There is opportunity for companies like WWG in aligning with these changes and foreseeing future demands to support and mobilise SDG partners.

**Moving Forward**

What is clear from this project is that there are substantial methodological challenges to overcome for actors aiming to measure and visualise the impact of funds, organisations and initiatives. Given the high stakes involved, these actors have a lot of responsibility to ensure that they are contributing to solving the problem and are mindful of the consequences of doing so poorly. Through this journey there will be many imperfections, however it is important that “perfection is not the enemy of the good.” Action must be taken today and developed tomorrow, to facilitate much needed progress in solving urgent global issues.

The solution provided by WWG is seeking to overcome some of the challenges hindering effective integration of sustainability considerations in the investment decision process. If these challenges can be successfully navigated and the solution is well purposed to both delivery partners and financial partners; WWG has the potential to start moving the needle in the right direction and drive progress to closing the SDG financing and delivery gap.
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List of people interviewed

Large-sized multinational manufacturing company - Vice President Corporate Responsibility - 28th March 2019.

Institutional investor - Head of Responsible Investment - 26th March 2019.

Specialist merchant bank - ESG Senior Analyst (written communication) - 10th April 2019


World Wide Generation - Manjula Lee - CEO - 3rd of April.

World Wide Generation - Tauni Laurier - Sustainability director - 1st, 2nd and 3rd of April.

World Wide Generation - Pantelis Kokkalis - (2nd April 2019)


Karlstad, Sweden
The Team

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From left to right: Kelly, Alexandra and Samuel
Sharing Towns Karlstad

Unlocking the Sharing Economy Puzzle

By Kelly Delaney, Alexandra Jonca, Samuel Kalb

Introduction

Karlstad is a vibrant, small city in Sweden, with a population numbering 140,000 in the broader metropolitan area. The region is home to several industries, a university, a business incubator, federal agencies and abundant natural resources.

Like many cities, Karlstad faces challenges addressing unsustainable consumption patterns. The city’s Strategic Plan cites 22 goals including:
- 1% population growth per year,
- a more developed tourism industry,
- reduced environmental impacts to local air and water, and reduced reliance on fossil fuels,
- reduced consumption.

Within the current economic paradigm, more people and tourists will lead to increased consumption and local environmental impacts, making these goals difficult to achieve simultaneously.

One of the most prominent issues for many cities in Sweden and globally are the environmental impacts of unsustainable consumption. The products and services we consume contribute, across “the product life cycle, to climate change, pollution, biodiversity loss and resource depletion in Europe and other regions” [1]. The Sharing Economy is a potential tool to address unsustainable consumption by efficiently using existing goods and preventing the production of new products [2].

The Task

Karlstad Municipality wanted to better understand the Sharing Economy and how it could help achieve their goals, as well as draw inspiration from sharing activities in other cities. Some sharing initiatives are present in Karlstad, but an official municipal strategy is still in early development.

To accomplish this task, a tool (the “Key to the Sharing Economy”) was developed to assist Karlstad Municipality in assessing local sharing initiatives, based on a review of academic and grey literature, interviews with stakeholders (employees, other municipalities, Karlstad citizens, sharing initiatives) and research into similar cities’ sharing practices. The Key can help shape discussions about sharing initiatives in Karlstad and other small towns and aid decision makers in systematically assessing overall
implications of sharing initiatives. Stakeholders can make informed decisions about sharing and emphasise positive effects while mitigating or avoiding potentially negative outcomes.

To foster a supportive environment for the Sharing Economy, we identified potential sharing initiatives that have proven successful in other cities or hold promise specifically for Karlstad. To lay the foundations for sustainable sharing initiatives to grow, capacity building measures that Karlstad can engage in were identified. Our research and interviews, as well as a workshop conducted for the municipality, helped shape these suggestions. These hands-on examples will inspire and demonstrate the many possibilities of sharing.

Our results indicate that the Sharing Economy could be used as a tool to help Karlstad achieve its goals as long as a holistic approach is used as described in The Key to the Sharing Economy Puzzle.

The Sharing Economy

The Sharing Economy is a recent and still-evolving concept with no single agreed-upon definition. In this report, we define the Sharing Economy as organised interactions in which individuals or entities grant temporary access to underutilised spaces, goods, information, talent or experience [2,3]. An exception to the rule for temporary access includes food-sharing and personal hygiene products as these can only be ‘used’ once [4].

Other features of the Sharing Economy include a degree of trust between users and specific platforms or locations where people and assets can be matched (this often, but not always, involves some sort of digital platform) [4].

There are many concepts overlapping the Sharing Economy, including the Gig Economy, Collaborative Consumption, Circular Economy and Peer-to-Peer (P2P) economy [2]. We acknowledge their relation to the Sharing Economy but will not pursue their specific roles in detail, instead focusing on the broader goal of reducing consumption.

The Sharing Economy can also be categorised at a high level as market- or purpose-driven. Market-driven sharing involves a focus on revenue generation or economic development; goods are rented for a price. Purpose-driven refers to sharing for environmental or social reasons, such as reducing consumption or strengthening communal ties; profit is not the main goal [5].

There are also different types of sharing. We propose below an adapted framework of Sharing Economy ‘models’ that Karlstad can use to classify different types of initiatives and have a unified language around the Sharing Economy [5].

Co-Ownership. A group of people pools together to purchase, maintain and share an asset. Some examples would be cooperative mobility services such as a car or bike-pool, or cooperative housing.

Access Providers. The owner of an asset provides direct access to a resource. This access can be free or for a price. Some examples would be services like Wikipedia, car-sharing companies (e.g. Sunfleet), the municipality offering its own vehicles to employees or citizens, or tool libraries.

Matchmakers. Connect users with providers. The initiative does not own any assets. Some examples would be services and apps like Airbnb, Uber, Facebook groups, and Peerby.
The Positive and Negative Effects of the Sharing Economy

Like many trends, it will take time to fully understand how the Sharing Economy affects communities, markets and actors. However, many positive and negative impacts have been identified [6]:

Positive:
- Faster access to goods and services
- More efficient use of unused resources
- Increased trust, social cohesion, and local resiliency
- Entrepreneur- and innovation friendly
- Redefines value (e.g. not just financial)

Negative:
- Can increase consumption
- Rebound effects
- Does not necessarily address social and economic equity concerns
- Can lead to market monopolisation

Cities and the Sharing Economy

Sharing has always been a part of society and city life, such as through public libraries or community centres. However, with the acceleration of sharing innovation in the past decade, across various sectors, local governments are exploring or finding themselves challenged by the Sharing Economy. As this new concept is not easily categorised, local governments sometimes express a sense of being overwhelmed and unable to effectively respond; some cities have opted to let the Sharing Economy develop in a legal “gray area”, with policy outcomes decided through litigation [7].

There are valid concerns over how the negative impacts of the Sharing Economy affect businesses, jobs, public health, safety, social cohesion, and the environment; it can be challenging for cities to know how to intervene. Researchers have identified five formal ‘roles’ through which cities can be proactive players in the local Sharing Economy [2, 8]. Often, cities play multiple roles at the same time. These roles are:

**Facilitator.** Bring people together; empower the community in sharing. E.g. information campaigns, hosting workshops.

**Regulator.** Develop policies to support and moderate the Sharing Economy. E.g. implement limits, require licensing, collect taxes.

**Implementer.** Directly provide internally and externally-facing sharing programs and marketplaces. E.g. run a repair café.

**Collaborator.** Partner with stakeholders to develop and support sharing platforms that generate positive impact in the municipality. E.g. establish partnerships with shared mobility providers.

**Experimenter:** Rather than wait for citizens or private markets, cities attempt innovative solutions and partnerships on their own. E.g. establish a test-bed/living lab.

The Key to the Sharing Economy Puzzle

We have developed a Key based on previous work [6], with seven critical questions to help Karlstad and other small to medium-sized municipalities organise their strategy and decision-making about the local Sharing Economy.

This tool, depicted in Table 1, walks the reader through critical questions a city government should ask themselves when assessing or developing a sharing initiative. After answering the questions, stakeholders using the Key will have a better idea
<table>
<thead>
<tr>
<th>Step #</th>
<th>Question</th>
<th>Explanation &amp; motivation</th>
</tr>
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| 1     | Is it a sharing initiative? | Broad classification:  
- Is the activity granting temporary access to spaces, goods, information, talent or experience?  
Sustainability shortcut:  
- Is temporary access to the good being granted?  
- Is the good rivalrous and tangible?  
- Is the motivation for ownership not for profit [4]? |
| 2     | Can the initiative achieve positive environmental, social and economic impacts? |  |
|       | Environmental Impact | Social Impact | Economic Impact |
| Does it reduce consumption? | Does it enable people to take on hobbies? | Does it create jobs? |
| Does it decrease production? | Does it help disadvantaged groups? | Does it teach people skills they can use in their careers? |
| Does it reduce GHG emissions? | Does it facilitate social cohesion? | Does it help individuals be more productive? |
| Does it reduce pollution? | Does it increase life quality of the citizens? Health? | Does it foster entrepreneurship? |
| Does it reduce congestion? | | |
| 3     | Are there negative environmental, social and economic externalities that could occur? What can be done to overcome/mitigate these impacts? |  |
| Environmental Impact | Social Impact | Economic Impact |
| Does it encourage consumption? | Could biases or discrimination occur? | Does it compete with existing industry/jobs? |
| Does it increase production? | Could it be a public nuisance? | Does it cut into tax revenue by reducing transactions in the local market? |
| Does it increase GHG emissions? | Is it missing quality or safety checks? | Does it cause more work? |
| Does it increase pollution? | Could it create dangerous circumstances? | Does it require too much cost and maintenance by the municipality? |
| Does it increase congestion? | | |
| 4     | What indicators can be used to evaluate this initiative? | What indicators do you already have and which indicators could you create? |
| 5     | Does the initiative contribute to Karlstad’s goals? | Think about this from a systemic perspective and how the initiative connects to other strategic goals. |
| 6     | What role can the municipality take? | This could be a regulator, enabler, integrator, collaborator and/or experimenter. Note here which stakeholders need to be integrated into this project. |
| 7     | Are there any applicable local, national or EU rules and regulations? Is the existing regulation sufficient? | Consider rules which hinder as well as support the initiative. Who do you need to contact to find out more? |

*Table 1. The decision-making Key for assessing sharing initiatives*
about the implications of a sharing initiative, where crucial information is lacking, and what role they should take.

**Recommendations**

**Sample Activities / Suggestions**

Karlstad municipality also expressed keen interest in real world examples of sharing initiatives that could prove successful in Karlstad. Based on the interviews and desktop research, we have selected our examples carefully to make them relevant for Karlstad’s context.

We have preliminarily used the Key to vet these suggestions, but recommend Karlstad municipality undertake a second, very critical review as they better understand the unique local context, such as current mobility patterns. They are meant to help with the ideation process and give the relevant actors a place to start, and may also be relevant for cities that share similar opportunities and challenges with Karlstad.

Ranked by potential required resource investment, the suggestions are also organised in four different categories: Mobility, Space, Food and Things. We have suggested different role(s) the municipality can take where:

- FA stands for Facilitator
- IM stands for Implementer
- CO stand for Collaborator
- EX stands for Experimenter.

The role of Regulator was not deemed relevant in the examples below.

**MOBILITY**

**Low-Resource Suggestions**

*Start a cargo bike pool (EX, IM, CO)*

A city-wide (electric) cargo bike scheme could result in reduced emissions and less pollution if users are replacing vehicle trips; biking is also the healthier choice. A concern brought up during the interviews indicated that Karlstad lacks enough potential users (so-called “critical mass”) for some personal mobility schemes [9], but the city could run a pilot first; this initiative is easy to scale if demand is sufficient.

*Start Municipal Car-Pooling (FA, EX)*

As Karlstad already owns a car fleet for employees to share while at the office, the next step could be to encourage and incentivise the use of carpooling to work and municipal events for those who cannot or choose not to bike/take transit. Carpooling can help to reduce stress, and improve productivity, while fostering a sense of community among employees and leading to potentially new partnerships. Traffic would be reduced, as well as air and carbon emissions. Financially, employees can save on fuel costs and minimise the wear and tear on their vehicles.

*Figure 3: Photo of Bike-share. Photo by Pop & Zebra on Unsplash*
High-resource Suggestions

Start a “Last Mile” Bike Share (EX, IM)

“Last Mile” Bike Sharing allows those who transit into Karlstad from surrounding areas with private vehicles to instead utilise local transit and a bike share to reach their final destinations. A bike share station would be set up at the main transit station to allow Karlstad rail commuters (and citizens) to rent a bike to get to work and then return it at the end of the day. This reduces emissions from private vehicle use and supports public transit. It will be particularly useful as Karlstad grows, by encouraging new residents to not invest in a car.

FOOD

Low-Resource Suggestions

Distribute conference food waste (IM)

Karlstad hosts many business conferences [10], which often have large amounts of food waste and leftovers. We recommend Karlstad and local conference organisers partner with existing food sharing apps like ResQ and Karma, or even create a Facebook group, and make this leftover food available to the public or interested groups like students or foodbanks. This could also be combined with the Food-Sharing Karlstad idea (see below).

Partner with grocery stores, restaurants and food sharing apps (FA)

Encourage grocery chains, restaurants and locally used food sharing apps like ResQ and Karma to work together to prevent food waste and provide Karlstad residents with affordable food. It would also reduce the food disposal costs for grocery stores and restaurants.

