MODULE 4: Sustainable thinking practice

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1. Introduction

The following module aims at providing a practical perspective on sustainable thinking, supporting readers and learners to get more familiar with the concepts developed in the previous unit through practical examples provided by Green Collider project partners working both in the field of education and SMEs support.

In this module are brought to the attention of the readers/learners the best practices in the field of VET education or related to the VET institutions sustainability and SMEs, or projects developed in the business sector, embedding sustainable practices and strategies. Specifically, the best practices are selected among the direct experiences of the organisations developing this module: School Center Škofja Loka (SC Škofja Loka) and Taste Roots Soc. Coop. (under the brand Upwell development consulting).

SC Škofja Loka has been providing vocational and technical education and training in the fields of mechanical and wood engineering since 1889.

SC Škofja Loka VET school is structured in four departments:

• Secondary vocational and technical school of mechanical engineering (755 students)

• Secondary vocational and technical school of wood engineering (284 students)

• Higher vocational college of mechanical and wood engineering (300 students)

• Business-to-Business Training Center (MIC), cooperating the iundustries and favouring WBL, placements and bridging the previous three departments with the labour market.

Differently, Taste Roots Soc. Coop. under the brand Upwell provides services to mSMEs working in the field of agriculture, aquaculture, fishery, livestock and manifacturing (specifically mSMEs of the textile industry). The services provided the company are referring mainly business development, supply chain management and optimization, product placement and promotion as well digitalization and support for the digital transition of businmesses. With relevance of sustainability teh company has supported the fundraising and the project management of innovative solutions to support the transition to sustainability of businesses of the sector mentioned above.

Some of those best practices are described in this module as best practices of embedding sustainable thinking to the busieness development or the design of new trajectories of

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businesses aimed at boosting the resilience and the sustainability of an already established company.

In the module, the editors, SC Škofja Loka and Taste Roots Soc. Coop. will present examples and direct experiences related to sustainability and sustainable thinking best practices related to both training/VET sector and the world of business development and innovation.

In fact, in the Unit 2 are included good practices implemented at SC Škofja Loka related to the promotion, awareness raising and orientation towards green and sustainable technologies, circular economy and digitalisation as a tool to effectively approach and go through a transition toward sustainability. In the Unit 2, the focus will be mainly on practical examples and stories, also showing the gradual development of the sustainability practices over the last 10 years at SC Škofja Loka. In fact, in the unit are analysed the basic concepts/cinditions necessary for the effective implementation of the core mission of SC Škofja Loka. Those basic conditions are reflected in the construction of a new energy-efficient MIC building, with integrated systems to enable energy and resource efficiency. What is more, it is further developed the analysis of the best practice to highlight the importance and effectiveness of a well-performed energy renovation of the older buildings of SC Škofja Loka. Sustainable thinking in VET is further depicted in some examples of implemented projects related to woodworking and mechanical engineering. Those projects shows to the reader/learner one of the possible ways of strengthening a sustainable and green technology-oriented educational process, to therefore end with possible plans for a green and sustainable future, underlining the responsibility VET schools have to accompany and support the path it.

While, in the Unit 1, are displayed some examples concerning projects developed by mSMEs (micro, Small and Medium Enterprises) and consortiums, addressing sustainability and/or boosting the transition to more sustainable supply chain and resilient business. Those projects have been technically supported by Taste Roots Soc. Coop., by delivering services and actions in line with the scope of the company.

Specifically, in this module are mentioned 2 cases from the primary sector, specifically a winery adopting an eco-savvy approach on energy production and wine bottling (Cincinnato winery) and an aquaculture plant (Delta Futuro) designed to change the clams production and to avoid the overexploitation of endangered areas such as lagoons and river deltas. What is more, it is

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mentioned another project involving the textile manufacturing, which has a bad reputation when it comes to sustainability.

The project mentioned is a European Regional Development Fund (ERDF) funded initiative to build a European single textile market, limiting the import of raw material for textile production, as well gathering enabling technologies to set up a circular model for the European textile supply chain.

2. Key words

Sustainability in VET, Sustainable SMEs, energy and material efficiency, digitization, central control system, project work, cooperation with companies, building learning communities, development and Innovation, transfer of knowledge, innovative and green initiatives, circular economy, circular supply chain, innovation in primary sector, sustainable textile industry, debate on sustainability.

3. Learning Objectives

- Get to know about sustainable practices in VET sector and in mSME environment.
- Relate and being able to describe how sustainability principles have been embedded in VET sector, project developed in the VET sector with students.
- Relate and being able to describe how sustainability principles have been embedded in business development and green transition projects developed by mSMEs
- Get inspired by the best practices and reflect on the own situation and how to achieve personal goals in a sustainable way.

