

ENTREPRENEUR:

SUSTAINABILITY meets ENTREPRENEURSHIP

inspired by



THE GLOBAL GOALS
For Sustainable Development

*Initiative for Teaching Entrepreneurship
With Contributions from: Johannes Lindner, Monique
Dorsch, Gerald Fröhlich, Heidi Huber, ...*



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Shaping a sustainable economy through entrepreneurship

Each of us, regardless of age, occupation or social status, can help that present and future generations initiate and sustain sustainable economic and social development, according to the motto: “Be the change you want to see in the world.”

Commitment to positive change shows that you are ready to take responsibility for yourself and for others.

This book offers the opportunity to learn from “best practice examples” and encourages you to help shape the “NextPractice”. It combines sustainability with entrepreneurship and shows the strong relationship to the Sustainable Development Goals (SDGs) of the United Nations. In the table of contents, the reference to the individual SDGs are shown.

The book is divided into three sections:

I. SUSTAINABILITY MEETS ENTREPRENEURSHIP - PERSPECTIVES

In the first section, the contributions highlight the cross-section between sustainability and entrepreneurship from different perspectives. Sustainability is linked to the goals of the United Nations “Sustainable Development Goals” or “Global Goals”, which are to ensure sustainable development to serve on an economic, social and ecological level. In addition, initiatives are also set out which have set themselves the goal of anchoring sustainability and entrepreneurship in the school context more strongly.

To meet the challenges of our time with ideas and sustainability, linear thinking is not enough - interconnected thinking can serve as an analytical and design tool for understanding contexts can help to develop innovative solutions to the challenges of our time.

II. SUSTAINABILITY MEETS ENTREPRENEURSHIP - METHODEN

The second section uses concrete case studies to show how different methods can be used to address challenges. The cause-and-effect diagram, the method of interconnected thinking and the scenario analysis are presented. As a didactic “twelve” is the exercise “Harvest” - as a good introduction to sustainable and interconnected thinking - explained.

III. SUSTAINABILITY MEETS ENTREPRENEURSHIP - CASE STUDIES

The core of the book are the case studies from Austria, Colombia, Germany, Wales, Latvia and the Netherlands, in which contributions to the development of a sustainable society are outlined.

Get to know for example the innovative houses of Gregor Pils and Andreas Claus Schnetzer and the fashion label “The Goddess of Happiness” by Lisa Muhr and Igor Sopic. Find out how with “SkySails” large tankers can be powered by wind and how it can be possible to go without the car while on holiday in Werfenweng. Look forward to numerous initiatives, projects, companies and above all people who are committed to sustainability. They all manage to combine social justice and environmental responsibility with economic goals. These sustainable changemakers meet the challenges of our time and contribute with ideas to making this world more sustainable.

By dealing with the tasks listed above, you will learn methods that will help you become a changemaker yourself. Think outside the box!

*Gerald Fröhlich, Heidi Huber
and Johannes Lindner*

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Sustainability meets Entrepreneurship Education

A responsible market economy needs self-confident and responsible citizens who shape their own future and those of society through entrepreneurial and social initiative. Without people actively implementing ideas, we would live in a very different reality today. There would be no art and no schools, no cars and no medicines, no rule of law and no democracy if people did not take a stand for ideas over and over again and changed social rules.

Proactive citizens do not fall from the sky, but need a foundation of skills to develop and implement their ideas and an environment with free spaces. This article is intended as a plea for a link between sustainability and Entrepreneurship Education.

ENTREPRENEURSHIP AS A KEY COMPETENCE

If the term “entrepreneur” refers to the person, entrepreneurship is about the process of how an idea develops, which entrepreneurial opportunity is identified and how the team implements the idea. The EU Commission (2005) defines entrepreneurship skills as a key competence that all EU citizens should possess. “Entrepreneurship competence is the ability of individuals to put ideas into action. It promotes creativity, innovation and risk-taking, as well as the ability to plan and execute projects to achieve specific goals. It helps the individual in their daily life at home or in society, enables employees to consciously perceive their working environment and seize opportunities, and it is the foundation on which entrepreneurs build a social or commercial activity.” For learning entrepreneurship skills, the term entrepreneurship education has been established. The focus is on the development of new ideas and their creative and conceptual implementation (see Faltn 2012).

FRAME OF REFERENCE

Based on the definition, the reference framework for entrepreneurship skills was developed. These competencies do not first emerge in professional life, but are developed through a longer-term process, which is why different levels

of competence are provided for in the reference framework. The breakdown (see Figure 1) follows the classical division into primary, secondary and tertiary levels:

- A level of competence (primary level, beginners) describes elemental,
- Competence level B (secondary level) independent and
- Competence level C (tertiary level) competent entrepreneurship applications.

The respective competence levels are broken down into a higher or lower level, resulting in a total of six competence levels.

The reference framework provides an orientation for the process of learning in the following sub-competences: “developing ideas”, “implementing ideas” and “thinking sustainably” (as value orientation). It describes learners’ competences in the form of can-do statements and describes the attitudes, skills and abilities they should develop. The reference framework for Entrepreneurship Competences

Reference Framework for Entrepreneurship Competences						
Competence areas	Competence level					
	A1	A2	B1	B2	C1	C2
Developing Ideas • Attitude • Identifying Opportunities						
Implementing Ideas • Working together • Organising						
Sustainable thinking • Acting as a visionary • Financial literacy						

Figure 1: Basic structure of the reference framework for entrepreneurship skills, download mit Can-Do Statements: <http://www.eesi-impulszentrum.at/wp-content/uploads/2014/01/PosterReferenzrahmen-092014.pdf>

is an aid to curriculum development teams and to the development of teaching-learning arrangements.

Entrepreneurship education therefore ranges from the entrepreneurial level in the narrower sense to the qualities of the citizen – i.e. the socially responsible citizen.

TRIO MODEL OF ENTREPRENEURSHIP EDUCATION

The **TRIO-model of Entrepreneurship Education** (see Aff / Lindner 2005) includes three levels (see Figure 2).

At **level I**, the learning of core competences of entrepreneurial and professional self-employment as well as independent private lifestyle takes place. Entrepreneurial designs for ideas of entrepreneurial, professional and private challenges are developed and implemented.

Level II Entrepreneurial Culture emphasizes the promotion of a culture of self-employment, the openness to innovation, empathy and sustainability as well as an encouraging relationship and communication culture.

Level III Entrepreneurial Civic Education emphasizes the strengthening of a culture of maturity, autonomy and responsibility for societal challenges. This happens through the development of social ideas, their reasoning and commitment to implementation.

The Entrepreneurship Framework and the TRIO-model are the foundation for the Entrepreneurial Challenge based Learning (Entrepreneurship Learning through Challenges) approach, which uses challenges from different areas as a learning opportunity. The approach emphasizes the action competence, as cognitive, personal and social competencies are linked with content and situational components of entrepreneurship (see Jambor / Lindner 2016).

Entrepreneurship learning through challenges corresponds to practice-oriented entrepreneurship education. The learning circle is based on this approach: “Challenge - Feedback - Reflection” (see Kolb 1984, Sternad / Buchner



Figure 2: TRIO model of Entrepreneurship Education: three levels of challenges

2016). The learning form combines an interaction between an action-oriented (especially project-based) and a reflection-oriented educational approach:

- A challenge is understood as a demanding, complex and target group-specific task from the reality of life. Learners should develop and implement ideas for this challenge (often in collaboration with others). The “reality of life” follows its own movements, their coping requires a process of inquiry learning in close connection between theory and practice. Children and adolescents should be taught at an early

Entrepreneurial learning through challenges

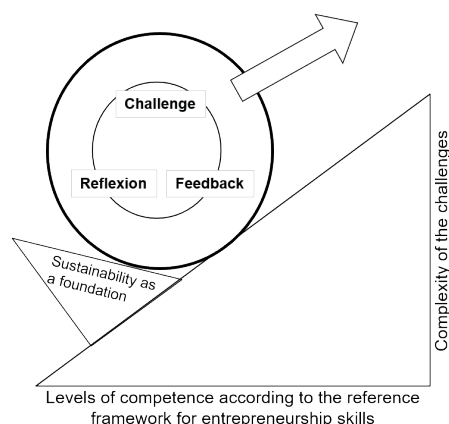


Figure 3: Entrepreneurial Challenge based learning - learning through challenges

stage that they can develop their own ideas and take challenges into their own hands. An important basis for analyzing the initial situation of a challenge is interconnected thinking.