High-Resource Suggestions

Create Food-Sharing Karlstad (FA)

The municipality can help organise food-sharing events in the city to raise awareness about preventing food-waste. Grocery stores and restaurants can donate surplus food to be handed out, or chefs could be brought in to use the surplus food to make new meals.

SPACE

Medium-Resource Suggestions

Lend out municipal spaces (IM)

While Karlstad already rents out sports facilities, this could be taken a step further to
enable local associations, non-profits and new sharing initiatives to rent underutilised municipal space for free. Potential spaces include lecture halls, school facilities, storage spaces, libraries, and meeting rooms. By renting out spaces at no or minimal cost, Karlstad can support organisations low on resources. Karlstad would also be leading by example for the local Sharing Economy.

THINGS

Low-Resource Suggestions

Promote P2P Lending Sites (FA)

Many examples of P2P sites (in the form of websites or mobile apps such as Delbar, Streetbank, Peerby and Hygglo) for sharing goods between neighbours exist. A lack of awareness can be mitigated if the city takes an active role in promoting non-profit initiatives that help foster sharing in Karlstad. P2P lending can help reduce consumption and increase social cohesion as people get from their neighbours what they would otherwise buy.

Medium-Resource Suggestions

Diversify Fritidsbanken (IM, EX)

Fritidsbanken is a national organisation that allows people to borrow various kinds of sporting equipment for free. Karlstad is home to both one of the most successful Fritidsbanken “stores” in Sweden, as well as the organisation’s headquarters. As Karlstad municipality now runs their local branch, they have a unique opportunity to test new ideas. New business models could be piloted, such as offering “packages” of certain goods to tourists or longer rental periods, to encourage people to borrow rather than buy new after trying out sporting equipment.

High-Resource Suggestions

Run a Repair Café (IM, FA, CO)

A repair café is a place where people get together on a regular basis to repair goods together. They can be item-specific (like bike kitchens), type-specific (electronic goods) or more open towards general goods. People share their knowledge about repairing as well as their own tools. Furthermore, the repair café can be located in a shared space. By increasing the lifetime of the repaired goods, new items are not purchased unnecessarily. Repair cafés also have strong social benefits.

Spotlight: Malmö STPLN

Repair cafés exist in many cities around the world; Malmö has a particularly successful and inspiring location called STPLN, a “multipurpose maker space where citizens can test ideas, create, repair, remake, tinker with, or arrange cultural events. It includes a bike kitchen, a makerspace, a co-working space, a workshop, and an arts centre. STPLN was initially supported by Malmö but now runs independently as a non-profit [12].
Capacity Building

The Sharing Economy is here to stay for the foreseeable future and Karlstad should take steps now to support its sustainable development for the long term. As the municipality cannot implement all of the previous recommendations on their own, this section will therefore discuss several ways how the municipality can lay the foundations for a culture of sustainable innovation and sharing in Karlstad. These recommendations are ranked according to the estimated resource requirements.

Low-resource actions:

Catalogue Existing Underutilised Resources in the Community

Karlstad as a city has many useful resources, such as objects, spaces, or community organisations. Identifying and cataloguing these assets today can be helpful when judging resources needed to support future initiatives or imagining how to leverage existing assets in new ways.

Garner Political Support

If the Sharing Economy is to be mainstreamed in Karlstad, it is vital that it receives political support from local politicians and decision makers. Possible activities include pilot projects to raise awareness, linking sharing initiatives to the municipality’s strategic goals, and identifying “Sharing Champions” across departments to promote Sharing Economy ideals.

Medium-resource actions:

Promote the Sharing Concept through a Public Relations Campaign

A “Lagom” campaign in the community can emphasise a life of “consume less, live more,” choosing wealth in experiences and relationships. Some ways to encourage this could be bringing Fritidsbanken objects and brochures about the local Sharing Economy to public events, and targeting the appropriate audiences, such as young families, students, and new Swedes.

Create a Supportive Climate for Talent

Karlstad should work to develop a creative and open-minded environment to attract new residents to experiment with sharing. The city could host hackathons, work with business classes at the local university, and help existing businesses experiment with new sharing business models.

High-resource actions:

Improve Open Data Access

The city should continue on its path, as described by municipal ICT stakeholders, for improving open data offerings. These data sets (including such things as parking and other infrastructure, and local events and activities) might be useful for local sharing entrepreneurs to use when developing their services [13].

Adopt a Smarta Kartan App

Smarta Kartan is a tool developed by Gothenburg city to collect, map, and make accessible all the sharing initiatives across the city. Karlstad could expand on an existing Smarta Kartan once enough sharing initiatives have become mainstreamed in the city. This could combine access to different sharing initiatives, as well as other sustainability resources, in one convenient app. Interviews with employees who work with ICT reveal that the city would prefer to utilise an existing platform rather than develop a new one [14]. We suggest the municipality work with local start-ups, the Innovation Park, or other municipalities to encourage the private sector to develop such an app.
**Establish a Time Bank**

Time is exchanged between people doing everyday tasks or volunteering for activities with social missions: for example, assisting a non-profit, taking care of a neighbour’s pets or plants, or repairing things. The invested time can then be redeemed for the time of others’ services, or perhaps for access to goods on a sharing platform.

**Policies to Support Sharing**

In public policy, the terms “push” and “pull” are used to describe how governments can encourage behaviour change by incentivising and disincentivising certain activities. There are several policy options Karlstad can consider to support the development of a local Sharing Economy [15].

**Mobility:**

- **Support bike infrastructure:** install more free bike pumps and larger dedicated bike lanes; increase the amount of covered bike parking spaces.
- **Discourage private vehicle ownership:** reduce the amount of private vehicle parking spaces available; reduce parking space requirements for new and existing buildings.
- **Support car-sharing:** designate free or discounted parking for carshare vehicles, especially near public transit points and apartment buildings; require new multi-unit developments to operate or otherwise provide infrastructure for carshares; offer a “Guaranteed Ride Home” program, in conjunction with a regional transit agency, and give carpoolers peace of mind by covering the cost of getting home in case of an emergency or unplanned departure of a shared ride, such as by reimbursing the cost of a taxi or rental car.

**Space:**

- Encourage co-housing development, remove any zoning barriers.
- Encourage short-term rentals like Airbnb (with the ability to implement occupancy or rental time limits eventually if this market grows).

**Food Sharing:**

- If they do not already exist, remove zoning barriers that prevent growing and selling food from residential plots, or renting out yards for others to use for urban farming.
- Offer financial incentives to encourage urban agriculture on vacant lots

**Discussion**

The majority of cities in the developed world have sizes similar to Karlstad, and a Sharing Economy strategy developed here could be useful for many other localities. Though Karlstad is in the early stages of its own official plan for a local Sharing Economy, the city has many organisations already working with these concepts and is equally blessed with employees who are enthusiastic about sharing.

Karlstad is showing signs of wanting to take the Sharing Economy to the next level and experiment with different initiatives. Our research and interviews revealed several key takeaways that can positively influence this work:

*Consider micro as well as macro issues and opportunities.* Think in terms of consumption events as much as broader systemic or societal consumption opportunities/challenges. For example, capturing food waste from conference events, or sharing items and decorations for special events like weddings.
Leverage existing synergies. Rather than creating new initiatives and building a user base completely from scratch, look first to existing organisations whose audiences you can tap into.

Your size is an advantage. One common theme prevalent throughout our interviews was that Karlstad has many advantages compared to bigger cities. People trust each other more, the municipality is closer to the citizens, and teamwork and communication is easy and highly efficient. Geographically speaking, the city’s size makes it much easier to move objects and people around. We encourage Karlstad to leverage these advantages to the fullest.

Do not get involved too late. We do not believe that Karlstad needs to worry much about regulating the Sharing Economy at the moment. However, research reveals that many cities report feeling like the Sharing Economy “snuck up on them,” and that they should have involved themselves earlier [7]. Karlstad should closely monitor how the Sharing Economy is developing to ensure that if action is needed, the moment is not missed.

Conclusion
The Sharing Economy is a concept that is not always easy to grasp. On the positive side, it can be one tool to help decouple economic growth and consumption and lead towards more sustainable outcomes. On the other, promoting it without asking important questions may, in the worst case, lead to more consumption and environmental degradation.

To ensure that the positive effects of the Sharing Economy are fostered without increasing the negative effects, we have developed a tool: The Sharing Economy Key. It provides a diversity of actors within the Municipality an organised way of approaching the Sharing Economy and helps them think critically about sharing initiatives, thus enabling better decision making.

To provide some concrete food for thought, we added suggestions for sharing initiatives that we believe could be successful in Karlstad. These suggestions are based on our own research as well as onsite interviews and observations. They are open for adaptation, depending on the required resources and perceived demand.

In addition, we provide a variety of capacity building recommendations that will help Karlstad, and similar towns, grow sharing initiatives and a sharing mindset among its citizens.

Ultimately, we encourage Karlstad to act soon and purposefully, and to continue to collaborate with each other and with residents. When initiatives with a positive impact are promoted and citizens benefit from becoming part of them, the potential for a Sharing Economy in Karlstad can be realised.

Figure 6: Photo of shared space. Photo by Toa Heftiba on Unsplash
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[9] Interview with David Nordström, Karlstad municipality, sustainable transport

[10] Interview with Marita Närtell, Karlstad municipality, tourism


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The Team

Anja Fuechtbauer is from Nuremberg, Germany and holds a B.A. in Business Administration. She has experience in procurement and supply chain management in the healthcare sector as well as in indirect procurement. She’s passionate about wild places, the outdoors and conservation which leads her to future research interests in energy policy and development.

Bauke ter Borg is from the Netherlands. She holds a B.A. in Liberal Arts and Sciences that had a focus on international law and policy and an LLM in International Trade and Investment Law. She has a background in communication and seeks to apply her newfound EMP knowledge to create better business and food policies for a more sustainable future.

Bobby Chen grew up in Sydney, Australia and previously worked for the Australian Government in renewable energy and climate change policy. He has B.A. degrees in Arts and Law. Bobby is interested in the rapid electrification of the economy, with e-mobility being a key focus area.

Dylan Giordano is from Miami, Florida, USA and Rome, Italy. Having earned a B.Sc in Environmental Studies with a Minor in Urban Planning from the University of Southern California, he has internship experiences across sectors, including the federal government, a trade association, and a think tank. He is currently interested in sustainable supply chain management and corporate governance.
Slovenia’s tourism industry is booming. In 2018, more than 5.9 million tourists visited the country, spending a total of 15.7 million nights - an increase of circa 25% from the previous year [1]. While this growth could have a significant positive impact on local communities in Slovenia – by for example adding value to the sustainability of their economies and the preservation of natural and cultural heritage, it could also result in issues such as environmental and ecological resource depletion, loss of cultural heritage, and economic dependence [2].

It is therefore important that the concept of sustainable tourism is integrated in tourism development strategies across Slovenia. This means taking into account “current and future economic, social and environmental impacts, while addressing the needs of visitors, the industry, the environment and host communities” [2].

In our specific project, we worked on a sustainable tourism development plan for Komen municipality in the southwest of Slovenia. The region is famous for its limestone caves, sinkholes, Teran grapes and wines, rolling vineyard hills, small-scale agriculture, old karst stone buildings, and airdried prosciutto.

Our Client

In 2016, the municipality of Komen established the “Javni zavod Komenski Kras”, the public institute Komenski Kras, with the goal to foster and develop tourism within the municipality and the wider Komen Kras area. Polona Abram, our direct contact for the project, is the director of the organisation, which currently employs five staff members.

The Task

The Public Institute Komenski Kras tasked us with developing a sustainable tourism plan for the Komen Municipality, specifically using the village of Volčji Grad as a case study to represent the many other rural villages of the region. Polona highlighted certain key issues facing the region for us to address in our project, namely:
Tourism seasonality
Increasing the number of overnight stays
Long-term population decline, particularly of young people

Of particular importance is protecting the authenticity of the region - a fundamental dimension of social sustainability. This means avoiding strategies to attract mass tourism and to focus on those that meet the local communities’ way of life.

This project’s recommendations are especially meant to give the client and the community an outsider’s perspective on the region’s tourism offerings and how it can tap into existing potential to address the main challenges facing tourism and the community at large.

**Scope**

For this project, we considered attributes of the greater Komen Municipality to provide greater context and then centred specifically on the village of Volčji Grad. We developed our recommendations to be actionable in the short-term and simple to implement, with the goal of integrating them into a long-term strategy for the greater municipality to the extent possible. We also acknowledge the limitations that the Karst Institute has to implement these strategies. Additionally, the recommendations are meant to provide a practical model to connect the potentials in Volčji Grad and the neighbouring communities in the region.

**Case Study: Volčji Grad**

A village of approximately 75 inhabitants located 3 km south of the town of Komen, Volčji Grad is exemplar of many rural villages in Slovenia’s Karst region for its size and the different activities the villagers are involved in. The average age is 45 and the population is declining [3]. Particularly, young people are leaving the village. It hosts a handful of small-scale tourism offerings, most notably a large, underdeveloped yet well-preserved hill fort in the region dating back to 1500 BCE called Debela Griža, which has the largest potential to attract more visitors. Štanjel, a medieval village on a hill, is currently the area’s main attraction and often serves as the main departure point for tourists.