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4. Unit 1: Sustainable thinking in mSMEs project development, business development and rump-up

4.1 Rethinking spaces and procedures for a sustainable business: the case of the Delta Futuro ltd, innovative farm for Manila Clams aquaculture.

Delta Futuro is a limited company operating in aquaculture sector, which has developed an innovative production model for manila clam and manila clam seed aquaculture farming. Delta Futuro aims at taking manila clam farming a step forward by decreasing the fluctuation of seed supply to farmers, while protecting the environment.

The farming and supply chain model is based on a RAS (Recirculatory Aquaculture System) semi-closed system enabling the aquaculture plant to be in inland under-exploited areas, rather using lagoons and avoiding their over-exploitation for clams farming activities and clam seeds collection.

The RAS is a system to recycle and reuse water after mechanical and biological filtration and removal of suspended matter and metabolites which, together with other applied technologies and procedures enables the improvement as well the control of the quality of water, and nourishment for clams (microalgae). The system increases the resilience and the survival of clam seeds, which can grow and become ready for farming. Seeds are thanks to this innovation resilient enough to be sowed in natural beds by farmers.

The aquaculture model developed by Delta Futuro Ltd can be part of the actions implemented in Europe to respond to the increasing demand of high quality & affordable protein due to the increase of the European population. This statement is evidenced by the increase of the demand of European farms of shellfish seed to farm enough clams to satisfy the market demand.

As well on the business side the production model investigated, and the plant model tested in a pre-competitive scale will be suitable to face the fluctuation of seed availability. In fact, it normally fluctuates due to the anthropogenic actions on the natural environment (from which those seeds are normally captured), climate change and the pollutants affecting the growth, health, and mortality of the seeds, which were mainly supplied by extra EU based hatcheries (USA, Canada).

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1a 1b 1c

Figure 1: 1a)Test of a functioning Upwelling and Downwelling equipment installed in the plant; 1b) Bioreactor designed to produce clam nourishment and avoid microalgae collection in natural environment ; 1c) Juvenile manila clams produced in the Delta Futuro pre-competitive scale plant.

Delta Futuro ltd has developed and tested a small-scale production model that will become an industrial scale one to be placed in the Northern Adriatic coastline, which will include biofilters made of Salicornia for the water outlet and low impact pipes for the water inlet and transportation to the inland aquaculture plant. In that are, aquaculture farms producing 40 tons of clams per year, corresponding to 7-8 bln seeds, normally captured in the natural environment, which is currently overexploited (despite the "biologic protection" commanded by the Italian Ministry of Agriculture).

The model has been designed by the researchers in marine biology and technician of the company to improve the production and preserve the lagoon areas and their biodiversity.

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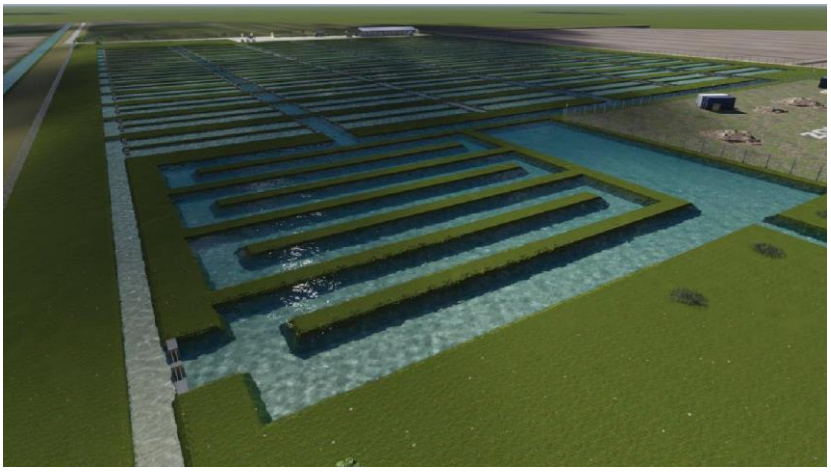

Figure 2: Rendering of the plant ponds using the RAS system for water level and quality control and clams production.

This model can be assumed as a best practice, because it shows that improvements and path toward a sustainable model for the production/harvesting of clams. The sector is normally not incline to embed innovation and it has been focused in collecting and using natural environment. Traditional methodologies applied to this sector nowadays may result in not efficient results and insufficient number of seeds and clams as well put too much pressure on natural context already troubled by water pollutants and other human activities. What is more, the production is constantly controlled to guarantee the quality of the clams and protect them from pollutants in water, such as heavy metal.