- An adequate feedback follows the “backwards design model”. At the beginning of a learning circle the competences to be achieved are made transparent. After self-reliant and creative work feedback is provided through “teacher assessments”, “peer assessments” or “self-assessments”.
- Reflection offers the opportunity to classify the experience of working on the challenge and the feedback and to develop an internal structure or attitude. Strengthening attitudes has a lot to do with self-efficacy. Self-efficacy is the belief that we really want to and can do what we are doing or planning to do. It depends on exactly this conviction - in our mind - whether we succeed in what we do or not. Self-efficacy develops already in our childhood. The good news is that it can be developed and enlarged

throughout life. Self-effective learning (see Bandura 1997) then takes place:

- a. if an environment with competent role models exists,
- b. when a person consciously perceives a situation as a challenge,
- c. when they accept the challenge as a thinking and active person and ultimately master it successfully and
- d. when someone is attentive to themselves, with regard to the development of their ideas and their own self-assessment (metacognition).

The TRIO-model of Entrepreneurship Education can be well linked to the levels of competence. It turns out that the various combination possibilities also make different challenges possible and necessary. Figure 4 briefly presents the categories of challenges. For each of the categories presented here, there are versions of the competence levels of the reference framework for entrepreneurship. For example, in the Community Challenge (Level A1), an experiment is carried out to solve a “Global Goal”.

At A2, an examination of one’s own sustainability takes place. In B1 and B2 methods of interconnected thinking (with different degrees of difficulty) are used.

The promotion of Entrepreneurship Education for children and adolescents is a cross-curricular task. The Entrepreneurial Challenge based learning approach touches on the basic personal and social issues of self-responsibility and maturity, as well as a culture of solidarity in society, based on a value vision of sustainability (see European Commission / EACEA / Eurydice 2016).

Entrepreneurship competences are indispensable not only for a functioning market economy, but also for a vibrant civil society and for challenges of one’s own private life.

Entrepreneurs keep the economy and society in motion with the implementation of new ideas. Entrepreneurship Education has a triggering and process-enhancing position here.

Johannes Lindner

Core Entrepreneurial Education

Idea challenge

I can develop an idea (and a model how to implement it).



Hero Challenge

I can identify a personal role model.



My Personal Challenge

I can solve personal challenges.



Lemonade Stand Challenge

I can sell products.



Real Market Challenge

I can develop a business plan for the market.



Start Your Project Challenge

I can plan and implement my project as a team.



Case Study Challenge

I can work on real case studies.



Enterprise Challenge

I can launch a business.



Entrepreneurship Team Challenge

I can develop an entrepreneurial design together with a team.











Entrepreneurial Culture		
Empathy Challenge I can identify with others. 	Storytelling Challenge I can tell stories. 	Buddy Challenge I can support others in achieving their goals. 
Perspectives Challenge I can understand I am part of my environment. 	Trash Value Challenge I can create something valuable out of garbage. 	Open Door Challenge I can network with others. 
Extreme Challenge I can set and achieve difficult goals. 	Be A YES Challenge I can say "yes" to myself and the world around me. 	Expert Challenge I can use my expertise to give constructive feedback. 
Entrepreneurial Civic Education		
My Community Challenge I can do things for the community where I live. 	Volunteer Challenge I can engage in community service. 	Debate Challenge I can develop my opinion and enter into a debate about it. 

Figure 4: Youth Start - Entrepreneurial Challenges (cf. www.youthstart.eu)

Agenda 2030 for Sustainable Development 17

Global Goals of the United Nations

Under the title “Transformation of our world: the 2030 Agenda for Sustainable Development”, an ambitious and forward-looking resolution was passed by the UN General Assembly on 25 September 2015. 193 states signed this unique action plan, which sets concrete targets for sustainable development by 2030 - for all people, for our planet, for greater prosperity, for universal peace and for a Global Partnership that will enable the implementation of this agenda.

“We are determined to free mankind from the tyranny of poverty and hardship and to heal and protect our planet. We are determined to undertake the bold and transformative steps that are urgently needed to put the world on the path of sustainability and resilience. We promise to leave no one behind in this journey we embark on today.” This is one of the first statements in the draft of the outcome document of the UN summit in New York in 2015.

CHANGING THE WORLD

Exactly 70 years before the adoption of the Sustainable Development Goals (SDGs), as the 17 Sustainable Development Goals in the English original version call it, the United Nations was founded in 1945. In the face of the ruins of the Second World War, it was paramount for all founding members to base the values of peace, dialogue and international co-operation on this new confederation of states.

These values are still current in 2015 and require courageous decisions in order to be able to realize them worldwide. The basic vision of 1945 has remained the same to this day: to create a better future for all people, including millions of people who have so far been denied the chance of a decent and fulfilling life.

If these universal Sustainable Development Goals are realized, the world will see a major change for the better until 2030.

PIONEERS FOR THE AGENDA 2030

Great changes for the better, of course, since 1945, many. Not least because of numerous agreements initiated by the United Nations, many countries have been able to develop more peace and, more generally, a more decent life. For example, since 1990, the number of people living in poverty has more than halved and more than one billion people have access to cleaner water over the same period.

Key UN conferences and summits that pave the way for today's 2030 Agenda include:

- 1992, Rio de Janeiro Conference on Environment and development
 - Rio Declaration on Environment and Development
 - climate Change Convention
 - Convention on Biological Diversity
 - forest declaration
 - Agenda 21
 - Convention to Combat Desertification
- 1997, New York: World Summit Rio + 5
- 2002 Johannesburg World Summit on Sustainable development, Rio + 10,
- 2012 Rio de Janeiro Conference on Sustainable Development, Rio + 20
- 2015, Addis Ababa: International Conference on Financing for Development

A LIFE IN DIGNITY FOR ALL

The current SDGs build on the Millennium Development Goals of the United Nations (2000 - 2015) and are expected to complete what they have not (yet) achieved. Above all, the eradication of poverty has so far failed - more than one billion people were living in extreme poverty in 2015, more than 800 million people; a. Women and children suffered from chronic hunger. Also in the area of climate change and

armed conflicts no satisfactory results could be achieved.

In order to involve as many people as possible in the new 2030 Agenda, the United Nations launched a large-scale planning and consultation process at national, regional and global levels. For example, more than one million people around the world participated in the “The World We Want” campaign, where they were able to define their wishes and ideas about the world in which they would like to live in the future.

In 2013, UN Secretary-General Ban Ki-moon submitted a first report, which i. a. taking all these desires and visions as a foundation, entitled “A life of dignity for all”.

FROM VISION TO REALITY

The establishment of a Global Partnership (= Goal 17) will be crucial for the implementation of comprehensive and far-reaching goals by 2030. In addition to all governments of the 193 UN member states, this also includes their civil societies, their economic and scientific systems as well as the United Nations itself.

Financing will be just as crucial for success. The basis for this was provided by the conference in Addis Ababa in July 2015: by building up sound tax systems and combating corruption, less developed countries should be provided with more funds. The highly developed countries

committed to spend 0.7% of GDP on development cooperation. The remaining Funds are to be contributed by the private sector.

The United Nations emphasizes that the main responsibility for economic and social development lies with each country itself, but a partnership of global scope, for example in mobilizing funds or transferring green technologies, can create mutually beneficial conditions and thus great relief created for all involved.

SUSTAINABILITY - THE CONSCIOUSNESS FOR A LIVABLE FUTURE

The finiteness of our resources and our way of life - and the associated necessity of changing our consciousness and action - is not just a 21st century knowledge. Already in the 18th century, a principle was formulated in forestry, which is still based on the idea of sustainability: “Only so many trees may be felled as can regrow in a certain period of time.”

The current definition of sustainability comes from the Brundtland Report of 1987 (Our Common Future: World Commission on Environment and Development): “Development is sustainable if it meets the needs of the present generation without endangering the opportunities of future generations to satisfy their own needs and choose their lifestyle.”





SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

Goal 1: End poverty in all its forms everywhere

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3: Ensure healthy lives and promote well-being for all at all ages

Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5: Achieve gender equality and empower all women and girls

Goal 6: Ensure availability and sustainable management of water and sanitation for all

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10: Reduce inequality within and among countries

Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12: Ensure sustainable consumption and production patterns

Goal 13: Take urgent action to combat climate change and its impacts

Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

“We can be the first generation to succeed in ending poverty; just as we may be the last to have a chance saving our planet.”

Draft of the outcome document of the UN Summit, New York, September 2015

TAKING RESPONSIBILITY TOGETHER

The Sustainable Development Goals meet all three dimensions of sustainability: the economic, social and environmental dimensions. Only in this way can a far-reaching and transformative development be made possible.

All goals and objectives are universal and affect the whole world - all nations, all peoples and all parts of society. The goal is to be the first to reach those people who are furthest back and leave no one behind. Special attention should be paid to the voices of the poorest and the weakest.

A new form of global partnership is the former division into “donors” and “takers” or “first”,

Replace “second” or “third world” and instead use the value of a shared responsibility for people and planets. Only global solidarity, especially solidarity with the poorest, can make a big difference.

This World Future Treaty is designed to help all people around the world live a life of dignity, peace and freedom - all in an intact environment.

This book is intended to make a small contribution to these incredibly ambitious and important goals. The EU project MetESD and thus also this book should be part of the global partnership. Showing positive examples (one or more successfully implemented visions for each goal) should encourage people to break new ground and give ideas for new opportunities.

All of the initiatives, projects, companies and, above all, people described here have taken innovative, courageous paths and have used their creativity and innovative strength to solve the challenges of sustainable development - as envisioned by the SDGs.

Exciting (teaching) methods for raising awareness in the field of sustainable development should also contribute to greater understanding and a conscious attitude towards all people and the environment.

We are all “guests on earth” and have only “borrowed the world from our children”. The Sustainable Development Goals offer us the opportunity to leave a livable planet and a life of peace and dignity to all children and later generations.

Heidi Huber

“The future of humanity and of our planet lies in the hands of today’s younger generation who will pass the torch to future generations. We have mapped the road to sustainable development; it will be for all of us to ensure that the journey is successful and its gains irreversible.”

Draft of the outcome document of the UN Summit, New York, September 2015

MetESD – Methods for ESD-competencies and curricula



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LEARNERS LEARNING FROM LEARNERS

The central objective of the three-year project MetESD (ESD Education for Sustainable Development) is the development of a sustainable development education (ESD) syllabus that can be integrated into any vocational training course. For this purpose, a basic curriculum was developed at the University of Vechta in cooperation with BenE München eV (Regional Network of School and Out-of-School Educational Institutions on the subject of ESD funded by the United Nations University), the Austrian Environmental Association and the Vienna University of Teacher Education. Students must acquire in order to master the ever-changing challenges in working life. The EU calls entrepreneurship the “promotion of entrepreneurship”, which should also be good for education-skeptical and learning-tired students, because they often want to do something practical. Competencies include:

1. ... the ability to network and think ecologically and to recognize how work processes are related to economic, environmental and social conditions in a global context.
2. ... the ability to think and act entrepreneurially. In particular, students should be enabled to develop and improve products and services in a way that contributes to a sustainable future.
3. ... the ability to look after one's own well-being and the other in social responsibility. These include recognizing one's own values, appreciating other

cultures, the ability to reconcile work and private life, and knowing how to contribute to social justice in the future profession.

4. ... experiencing and experiencing that global responsibility begins in one's own professional and private life. That is why the contents and competencies are taught in an action-oriented way in all participating schools. The schools will therefore develop and implement projects with students who involve local businesses and businesses.

The implementation of the curriculum in everyday school life is accompanied by various international advanced training days, in which the responsible colleagues participate and who above all aim at didactic training. In addition, each school receives a counseling team to assist with the development and testing of the curriculum and to advise school management and staff on the ongoing implementation of the new curriculum.

In order to ensure the quality of the results, teachers from participating schools will visit other schools as “critical friends” and look into the effects and side effects of the new curriculum in everyday school life.

MODULES AND CURRICULUM FRAMEWORK

Curriculum development is designed as a school development process. In each school, steering groups are formed to work out the curriculum. The steering groups, the heads of the departments and the teachers concerned are represented in the tax groups. Each steering group will be assisted during the process by an external consultant (University of Vechta, University of Daugavpils). All participants are trained in semi-annual training courses and conferences.

The project concept is characterized in particular by the four three-day didactic training courses. The four training sessions, designed as modules, include the methodical further qualification for teaching. This qualification is not

only a training, but also provides space for the development of tailor-made teaching modules for each own school as well as the exchange about it with the colleagues from the other project schools. Central to the content of the four modules is the teaching of action- and student-centered methods, which enable a high degree of self-participation, promote learning motivation and take into account the special learning needs of disadvantaged pupils.

The mission statement of the modules can be described as “learners learn from learners”. Teachers should not be placed in the position of pupils in the training courses, but should experience themselves as learners and transfer this motivation, interest and curiosity to the classroom and thus treat the pupils appreciatively.

MODULE 1: SYSTEMS THINKING SKILLS

Systemic thinking and acting in system contexts are the focus of this module. The training draws on the concept of system thinking and shows how the ability to think in a networked way can be conveyed in a playful way. To think in a networked way means to recognize how work processes are related to economic, ecological and social conditions in a global context.

MODULE 2: DESIGN THINKING / SUSTAINABILITY ENTREPRENEURSHIP SKILLS

“Social Entrepreneurship” and “Sustainability Entrepreneurship” should be taught using the example of developing sustainable business models (student companies) or products. The teachers involved should learn to teach entrepreneurial thinking as a basic skill and to encourage students to act independently. In particular, students should acquire work-related skills to develop, modify and improve products and services that will contribute to a sustainable future.

MODULE 3: VALUES AND NEEDS BIOGRAPHY

Occupational and life planning in the sense of work-life-balance and life-long and lifelong learning are the focus of the didactic training. Starting from the need-matrix according to Max-Neef methods of self and personality development are taught. This includes methods of confrontational pedagogy. Being able to look after one's own well-being and the other in a socially responsible manner presupposes a conscious attitude of values and students can succeed if they learn to value other cultures, to reconcile work and private life, and in the future profession contribute to social justice.

MODULE 4: PLAY THE GAME - WALK THE TALK

In this module, teachers are qualified to coach students as part of the project is the implementation into the workplace. Together with local and regional companies and companies, projects are to be developed in which students can apply what they have learned and thus experience and experience that global responsibility begins in their own professional and private lives.

Concrete projects will emerge in the project context and therefore should not be anticipated as a draft. But there are framework conditions for the projects. The projects are to take place in the region of the vocational school and extra-curricular educational institutions, companies and companies from the region are to be involved as actors and consultants. The projects deal with sustainable ways of life and work and are related to the job field.

In order to ensure the quality of the results, teachers from the participating schools will visit the other schools as “critical friends” and learn about the effects and side effects of the new curriculum and the lessons learned in class during the school day. This is also understood as a contribution to the guiding idea “learners learning from learners”.

After completion of the project, the modules outlined above are externally evaluated and modified so that they can be offered as an integral part of teacher training and teacher training as well as within the context of undergraduate teacher training throughout Europe. This means contributing ESD to the structure of the education system. The external reviewer was Glenn Strachan, a well-known sociologist in the United Kingdom, who has already evaluated and evaluated many educational institutions in England and around the world.

Although teacher training and the practical implementation of lesson modules are important, without the development of a curriculum, the training modules described above would not contribute to structure formation and would be ineffective in the central objective of the project of maximum sustainability.

THE CURRICULUM – ESD MAINSTREAMING

A curriculum based on the acquisition, promotion and deepening of competences faces the challenge of developing a plausible competence model that is complex

enough on the one hand to map the requirements of an ESD and on the other reduces complexity to the point of implementation the level of the individual school is manageable. For ESD different competence concepts are discussed (Lang-Wojtasik / Scheunpflug 2005, Rieckmann 2013).

The model developed for the project “MetESD” and to be differentiated in the course of the project initially starts from the three pillars of sustainability (ecology, economics and social affairs). Encouraged by the systematic and detailed presentation of competency models and the resulting orientation framework for the Global Development learning area (Siege / Schreiber 2015, 89), this project is also based on an orientation framework for ESD, which, however, gives a slightly different weighting to the target dimensions Three-pillar model goes beyond (see Fig. 1 Orientation frame BNE).