**Approach**

To build our strategy, we needed three key sets of information. First, we needed to understand the local context, specifically relating to tourism. Developing this understanding meant:

1. gathering information on the supply and demand side of tourism in the region;
2. mapping out the range of products, services and experiences currently offered;
3. listing the assets of the region; and
4. developing an understanding of the positive and negative effects that
tourism could have on the community, heritage and ecology of the region [4].

Second, we needed to understand the regional vision for tourism development. The vision had to capture the national and local context, the risks involved, and, most importantly, the community’s objectives. And finally, we needed to understand the challenges related to attaining this vision.

Research

We conducted our research in three stages. In the preliminary stage we relied on desk research and explorative, online interviews. In the second stage, we used this acquired knowledge to set up and conducted 20 on-site interviews with a wide array of stakeholders. Additionally, we organised a workshop for over 25 local attendees to explore the community’s common tourism vision, which involved collaboratively identifying the region’s assets, opportunities, and challenges. In the final stage of our research, we tested our findings and reworked them where necessary.

Challenges

From our research and interviews with stakeholders, recurring barriers to sustainable tourism development for small towns such as Volčji Grad were seasonality, location, and the lack of compelling tourism product offerings. On an institutional level, some of these issues were attributed to the lack of collaboration between operators of tourism products, the lack of a cohesive vision for regional tourism development, and the residents’ own scepticism about tourism as a viable business strategy.

Seasonality

The problem of seasonality is common to many tourist regions and Slovenia is no exception. For the country as a whole, the four months from June to September experience the highest tourism flows, measured in terms of overnight stays. At its peak in August, the number of foreign tourist stays in Slovenia was about 4-5 times higher than during the low season (October to April) in 2016. This trend has become increasingly pronounced over time, with tourist arrival numbers in the months of June and August growing about 50% from 2008-2016, while growth in the other 10 months of the year was only 5-15% over the same eight-year period [1]. For villages like Volčji Grad, this pronounced seasonality presents a barrier for existing tourism operators to transition from providing tourism offerings on an ad-hoc or amateur basis, to providing a professional and full-time service. This also limits the potential of tourism to provide viable year-round employment opportunities that could attract people back to the villages.

As a consequence of this seasonality, many restaurants and tourism offerings only operate on the weekends during the shoulder seasons. This presents a chicken-and-egg situation where operators cannot extend operating hours to weekdays because of a lack of tourists, and tourists do not visit during weekdays because of a lack of offerings.
Tourism seasonality in Slovenia (own graph based on data from source [1])

Location

While tourism offerings in the broader Karst region such as the Škocjan Caves and the Lipica Stud Farm are strong enough to attract international tourist flows from major centres such as Trieste and Ljubljana, the only existing top tier attraction in the Komen-Karst area is Štanjel Castle. Volčji Grad, and many other towns in Komen-Karst are a short 15-minute drive from Štanjel, but they have not yet managed to attract many of Štanjel’s tourists to explore the region beyond the castle. Many residents of the town think they are too far away from Štanjel.

Lack of Compelling Tourism Offerings

Apart from Štanjel, the Komen-Karst area’s tourist offerings can currently be best described as “hidden gems”, as they have great potential, but are let down by weaknesses in their visibility and their level of product development. Of these, gastronomy is currently the strongest offering, yet many of the area’s top restaurants have a limited online presence. Cultural sites with large potential such as the Debela Griža, could one day rival Štanjel as the area’s key attraction, but currently, only on-demand pre-booked walking tours are offered. Other local assets such as the architecture of the villages, the small-scale production of Teran wine, salami, stone masonry and bee keeping, are not visible to visitors until they are already in the villages.

Institutional Challenges

Speaking with tourism operators in the region and with residents of Volčji Grad, two recurring themes were that the majority of residents in the villages remained unconvinced that tourism would be a viable development strategy, and that among existing operators there was a lack of collaboration outside of existing friendship groups. However, despite the existence of scepticism about the potential of tourism, for Volčji Grad at least there appears to be a
critical mass of motivated and active residents who are keen to explore its potential. Except for the gastronomy sector, collaboration between operators in different villages providing the same tourism offerings, such as tour guides or wellness, appears to be lacking. Cross-collaboration between formal associations from different municipalities are also very underdeveloped. In summary, there appears to be a fragmented landscape of tourism providers that is characterised by zero-sum competition, which loses sight of the potential benefits from co-operating to raise the profile of the region’s offerings as a whole.

**Recommendations**

To tackle the challenges we identified, we developed a list of recommendations that address one or multiple issues. Bearing in mind our client’s wish for short-term, directly implementable recommendations, we have aimed to come up with concrete action steps for each recommendation.

**Branding**

A root issue we identified is that the region currently lacks a cohesive vision of what its tourism in the region should look like. This vision is necessary to build the sustainable regional brand that could be used to coordinate collaboration in terms of product development and distributing product information [6].

Slovenia’s national brand is “(...) a global green boutique destination for demanding guest who are seeking a diverse and active experience, peace of mind and personal benefits”. Komen, as a gold destination under the related “Green Destination Standard” certification scheme that was developed to coordinate tourism efforts, is partly branded under this national brand, which was also repeatedly mentioned in interviews [7]. What is still lacking, however, is a distinguishing brand for the specific region of Komen Karst that 1) fits the community’s own vision of tourism development and 2) captures the region’s touristic assets. Building this brand could divert tourism flows from current tourism hotspots such as the caves and the Lipica horses to the Komen region.

**Branding as the foundation for collaboration, impacting product information and development**

In our research, we made an attempt to establish a foundation for this vision. This vision is centred around the small-scale, intimate and environmentally sustainable features of the region, and sees local control as the front and centre of any development in tourism. Our effort is, however, still far from complete. Although we have spoken to several regional actors beyond our case study, our brand vision was still primarily influenced by the actors in Volčji Grad. In the establishment of a more complete brand, our first recommendation would therefore be to take a similar, yet more extensive approach with other villages and towns in the region. This leads us to recommend the following steps:

1. **Establish what the region is:** Depending on what is possible in terms of collaboration with other municipalities, decide the scope of the regional brand. Is it Komen
municipality or does it also include other municipalities in the Karst region?

2. Gather information about the region: What is the current supply and demand for tourism in this specific region? What are its distinguishing assets from neighbouring regions and where is there still potential? How can tourism remain sustainable?

3. Establish a common vision in collaboration with the community: Decide on a common vision and where the residents see their future in tourism and in the region as well as what type of tourist they want to attract. This could for example be established through 1-1 interviews, workshops or focus groups.

4. Translate the vision into a common brand: Connect the region’s unique assets with the community vision to create a clear brand statement that describes what the destination stands for and what it offers. This brand should be aligned with, but well-distinguishable from the national brand.

5. Make sure that the destination is aligned with the brand: A key success factor in maintaining the brand is the alignment of the destination with the established brand [5]. This means that if the brand sees Karst as a small-scale, intimate destination, tourism products should be aligned to ensure that this is also the experience of the tourist. This is where collaboration becomes vital. Coordinating product development and product information distribution can ensure that all efforts are fitted within the brand. This will not only help to strengthen the region’s tourism brand but could potentially also attract and stimulate local entrepreneurship [8].

Overall, we recommend central actors such as the Municipality and the Komenski Kras Institute to drive the brand creation initiative.

Product Development

Comparing our strength and weaknesses analysis, we mapped out the assets and potential of the region before our arrival in the region, and with our experiences with the regional tourist products during our stay in Komen, we have identified several remaining gaps in product development. Product development in this context includes both the refinement of existing and the creation of new products guided by the overarching sustainable tourism strategy of the Karst Brand. We have four main recommendations around product development applicable to the Komen-Karst region.

1. Create a story around the offer to elevate the product to an experience which fits under the umbrella of the Karst Brand. Volčji Grad has a unique richness in small scale food production (biodynamic and organic), farming and gastronomy which can provide a platform for experiences with tourists. It also helps attract sustainability conscious customers. Examples are the off-grid bee keeping, stone masonry, wine and liquor production which all offer opportunities for educational and skills workshops.
2. Create a product package to tackle low demand months and the type of tourism that is preferred by the locals and to create long-term employment. Utilising the envisioned Karst Brand can guide this process. During a workshop with the locals from Volčji Grad it became apparent that there are enough ideas (and existing products) to developing itineraries for at least spring, summer, and autumn. We further encourage to develop themed months leaning on the already existing asparagus month initiative of the regional PLANTA association, that help to attract different tourists in different months. Using packages, the region could contribute to extending the average length of stay of 1.4 days per person in the Karst region, which in return could foster higher-spending, lower-impact tourism as well as reducing seasonality effects.

3. Even though the region has been noted for offering great content for tourists, it cannot provide sufficient income and employment as long as the content has not been turned into a sellable product with an appropriate price tag. The appropriate pricing of products, experiences, and packages has so far lacked a professional approach to tourism. Product research and benchmarking comparable offers will help locals to justify a higher price tag for a unique, sustainable, and authentic Karst experience.

4. Currently the tourist offers and experiences are not easily bookable online which creates an information gap. There is currently not one, central point where offerings are bookable. Although for example the national and regional tourism websites provide opportunities for this, advertising something on these websites requires a level of professionalism in terms of bookability. Investing in a website or online platform and an easy booking process can help to coordinate marketing efforts, while at the same time establishing an impression of quality and professionalism, which further adds to the boutique experience the Slovenian tourism strategy is aiming for across the whole country.

Product Visibility
Tying into the previous recommendation, we conducted a digital assessment of the assets and attractions of the region for their web presence, focusing on the ease of finding information, the quality of the information and its availability across multiple platforms suited to different audiences. We also considered non-digital strategies for promoting the visibility of assets and attractions, such as cross-promotion amongst existing service providers and leveraging Štanjel’s status as a tourist hub to proactively promote tourist offerings in the nearby region. Four recommendations resulted from this analysis:

1. Ensure product offerings are available on all major market and information platforms commonly used by tourists visiting the region, such as Google Maps, AirBnB, Booking.com, Trip Advisor, I Feel Slovenia and VisitKras.info. Many products and attractions in the vil-
lages of the Karst region do not currently have a strong web presence. Even businesses with viable product offerings that are located close to tourism hubs, such as Štanjel, are not discoverable on Google Maps or Trip Advisor - or they may be only discoverable under searches conducted in Slovenian or Italian. Improving the searchability of the region’s product offerings on existing digital platforms would be a low/zero-cost first step that can be implemented immediately. The Karst Institute can potentially play an important role here in creating and distributing a “digital awareness check-list” for tourism operators in the region. The check-list should encourage operators to ensure their product offerings are available on all of the major digital platforms that are relevant to their product type and can include additional information such as step-by-step guides for using each of the platforms.

2. **Proactively monitor and maintain digital profiles across multiple platforms.** Once a business has established a presence on a digital platform, they should periodically monitor their profile to ensure that information is up-to-date, and that customer satisfaction is translated into positive reviews. Reviews left on digital platforms can also be a valuable source of feedback for product improvement. Businesses should also be proactive at encouraging satisfied customers to consider leaving a review on these digital platforms. Many digital platforms prioritise the visibility of businesses by the number of reviews and the average rating of those reviews.

3. **Strengthen networking and cross-promotion between local operators.** The brand of boutique and slow tourism that the region envisions requires local operators to be at the forefront of promoting the value of other local offerings. Each local operator, whether they run a restaurant or provide accommodation, has an important role to play to also provide tailored advice to their customers (upon request) on how they can have other authentic Karst experiences during their stay. Tourists after boutique travel experiences tend to place a high value on local advice and tips [9]. This means it is important for all operators to regularly network with each other in order to be fully aware of other high-quality offerings and experiences available in the region that they can recommend in order to improve the experience of visitors.

4. **Leverage Štanjel’s position as a tourist hub to proactively promote the broader region’s offerings to Štanjel’s visitors.** Currently, only visitors to Štanjel who walk into the tourist information centre get any exposure to offerings in the nearby region. Attractive and highly visible signage, maps and other means to communicate the broader region’s assets and attractions should be positioned in outdoor areas with high tourist traffic. Tourists arriving at Štanjel should be presented with the immediate impression that the
broader region is full of attractions worth exploring, of which Štanjel is just the most visible tip of the iceberg.

Collaboration
From the multiple issues we identified in our case study, we believe improved collaboration between actors across sectors underpins the successful implementation of all our recommendations. Building on the Komen-Karst brand, the region needs to develop a culture that fosters greater collaboration to achieve communal goals around tourism and move away from the more independent-oriented mindset that limits greater business development. Collaboration can create and strengthen synergies between service providers across sectors, reinforcing tourism products and potentially pooling resources. This has led to the following recommendations:

1. **Develop a long-term term governance and collaboration strategy that upholds the greater community’s vision for tourism.** This responsibility must fall upon the Municipality. The strategy must involve coordination with tourism providers across villages and build upon Štanjel as the departure point from which tourists can explore the region. More importantly, it must involve input from community members. This plan should set actionable targets and assign roles to actors.

2. **Create a tourism body that can coordinate efforts across neighbouring municipalities and strengthen synergies.** Komen Municipality could use the example of other cross-municipality efforts in Slovenia, such as the Zeleni Kras and the Soča Valley Tourist Board, to support regional tourism as a model for the Komen-Karst region [10]. It could develop a tourism body which coordinates efforts across neighbouring municipalities by pooling resources to provide support to service providers that wish to participate.