4.2 Rethinking packaging to optimize a budget cost as well use wisely raw materials: The case of Cincinnato Winery

Cincinnato (www.cincinnato.it) is a winery located in central Italy (60 Km south of Rome), in the municipality of Cori, who's innovation projects, marketing and positioning in the foreign markets are supported by Taste Roots Soc. Coop.

Cincinnato legal status of cooperative society, enable the company to guarantee democracy and participation within the members, only farmers working in the municipality of Cori.

The winery is conscious of the importance of typicity and biodiversity, and for this reason has always been committed to regenerating and showcasing native grape varieties such as Nero Buono and Bellone grapes. For over 20 years it has invested substantial human and economic resources in a challenging quality project, structured mainly in a meticulous vinification process

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and sustainable farming protocols (both in organic regime and integrated pest) aiming to improve the product and advance the winery.

The winery is also known for the environmental efforts including organic methods in the rows, the support delivered toward the members of the cooperative to implement integrated pest with the application of technologies, and the integration photovoltaic system ensuring independent power generation to support the energy needed for the production, as well the local distribution of goods carried out using natural gas-fuelled vehicles.

It retails its products in various countries all over the world (e.g., most of EU Countries, Brazil, Japan, USA, Canada, Ukraine, Korea, China, etc.) and it is currently delivering approximately 1.2 mln bottles per year, thanks to the harvesting of 550 hectares done by 115 farmers operating within the municipality of Cori.

To be more resilient and allocate wisely the resources to support the expansion of the company, the administrative board, together with the consultants and managers of each department has been analysing and optimizing the performance of each department, including to the production.

One of the strategies adopted was to rethink the packaging to optimize the use of glass and deliver lighter but resistant bottles. Those would have been functional to the production as well for the optimization of the budget allocation for packaging, adding value to the products. The design of lightweight bottles had 3 positive impacts in terms of i) marketability of the wine, being interesting for potential customers looking for sustainable products/wine; ii) budget optimization, and revision of the allocation for the purchase of packaging; and iii) a decreased carbon footprint of the bottle supply chain.

The members of the cooperative have agreed on designing lightweight bottles, for which the management of Cincinnato has selected a sustainable producer, guaranteeing high quality standards of production and high level of supply chain sustainability: Vetreria Etrusca S.p.a (https://www.vetreriaetrusca.it/en).

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Figure 3: Supply chain of Vetreria Etrusca, producing the optimized design bottles for Cincinnato winery

Vetreria Etrusca has been able to support the sustainability standard required by the winery showing the performances of emission and the project ongoing in its factories. In fact, the bottle supplier has made an eco-sustainable investment with the installation of a photovoltaic system producing 3,000,000 kWh per year reducing the CO" emission by over 750 tons per year. Vetreria Etrusca has delivered the lightweight design bottles using 85% recycled glass and compensating the impact of the bottle production planting new trees in the wood surrounding the factory of Altare (Savona County), which so far has been populated with 38000 trees.

Figure 4: View of Vetreria Etrusca Plant with solar panels on the roof and the 38000 trees wood around it

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This best practice shows clearly how embedding sustainable measures in the supply chain impacts not only on the environment, but also on the business and directly on the farmers part of a cooperative, able to increase their income and carry on the harvesting.

4.3 Setting European partnership to shift to circularity in textile: the case of the ERDF funded project REGIOGREENTEX

REGIOGREENTEX is a project implemented by a consortium made of clusters, Research Centers, Universities/RTOs (**Research and Technology Organisations)**, SMEs (Small-Medium Enterprises), Regional Authorities and NGOs from 11 EU regions (less developed, transition and more developed regions) born from the REGIOTEX initiative. REGIOGREENTEX builds on years of preparatory work by the RegioTex initiative, which has been one of the first pilot actions to be funded by the EU to support the shift of textile industry toward more sustainable production models. It was started bottom-up by triple helix stakeholders in 2016 and has since been recognised by the European Commission as Thematic Partnership under the S3 Platform for Industrial Modernisation.

It brings together 16 regions of Europe with strong textile industry presence across 10 EU countries. The consortium brings together a critical mass of stakeholders from the EU Textile value chain that will ensure that the I3 (Interregional Innovation Investments Instrument) project delivers a measurable and scalable investment impact.

The consortium is developed around five circles:

1. partners essentially performing functions for the consortium.
2. partners performing supporting roles in their own region.
3. SMEs implementing the REGIOGREENTEX pilot projects, they are actual project partners, and they will co-invest
4. SMEs participating in the FSTP (Financial Support to Third Parties, in other words a grant scheme within the same RegioGreenTex funded project) scheme.
5. Regional authorities supporting the project.