We see culture as an independent social dimension of education, in which the mediation of value diversity and

appreciation of individual and different forms of expression is central. This difference arises before the current difficulty in determining the relationship between the concepts of global learning and ESD (Lang-Wojtasik / Scholl 2005, 6).

In the controversial discussion about the term competence (Bader / Müller 2002, KMK 2011, de Haan 2008), the definition of the OECD can be seen as a common denominator: “A competence is more than just knowledge and cognitive abilities. It is about the ability to cope with demands by using and using psychosocial resources (including cognitive abilities, attitudes and behaviors) in a given context”(OECD 2005, 6).

This definition forms the basis for a competence grid (see Table 1), which serves as a sorting machine for locating the lessons created in the project curricularly.

Four competencies are distinguished.

1. Expertise, as the ability to deal effectively with the job requirements,
2. Self-competence, as the ability to develop oneself



Fig. 1: Framework for Education for Sustainable Development (Detlev Lindau-Bank)

- positively as a person,
3. Social competence, as the ability to interact and interact successfully with others and
 4. Gestaltungskompetenz (shaping competence), as the ability to make processes and products responsibly.

All competences are based on knowledge and insights as a cognitive dimension of competences. In contrast to the cognitive dimension, the application knowledge refers to the dimension of the skills in dealing with methods, tools and instruments. The volitive, emotional and normative dimension is described here with position or attitude.

How this grid is filled is initially open. In the course of the project, areas of competence are specified by reference

to the respective occupational field-specific requirements and determined with regard to the goals of sustainable development.

This includes the standardization and concomitant measurement of acquired competences (Klieme 2004). This presents a challenge because the reference standards must be individual and factually appropriate. It is therefore necessary to determine performance indicators in order to enable pupils and teachers to carry out a learning control and thus also to make a relevant and comprehensible contribution to qualification. Only if ESD is relevant for qualification in vocational training will ESD be structurally anchored.

Lukas Scherak, Detlev Lindau-Bank, Margit Stein

Competence	Dimensions	Knowledge	Skills	Attitude
Expertise		Professional and occupational field-specific knowledge of ESD	Can apply methods and tools	Globalisation, Green Economy; environmental protection
Social competence		Knowledge about group dynamics, communication, networks	Can resolve conflicts, can lead conversations	Openness, willingness to learn, empathy, solidarity
Self-competence		Knowledge about your own personality, emotions and behavior	Can design life- and career-plans	Courage to make personal decisions, take action
Gestaltungskompetenz		Process knowledge	Planning and implementing processes and products	Constructive management of diversity and difference

Figure 1: Competencies matrix for BNE (Detlev Lindau-Bank)

Energy Future 2050



The discussion about a sustainable economic, energy and social system has recently been very much embedded in other policy areas: the priorities were climate, energy, transport and resource issues. For example, the World Climate Agreement agreed in December 2015 in Paris stipulates that in the second half of this century, a balance between the generation of anthropogenic greenhouse gas emissions and their reduction in sinks must be achieved in order to reduce greenhouse gas emissions to well below 2 degrees Celsius - if possible to 1.5 degrees Celsius - to limit. This should be done on the basis of justice and in the context of sustainable development.

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But what does such an ambitious goal mean for an industrial state like Austria? To decarbonise the energy system by 2050, a system change is necessary. An energy system of the future based on renewable energy sources such as hydro, wind, solar or geothermal energy. The use of energy is as efficient as possible. This primarily includes the areas of buildings, industry, consumption, agriculture and mobility.

In the building sector, high energy savings through low-energy or plus-energy concepts are possible. It is important to speed up the highly efficient refurbishment of buildings, with buildings in urban

areas serving as new infrastructures for energy systems. In the field of mobility, much attention is being given to the market penetration of electromobility, but comprehensive measures must be taken to reverse the trend in emissions from the transport sector.

Manufacturing companies are also in a need to reduce their energy and resource consumption many times over - without losses in product quality and functionality. Of particular importance in this context is a bio-based industry in which fossil-based raw materials are replaced by renewable raw material.

Recycling is also gaining in importance again, v. a. in the electronics industry. In the sense of a life-cycle approach, more attention should be paid to the longevity and reparability of products.

The implementation of energy and climate targets requires increased efforts in research, technology development and innovation. The Federal Ministry of Transport, Innovation and Technology (bmvit) focuses on those people who most affect people's lives and bring forth not only technological but also many social innovations: these are highly efficient buildings, intelligent low-emission energy systems and forward-looking urban ones Energy and traffic solutions.

The research and technology program **“City of the Future”** focuses on buildings and urban energy systems, neighborhoods, districts and the city in connection with the surrounding area.

New technologies should help to make work, life and housing more environmentally friendly and energy-efficient in conjunction with transport and urban production. At the same time, it is always important that technological solutions make people's daily lives easier and affordable.

Sabine Mitter

Where joy grows!

Mit With an entrepreneurial spirit and determination to a sustainable economy



In 1988, when I became self-employed in the Waldviertel as a 23-year-old, unemployed HAK graduate, I was given no chance of success. The lack of awareness of organic farming in Austria and lack of distribution opportunities were the main reasons. It was all the more beautiful to realize that there was a much more developed organic movement in Germany, which appreciated and liked to buy hand-packed organic herbal teas and organic kitchen herbs under the SONNENTOR brand. The path of appreciative and sustainable cooperation between organic farming, trade and the organic specialist trade was thus very promising. I was the first Austrian supplier on Germany, which is ten times larger in size, and did not have to offer the terms and conditions of Austrian market participants.

So I did not need to pass on the pressure, which was not applied to me as an entrepreneur, to my employees and suppliers. Fair cooperation through openness, clear communication and innovation could emerge. Consistent market cultivation, trusting interaction and the passage of many small steps were important building blocks of the success story of SONNENTOR.

Growth through motivation and joy, in line with our sustainable philosophy, could be set in motion. In the meantime, this international ONE-MAN SHOW has given rise to an international company with three additional investments and joint ventures in the Czech Republic, Romania and Albania with more than 280 employees.

Our appreciative mission statement enables long-term growth without aggressive market suppression. Brand building and confidence in our own strengths are cornerstones for us and our partners. Also important in this cooperation are similar values of the cooperation partners as well as a clear description of the goals to be achieved. Who has no goal, does not know where to go - it is an important guide for all participants. Who does not know where he comes from does not know where he wants to go. Profit maximization is too little!

Even though there has recently been a market concentration in the organic specialist trade through takeovers - we were able to communicate our brand values in a targeted manner and even successfully expand our place in the market. Other market participants were through own brands replaced. In the meantime, a franchising system has been successfully set up, for which we continue to like in front of “sustainable young entrepreneurs” who want to implement a proven and successful sales concept with joy and fair partnership long-term.

Our long-term vision is to create secure jobs in conjunction with lived environmental protection - without greed and swift profiteering at the expense of nature, our children and thus our future.

Johannes Gutmann

The Dynamics of Entrepreneurship



“Entrepreneurship” has recently become increasingly discredited. In addition, the record salaries of Group Board members in view of mass redundancies have contributed as much as location closures despite billions in profits of the companies. But the blanket condemnation of the entrepreneur as a “selfish profit maximizer” ignores the fact that entrepreneurship plays an important role in the much-vaunted “sustainability” of economic and social development.

This fundamental insight is increasingly lost in a time in which social discourse is increasingly marked by pessimism. This pessimism is expressed above all in the fears of globalization or the “clash of civilizations”.

If globalization really is the root of all evil, then one question is all the more urgent: What is the potential counterweight that could restore the necessary balance? Because is there really only one or the other: security or profit, incentives or social benefits, local or global? Is not there a way beyond this polarization to satisfy the needs of all concerned?

LIKE SEARCHING FOR THE HOLY GRAIL

One thing is certain: if society wants to be sustainable, today, more than ever, it must create the conditions that allow its citizens to live a productive and fulfilling life.

For politicians, the magic word is often called “sustainability” - regardless of whether it’s about social,

economic or environmental issues. This concept is sufficiently vague, so that its design is similar to the search for the Holy Grail.