3. **Designate greater responsibilities to a more centralised Destination Management Organisation to coordinate business development and serve as a platform for tourism stakeholders.** The Public Institute Komenski Kras already fulfils some of the roles, but it has potential to develop a stronger partnership management structure to serve as a platform for regional tourism stakeholders and improve coordination across them. As an improved, cohesive platform, it can better disseminate information about the region’s offerings through key channels at the regional and national level for more targeted promotion.

4. **Village associations can collaborate more extensively to create a cohesive cultural landscape that strengthens the regional identity offering through several ways.** They can coordinate festivals throughout the year through mutual promotion and strengthen their network of cultural heritage trails. This increased network visibility and cohesion can strengthen the regional brand and direct tourist flows. Furthermore, as a collective representing several associations or
cultural heritage sites, they could apply for regional, national, or European funds to finance the development of their sites.

5. **Coordinate efforts across important tourism sectors for mutual promotion, creation of activity packages and quality service reinforcement.** Operating under a more centralised, regional tourism body in a more collaborative climate with the aim of promoting tourism, service providers from various sectors should collaborate to help reinforce each other’s business. Beyond simply promoting one another, they can collaborate to create various activity packages throughout the year to provide tourists with a greater experience [11]. Additionally, greater business to business information sharing could potentially serve to improve the quality offering of service providers across the region, in line with the boutique experience the region aims for.

These broad recommendations around collaboration are meant to address multiple levels and reinforce the comprehensive recommendations on regional brand and product development, product visibility, and information.

**Conclusion**

As Slovenia becomes increasingly popular amongst tourists, it is vital that sustainability is integrated in tourism development plans on both the national and the regional level. For the Komen-Karst region, as for many other regions, it is important that tourism provides an economic advantage and development tool that does not compromise the region’s authenticity or natural and cultural heritage. Currently, the economic and developmental opportunities of tourism are, due to issues such as a lack of collaboration and branding, not sufficiently capitalized. In order to better utilise these opportunities in the future while ensuring the social, economic and environmental sustainability of the region, we recommend that first, time and efforts are invested in the development of a regional tourism vision and brand that is built and accepted by the whole community. We believe this brand can be used to coordinate product development efforts in the region; and to improve distribution of information about these products to the tourist public. These recommendations are underpinned by the overarching recommendation of increased collaboration – between tourist product providers, municipalities, and other community stakeholders. For more information about how our recommendations could work in practice, we refer to the report we have submitted to our client. The report can be requested from the International Institute of Industrial Environmental Economics.

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Ljubica Knežević Cvelbar PhD, Researcher, University of Ljubljana, March 28, 2019

Maša Klemenčič, EDEN Project Coordinator, National Tourism Board of Slovenia, April 1, 2019

Dr. Renata Karba, Deputy Director and Project Manager, Umanotera, April 2, 2019

Tom Ločniškar, Area Consultant and Web Developer, Public Institute Komenski Kras, April 3, 2019

Owner of restaurant in Štanjel, April 3, 2019

Nina Abramič & Miran Prodnik, Owners, Hotel St. Daniel, April 3, 2019

Andреj, Sergij and Ivana Stancich, Owners, Biodynamic farm and restaurant Pri Kamnarjevih, April 4, 2019

Goran Živec, Owner of archaeological site Debela Grizá, April 4, 2019

Martina Kafol, Member of Debela Grizá cultural society and accommodation provider, April 4, 2019

David Stepančič, Member of Debela Grizá cultural society and accommodation provider, April 4, 2019

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Sandra Pelicon, Društvo za razvoj kmetijstva in turizma Planta, April 6, 2019.
New Delhi, India
Acknowledgements

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The Team

Riccardo Losa is from Meda, North of Italy. He holds a B.Sc in Management Engineering from Politecnico di Milano University. He has a certification in Project Management and has an internship experience in this field. His interest are related to circular economy and water issues.

Lucyl Staub is from Colmar, France. Young graduate of a MSc in International Business Management and an MSc from Business Administration from Grenoble Ecole de Management, Lucyl has worked in marketing and sustainability departments of consumers goods companies and in sustainability consulting. Her interests lie mostly in sustainable food production and consumption as well as waste management and the circular economy.

Lisa Smeke is from Mexico and has professional experience in CSR management and sustainable development projects with rural communities. She holds a B.A. in Social Responsibility and Sustainable Development from Universidad Anáhuac México Norte.

Benjamin Donovan is based in Sweden, from the UK and has a background in international development, environmental sociology and events management. His interested in applying the learnings from the EMP program into forwarding sustainable food systems, community development and resource use efficiency.
Waste from electric and electronic equipment is the fastest growing waste stream in the world. This waste, also known as WEEE or e-waste, is expected to grow by 3 to 4% annually from 2017 to 2021 [1] and surpass 50 million tonnes by 2020. India alone is expected to contribute over 2 million tonnes every year, which represent a critical challenge due to the lack of environmentally sound management [2].

To tackle this issue, the Indian government introduced the first regulation for e-waste management in 2011 [3], the E-Waste (Management and Handling) Rules, which were later amended in 2016 and 2018 [1]. These rules introduced the principle of Extended Producer Responsibility (EPR) for the first time, which was strengthened in 2016 when collection targets and the term Producer Responsibility Organisation (PRO) were implemented. In the E-Waste Rules, PROs ensure collection services and awareness activities on behalf of a collective group of producers. Karo Sambhav (our client) is a unique actor in the Indian PRO market seeking to create transparency and accountability in the system. This report presents the current situation of e-waste management in India, the challenges faced by Karo Sambhav in the system, and potential solutions to ensure the organisation’s survival in the midst of an unfair playing field for PROs in the country, primarily due to a lack of clarity, monitoring and enforcement of the law.

E-waste and EPR in India

India has experienced a phase of accelerated industrial activities during the last three decades, leading it to become one of the fastest growing markets for electronics in the world [2]. The country is positioned as the fourth largest e-waste producer in the world, properly recycling less than 2% of this waste stream [2]. E-waste can be very damaging to human health and the environment when it is not handled and disposed of in a proper manner. This is due to the hazardous materials that it contains, such as lead, cadmium, chromium, brominated flame-retardants and polychlorinated biphenyls. At the same time, it is a valuable waste stream because it is rich in metals such as copper, nickel, silver, and gold [2]. Due to its valuable content, the rate of e-waste collection is very high in India. However, over 95% of collected e-waste is managed by the informal sector using environmentally damaging methods with significant health hazards. Unskilled workers, including children, usually work in landfills and dumpsites treating this waste stream without any safety standards and
environmentally sound practices. The complexity of e-waste makes it difficult to recycle in many cases, thus, in spite of a high collection rate, the recovery of valuable material ranges between 10-20% [4].

Introduction and Evolution of EPR

Extended Producer Responsibility (EPR) is a strategy for waste management that makes producers legally accountable for the environmental, social and financial end-of-life impacts of the products that they put in the market [5]. The Indian Ministry of Environment, Forest and Climate Change (MoEFCC) issued the E-waste Rules in 2011 based on the principle of EPR. These rules apply to any actor involved in the manufacture, sale, transfer, purchase, collection, storage and processing of 21 categories of information technology and telecommunication equipment and consumer electrical and electronic equipment (EEE) [3]. The E-waste Rules were amended in 2016, setting clear targets for producers to fulfil their obligations, as well as introducing the concept of Producer Responsibility Organisation (PRO) for the first time. These rules defined a PRO as “a professional organisation authorised or financed collectively or individually by producers, which can take the responsibility for collection and channelisation of e-waste generated from the ‘end-of-life’ of their products to ensure environmentally sound management of such e-waste” [3]. In 2018, a new amendment to the rules required PROs to be authorised by the Central Pollution Control Board (CPCB) to operate, and up to date, there are 19 authorised PROs in the country.

The Role of PROs

Producers have the option to comply with EPR on their own (Individual Producer Responsibility; IPR) or in collaboration with other producers (Collective Producer Responsibility; CPR). When producers decide to comply through CPR, PROs operate on their behalf by providing e-waste collection services and developing awareness campaigns, as well as by providing compliance documentation to the authorities. In the current Indian context, PROs are for-profit organisations operating in a competitive market. In comparison with EPR implementation in other countries, e-waste procurement from informal waste aggregators constitutes one of the largest operation costs for Indian PROs. Aggregators are actors at the end of the e-waste collection chain gathering e-waste from several channels of waste pickers, before doing further sorting of e-waste to be sent to informal recyclers.

Cost comparison of European PROs vs Indian PROs [6]
**The Ambitious PRO: Karo Sambhav**

Karo Sambhav is one of the first Indian PROs for e-waste. Established in 2017, this for-profit PRO delivers EPR authorisations and provides collection and awareness campaign services for EEE producers to meet collection targets and compliance obligations. Its founder, Pranshu Singhal, along with four EEE producers joined forces to found Karo Sambhav with the ambition to build a sustainable, inclusive, scalable, transparent and accountable e-waste system for India. The organisation is governed by a consortium of the four above-mentioned producers and currently has 28 EEE producers on board.

Karo Sambhav pursues its aspirations by transforming the e-waste collection system traditionally managed by the informal sector. This process involves providing assistance to set up bank accounts for cashless payments (in order to avoid informal transactions), as well as to legally register their businesses. To attract informal e-waste workers, Karo Sambhav buys e-waste at above market prices. This has enabled social transformation by formalising more than 5,000 waste pickers and aggregators as well as 800 repair shops, across 68 cities, 31 States and 3 Union territories. Karo Sambhav’s e-waste collection system has expanded to more than 250 collection points around the country. To ensure traceability of the waste and avoid leakage back to the informal sector (a practice where recyclers and/or aggregators sell the WEEE back to waste collectors, creating a vicious e-waste cycle), Karo Sambhav has developed its own tracking application using a barcode system to monitor the flow of collected e-waste in the system. Along the e-waste journey, proof documents are uploaded in the app by actors along the value chain. Some of these documents are required by the government while others ensure further transparency, along with valuable data and analytics.

Karo Sambhav also provides awareness programmes on how consumers can dispose of their e-waste. Awareness activities are conducted in schools through an in-depth 3 to 6 months programme integrated into educational curricula. This programme has engaged more than 2000 schools across India, covering more than 120,000 students and 2000 teachers. Awareness activities to Resident Welfare Associations (RWAs) and educational institutions are also performed by ambassadors through a 2 to 6-month programme. Proof and data of these programmes are available to member-producers in the mobile application.

The value proposition of Karo Sambhav also relies on its multi-stakeholder approach. Beyond actors in the value chain (waste pickers, aggregators, etc.), the PRO collaborates with NGOs (e.g. Toxic Links and Centre for Science and Environment) and government agencies (e.g National and State Central Pollution Control Boards, and the Ministry of Electronics and Information Technology) to develop a responsible e-waste recycling system. Karo Sambhav has also worked with the International Finance Corporation and the International Labour Organisation.

Closure event of Karo Sambhav's awareness
program at the Global Indian International School in Heggondahalli Village in Bengaluru [7]

**Our Task**

The lack of a level playing field for PROs in India is threatening Karo Sambhav’s survival. There is a need for the organisation to reduce the risk from relying on just one source of income. The task given to the IIIEE team was to provide solutions to keep current Karo Sambhav’s producers on board as well as to engage new ones. In addition, this project aims to suggest potential new revenue streams through innovative business models for Karo Sambhav, even if they are outside of the traditional role of a PRO.

**Approaching the task**

The task was approached through three stages; first, a preparatory phase with desktop research in Lund, followed by on-site work during a 10 day visit to the client’s offices in New Delhi, India and finally, the preparation of deliverables for the client. Further details on each stage are presented in the following sections.

The research conducted during the first stage was focused on the implementation of EPR in different contexts with the aim to better understand global EPR practices and their potential implementation in the Indian context. Insights included international best practices, challenges faced by other countries and solutions to address lack of enforcement or poor monitoring of EPR rules.

The authors conducted in-person and online interviews as well as email exchange with various experts in the field of EPR and waste management. Experts include researchers at the IIIEE and actors working in international NGOs and PROs in Europe, East Asia and America.

During the on-site stage of the project, several interviews were conducted with major stakeholders in Indian electronics and plastic packaging industries. The team had meetings with two of Karo Sambhav’s major clients, where interviews were conducted with the sustainability and compliance managers. Two meetings were conducted with NGOs. The first meeting was with Toxics Link, the NGO that started the dialogue about EPR in India. The second meeting was with the Centre for Science and Environment (CSE), which focuses on research in various environmental issues including waste management. The influence of government actors was observed through two meetings; one between Karo Sambhav and the Swedish Embassy in India and another with the Indian Ministry of Environment, Forest and Climate Change. The former was to explore opportunities for partnerships between Swedish industry/institutions and Indian organisations, while the latter focused on issues surrounding EPR implementation in India. The authors attended the conference “The Way Forward” concluding a two-year partnership between Karo Sambhav and the World Bank’s International Finance Corporation. At the event, the authors were able to engage with actors from the public and private sector who are working with EPR in India. Apart from engaging with major stakeholders in Indian e-waste management, the authors also participated in meetings with producers from other industries to discuss the potential of implementing a similar EPR system design for other waste streams. Finally, the authors held meetings with Karo Sambhav’s employees working in different areas, such
as communication and awareness, logistics and producer relations in order to gain a deeper understanding of the internal work and current challenges faced by the organisation.