The cooperation among diverse partners in the project REGIOGREENTEX has been encouraged to respond in a comprehensive and effective way to three challenges:

- To make a major step change in textile circularity by upscaling recycling via targeted investment in SME pilot projects, thereby creating corresponding regional and interregional ecosystems.

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- To scale up innovation and industrialization to anticipate a changing regulatory context
- To federate forces and investments across regions in the EU to sustain the transition to a sustainable textile supply chain.

The first challenge is related to the high footprint of textiles in terms of material use, and related energy and water use. The most urgent solution is to increase the share of recycling and to use discarded post-consumer textiles as a source of new materials for new products. Mastering recycling shall lead to redesign for recycling and re-use, and changes in consumption patterns. The crucial step, beyond this project but already accounted for by this consortium, is to transformation to (more) biobased materials in the textile and clothing industry. All these objectives are essential to reduce the footprint of textiles and to become fossil free at the horizon 2050.

The second challenge is timely as separate collection of discarded textiles will be compulsory by 2025 in the EU. More and more member states are introducing Extended Producer Responsibility (EPR) schemes with obligation to collect used textiles, or to pay a levy on textiles with possibly a discount for collected textiles. Recycling textiles becomes an urgent matter in two years. This is timely as in the last five years many textile recycling technologies have reached the prototyping stage and they need the opportunity to scale up to reach the market application. Recycling is thus also an important driver of reshoring the textile industry to Europe.

The third challenge is that the upscaling of these technologies shall be mainly funded through national or regional funding mechanisms. The post-COVID recovery pro-grammes represent an investment around €1,5 billion in sorting, recycling, and further processing, partly for development of technologies to reach the market stage. REGIOGREENTEX wants to connect these investments to foster cross border synergies, thus giving the project activities a strong leverage and helping to coordinate textile recycling and circularity related recovery programmes in EU.

This project aims at boosting the green transition as well the resilience of one of the more relevant European industries. Textiles is one of the 14 key industries of the European recovery strategy with 1,6 Million jobs in the EU. The technologies in this I3 consortium will target key phases of the recycling value chain to further advance in TRL and address gaps and bottlenecks of in textile recycling, connecting national and regional projects. Cascading funding (FSTP) enables to widen the scope of SME beneficiaries of the project and to help them to integrate in European value chains.

REGIOGREENTEX drafts a strategy based on circular model key enabling and innovation actions (EEA analytical framework for circular business models) to address those issues, as well further

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investigating the gaps of the textile value chain in the regions involved. Those actions are aimed at capitalizing partners' experiences and research in the field, strengthening the interregional value chain as well to upscale and further develop selected technologies provided by the SMEs onboard. In addition, the innovation portfolio will be enriched by further SMEs from the participating regions developing technologies crucial to the resilience, growth, and green transition of the EU textile sector.

REGIOGREENTEX has targeted 6 main steps along the main streams of the value chain, referring to both material strategies (sorting, shredding, disassembly and separation, channelling waste streams, using recycled contents) and product strategies (design and manufacturing). To shift the value chain from linear to circular model, the consortium during the implementation of the initiative will further investigate gaps and bottlenecks of those steps, coherently with the EEA analytical framework for circular business models, to address:

1. Enabling actions: coaching, training, and knowledge sharing.
2. Innovation actions: technology upscaling (also via cascade funding), matchmaking, setting key partnership among businesses at inter-regional and intra-regional level.

The project wants to increase significantly the share of recycling of post-consumer textiles in Europe. We expect rapid progress beyond current state of art in addressing material separation, contaminants, and other barriers to mechanical and chemical recycling of textiles. These are typical issues that arise in TRL (Technology Readiness Level) 6 to 9, in other words between the testing in relevant environment of a technology and the marketing of the same technology.

This is a challenge demanding some 10-20 Bill Euro investment in the EU alone. The I3 scheme is small in this respect, but important in lining up projects to scale up and accessing other sources and to develop technologies that can be replicated. The combined investments currently under preparation is in the range of 1,5 Bill Euro (and growing), the best REGIOGREENTEX can do is fill the gaps, and assure a connection of the participating SMEs to national and regional pro-grammes in other member states that is not yet organized. The objective of REGIOGREENTEX is primarily to de-risk, to avoid duplication and create an arena to cooperate at interregional level across the value chain and align investment plans. The project coincides with the introduction of compulsory separate waste collection in the entire EU, and the introduction of EPR schemes in some member states, but the dynamic is in a state of flux. There is an acceleration of interest, of investments but little visibility on initiatives with substance or with high visibility only. The efforts of REGIOGREENTEX are therefore essential for the overall competitiveness of the European textile value chain.