Others focus primarily on the creative forces of entrepreneurship. With a mixture of curiosity and risk-taking, people have been investing their creative energy into trading since time immemorial. It was above all the merchants who for thousands of years contributed to bringing our world closer and closer together.

In my opinion, entrepreneurship and sustainability are not mutually exclusive. Rather, we should recognize that both concepts complement each other perfectly. Creativity, the spirit of discovery and the pursuit of a better life are more relevant today than ever. Because it is precisely these human qualities that make a decisive contribution to the democratization of society - and thus also to global sustainability.

Entrepreneurial action promotes democracy in the sense of a “meritocracy” because it breaks up crusty social structures where, for example, the interdependence of the political class and the business elite suppresses competition and individual commitment with all their might.

FROM KIOSK OWNER TO CHIEF EXECUTIVE

Ultimately, all parts of society benefit from such a development. From a kiosk owner to chief executive, an entrepreneur can only be successful if his innovations offer the customer tangible benefits and sustainably improve his living conditions. Unfortunately, entrepreneurial creation is too often equated with an extreme form of capitalism. It is important to understand that entrepreneurship is not primarily profit maximization.

Entrepreneurs, as innovators, form an important part of the social foundation. It is they who adapt existing technologies to local tastes and make them affordable for the customer, who develop and revolutionize simple

services that keep the dynamics of society moving by encouraging learning and adaptation processes.

CHANGE THROUGH RENEWAL

Those who successfully master this task will be - rightly - celebrated as “innovators”. In general, it is amazing how unanimously today “renewal” and “change” are demanded

everywhere. However, these positively populated vocabulary usually occupy politicians or social activists, rarely entrepreneurs. In doing so, they also strive for a change that will allow society to renew itself from within.

So instead of vilifying entrepreneurs generally as “profit maximizers without social conscience”, we should be aware that they are among the most important catalysts of democratization and social renewal of our time.

Carl Schramm

“Entrepreneurship and sustainability are highly complementary. Creativity, spirit of discovery and the pursuit of a better life are more relevant today than ever. For it is these human qualities that contribute significantly to the democratization of society.” *Carl Schramm*

“Our long-term vision is to create secure jobs in conjunction with lived environmental protection - without greed and swift profiteering at the expense of nature, our children and thus our future.” *Johannes Gutmann*

Systemic thinking as support for entrepreneurial activity in times of change

EVERYTHING FLOWS

Thinking in systems in our fast-paced world is an attempt to offer meaningful options for action and decisions in today's complex and highly networked world.

Pantha rei - everything flows - and yet shapes can be perceived in the river, such as stable vortexes or whirlpools in a stream, even though their substance, the water, continues to flow. Consist in change.

This is a possible metaphor for adequate adaptation (fit) to a larger whole. So, systemic thinking is not the master plan of a "Master of the Universe" in a foreclosed center, but the struggle in everyday life to find the best "fit", the most flexible fit in mastering a variety of everyday challenges. Not only the great, brutal is needed, but increasingly also the listening, probing and sensitive or creative respondents.

It is important to consider cascades of conditions, additions and responses and to communicate with an increasing number of people in order to achieve desirable goals, based on a shared interpretation of the world, and to be able to realize even great visions. Even if not all the necessary information is available and the time pressure is high.

RESEARCH ON SYSTEMS

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Within the framework of research on systems, the emphasis on cooperation has increasingly shifted to the focus on cooperation.

Thus, in the middle of the last century, the exact control of technical systems by means of cybernetics stood in the foreground, favored by the beginning of the use of computers. Insights into biological organisms, ranging from simple deterministic stimulus-response mechanisms to increasingly differentiated (self-) consciousness and the increasing degrees of freedom of interaction, were another source of insights into complex systems and technologies their emergent properties.

Social systems, i.e. human societies or flocks and swarms, multiply again the possibilities of interaction and thus the unpredictability.

With the turn to ecosystems the connections and interactions become almost impenetrable. And yet, with our energy consumption in the western world, we have begun to seriously interfere with the Earth's temperature regime. Now we must learn to decipher the manual of the spaceship Earth and to deal responsibly with the life support system Biosphere.

Here thinking in systems (system thinking, interconnected thinking) is the first suitable means. We model our environment (organizations, "the market", ecosystems) in order to discuss more deeply how we assess and evaluate future development paths. It is therefore an aid to increase our decision-making ability, especially in groups or teams. The "system alphabet" used therein (action diagrams, inventory and flow diagrams up to computer simulations) makes it easier to work out a common view on problems and solutions using a shared value basis.

What makes system thinkers and systems thinkers, what are the levers in systems? Are there any supportive rules and how are learning organizations formed?

SYSTEM-MINDED

Systems thinkers can be described as follows. You ...

- try to see the big picture
- observe temporal processes and recognize patterns and trends
- take different perspectives to better understand
- recognize how system structures generate observed behaviors
- use their understanding of the system to identify optimal levers for change

(more at www.watersfoundation.org)

Leverage points, according to Donella Meadows, can be characterized as follows (increasing effectiveness). There are changes to:

- Numbers - constants and parameters
- System structures with stocks and rivers - physical limits of system change
- Delays - delay time in relation to the speed of the

system change

- Self-organization - the ability to expand, change, or evolve system structures
- Goals - the purposes or functions of systems
- Paradigms - The imaginary worlds that make up systems

Some **cybernetic rules** as derived from biology by Frederic Vester read:

- The system function must be independent of quantitative growth.
- The system must be function-oriented and not product-oriented.
- Multiple use of products, features, and organizational structures Symbiosis.
- Mutual use of diversity through connection and exchange.

According to Peter Senge, **learning organizations** are characterized by five factors or disciplines in which their employees practice:

- Personal championship or individual self-reliance development of professional and personal skills
- Mental models - What filters do we use to look at the world around us? How is the reconstitution of the world going on inside?
- Common Vision - What do we want to achieve? In order to answer this question in a sustainable way, it requires authentic and responsible participation in trust-based forms of dialogue
- Team Learning - Can the group be coherent? Arrange? Can different skills be synergistically focused on a goal or neutralize the forces?
- Thinking in systems - the holistic view supported by the world as a holarchy, a sequence of interlinked parts / whole "System Alphabet" enables a more exact exchange of complex problems and faster and more targeted development of solution proposals.

The basic message behind all these listed aspects is that everything and everyone is connected in a complex network of systems. Thinking systemically is the beginning of seeing the circumstances of one's own actions in a new light, recognizing established patterns, assuming more responsibility for one's role in difficult situations, and identifying more effective and efficient ways of solving problems. The question about the HOW, ie about suitable methods and instruments that help one to think

systemically, is therefore obvious.

METHODS AND TOOLS

In the project GenE of the BenE-Munich e.V., an experiential space is created in semi-nars with the approach of action learning through game situations, from which complex contexts and interactions can be reflected and analyzed with systemic tools, such as Causal Loop Diagrams (effect diagrams). Together with the emotional anchoring in the personal gaming experience a transfer into the own field of activity becomes easier.

At the University of Vechta we have been working for more than ten years in various projects with methods for the reflection of social situations from the publications of Peter Senge. Central to working with these methods is a system-theoretical background whose understanding Peter Senge calls the fifth discipline. It is fundamental to the interaction of all disciplines in a truly learning organization. It enables and requires rethinking from a linear understanding of the world to a systemic understanding.

Peter M. Senge assumes that every human being acts according to a mental model that he makes of the social situations in which he acts. Mental models are people's assumptions about the effects of a given action in the social system. By action, Senge understands an immediate operational realization from the memory of the actor's established idea of reality and as a reaction to it. Everyone carries a solid picture of their future actions and effects and reflects them in a social system.

One way to reflect on one's own actions is to visualize the image, not with the claim of complete comprehension of complexity, but with the aim of a reasonable, non-naive reduction. Senge's methods limit the mental models to a cause-and-effect relationship. E. is accused of having a little elaborate theoretical foundation. Nevertheless, we share Senge's view that individual actions in a larger context provide a pattern and reveal a structure that allows conclusions to be drawn on the actors' mental models. Only the insight into one's own mental models enables the actors to recognize alternatives and make meaningful changes in behavior.