The last stage of the project started in India, where the authors presented preliminary findings and potential solutions to the CEO and employees from several areas in Karo Sambhav. The objective was to co-build solutions with the Karo Sambhav team while identifying which were most feasible and relevant. Finally, as a joint decision between the authors and the client, the recommendations and solutions presented in the client report were framed by short and long-term actions to ensure a path forward for Karo Sambhav. Apart from immediate actions, the report also provided considerations to be used as a baseline for further internal reflections and discussion in the organisation.

Limitations
Throughout these stages, several limitations were identified. First of all, the limited number of interviews and interaction with relevant stakeholders does not allow the findings to reflect the entire system perspectives. Secondly, producers’ perspectives on Karo Sambhav’s value proposition were limited due to the small number of member producers being interviewed and the inability to interview non-member producers. Moreover, due to time limitations, interviews with Karo Sambhav’s internal teams were performed during the last days. Longer and more frequent conversations with the internal teams would have likely changed the authors’ perspectives. In addition, given that Karo Sambhav facilitated interviews on the authors’ behalf, the team’s understanding of the Indian context and recommendations have very much been shaped by Karo Sambhav and its main stakeholders’ perceptions. Finally, the provided suggestions are not supported by investment analysis, which remained out of the scope of this consulting project.

Contextual Challenges to Karo Sambhav’s operations
This section outlines Karo Sambhav’s current challenges emerging from the implementation of the EPR rules, the development of the Indian waste management infrastructure, as well as the attitudes and actions of the major stakeholders along the value chain.

Incomplete and Weakly Enforced EPR Rules
The E-Waste Rules were established by the Indian government following the European models, without sufficient consideration of unique characteristics in the Indian context. The lack of preliminary studies on the requirements of an EPR system to fit the Indian scenario caused the establishment of imprecise EEE rules, which negatively impact the effectiveness of the system. Outcomes include poorly defined e-waste
categories and minimum operating conditions for a PRO, the absence of a national registry of e-goods sales and the lack of any monitoring system to ensure responsible and efficient operations of PROs. Karo Sambhav is therefore competing in a market with structural weaknesses that undermine the adoption of sustainable collection and recycling practices.

The lack of an adequate monitoring system allows other PROs to cheat with their processes and documentation. Cheating includes misreporting of e-waste where expensive categories of waste for collection and treatment are reported to the government while in reality collection consists of cheaper fractions. In addition, falsified evidence of e-waste collection and recycling are created when there has been no real movement of waste. One of the most common cheating practices includes multiple accounting of e-waste which means that PROs report the same weight of collected e-waste to multiple producers without weight allocation. PROs are also selective in which e-waste items they procure to meet producers’ collection targets, giving preference to items that are cheaper and easier to recycle at the expense of remaining complex e-waste fractions. In addition, it is possible for PROs to treat e-waste in an environmentally negligent way by leaking the waste back to the informal sector.

Beyond challenges linked to EPR design, the whole system is characterised by inadequate enforcement of the E-Waste Rules. Already weak regulatory agencies are in charge of reviewing producer EPR plans, of granting EPR authorisation and of enforcing established standards for collectors, dismantlers, recyclers and bulk consumers. Consequently, the monitoring and enforcement deficiencies of the EPR regulation lead to the emergence of an uneven playing field dominated by a race to the bottom of PRO producer fees. Therefore, the system is not encouraged to develop more efficient and sustainable e-waste management practices, and Karo Sambhav is losing competitiveness.

**Lack of Waste Management Infrastructure**

Karo Sambhav aims to dispose of e-waste in an environmentally sound manner, but the lack of suitable recycling facilities is preventing the achievement of this objective. There is a need either to upgrade existing recycling facilities to international standards or to build new plants. However, these facilities are costly to produce and beyond the current investment capacity of Karo Sambhav. The development of e-waste recycling facilities in India is also challenged by the lack of domestic demand for the subsequent output of recycled materials. Unlike Chinese e-waste recycling systems that are accompanied by a large domestic manufacturing base, India does not have a sector with the capacity to absorb the recycling materials that would derive from large-scale recycling facilities.

As stated before, the Indian EPR system is modelled on similar systems present in the EU. However, in the EU, EPR has been implemented on top of pre-existing municipal solid waste (MSW) management infrastructure. The presence of these systems supports the successful implementation of EPR. In comparison to European MSW management, India lacks formalised collection and treatment facilities to ensure environmentally sound disposal of diverse waste fractions.
Therefore, Indian PROs like Karo Sambhav are challenged with the task of implementing an EPR system that was originally designed for a very different context. Finally, there is the challenge that recyclers consider becoming a PRO to be a profitable business opportunity. The fees paid by producers represent a tempting source of income and purchasing waste directly from e-waste collectors and aggregators would reduce their supply cost. Consequently, Karo Sambhav is facing also the tough competition of these actors and the possibility of the PRO to have success in the market is further reduced.

**EPR System Challenges**

At a systemic level, there is a lack of data and understanding on the levels of e-waste produced in India, e-waste flows from consumers to recyclers and data on processes and environmental impacts across the e-waste recycling value chain. This information gap is due to the lack of documentation among the informal sector of e-waste management, and to the lack of governmental tools to monitor the system. Data deficiencies restrict the ability for authorities to monitor and improve the Indian e-waste EPR system. For Karo Sambhav, the lack of data hampers the organisation’s ability to hold its competitors to account in accordance with the law and to principles of fair and environmentally responsible operating practices.

Individual and bulk consumers usually do not dispose their WEEE in an environmentally responsible manner unless they receive incentives, despite of the legal obligation for bulk consumers to dispose of their WEEE through a registered PRO. The large informal refurbishment sector for EEE in India means bulk consumers prefer to sell their EEE at the higher price paid for items destined for refurbishment compared to the lower price based on material value of EEE destined for recycling. Unawareness of the harmful impacts carried by such practices is reinforcing this phenomenon. Karo Sambhav cannot bear the cost of purchasing e-waste at such prices nor incentivise consumer behavioural change.

**Lack of Producers Interest**

Some EEE producers lack understanding of the EPR concept, of their responsibilities to comply with the E-waste Rules and the severity of the WEEE issue in India. Therefore, only a few producers truly grasp the full value proposition of Karo Sambhav and its differentiating factors against other PROs. In addition, producers cannot compare different PROs’ services and prices in a systematic and transparent way. Even the most aware manufacturers are reluctant to pay a premium for Karo Sambhav’s services when competitive PROs offer compliance at a significantly cheaper cost. This results in an uneven playing field and unfair competition for Karo Sambhav. As for now, Karo Sambhav mostly attracts international EEE producers which have experienced higher levels of consumer awareness and higher levels of commitment from top management in their domestic markets.

Karo Sambhav faces the risk of losing producers as members from one year to another. On the one hand, this is due to the one-year nature of Karo Sambhav’s contracts as well as frequent changes in EEE producers’ management teams in charge of selecting a PRO. On the other hand, producers expect increased e-waste handling efficiency and a corresponding reduction of fees. Moreover, manufacturers require Karo Sambhav to develop
quantifiable impact assessments of its e-waste collection and treatment, and awareness campaigns while reducing the feed of e-waste collected from the informal sector. In a context of tight revenues, such expectations further challenge Karo Sambhav in its sustainable development.

Finally, the value proposition of Karo Sambhav is for many producers relying on its high credibility in the field. Such credibility has been built by implementing a fair, transparent and accountable e-waste collection and recycling system, but also by the support from international and local organisations. Karo Sambhav’s key partnership with International Finance Corporation has now come to end, which might affect its credibility in the future in the eyes of EEE producers.

**Recommendations**

In order to retain and attract new producers, as well as to diversify revenue streams, the following short-term and long-term strategies are proposed as opportunities for Karo Sambhav.

**Short-term**

- **Increase brand image and credibility**
  
Karo Sambhav can partner with international PRO associations that would help increase its credibility and image as a responsible organisation as well enhance its standardisation processes. The organisation can also validate its social and environmental performance through global certifications for private companies. In addition, developing and investing in a clear and comprehensive marketing strategy would help position Karo Sambhav as a responsible organisation for producers and for the general public, thus increasing interest and demand for its services.

- **Increase producer’s value**
  
There is opportunity for Karo Sambhav to further differentiate itself through innovative awareness campaigns. Through online modules or MOOC format, Karo Sambhav could expand its targeted audience. Additionally, using member-producers’ technologies in existing school programmes would increase young consumers’ interests in technological products.

**Long-term**

- **Design system for other waste streams**
  
Karo Sambhav’s system design for collection and traceability of e-waste has the potential to be implemented for other fast-growing waste streams in the Indian market such as plastic, tyres and solar photovoltaic panels.

- **Offer tracking app & IT services**
  
Karo Sambhav’s tracking system (i.e Karo Sambhav mobile application) could be sold to other organisations in need of providing transparent and traceable products and services. For organisations under consumer pressure, such reliable and user-friendly tracking services could become a social license to operate.

- **Diversify collection streams**
  
To answer member-producers’ requirements to reduce collection volumes from waste aggregators, Karo Sambhav can develop additional collection streams from RWAs and individual consumers. Households could receive a collection box from their respective RWA which would be sent back to Karo Sambhav at no cost for the consumer. In addition, door-to-door collection in partnership with delivery services could be coupled with incentives to
attract individual consumers. As an example, individual consumers could get a discount on food delivery when giving back their e-waste to the service provider.

- **Provide consultancy and data services**

The current lack of knowledge about EPR can be addressed by providing training sessions to relevant stakeholders from the private and public sector. Karo Sambhav’s know-how on EPR and Circular Economy can be sold as consultancy services. Moreover, Karo Sambhav’s dismantling and recycling data could be provided to producers to guide their eco-design strategies.

**Further Considerations**

Apart from the previous recommendations, specific considerations for the development of Karo Sambhav’s future strategy were suggested to be further discussed. These include the potential to lobby for EPR regulations, finding a market for recycled material, linking the e-waste issue to other environmental challenges strongly positioned in the country’s political agenda and seeking for stakeholders’ approval when diversifying the organisation’s activities.

**Conclusion**

The Indian context represents challenges and opportunities for the successful implementation of EPR for e-waste management in a system characterised by weak enforcement and a large role played by the informal sector. Karo Sambhav has played an important role by building a sustainable and efficient collection and recycling system for e-waste. Despite Karo Sambhav’s efforts, this report illustrates how the Indian e-waste EPR system remains fragile. The survival of Karo Sambhav’s business is therefore of crucial importance for a successful Indian EPR story to be truly established. However, the provided recommendations support a promising scenario for Karo Sambhav to use its leading e-waste PRO position and to engage in other fast-growing waste streams.

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Mr. Chandramohan Gupta, Director of Corporate Affairs at Coca-Cola, 04/04/2019
Mr. Sonu Singh, Joint Director of Hazardous Substances Management Division (HSMD) at MoEFCC
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The Team

**Paulina Lis** has seven years of experience in sustainability and green building in San Diego, California. There, she partnered with San Diego Gas & Electric on various building efficiency and electric mobility programs. Paulina holds a bachelor’s degree with honors in tourism management from Napier University in Edinburgh, Scotland and a sustainable business practices certificate from the University of California, San Diego.

**Jacob Steinmann** is from Northern Germany and completed his bachelor’s degree in political science and law at the University of Münster before coming to Sweden. He worked in Brussels for the representation to the EU of his home state on reforming European energy markets and emissions trading. He has research and career interests in tackling challenges posed to energy grids by the transition to renewable energy.

**Nayma Akther Jahan** is from Dhaka, Bangladesh. She holds a master’s degree in Geography and Environment from the University of Dhaka where she completed research entitled the “Application of Solar PV Systems is Dhaka: Economic and Climatological Perspectives.” She then worked as an adjunct faculty member at State University of Bangladesh and as an environmental executive in a textile company.

**Thomas Hallman** is from North Carolina, USA. After completing his bachelor’s degree at the University of North Carolina at Chapel Hill, he worked as a licensed home energy specialist in Boston to conduct building inspections to identify and deliver efficiency improvements. He has also worked in marketing for a utility analytics company and manufacturer of smart metering equipment.

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*From left to right: Paulina, Jacob, Nayma and Thomas*
Modernising Electric Grids by Sparking Consumer Engagement

Supporting Ellevio's Development of Dynamic Tariffs

By Paulina Lis, Thomas Hallman, Jacob Steinmann, Nayma Akther Jahan

Electric Grids in the Energy Transition

Electricity systems are a necessity of modern life. They supply the energy needed for many appliances and technologies to all types of consumers. Though they have been relatively static and slow to embrace change, electricity systems are now rapidly undergoing a transition motivated in part by climate change mitigation efforts. Distributed and fluctuating generation of electricity from renewable energy sources is replacing centralised power plants which use fossil fuels. Electricity grids are essential to those systems, as they connect users to the generation. The operators of electricity grids must adapt to this new intermittent generation. Distribution System Operators (DSOs) are the actors in the grid that operate the connection to consumers. At the same time, demand from consumers also varies predictably over the course of days and seasons, leading to regular spikes in electricity peak loads. To optimise grid capacity under these conditions, DSOs seek more even electricity demand profiles which have smaller peaks relative to average demand, while also stimulating flexibility in the long term to respond to fluctuations in generation from renewable energy sources.

Ellevio, one of the largest Swedish DSOs with about one million customers and over 73 000 km of grid infrastructure, will introduce new smart meters and dynamic pricing models to develop a system which aims at stimulating demand response, the reaction of demand to capacity and generation conditions. One goal is to shift some consumer electricity use from peak to off-peak hours to reduce maximum grid loads which disproportionately stress DSO resources. Several external factors are driving Ellevio’s pursuit of this goal and its implementation.