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For the project the key impact indicator is to reach out to a maximum number of SMEs with significant technologies for recycling of textiles. and connect and support them to strengthen the textile value chain. The recycling objective is a derivate of the overall objective of the EU, each member state and each region in a Regional CEAP (Regional Circular Economy Action Plan). These are not fully developed; hence an absolute figure cannot be given. In terms of SMEs the project aims at involving 27 SMEs as partners at the onset of the project.
Through FSTP the objective is to enroll 60 additional SMEs in the project as beneficiaries, but we will aim to reach out to 200 SMEs to submit a proposal for funding, either alone or in consortia. When SMEs apply in consortia, 1/3 of the beneficiaries in each consortium can come from outside the regions of the consortium. SMEs from transition and less developed countries get extra points for impact.
REGIOGREENTEX goals for triggering additional investments:

- The SME pilot projects integrated in REGIOGREENTEX are expected to further leverage invest-ments of roughly 5 times the project budget. As the 27 SMEs involved have a total budget of ca €3.5million, this implies an additional investment of ca €15-20 million in the period 2023-2028 of which half is expected still during the project, i.e. by end of 2025.
- The cascading funding projects are expected to each trigger further investments of on average 10 times their voucher value within 5 years, meaning additional investments of €25 million in the period of up to 2024-2030.

In other words, the project can be assumed as a best practice because it leverage on one hand the investment in a crucial European economic sector, to shift its transition toward sustainability, while supporting the European SMEs to improve, test and launch their innovations. Those innovation are part of a network across the EU, to favour the recycling and regeneration of clothes into new products.
The short-term key performance indicator is the number of SMEs (40) that realize TRL 9 level and can scale up to and national (blended) funding. The long-term key indicator (beyond the project) is the contribution to the national textile recycling targets (between 30 and 50% by 2030).
This project has been evaluated and funded by the EU through the ERDF fund and it is due to start in January 2023. It has been selected by the EU as the best strategy (and the only one) which could have been funded by the ERDF ("Green" pillar of the programme), to support the transition to a more sustainable and fair way of producing good within the EU. Among the strength of this initiative there are the comprehensiveness of the overall actions, taking into account a vast series of stakeholders, the mapping of technologies enabling the set-up of the European Circular model for textile supply chain and a support service, working to train and

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support businesses across the EU to grow along the circular model, both in terms of knowledge and technologies, and last but not least the delivery of dedicated funding to the mSMEs to adopt technologies shifting the production toward sustainability.

4.4 Reflecting on sustainability to change fashion industry: the approach of Salvatore Ferragamo Maison

The Sustainable Thinking project is delivered Salvatore Ferragamo "maison" and involves with exhibitions and collateral events Museo Salvatore Ferragamo in Florence. The project is aimed at encouraging the debate on important theme for the future and changes, in the world of fashion, art and architecture.

Many artists are following this direction. In fact, some have focused on the restoration of a more attentive relationship with nature, the use of organic materials, the need for the creative reuse of materials (upcycling), or the relationship between nature and technology; other artists stress the importance of a collective commitment to rethinking society.

Architecture is increasingly committed to limit the environmental impacts and considers ecological principles and sustainable development, as we will also see in the example of the VET school Škofja Loka.

The fashion industry, is aware of sustainability as a positive challenge, has been experimenting with new designs and innovative choices of well-established brands in the luxury industry, to offer new opportunities for responsible innovation to its selected and international customers. Research is leading to the development of new ecological and performing materials and to the improvement of production processes to reduce water and energy consumption, the use of toxic substances and the generation of waste, which is very high in this industry.

Salvatore Ferragamo brand this means believing that the use of innovative materials, the bond with the local community, and the attention for the environment and people.

The project is therefore part of the many activities that make the Maison Ferragamo a forerunner among the luxury brands that have embraced the principles of transparency and ethics.

Sustainable Thinking intends to present some contemporary artistic experiences that are particularly significant in this respect, making them engage and dialogue with the main areas of research in the world of sustainable fashion design and materials. The exhibition presents

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materials, works of art and recent clothes, and/or clothes specifically made for the event, projects aimed at explaining and illustrating the multiple and essential forms of "sustainability-cantered ethics and aesthetics" in a format that all kinds of public can easily understand, giving people not only the chance to know, but also to interact with the themes addressed.