"Through the discipline of systemic thinking, we can identify the basic structures of complex situations and distinguish between high and low-leverage changes. That is, we learn to see the world holistically and to heal it.

For this purpose, system thinking offers a language

through which we first learn to develop new ways of thinking. I call system thinking the fifth discipline because it forms the conceptual basis (...). All disciplines deal with a rethinking, with a fundamental change of perception - one sees no longer individual parts, but the whole, one recognizes that humans are not only a victim of the circumstances, but actively participate in the shaping of their reality, and one does not react more exclusively to the present, but actively shaping one's own future." (Senge 1996, p. 89).

The methodical procedure will be described in the following section. Senge points out that dealing with this method takes some getting used to and compares it to learning a language.

EVENTS, PATTERNS AND STRUCTURES - FROM A STORY TO CAUSAL LOOP

At the beginning of the method is **telling the story**. History is the linchpin of the method. In history, the problem points, the goals, actions and effects become concrete. Stories that tell of unsolved problems. Each of us knows and tells these problem stories and it is these problems, which usually seem insoluble because of their complexity, to pursue, indeed to create a copy of the individual constructed reality. The story shows which factors actually play a role and influence the problem. These factors are called senge variables.

Here is a short story: In a class situation, the case occurs that a teacher no longer knows how to help his students with a lesson problem. He is uncertain whether he uses the right methods and tries to get the problem under control by using other methods. At first, he reflects on methods that he does not use often but masters quite well. After a few weeks, the teacher realizes that despite the choice of different methods, nothing has changed. Its method security is reduced. The students become more and more insecure and helpless during this time. They no longer feel that the teacher can help them anymore. Her helplessness and resignation grows.

Now take the two changing variables "Methodological Security of Teachers" and "Student Helplessness" as variables and present them in a diagram called "Behavior Over Time Diagram", BOT for short becomes. This diagram allows one to get an idea of the change of certain variables over a certain period of time and to establish relationships between them.

In the diagram, it becomes obvious that the

"methodological security" initially grows and then decreases, without having an effect on the students' helplessness.

It seems likely that the teacher's methodological certainty in this case has no effect on the students' helplessness. The first insight would be gained if the teacher concerned did not insist on persevering in his mental model that his habitual methods would cause students to become helpless. Because in trend he has become increasingly uncertain in the choice of me.

The action pattern becomes even clearer if we do not consider history as a linear event, but filter out the decisive variables and present them in a feedback loop, that is circular. Then the following picture emerges:

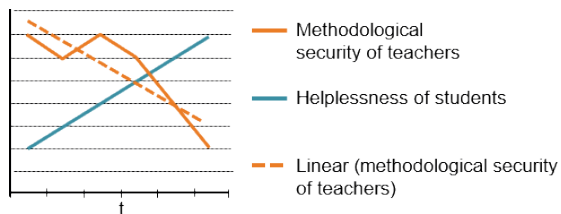


Figure 1: Nexus of methodological security and helplessness of students

The lower the methodological security of the teacher, the greater the helplessness of the students. So an O (opposite) assignment. The greater the helplessness of the students, the lower the methodological security of the teacher, etc., and thus an O assignment. The result is the following feedback loop or loop, as it is called at Senge:

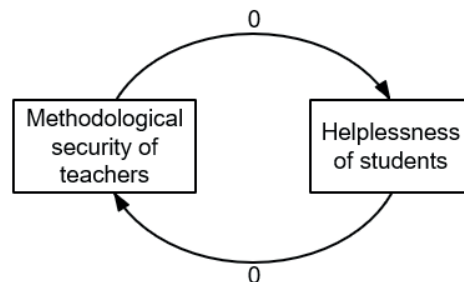


Figure 2: Feedback loop

Visible in this loop is that the variables reinforce each other and trigger a kind of 'avalanche'. This self-reinforcing cycle shows a development that seems increasingly unsolvable. Especially the kind of chosen representation, which allows an image of the problematic in a seemingly trivial way, is not misinterpreted as an attempt to interpret an objective and fast solution strategy. It makes it possible to approach the mental model of the actor.

By giving the agent the opportunity to model his or her own pattern of action in this way, we reduce the complexity of the situation without simplifying it.

Thus, the agents can recognize their construct of reality and reinterpret it in a more sustainable way.

In the overview in Figure 3, we have again summarized the relationship between events that appear in stories, patterns that can be identified in the BOT, and structures that become apparent in feedback loops (see Anderson / Johnson, 1997, p 9).

The active and even more creative shaping of the future

by entrepreneurs in the project and company stories presented here could be the starting point of a systemic narrative: How individual islands of new sustainable economies became a viable living system for supplying all travelers in the spaceship Earth.

Detlev Lindau-Bank, Reiner Schmidt

Further information www.edx.org/course/awareness-based-systems-change-u-lab-how-mitx-15-671-0x.de, www.systemdynamics.de

	Characters of actions	Time orientation	Way of perception	Questions to be asked
Events in the Story	Reaction	Presence	Pressure to act	Which reaction is the fastest and best for this situation?
Template	Processing	Past and present	Inventory of the pattern of events	Which trend or what pattern emerges in these and similar situations again and again?
Structure	Create change	Future	Drawing of causes and effect relationships	Which structures and conditions lead to these patterns

Figure 3: Relationship between events, patterns and structures

Interconnected thinking as holistic learning

1. CONCEPTUAL FOUNDATION

Given the knowledge-hungry nature of many schools and the highly cognitive orientation of teaching, it is understandable that more and more holistic learning is required. As is often the case with questions of renewal in pedagogy, however, such demands develop into catchphrases that cause much confusion and have little influence on the daily organization of the lesson. How lightheartedly, for example, Pestalozzi's teaching is referred to as "head, heart, and hand", or that schools need to prepare their learners to "perceive and understand the world with all their senses" in order to balance themselves and their environment reach. Increasingly, a "networking of thinking" is required, which should strengthen the holistic way of thinking and acting in all areas of learning.

In this contribution holisticness is to be understood as a teaching principle, with which learning is no longer considered exclusively from a cognitive point of view, but also from an affective, social and psychomotor point of view, by trying again and again on the basis of pedagogically meaningful problems of interdependencies and interactions To recognize and understand influencing factors (variables) of all learning areas (knowledge and ability, feelings and feelings, values, hand skills, social behavior), in order to repeatedly arrive at differentiated and creative solutions to future-oriented problems.

26 Contrary to popular belief, economic and social learning is well-suited to holistic learning through interconnected thinking. It could even be said that in view of the many undesirable developments in our economy and society, the emerging dogmatism and the inability to find sustainable solutions, holistic learning is in the interest of an undisturbed, peaceful development of our society.

2. THE METHODOLOGY OF INTERCONNECTED THINKING

2.1 BASIS

Many teachers still find it difficult to implement holistic learning in everyday classroom life. A path to a interconnected thinking methodology is provided by networks.

These are schematic representations of the dependencies and interactions of influencing factors in a complex problem and decision situation. With the networks, the still prevalent linear thinking (cause-effect thinking) is overcome by considering as many influencing factors (variables) and their mutual dependencies and interactions as possible in problem situations, which makes target conflicts visible in particular. Conflicts of goals are characterized by the fact that, unlike linear thinking, there is only one correct solution (decision), and instead of choosing from several possible solutions, the one that has the most advantages and the least the disadvantages.

A good network makes it easier to identify conflicting goals and assess problem situations because the pros and cons of the many dependencies and interactions are most visible. There are two types of networks: target-oriented networks and feedback diagrams.