Regulation

As a natural monopoly, Ellevio’s activities are regulated by the Swedish government through its energy inspectorate, Energiemarknadsinspektionen (Ei), which mandates all DSOs to offer dynamic tariffs by 2023. European legislation imposes limitations on DSOs, too. The “Clean Energy for all Europeans” package sets renewable energy goals for the energy system in total and puts consumers in the centre of the energy market of the future. However, challenges lay ahead as both consumers and the energy marketplace will need to adjust and develop mutual trust and engagement to succeed in this transition.
Stockholm: Sustainable Growth

Stockholm’s population is projected to grow 40% by 2050, placing increasing strain on Ellevio’s electric grid, notably together with transport electrification. Grid capacity restrictions can impose barriers to development which for the DSO can lead to lost revenues, service interruptions and reputational decline. Stockholm also presents itself as a global leader for sustainable urban development. The environmental ambitions are reflected in its own climate targets which include going fossil free by 2040, forbidding the sale of non-electric vehicles and expanding public transportation systems. These are in line with Swedish national goals to achieve 100% renewable energy by 2040. The grids will have to be ready for the transition of the whole electricity system.

Smart meters

Smart meters provide near real-time access to consumption data. This technology is key to the energy transition as it allows for two-way communications between consumers and DSOs. Furthermore, this technology supports smart homes and smart building opportunities including energy efficiency management, generation, storage, vehicle charging and sell-back of consumer-generated energy to the grid. Smart meters will also help popularise building automation and technologies which allow consumers to become their own energy managers.

As the electricity market is evolving, DSOs must respond to new trends. Traditional technology-oriented business models will need to expand and empower consumers in the marketplace. Figure 1 shows the developments that have been described above as well as how grid companies can respond to them. For a DSO, the developments represent innovation opportunities to create new products and services which offer additional value to consumers.

The Project

Ellevio is seeking support to evaluate and describe mechanisms, strategies, best practices and lessons learned which encourage behaviour changes by consumers and promote public acceptance of business actions.

These actions include implementing a dynamic pricing plan. Options are either time-based tariffs (TBT) which charge different rates for energy depending on the time of its consumption, or power-based tariffs which charge based on the peak power use per month.

Completing this task required conducting interviews, researching literature and case studies, and applying findings to Ellevio’s context and goals. This report presents the findings from this research and a summary of specific recommendations to Ellevio.
Best Practices for a Customer-Centred Transition

The energy transition relies on consumer engagement in order to meet climate goals and increase grid resiliency.

Active consumers are a centrepiece of the transition, and many current attitudes and behaviours must be adjusted to succeed. Traditionally, consumers are accustomed to passively consuming reliable and affordable electricity without needing to understand the underlying systems and their complexities. Rising grid fees and intermittent outages have diminished DSOs’ reputations among customers, which makes proactive adjustments of consumption even less likely. However, research and a study of best practices has identified promising opportunities for encouraging behaviour change.

Activating Customer Engagement

Previous research has shown that properly and thoughtfully engaging customers is one method DSOs can successfully use in this transition.

- Effective feedback substantially supports consumer demand shifts. In-home displays with real-time pricing can reduce peak consumption by more than 10%. Bills featuring personalised consumption information can also encourage energy savings [2,3].
- The phrasing of information matters. Loss aversion is an important driver in the energy context. People generally place more importance on losses than gains [4].
- Interactive systems that respond to customer behaviour are effective tools. Consumers enjoy the process and engage more often and more thoughtfully [4].
- Digital interactions with customers regarding dynamic tariffs should incorporate transparency and clarity of pricing while avoiding added complexity [2].
- Customers have differing motivations for complying with dynamic tariffs, including saving money, reducing environmental impact and benefiting society [2].
- Automation saves consumers’ time, reduces response fatigue and offers increased savings compared to manual methods. For example, an automated demand management programme for air conditioners in Australia resulted in a 20% reduction in households’ peak electricity demand [6].

Effective Communication

To encourage successful adoption of dynamic tariff rollouts, clear and informative communication with customers is of the utmost importance.

- Simple and direct language is necessary to clearly communicate the outcomes of dynamic tariffs to change consumer behaviour. Concise and clear messaging will result in better understanding and increased acceptance. Public awareness and knowledge are crucial for all future energy market models [6,7].
- Using synchronised communication in various channels, including websites, social media, newsletters and public events, helps create the basis for active consumer behaviour adjustments [8]. Social marketing supports motivation based on social and environmental beliefs, which increases accountability.
- Community engagement can be leveraged by using storytelling to build awareness prior to tariff rollouts. Storytelling is a way to share the experiences of people who have already used time-based tariffs. This adds more credibility for new users, as
they can easily picture the system benefits and address potential challenges. Social comparison between households based on electricity consumption is another method of engagement. It helps motivate consumers when tariffs are already in place by appealing to competition and social norms [9].

**Pricing Models to Catalyse Change**

Simplicity of pricing is one of the most important features influencing acceptance among customers. Private electricity users prefer simple models that are easy to understand and to use. Many reports identified simple tariffs as an essential criterion [2,10]. Customers favour less complicated tariff structures which allow them to fully grasp methods to adjust behaviours to minimise their bills [6]. The pricing models must be designed to facilitate simple and clear explanations to customers.

The second critical point that academic literature makes is feasibility, which refers to consumers’ ability to shift behaviour. While the start and end of peak hours must reflect demand realities and loads to be shifted, customers must also have the possibility to make use of off-peak hours. The appliances with the highest flexibility in usage time are often also loud (dishwashers, washing machines and tumble dryers) [11]. Consumers are not able to run loud appliances late at night because doing so will affect children, neighbours or their own sleeping hours. As a result, behaviour is typically not adjusted. A peak price period with no further price differentiation lasting from the afternoon until late at night was found to have no effect on load shift [11].

Studies on power-based tariffs are much less numerous than studies on time-based ones. Power tariffs have been found to lead to desired consumer demand changes in Swedish cases in the short and long terms [12]. In those cases, the tariff is designed to reflect peak power consumption during peak hours. Though it has been less researched, the same criteria – simplicity and feasibility – likely apply.

Concerning the effect on the bill, academic findings differ. Some cases suggest that a significant price spread in time-based tariffs results in much higher load shifting than a smaller price difference. However, others indicate that the mere existence of a price incentive creates the desired demand changes and higher differences do not influence the result [6]. The latter is supported by interviews with Swedish electricity market researcher Cajsa Bartusch. All cases point to the importance of simplicity in the design but also the support of other incentives. Feedback on success or lack thereof, benefits not related to the bill, and gamification engage customers and help them change habits and behaviour in a long-term perspective.

Research has not agreed on any other clear best practices as determinants of consumer behaviour change. However, empirical best practices for the process of designing the tariffs are available [13]. First, the goal of the new model should be formulated. Goals can include the general load reduction or limiting extreme peaks. Second, designing the tariff should be oriented upon that goal and aligned with an overall strategy. Third, the customer needs to be included to prepare for the desired response and assess the success potential. Including customers in the process earlier is likely to increase the acceptance of resulting tariffs [13].
Building Trust Through Relationships

In-person engagements with customers during the rollout phase are of high importance, as they are one of the first and only tangible interactions that customers will have with an otherwise vague and complicated change to their daily lives. To increase customer satisfaction and public acceptance of the rollout and new pricing system, DSOs must strive to ensure simplicity, efficiency, and pleasantness in all physical customer interactions. Otherwise, some customers may view the system with resentment and be less inclined to adopt desired consumption changes.

Technicians, installers, and all others who interact with customers should receive training in dealing courteously and pleasantly with customers, especially related to dynamic pricing transitions. Customer issues, including delays and malfunctions cannot be avoided entirely. The company’s response to these issues will strongly increase customer opinions and perceptions. These so-called soft skills, when used appropriately and in the goal of mitigating the annoyance of home visits and downtime, help customers develop positive perceptions toward the rollout and will increase the likelihood of desired customer behavioural adjustments.

To achieve success in these engagements, Ellevio is advised to carefully coordinate meter upgrades to minimise customer downtime and reduce home visits. To the customer, these are annoyances which will inform their opinions on the project.

In smaller towns and rural areas, DSOs should strive to employ local contractors and technicians. Familiarity and shared ties increase positive perceptions and help close the distance between Ellevio and the customer. Each of these actions limits customer discomfort and increases their receptivity to participating in the new system.

Studies suggest that many consumers will be uninterested in their electricity consumption and may feel overwhelmed by too much data [14]. However, some customers do wish to access consumption and pricing data. To add credibility through transparency and to satisfy these curious customers, more detailed and visually attractive information on personal electricity consumption should be accessible through all interfaces [15]. However, as only some customers will likely seek out this information, it should not be featured prominently, but its inclusion will be useful in alleviating concerns.

The best practices presented here have been identified in a number of cases in different contexts. Any company has to consider such lessons but create its own path with respect to its particular customers and specific context.

Ellevio’s Approach

Ellevio is adapting to capacity limits and demand flexibility. Employee interviews helped reveal internal goals and outlooks in this transition, and the degree to which best practices are already incorporated.

Ellevio employees are aware of many of the best practices. For instance, the point of simple tariff design and customer interaction is a primary objective of Ellevio’s plan. Multiple interviewees mentioned repeatedly the plan to keep the new tariff simple in order to improve acceptance and foster consumer behaviour change. The idea of feasibility is known to the interviewees as well, who were aware of the challenges of behaviour change. Both, abilities to shift from
peak to off-peak and the impact of incentives on consumer behaviour, are being considered as Ellevio designs tariffs for its grid.

Ellevio’s Opportunities for a Customer-Centric Business Model

The interviews suggested however, that strategies of approaching, including and convincing customers are not sufficiently structured and aligned across departments.

- Customer engagement strategy has not been fully developed and a cohesive vision is lacking amongst departments.
- The internal communication strategy has not fully engaged all departments on opportunities made possible by changing technologies, regulations and preferences.
- In their roles as energy consumers, some employees did not see the benefits in taking part in the new pricing schemes. This suggests that the value proposed may not be worth the extra effort required from customers.

This report reasons that Ellevio can benefit from shifting the starting point of its thinking away from regulation and revenue opportunities and toward customer value delivery. Employees often described new technologies as the solution for compliance while ignoring a customer-oriented approach. Figure 2 illustrates this finding. Discussions of customer desires should therefore be given more attention.

**Ellevio’s Strong Points**

It also became clear that Ellevio can turn those challenges into opportunities. As the way electricity is generated and used changes, as technology offers new solutions to adjust peak loads in distribution grids, and as national targets incentivise consumers to use electric vehicles, the new business environment enables Ellevio to reorient its brand and develop new revenue streams. Assessing new tariff and business models from the perspective of customer functions and needs can help improve the reputation of the company and the acceptance of tariffs, which will likely benefit the grid’s load optimisation and resilience. Putting customers at the start and centre of Ellevio’s product design process will contribute to making its grids and its business succeed in...

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**Figure 2:** Suggested new way of thinking about customer value propositions. Own illustration.
the future. The second step of the suggested new thought process must consider the goal of regulations and security of supply. Based on those two steps, Ellevio can create a value proposition that meets customer needs while generating revenue for shareholders and grid development. Finally, the planning process will assess the technology necessary for delivering value to customers. Figure 3 illustrates the suggested new line of thinking when designing new products, consumer interaction strategies and business models. Implementing the suggested new thought process in Figure 3 requires slightly adapting the company culture to engage customers and align internal action towards a strategy for consumer interaction, satisfaction and consumption changes.

**Making the Most of the Transition**

The preceding suggestions are based upon interviews, case studies, and academic literature. They offer useful, concrete, and specific guidance for Ellevio’s roll-out of smart meters and dynamic tariffs.

However, through the normal course of business, Ellevio will almost certainly find itself in situations in which case studies and literature do not provide enough guidance. In these situations, and in the necessary and continual development of new business models and strategies, Ellevio is urged to make use of existing tools and frameworks for business model innovation. These tools and frameworks offer the best available method to carefully and proactively analyse forces which influence Ellevio’s risks and opportunities and to develop informed and thoughtful plans which best position Ellevio for the future.

The first recommended tool is called the Simplified Value Mapping Tool. This tool was developed “to help firms create value propositions better suited for sustainability” [16]. This is done by providing a method for firms to understand sources and opportunities to capture value. To use the tool, firms identify an action or purpose to be examined. They are then encouraged to consider value which results from that action across a variety of levels and from different perspectives. Figure 4 shows the four types of stakeholders the company should consider and the three levels of value proposition in each of them. Value captured identifies what is included already, value missed highlights what is not yet part of the value

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**Figure 4: Value mapping tool populated with examples for Ellevio. Own illustration after [16].**
proposition and the value opportunities locate the potential future values. We populated the matrix with some examples of the results from our research on Ellevio.

By using this tool, organizations can better understand the effects and opportunities arising from their business activities. This is of great importance for any company. It can be used to prioritize investments and upgrades by understanding where improvements will have the biggest impact. Identifying value opportunities can help firms develop new business models and product offerings in order to capture value from previously unidentified sources. Companies which use this tool can better meet the needs of customers, thereby increasing satisfaction and promoting their brand image, which in turn makes customers and regulators more willing to accept future business activities or changes to product offerings.