The stakeholders and people working in the fashion industry, from the yarn to the model delivered are part of the exhibition, to exchange for different geographical areas, socio-economical condition the different perspective and point of view within the textile industry, to trigger the debate and to raise awareness on challenges to be faced. New technologies are also included in the talk, to better examine how does technologies could decrease the impact of the industry on the biosphere/environment.

What is more, the project will rely on a scientific committee of experts, scholars and art historians with a broad knowledge of sustainability issues, and on curators specifically appointed for the various locations, in order to present an exhibition at Museo Salvatore Ferragamo in Florence and in other prestigious venues in the city, such as Palazzo Vecchio, which is not only the municipal Hall but also one of the most important artistic buildings in the city, and Museo Novecento. Conferences, workshops, and laboratories held by the artists, designers and architecture studios involved are also envisaged. Many of these collateral initiatives are aimed at younger generations. One of these is intended to encourage the students of one of the most important high schools in Florence to make reflections.

Within the project has been designed and it is launched a competition targeting the most prestigious international fashion schools about recycling and use of cut-offs.

Among the events delivered during the project there is a Symposium, held by the most important representatives of sustainability, which citizens are invited to attend for free: this will be an unprecedented chance to learn the meaning of the word sustainability in concrete terms, how business models are changing, what research is doing to improve our environment, and basically, how the future looks like.

This project has been included among the best practices because is one of the most relevant examples in Europe of private initiative to trigger the debate on sustainability, which includes spaces to set the dialogue among end user, stakeholders, citizens, and experts, for the growth and to raise awareness on sustainability and planning and achieving a more sustainable future and fair society. This initiative mainstreams sustainable thinking pushing the reflection and the

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common effort to find strategies to shift toward sustainability. The authority of the brand helps to do so, for this reason this could be included among the best practices.

5. Unit 2 Sustainable thinking in VET: the case of Škofja Loka

5.1 The BBTC building – the green orientation in development

Figure 5: View of the Business-to-business training center škofja Loka (BBTC)

With the construction and, in 2013, the opening of a new business-Business Training Centre, the VET school SC Škofja Loka have set the basis for sustainable development, in particular by installing the systems for the highest possible level of energy and resource efficiency, specifically the school has developed a plan embedding several measures to be undertaken to have a more sustainable and efficient school:

- Adoption of new technologies (advanced CNC didactic solutions), new machines, tools, installations, and effective building insulation.
- Design and installation of a heating system implemented with heat pumps.
- Revision of the lightning system and installation of smart lights and weather-controlled blinds, to maximise the use of natural light and balance the artificial one.
- Apply smart monitoring systems, such as digitalized and energy saving systems, integrated into the central control system (CCS).
- Monitor and make a more efficient use of water developing a system to collect rainwater (e.g. for toilets).

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This path has been started analysing the energy efficiency of the VET school building. The old buildings of SC Škofja Loka were built between 1975 and 1980, hence based on dated building methodologies as well as technologies to ensure energy supply and water supply guarantee the insulation.

To refurbish the infrastructure of the school and deal with the extremely energy-inefficient features, the management has started in 2013 a comprehensive energy renovation of all 5 buildings of SC Škofja Loka with the following measures:

- Building of a new heat-insulating facade and thermal insulation of the ceiling (stone wool).
- Replacement of old windows and doors, to have a better thermic insulation.
  - Replacement of the boiler (heating oil boiler was replaced by a wood chip boiler).
  - Renovation of the heating system - reconstruction of distributor and control, reconstruction of secondary distribution and heating elements.
  - Development of a new ventilation system and user awareness,
  - Renovation and upgrade of the internal lighting with smart system,
  - Digital monitoring of operations and central control system (DOM, CCS).

Figure 6 & 7: View of the renewed facade and the internal features, with relevance with internal lights and airflow system.

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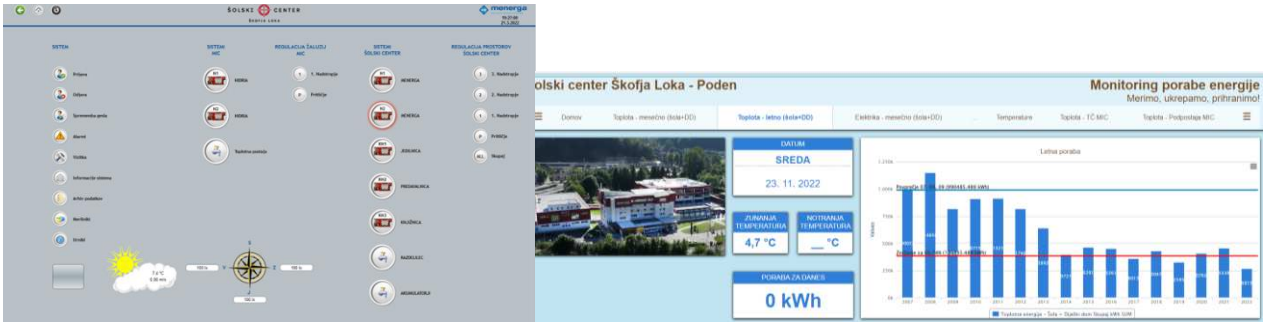