2.2 TARGETED NETWORKS

Figure 1 shows a targeted network with the following starting situation: *A company collapses in profits. Therefore, the company decides for a cost saving strategy. Specifically, it reduces jobs for sellers, reduces advertising spending, and refrains from buying cars from sellers in quick succession. She thinks linearly with these measures. If she now takes other*

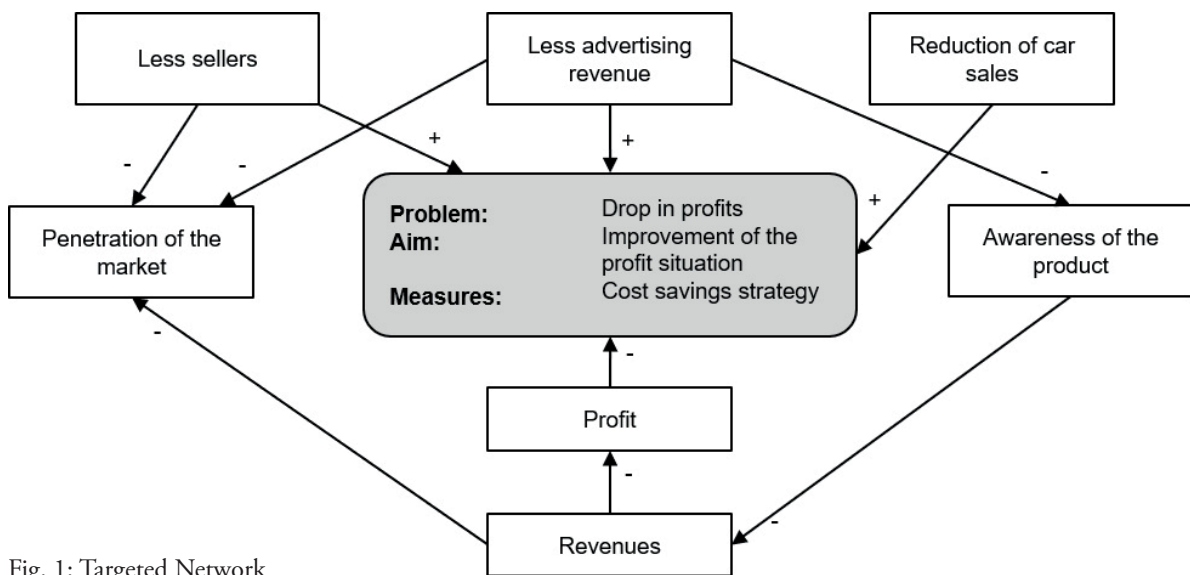


Fig. 1: Targeted Network

variables into consideration (interconnected thinking), it immediately becomes clear that these measures alone do not improve the profit situation.

To the development of targeted networks, the students must have the following procedural knowledge:

- **Step 1:** You must identify problems, formulate a goal, and set the appropriate course of action first.
- **Step 2:** Then it is necessary to determine influencing factors (variables). The more holistic learning is to be promoted, the more comprehensive (many influencing factors) they are to include in the targeted network.
- **Step 3:** Then there is the effect structure (positive and negative dependencies and interactions between the individual influencing factors).
- **Step 4:** Finally, assess the entire targeted network and seek conclusions by estimating the pros and cons of possible solutions.

Targeted networks reveal all interdependencies and interdependencies between variables by considering which variables are affected and how they are addressed in terms of the goal. A positive effect is indicated by a plus sign (+), a negative sign by a minus sign (-).

Targeted networks are suitable for introductory lessons, the goal of which is to learn to understand holistic relationships. However, they do not lead to any concrete

solutions, but they strengthen the ability to comprehend problems holistically and to arrive at the most advantages and the fewest disadvantages on the basis of consideration of the solution (decision).

2.3 FEEDBACK DIAGRAMS

Also with the feedback diagram a holistic view of problems should be achieved. In contrast to the goal-oriented network, however, the interactions and dependencies are not considered in terms of a specific goal, but starting from an assumed position, a supposed compulsion or a dogmatic position, not only linear dependencies but larger relationships are to be grasped.

Figure 2 shows a feedback diagram. To develop it, learners must have the following processional knowledge:

- **Step 1:** Defining the central cycle, which shows linear and one-dimensional the superficial connections.
- **Step 2:** Decide on other variables to include in the feedback diagram, which sets the level of wholeness.
- **Step 3:** Estimating the effect structure (dependencies and interactions) with the following options:
 - Equalized relationship (+):** the bigger ... the bigger; the smaller ... the smaller; the less ... the less; the more ... the more
 - opposite relationship (-):** the larger ... the smaller; the smaller ... the bigger; the less ... the more; the more ... the less
- **Step 4:** Interpretation of the interactions

Even a feedback chart only shows the relationships. But there is no solution. For this Vester (1985) developed the paper computer, which makes a limited quantification of the feedback diagram possible. It can be introduced to advanced learners. The time required for this is great.

Based on the following starting situation, a feedback diagram is to be presented: *An airline wants to counter the increasing competition in aviation with a massive expansion of its flight offerings. For this purpose, it procures new aircraft and supports a further slope development at the home airport. The management convincingly proves how many new jobs are created in the region and how the tax revenue can be increased.*

Better yields are taken for granted.

3. EDUCATIONAL ASPECTS

In our pluralistic society, holistic learning with its wealth of information is becoming increasingly important from an educational point of view. More and more people perceive information with little differentiation or interpret it unilaterally and are unable to see it in its entirety. In addition, many information has a manipulative nature.

The consequence of this is often superficial goodness and dogmatism as well as the inability to recognize conflicting goals in the many problems of our time. In the future, only those people will survive that are capable of

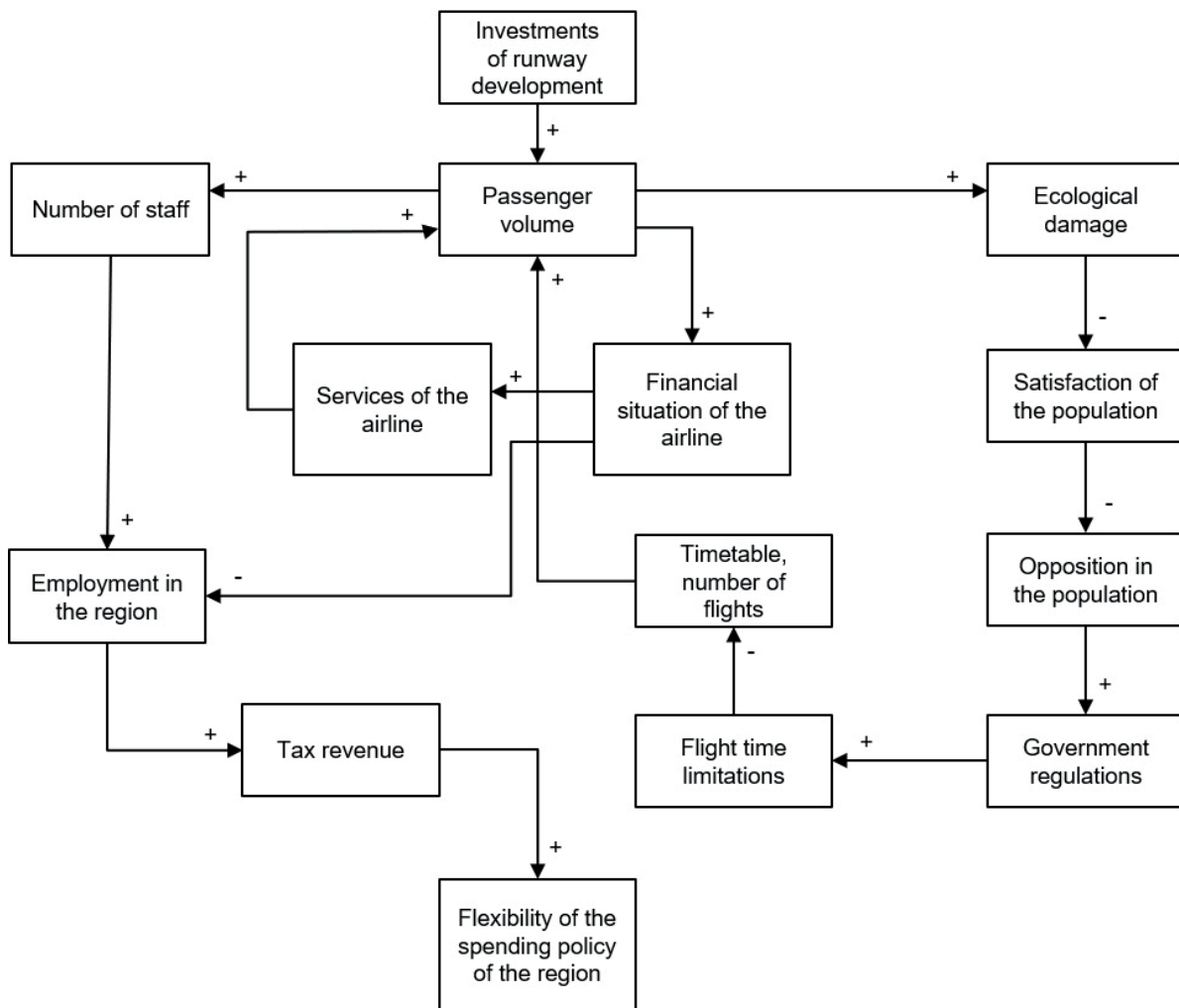


Fig. 2: Feedback diagram

dealing with conflicting goals. H. those who know that there are no more patent solutions, but always to argue and decide on the basis of a weighing of advantages and disadvantages. This can only succeed if holistic learning strengthens holistic thinking and judgments.