The second tool is called Jobs-to-be-done. The theory behind this tool argues that customers “hire” products to complete “jobs” in their life [17]. Though this sounds like a traditional understanding of consumer desires, this tool differs in its explanation of customer motivations. Jobs-to-be-done argues that in addition to the straightforward and obvious “functional jobs” performed by products, customers also hire products to perform social and emotional jobs. These are more difficult to identify and design business models around, but they are no less important. Customers regularly make consumption decisions based on these social and emotional jobs. To satisfy consumers, to influence patterns of consumption, or to increase public acceptance of new business activities, Ellevio must understand the forces and motivations which cause individuals to make consumption choices. In the same way, customer pains identify challenges from the perspective of customers in the categories undesired outcomes, obstacles and risks. The third block sheds light on improvements for the customer that can be either required, expected, desired, or unexpected. Figure 5 illustrates the tool to show the three blocks and the sub-categories of each of them with one example from our research for every category.

By diligently and empathetically applying the Jobs-to-be-done tool, firms can understand what factors are important to their customers, why consumption choices are made and how to better serve their customers [17]. When engaging representatives from various departments, tools can also support alignment and innovation among team members.
Conclusion

Electricity systems are changing at an unprecedented pace. Rapid urban development, increasing environmental concerns and the adoption of distributed generation demand greater flexibility and resilience from electricity grids. Concurrently, electricity customers have grown accustomed to the reliable and seemingly unlimited supply of electricity into their homes without considering the complexity and consequences of their consumption. Rising grid fees and this lack of understanding have fostered a negative perception of DSOs among consumers. This makes grid modernisation efforts, which require a revision of this relationship, difficult for DSOs to explain and for customers to accept.

Despite these challenges, modernising grids will diminish environmental impacts, make electricity systems more reliable and enable new business models and consumer-oriented products, including electric vehicle infrastructure and improved public transportation networks.

Adjusting consumption habits can help to achieve these goals. Regulators have selected dynamic electricity pricing models as one solution to be implemented at DSO level. However, these models will likely struggle to succeed if not designed and implemented with care and foresight.

In order to increase their effectiveness, DSOs should take a customer-centric approach, which emphasises the customers’ desires, motivations, and satisfaction. Studying the context of Ellevio gave insights in the challenges and opportunities that DSOs are facing at the moment. A comprehensive shift away from passivity in customer affairs, which develops naturally among monopolies, and towards a more proactive, customer-centric approach should be taken. For this purpose, we suggest using the Value Mapping and Jobs-to-be-done tools. The two tools will help identify customer value of Ellevio’s operations and implement tariffs and business models that create such value. With better understanding of customer values, Ellevio’s reputation – and that of the entire industry – will improve, which will support a more active role for customers to even out grid loads.

Consumer and behavioural sciences should be considered to understand how consumption choices are made. These shifts are informed by and can be improved by applying lessons learned from other dynamic pricing initiatives worldwide. The suggested tools help addressing the specific context starting from the consumer.

References


List of people interviewed:

Cajsa Bartusch – Professor at Uppsala University – 1st April 2019
Markus Tobé – Ellevio – External Communications Manager – repeatedly between 20th March 2019 and 11th April 2019
David Bjurhall – Ellevio – Head of Regulation – 9th April 2019
Fredrik Blåvall – Ellevio – Online Service Manager – 9th April 2019
Emma Thorsen – Ellevio – Head of Customer and Market Department – 8th April 2019
Joachim Eriksson – Stockholms stad – Energy buyer – 10th April 2019
Thomas Kult – Ellevio – Head of Communication – 8th April 2019
Paul Göransson – Ellevio – Senior Pricing Specialist – 5th April 2019
Karin Alvehag – Ei – Deputy Director Department for Technical Analysis – 11th April 2019 (via email)
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The Team

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Assessing Cleantech Innovation and Entrepreneurship Ecosystems

A Framework for the Developing Country Context

By Jamie Wylie, Rheanna Johnston, Silvia P. Guevara, Xuan Xie

Introduction

The United Nations Sustainable Development Goals (SDGs) set out a blueprint for achieving global sustainability by 2030, both in order to improve the standard of living around the world as well as support realisation of global climate targets. Goal 9, Industries, Innovation, and Infrastructure, highlights clean technological progress as fundamental to achieving environmental objectives such as resource and energy efficiency as well as economic growth, social development, climate action, and sustainable industrial development [1].

A key element of SDG 9 is cleantech - a technology, process or solution that leads to an increase in positive environmental impact or a decrease in negative environmental impact. Developing cleantech solutions presents an opportunity to build local capacity and strengthen local communities, as well as support the growth of innovative solutions to global climate issues. Supporting local entrepreneurs and innovators to commercialise their cleantech ideas and overcome the challenges of this process can effectively promote sustainable industrialisation, reach climate goals and the development of economic and human welfare globally.

The Challenge

In order to effectively support entrepreneurs and innovators, it is vital to understand how a specific country’s ecosystem of stakeholders and social, economic and political factors impact the growth of cleantech innovation and entrepreneurship. Developing countries often have a less robust ecosystem which may limit the development of cleantech solutions. According to the World Bank “[t]here is limited empirical knowledge regarding the relationship between specific developing country contexts and the most effective instruments to promote clean technology industries” [2]. Although there are a variety of different existing frameworks indexing entrepreneurship or innovation globally, few are focused on the developing country contexts and instead tend to be more suited to OECD or developed countries [3]. Most of these frameworks are also not intended to effectively “facilitate decision-making” [3] or provide a transparent overview of the existing ecosystem. Furthermore, none of
these existing frameworks combine all three concepts of cleantech, innovation and entrepreneurship.

**The Task**

The United Nations Industrial Development Organisation (UNIDO) promotes industrial development to reduce poverty and enable inclusive globalisation and environmental sustainability. In particular, UNIDO’s work responds to SDG 9 and prioritises technology transfer and capacity building of industries, particularly small and medium-sized enterprises (SMEs).

UNIDO, along with the Global Environment Facility (GEF), support the Global Cleantech Innovation Programme (GCIP). The objective of GCIP is to identify and accelerate cleantech innovators and entrepreneurs by building capacity with on-the-ground national institutions, policy makers, and partner organisations [4]. To foster SMEs, GCIP works to develop the required network of expertise, finance and organisational resources in the local context. In addition, GCIP assists in the development of new models of investment and new partnerships between cleantech-based SMEs and potential partners and beneficiaries. The programme is currently active in nine countries and will be expanded to twenty-five countries by 2021.

To support their mission to build local capacity and sustainable industrialisation, UNIDO asked us to develop a framework to assess the state of cleantech innovation and entrepreneurship ecosystems (CIEEs) in developing countries. The framework is intended to serve as a diagnostic tool to assess the health of an existing cleantech ecosystem in a specific context and identify weak areas for which interventions could be applied, as well as lessons or best practices where the existing CIEE is strong. Additionally, we developed key definitions relevant to cleantech ecosystem assessment to provide a common understanding and definition of the concepts.

**Project Methodology**

The proposed framework has been developed through three key approaches:

**1) Review of existing frameworks and academic literature** - A number of frameworks relating to cleantech, innovation and entrepreneurship were assessed and critiqued as part of a literature review. Additionally, a selection of academic literature was reviewed to identify key factors relating to CIEEs. Through this literature review, definitions for cleantech assessment were developed, and a number of key factors were identified which are commonly referenced as being of particular importance to CIEEs. The synthesis of this research can be seen in Figure 1.
ii) Interviews with GCIP Programme Coordinators, cleantech professionals and UNIDO team - Interviews were conducted with GCIP Programme Coordinators to develop a more in-depth knowledge of GCIP, and to gain a better understanding of CIEEs in developing countries. GCIP Programme Coordinators for Morocco, Pakistan, Thailand, Turkey, South Africa, and India were interviewed. Additionally, interviews were conducted with professionals in the cleantech sector to better understand the practical and ‘real world’ situation of cleantech innovation and entrepreneurship. These interviews with cleantech professional and developing country experts provided guidance for the development of a framework which both better reflects the context of developing countries, and which integrates the concept of cleantech.

Additionally, two workshops and several interviews with UNIDO employees were conducted regarding the framework. Initial ideas and proposals for the framework, assessment approach and indicators were refined and edited based on feedback from UNIDO employees.

iii) Review of initial UNIDO CIEE framework research - Initial research on a framework was done by previous UNIDO staff, but this draft research was never completed. We therefore reviewed and assessed this initial framework in order to align our work. This work primarily informed our selection of indicators used in the final framework.
The Framework

Based on the above methodology, the following CIEE framework was developed. Each of the pillars and their sub-pillars are described below. The description of each pillar is based on the literature review and interviews conducted. In our full report we also included a Key Question and a set of recommended indicators. We developed these for each sub-pillar in order to provide guidance on how to capture the necessary information needed to fully assess each pillar. Figure 2 illustrates how the key pillars (Governance, Culture, Knowledge Networks, Infrastructure, and Financial Capital) as well as their sub-pillars are all inputs or influences of the central pillar, Cleantech Sector Performance.

Governance

A country’s governance structure and regulatory environment set the playing field for individuals and businesses seeking to engage in innovation and entrepreneurship activities. Successful CIEEs require a stable government with policies that create an incentive for cleantech innovations. The political environment encompasses a broad range of influences including political stability and regulatory frameworks, to more specific CIEE aspects such as incentives for cleantech or the process for setting up a business. In the developing country context, this will vary significantly since many countries will have different political practices.

Policy and Regulations

A country’s policies and regulations can either create incentives or pose barriers for cleantech innovation and entrepreneurship. Existing policies (e.g. that promote clean energy, set carbon reduction targets, or protect patents and encourage the development of new SMEs) can create a pull for individuals and businesses to innovate and take to market new or adapted cleantech alternatives to conventional practices. On the other hand, policies and regulations that support conventional carbon-intensive practices create barriers to new cleantech innovation entrepreneurship.

Figure 3: Cleantech Innovation and Entrepreneurship Ecosystems (CIEE) Framework.
Stability and Effectiveness of Governance

Policies and regulations are only as powerful as the mechanisms which support them and the level of stability of the existing government. The stability and effectiveness of governance are crucial to creating trust and an environment in which individuals can pursue innovation and entrepreneurial opportunities.

Infrastructure

Similar to the Governance pillar, the Infrastructure pillar seeks to identify whether basic elements of society - in this case physical, digital and market infrastructure - are sufficiently mature in the developing country ecosystem to support cleantech innovators and entrepreneurs. While electrification, access to internet services or liberal markets for example tend to be well developed in the global north as well as in emerging markets, they may not be as strong in the least developed countries. Existence of and access to infrastructure was identified as fundamental to driving innovation and research, knowledge sharing, as well as the ability to do business. Therefore, assessing the robustness of these systems is vital to understanding whether infrastructure might be a barrier in the CIEE.

Market

Market infrastructure is intended to capture the degree to which market(s) exist and how well the ease of creating and taking business opportunities, long-term operation, and other aspects of producing and selling goods or services are facilitated. This is a vital component of a healthy CIEE as it influences the availability of opportunities as well as the potential of individuals to start or operate a business through aspects such as access to markets, access to production and supply chains, existence (and degree) of consumer demand, banking infrastructure, existence (and degree) of the informal sector, and the degree of market liberalisation.

Physical

The physical infrastructure sub-pillar includes aspects such as roads, access to basic utilities (water, electricity, heat), and public and private transport networks. These are key aspects of the CIEE as they are fundamental not only to individual welfare and meeting basic needs, but also facilitate business travel and freight delivery, operating a business or production, and the exchange of knowledge and goods.

Digital

Digital infrastructure is an important component of a healthy CIEE because it facilitates accessing and exchanging information as well as doing business. Access to internet services or telecommunications are generally well developed in high income and emerging economies but may be only sporadically available (or even not at all) in the context of some developing countries or remote rural regions. Technology infrastructure that facilitates innovation and knowledge sharing such as access to the internet, telecommunication technologies and networks, and online services can greatly simplify interactions and exchanges between CIEE factors and stakeholders.

Financial Capital

Access to financial capital is one of the areas that was most frequently identified as a key component of supporting cleantech innovation and entrepreneurship. This was established from interviews with cleantech experts from Scandinavia, the UK and
GCIP Programme Coordinators, as well as in the other frameworks reviewed. Clean-tech was described as often being a particularly capital-intensive type of entrepreneurship, so the availability and access to cash flow, especially during the commercialisation stage, is one of the key factors for start-up and SME survival. Healthy CIEEs must therefore have systems that allow innovators and entrepreneurs to access capital, whether through loans and credit, grants, tax breaks, or other financial support. Furthermore, it is important for individuals to have the financial security – either through income and savings or through social safety nets – in order to feel financially able to undertake risks.

**Finance & Funding**

This category encompasses the money available from venture capital, private or public grants, and crowdsourcing as well as capital that must be paid back such as public or private loans and access to credit. This can include capital invested in innovation or in entrepreneurship. Readily available capital that is stable, with reasonable interest rates, and accessible to individuals can not only facilitate, but also significantly incentivise cleantech innovation and entrepreneurship.

**Financial security**

Another important factor to consider in terms of financial capital is the security of finances for individuals. Willingness to engage in potentially risky financial behaviour or to take out loans to start a business may depend heavily on financial security and whether social safety nets exist to support an individual if their venture fails. Aspects of this pillar are also closely tied to the cultural context and there is potential for overlap between the two. This sub-pillar is of particular significance in the context of developing countries as incomes and welfare systems may not be well developed.