Figure 8 & 9: Digital monitoring of operations and central control system (DOM, CCS) dashboard/panel

The assessment of the infrastructures of the school with the planning and renovation of both the structure and the energy and water supply had a positive impact on the performances, costs connected to the school activities, overheads, as well in the mindset of the overall management of the school, opening to further development and project to push even more the transition. Among the evident benefits of the renovation, it is possible to mention the following:

- On average, more than 50% savings in energy for heating SCSL,
- 15% saving in electricity compared to the starting point,
- Significantly greater living comfort,
- Systems and devices are also included in the learning processes of SC Škofja Loka and BBTC,
- Incentive for further steps towards digitization and upgrading of existing solutions,
- Strengthening the focus on green, circular, and sustainable in all segments of the SCSL operations.

The above stated activities have a double meaning: they ensure the actual daily application of green and sustainable solutions, and at the same time they represent real didactic examples that can be integrated into the educational processes of SC Škofja Loka at any time. The results reflect the excellent cooperation with partner companies, which, like SC Škofja Loka, are committed to finding innovative and sustainable solutions in the fields of mechanical engineering, woodworking, and energy. On this basis, we are now strongly strengthening the implementation of projects aimed at a green and sustainable future and strengthening our responsibility towards the environment.

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In the following, we present two examples of such projects: one in the field of wood engineering and the other in the field of mechanical engineering, and in chapter 10 we provide links to several other projects that have been or are being implemented at the SC Škofja Loka level and support sustainable development, green and digital transition.

5.2 Projekt »Podnebni cilji in vsebine v vzgoji in izobraževanju« (PCVIZ) Project "Climate goals and contents in education"

The project is implemented at Secondary School of Mechanical Engineering in SC Škofja Loka and in cooperation with CPI (The Institute for Vocational Education). This project can be mentioned among the best practices in the field of sustainable thinking and training VET learners toward sustainability.

The aim of PCVIZ project is to follow the needs of the economy and the economic trend by working together to create sustainable, circular, and economically/environmentally friendly solutions.

During the project, an interdisciplinary team of expert teachers at school have overseen planning and implementing activities with students and networking with relevant partners in the local and regional environment, linking the training activities with stakeholders of the labour market. Over the summer 2022, the school and participants/learners included in the project have collected several found objects, including sneakers, trousers, T-shirts, work clothes, etc.

The collected clothes and items have been washed and offered them to the boarding school students. The work clothes were put into the storage to be made available to the students. To reduce the use of paper, the school has printed and laminated the signs for PT meetings, and we stick them on the classroom door every month when we have afternoon PT meetings. To reduce paper consumption, the school has also started to keep the minutes of the meetings only electronically in an online teaches' room/Online space for teachers. Also, the circulars/official communication by the school management or the ministry are brought to class on a tablet by a student on duty and no longer in paper form.

The school management has drafted a set of guidelines for the final assignments, which includes a specific section on sustainable development. The school has joined the Girls go Circular project with the students from 2. GaV class and the girls completed all the modules

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and obtained all the certificates. In addition, the school has taken part in an innovation camp with the students in JA Slovenia, where they had a challenge to reuse old electrical appliances. Among the activities under development or scheduled to boost the transition of the VET school facilities and activities toward sustainability, the school and its management have planned or are developing:

- To set up a place to dispose of hazardous waste, e.g. oil filters, motor oil, waste rags, etc.
- To liaise with the industry (Ekol) and the local community (Komunala Škofja Loka).
- To purchase cases for water analysis to be used in the elective course Waste Materials Management and in Energy Studies. To increase the motivation of the students, they will be involved in carrying out the analysis on water samples they bring from home to check the quality of the water in their home environment. In addition, tap water will be analysed at school. This will show students that tap water is drinkable and try to get as many students as possible to drink tap water, not plastic bottles bought from the supermarket.
- In the school subject Business and Organisation and Organisation and Business, the school is planning activities to encourage students to create a business model of how maximising the use of resources.
- The school will continue participating in projects (JA Slovenia, EIT Raw Materials, Girls Go Circular).
- The students will guide students to produce final assignments involving the use of waste materials from the field of mechanical engineering (e.g., waste materials from end-of-life cars, separation of these wastes).
- The school has added sustainable development in the instructions for the final assignments. Students will be asked to identify what happens to the waste generated in the production of their final assignment.
- A long-term objective that the school has set is to establish and build an outdoor classroom, which would include an open-air and a covered area (a space for this has already been identified);

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5.3 Project "Lesni feniks"- the Wood Phoenix

The project is implemented at Secondary School of Wood Engineering in SC Škofja Loka with the cooperation of partners from the local and regional environment/SMEs.