**Knowledge Networks**

The Knowledge Networks pillar addresses the creation and flow of knowledge between individuals and organisations as well as the capacity of individuals to engage in cleantech innovation and/or entrepreneurship. A healthy ecosystem should facilitate the exchange of information between actors and support the development of skills and knowledge in the areas of technology, research, business and environmentalism in order to foster cleantech innovation and entrepreneurship. This includes both avenues in the formal knowledge sectors (e.g. universities) as well as localised community knowledge sharing from informal networks.

**Education and Human Capital**

A healthy CIEE must have trained, knowledgeable people available who have the capacity to innovate and create new cleantech businesses as well as provide skilled labour to existing cleantech. This sub-pillar seeks to measure to what degree the ecosystem has individuals with the knowledge and capacity to devote time and energy to engaging in new enterprises. In particular, education systems as well as demographic aspects (such as the share of young people remaining in the country after graduation) are relevant in assessing the strength of this sub-pillar.

**Research and Development**

The availability of research institutions and the amount of research being done in formal institutions influences the potential of new innovations, technologies, and solu-
tions to be developed. Although innovation can also take place outside of formal institutions, strong research institutions as well as funding and support for research activities, are more easily measured than informal innovation sources. In particular, research dedicated to technology, engineering and sustainability can support increased cleantech development.

**Support Mechanisms**

Support mechanisms provide knowledge to innovators and entrepreneurs as their ideas or businesses grow and can include knowledge or support sources such as community associations, innovation incubators and accelerators, business and industry associations, mentorship programmes or other similar mechanisms. Taking an idea and commercialising it can be a challenging and confusing process, particularly if other ecosystem factors are not well developed, therefore networks which can facilitate overcoming these challenges are an important component of a healthy CIEE. Such support mechanisms can be either formal institutionalised or government-run mechanisms or they may come from informal sources.

**Culture**

Culture is one of the most important factors influencing CIEE in a developing country context. In order for innovation and entrepreneurship to flourish, a level of risk acceptance and openness to new ideas is required as well as a certain level of awareness of environmental issues. Interviews with current GCIP Programme Coordinators indicated that culture can be one of the biggest barriers to entrepreneurship and innovation. However, the underlying cultural aspects that affect the CIEE can vary significantly. For example, the Programme Coordinator from Morocco described how commercialising local cleantech innovations faced a cultural barrier because people had a greater degree of trust for non-Moroccan companies and were therefore more willing to pay a higher price for an outside product. Conversely, in the context of Pakistan, culture was also one of the biggest barriers for growing domestic cleantech development but in this case because people in Pakistan preferred cheaper product alternatives from China. For this reason, although difficult to quantify, this category will require extra attention and customisation when performing the initial assessment. The Culture pillar has been split into three sub-pillars intended to assess: risk attitudes, the level of awareness of sustainability issues, as well as a third category to include other social factors (for example gender equity) which might impact the ability of individuals to engage in cleantech innovation or entrepreneurship.

**Risk Attitudes**

Entrepreneurship and innovation require individuals to explore new opportunities and take risk. For this reason, the cultural acceptance of potential failure is an important measure as it may either hinder or support entrepreneurship and innovation of new ideas. Additionally, the level of encouragement for risk taking through social narratives or norms, as well as cultural acceptance of entrepreneurship as a career or perceptions of education, may impact how likely individuals are to take risks and pursue entrepreneurial endeavours.

**Sustainability Awareness**

In order for cleantech innovation to occur and be successfully commercialised, the level of awareness of environmental prob-
lems and sustainable alternatives is particularly relevant. Such awareness is important both to drive innovation of new sustainable solutions, technologies and process improvements as well as to ensure that consumers can recognise the added value of cleantech solutions and environmentally friendly alternatives. In order to drive the successful commercialisation of cleantech in particular, the ability and degree to which society can recognise environmental problems as well as solutions is key.

Social Influences
Many other social influences beyond risk attitudes and environmentalism can affect the health of CIEEs, especially in terms of the ability of individuals to engage in innovation and entrepreneurship activities. Particularly where certain groups have historically been disenfranchised (such as women and young people), such influences may affect access to resources and knowledge as well as how different stakeholders interact. Other cultural aspects that could be considered include the degree of trust in society, the promotion of local small business and production, etc. This category is deliberately intended to be broad in order to capture potentially relevant social influences which affect cleantech innovation and entrepreneurship but may not be captured in the above two sub-pillars.

Cleantech Sector Performance
The pillar for Cleantech Sector Performance is intended to provide the initial baseline assessment of the existing cleantech sector and determine to what degree cleantech enterprises exist already. A baseline makes it possible to later determine the effectiveness of interventions intended to support cleantech innovation and entrepreneurship. According to interviews with Programme Coordinators in Turkey and Thailand, determining the initial level of cleantech firms is key for later assessing the degree of success of the GCIP programme, but it can be very difficult to initially identify which sectors (if any) are using cleantech already or how to define the impact of the existing cleantech. Furthermore, the availability of the recommended indicators for this pillar may vary widely depending on the degree of development of the cleantech sector. The measurement of this pillar will therefore need to be significantly tailored to fit the context of the country in question.

Framework Data Collection and Methodology
The pillars and sub-pillars in the framework are intended to provide an overview of the key factors influencing CIEEs. In order to apply the framework, the key question associated with each sub-pillar should be assessed. Data collection can be carried out by using:

a. the set of recommended data sources outlined in the full framework report which rely on pre-existing global or national indexes and databases;

b. sample indicators suggested in the framework which require further research and/or proxy indicators;

c. a questionnaire designed to conduct a qualitative assessment; or

d. a combination of the above options
As seen in Figure 4 which outlines the proposed assessment approach, the recommended data sources in option a) should be assessed to determine whether the sub-pillar question can be sufficiently answered with the provided indicators. The sufficiency of data is determined by assessing the availability, relevance, and accuracy of each indicator in order to determine whether the given indicator is appropriate.

The following should be considered:

**Availability**: Does the indicator’s data exist and is it available for the given country?

**Relevance**: Does the indicator data answer the question posed for the sub-pillar and does the indicator adequately reflect the intent of the sub-pillar question given the country context?

**Accuracy**: Is the data set for the indicator from a reliable and valid source?

In order to identify the relative strengths and weaknesses of the pillars, and better identify areas in need of intervention, the pillars can be compared to one another and graded (for example according to a scale such as red-yellow-green or 1 to 5). This allows for a high-level overview of an ecosystem’s health – particularly easy identification of key strengths and weaknesses – which is nonetheless supported by a detailed and country-specific assessment. Thus, there is ease of use and process standardisation for assessing CIEEs while avoiding over-generalisation and direct comparisons between countries with widely differing contexts.

**Limitations**

There are several key limitations to such a framework. Firstly, accurately assessing innovation and entrepreneurship ecosystems is very difficult in practice due to the broad and complex nature of the topic [3]. Successfully commercialising a new idea is a dynamic process, including creation, development, production and market penetration. There are consequently many feedbacks and interactions between these processes within a given ecosystem and evaluating which (and how) factors are influencing each aspect of the commercialisation process can be very challenging.

Secondly, significant variation exists between countries, with each country likely to have its own unique barriers and drivers for cleantech innovation and entrepreneurship. There may also be significant variation within countries (e.g. between rural and city areas). This consequently raises questions about the utility and accuracy of assessments of ecosystems at the national level [5] and that perhaps assessment at a smaller scale might deliver more accurate and meaningful results [6]. However, this is beyond the scope and intended use of this framework. Developing a functional and workable tool therefore involves generalisation and this framework applies a high-level view in order to be applicable in a variety of country contexts. The limits of such a framework should however be made transparent in order to understand poten-
tial drawbacks and ensure effective utilisation.

It may also be difficult to access the necessary indicator data in order to assess certain sub-pillars of the framework. It is likely that in some cases the relevant data may not exist or may be unreliable, and the complexity of the ecosystem mentioned above makes it particularly challenging to quantify some of these factors or find indicators that can capture them accurately. As a result, it is challenging, if not impossible, to assess some aspects of the ecosystem and accurately apply the framework without relying on a more qualitative approach. Although this framework and the proposed assessment approach attempt to find a balance between a simple yet too broad approach, and a holistic yet too in-depth approach, it is unlikely that any framework can perfectly capture the complexities of CIEEs.

Finally, it is also important to note that this framework applies a top-down perspective. The assessment of the national ecosystem and the application of the framework are all intended to support UNIDO and other high-level decision-makers in understanding the CIEE as well as identifying areas for intervention. However, this means the bottom-up perspective of individuals has perhaps not been adequately captured. An individual in a developing country intending to commercialise an innovation or engage in starting a business may have a very different experience of how the ecosystem supports or hinders cleantech innovation and entrepreneurship. A fully comprehensive and robust assessment would therefore include some level of assessment from this bottom-to-top perspective.

Conclusions

The work done thus far has provided an academic review of existing research and a synthesis of knowledge on related concepts, in order to identify the key influences in a national ecosystem which affect cleantech innovation and entrepreneurship. The key strength of this newly developed CIEE framework is that it explicitly assesses the intersection of cleantech, innovation and entrepreneurship factors in the specific context of developing countries. Furthermore, it allows for detailed and country-specific analysis, while also allowing for high-level overview of an ecosystem’s health.

In order to ensure an effective tool is developed, the next steps for this project involve further testing and refining of the framework. An effective, comprehensive and practical diagnostic tool must be tested against the real-world difficulties of data collection and the unique complexities of country ecosystems. However, the CIEE framework developed thus far provides an important foundation for the assessment of CIEEs and the initial development of a useful tool for UNIDO-GCIP and other decision-makers.

Figure 5: IIIEE team after the final presentation.
References


List of people interviewed
Joshua Burguete-Kirkman, Loudspring, Communications Director, 19th March 2019
Antonio Gallizio, Loudspring, CIO, 21st March 2019
Erica Purvis, Technical Nature, Founder, 21st March 2019
Gerswynn McKuur, UNIDO, Energy Management Working Group Coordinator, 26th March & 11th April 2019
Ibrahim Sanchez, Cleantech Scandinavia, Project Manager, 20th March 2019
Jukka Kajan, Joukon Voima, CEO, 20th March 2019
Jutamanee Mantchamadol, UNIDO GCIP, National Project Coordinator Thailand, 3rd April 2019
Muhammad Hammad Bashir Saeed, UNIDO GCIP, Project Technical Expert for Pakistan, 27th March 2019

Nurzat Myrshalieva, UNIDO, Sustainable Energy Expert, 10th April 2019
Omar Agodim, UNIDO GCIP, National Project Coordinator Morocco, 26th March 2019
Osman Malik Atanur, UNIDO GCIP, National Programme Manager Turkey, 1st April 2019
Petronella de Wet, National Cleaner Production Centre of South Africa, Communication Manager, 26th March 2019
Reshmi Vasudevan, UNIDO GCIP, Programme Expert India, 10th April 2019
Saurabh Saraf, Cleantech Professional, 21st March 2019
Szerb László, University of Pécs, Professor in the Faculty of Business and Economics, 24th March, 2019
Reflections

Overall, as a class we are proud of what we have learned from our diverse range of assignments and are grateful for the opportunity in this master’s program to gain consulting experience. As we reflect on our projects, we summarised our main takeaways as a class below. Several teams echoed the importance of not just focusing on the aspects of environmental sustainability but to also understand the larger context of economic and social components. Another common lesson was the complexity of sustainability issues and the importance of systems thinking in fully assessing and understanding these issues in more depth. Finally, developing strategic alliances as well as driving stakeholder cooperation and participation, are also essential to ensuring the success of sustainable projects with positive social, environmental and economic impacts.

- Team Portugal’s experience confirmed the importance of incorporating outside voices into projects in order to provide new perspectives. As students, the team was able to ask questions and provide insights that others were unable to communicate.

- For Slovenia a takeaway was that in small, tight-knit communities, a shared vision and a high level of social organisation contribute greatly to the overall goal of preserving natural and cultural heritage.

- Team Stockholm learned that the need for demand side energy management has been discussed often in theory and academic literature but that the implementation of such measures needs to begin with real-world actors. The team also expressed appreciation for how much you can learn from teammates as well as the importance of team support in helping each other navigate through intense consulting work.

- A takeaway for Team India was that if you cannot see the physical problem with your eyes it can be difficult to truly grasp the problem in context. But there is hope! It only takes a couple of strongly motivated and passionate individuals to create system change.

- Team Vienna experienced the usefulness of frameworks and models as a tool to assess complex situations – like cleantech innovation and entrepreneurship -- but that these frameworks should nevertheless not be considered perfect solutions. Real-world systems are much more complex: “all models are wrong, but some are useful”.

- Team London shared that impact measurements are incredibly messy and robust measurements are extremely difficult to achieve. But at the same time we cannot wait for perfect solutions in order to transition to a sustainable future. Instead, there is a need to act and improve along the way rather than let perfection become the enemy of action.

- A main takeaway from Team Karlstad was to approach exciting new sustainability trends with healthy caution and always value the importance of critical discussion to deliver a well thought product for a client. A final takeaway was the importance of fully understanding a client’s perspective to effectively apply theoretical knowledge.

Again, a big thanks to the IIIEE for giving our class the opportunity to work on such impactful projects. We look forward to applying these lessons and driving change in our future careers.

System change not climate change.