The main aim of the project is to protect the environment by reducing waste, preventing waste and reusing materials, and to raise awareness among residents about the ways, possibilities, and importance of the transition to a circular economy.

The objectives of the Wood Phoenix project are:

- to carry out a pilot project on the use of wood residues and salvaged wood, which will be used to create new products: urban wooden elements to be used by residents. The wooden benches and playgrounds will complement the swimming pool in the municipality of Žiri.
- Awareness-raising of the local population through a series of activities.

In addition to round tables, lectures, and films to raise public awareness, the project will extend the learning process by developing products made from salvaged wood and by producing and demonstrating the use of salvaged wood in urban infrastructure.

An important added value of the project is the cooperation established between the industry, educational institutions and the local community.

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6. Summary

Based on the activities and projects presented the business case and project as well explained, we can assume that:

1) The integration of sustainable and green contents and measures in the educational activities of a VET institutions is of a paramount importance. With a proactive approach, it is possible to implement quality projects, both in technical and general education, which orient the trainees towards a responsible attitude towards the environment and foster a mentality of innovation and entrepreneurship that is fundamentally oriented towards sustainable technological solutions. Digitalisation fits perfectly into this context, as an effective tool for achieving the objectives presented.

2) A deep knowledge of the context and the production, the research on innovative solutions and procedures as well the cooperation with diverse partners id the key to implement sustainable project in the business sector. What is more, the transition to sustainability and embedding sustainable principles to the overall business functions give benefits not only to the environment, but also to the business per se. In fact, the application of new technologies and more sustainable ways to produce and implement business related activities can disclose new opportunities, guaranteeing the resilience of the mSMEs.

Successful projects and visionary initiatives are the best motivation for launching new paths, subject to continuous improvement, which result in new technological possibilities and define responses/solutions to issues which may arise.

In particular, the following factors are key to achieving quality results:

- People involved, as personally responsible and highly professional individuals.
- Teamwork.
- Openness to cooperation with different stakeholders.
- Openness to lifelong learning and the creation of a learning community.

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- The willingness to enhance the best potential of both the individual and the various social communities.
- An open attitude enabling the revision of beliefs and usual paths of production and delivery of goods and services.

It is possible to build success stories enhancing the cooperation among different stakeholders, offering different perspectives on the topic as well on strategies, bridging for instance, research, training, and business (as witnessed in the best practices above), is the key to generate good stories and start paths toward a better and inclusive future for everyone as well for the environment.

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7. Questions for reflection

1. What technical measures have you already implemented, or you think they could be implemented in your organisation to achieve greater energy efficiency (measures on buildings, building materials, installations, and management systems)?

2. Identify 3 potential partners (companies, BSO, development agency, municipality, etc.) in which you see potential and possibility to strengthen cooperation for joint projects focused on sustainable development and circular economy!

3. Which actions to promote sustainable development and the use of green technologies can you immediately activate in your organisation? (2 examples)

4. Which content areas of the green transition in your organisation have the greatest potential for development in the short term (in the next 5 years)?

5. How would you describe the use of digitalisation as a tool to accelerate the green transition in your organisation and local environment?

6. Which priority topics will you integrate into your educational curricula or activate in the form of project work in the next two years?

7. Have you explored all the possible innovation which could be applied to your business?

8. Are you aware of the impact that a linear supply chain and the industries active in your area?

9. How can partnership support the transition to more sustainable and fair supply chain? And the transition can imply the improvement of health and livelihood of local communities?

10. Which are the key messages you would focus on to trigger the debate among the civil society on sustainability and green transition?

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8. Useful References and Resources

1) Šolski center Škofja Loka sustainable projects
2) O šoli SŠS
3) Project "Lesni feniks" - the Wood Phoenix
4) Enersol | šolski center škofja Loka (scsl.si)
5) Salvatore Ferragamo: Sustainable Thinking project
6) Sustainability: new strategic thinking for business | SpringerLink
7) Sustainable Vineyards and Wineries: A Getting Started Guide For Businesses
8) Forward Thinking for Sustainable Business Value: A New Method for Impact Valuation

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