A good teaching aid is provided by interconnected thinking, which can be described as competence of importance for the future, provided that the concept of competence is correctly understood.

However, competences must never be misunderstood as general skills, but must always be seen in the context of knowledge. This applies in particular to interconnected thinking.

If you do not have the expertise, you will never be able to design networks and feedback diagrams, because the selection of variables and the estimation of interactions will only succeed if there is a sufficient and well-structured knowledge base. In addition, Google alone can not help, because if you do not have sufficient knowledge, you can not cope with Google.

Therefore, networked learning and thinking must not be incorporated into any learning content in the curricula, but it must be promoted on the knowledge base necessary for a problem solving, which must become increasingly interdisciplinary from an initial disciplinary teaching with increasing guilt.

Rolf Dubs

“Networks overcome the still linear way of thinking by considering as many influencing factors and their mutual dependencies and interactions as possible in problem situations, which makes target conflicts in particular visible.”

Rolf Dubs

Spaces of possibilities for sustainable development – a futures perspective

Digital transformation has shaped our prevailing reality in the last decade. There is almost no institution or enterprise in which this dynamic of change is left out.

Networking and communication, combined with automation and machine learning, are the fields in which technological progress works on a daily basis. The Internet is increasingly expanding into an “Internet of Everything”, from person to person in social networks, from human to intelligent assistants in everyday life as well as from machine to machine in complex production and logistics tasks.

This development is affecting our economic system and increasingly leading to a focus on what machines are good for, and less and less on what makes us living human beings. This applies in particular to our conventional working world, where the continuous development of our society is very significant.

Although machines are becoming more and more human, we too are becoming more like machines in many aspects. The question arises: How can we create work environments that bring us closer to our living human nature?

The present article is now looking for ways to open up the opportunities of how these emerging spaces of possibilities can be shaped and maintained, and how networks can form between such learning places of change.

subtle process that is strongly linked to skills such as curiosity, creativity, empathy or risk-taking.

Our formal education system is well placed to teach the ability to “exploit effectively”. When it comes to the unfolding of “exploration,” organizations often create themselves informal learning environments in which to develop those skills.

It is precisely here that those spaces of freedom can open in which our living human being becomes an “instrument of the future to come”. Opening these spaces and flexibly integrating them into the existing core business is one of the major central management tasks in the 21st century.

In the context of “Education for Sustainable Development”, the UNESCO roadmap for the implementation of the World Action Program also starts here: (UNESCO roadmap GAP - Goal & objectives - p14).

The overarching goal of the GAP is “to generate and scale up action in all levels and areas of education and learning to accelerate progress towards sustainable development”. The GAP wants to deploy a two-fold approach to multiply and scale ESD action: (1) integrating sustainable development into education and (2) integrating education into sustainable development.

This mutual rapprochement of education on the one hand and sustainable development on the other hand leads us to the question: How can we establish experiential, learning and design spaces that bring newly discovered and explored potential into sustainable development?

DESIGN AND MAINTAIN SPACES OF POSSIBILITIES

In the remainder of the article, three innovative approaches will be outlined that deal with the visualization, design and maintenance of spaces of possibilities.

OPENING CREATIVE LEEWAYS

Adapting the core business in small steps to the prevailing market conditions is the standard challenge of every organization. However, the dynamics of change mentioned above require ever faster to bring larger innovation steps into the existing core business in a timely manner.

The term organizational ambidexterity describes this ability, in addition to continuous exploitation of existing also to have integrated the exploration of new. While exploiting what is already existing is more of a business formalized practice, exploring new things is a much more

CITY AS A SPACE OF POSSIBILITIES

At the Leuphana University in Lüneburg, under the initiative of Fr. Prof. Stoltenberg, the project “SAM - City as a Space of Possibilities” was created. (Project period 02/2015 - 01/2018)

“The future is decided in urban areas, but the directions of these future decisions are sometimes contradictory and contradictory.”

Four central research areas highlight the possibilities of sustainable urban development:

- *Potentials*: perspectives, value reflections, incubation of competences
- *Practices*: creative and artistic practice, cooperation, participation
- *People*: key figures and institutions of change
- *Products*: concrete contributions of the groups and initiatives

The transdisciplinary approach considers the values and actions of the different initiatives and groups as well as the respective points of interconnection with their actors and processes in the developing urban spaces of possibilities. In addition, the interactions are also illuminated to established institutions of education, administration and economy.

An example of an integrative approach to processes of sustainable urban development is the interdisciplinary cooperation of cultural scientists, social and educational scientists as well as economists at the university.

LEADING FROM THE FUTURE

Otto Scharmer, a German-born professor at MIT in Boston, focuses his research on the prevailing economic and social system.

Through many real-world projects and initiatives, and along with many companions, over the past two decades he has developed an evolutionary, integrative approach that addresses the great challenges of our time.

“Leading from the Emerging Future - From Ego System to Eco-System Economy” is his book published in 2013.

“We need to create new types of enabling infrastructures that help people to co-sense, co-develop and co-create their entrepreneurial capacities by serving the real needs in their communities” Otto Scharmer 2013 - E2E - p.87

The basis of the design and maintenance of such infrastructures is an evolutionary framework, complemented by three core integrating activities:

- *Evolutionary framework*: Theory U, Iceberg Model, systemic Acupuncture Points, Economic Evolution
- *Cross discipline competencies*: deeper connections between sciences and action learning
- *Cross intelligence capacity*: clarifying personal intention in local / global U.LAB hubs, Coaching Circles
- *Cross sector learning labs*: convergence of different intentions, cultures, technologies, SDGs,

In the practical implementation of these evolutionarily integrative spaces of possibilities, a reference system is formed, in which the science (perspective of the 3rd person) with the social change (perspective of the 2nd person) and the evolution of the self (perspective of the 1st person) onto a new one Harmoniously combine fashion.

REGENERATIVE DEVELOPMENT AND DESIGN

For the Regenes Group, originating from America, the respective development potential of a specific location is the starting point for the design and maintenance of spaces of possibilities.

Co-evolution among human and natural systems can only be undertaken in specific locations, using approaches that are precisely fitted to them. (Regenerative Development & Design - understanding place p33)

The sustainability of a given location is therefore always associated with a useful provision for a next larger system. This collectively borne determination leads to a harmonious identification and contribution of all those involved in each further potential development step.

Each renewable project has three interwoven workspaces called the Three Lines of Work framework:

- The work of the Design Process - Growing the capability
- The work of the designer - Developing Oneself
- The work of the designed Product - Improving the Health & Vision of a System
- Design for Co-Evolution - Framework for Evolving Sustainability

If every actively involved agent is to be of his own evolution and enabler of evolution that we seek in the world, we are invited to reconcile these three lines of development work.

SPACES OF POSSIBILITIES – META PERSPECTIVE

While the approaches of *Leuphana University and MIT* in Boston have their starting point in the academic environment, the *Regenesis Group's* approach has its roots in environmental design and in the field of permaculture. For the academic approaches, it is therefore more an integration of sustainable development in the respective educational and learning environment, while the practical regenerative design approaches integrate lifelong learning.

CONNECTING SPACES OF POSSIBILITIES

The opening up to spaces of possibilities described at the beginning of the article makes every corporate border increasingly permeable and constitutes a first fundamental requirement for informal knowledge exchange to flow. Common networking points and topics, followed by various co-operative initiatives or projects, can be used to train entire ecosystems over a longer period of time.

Created in the ouishare network, the *PlatformDesignToolkit*, initiated by Simone Cicero, is a methodical approach that systematically illuminates the interactions and value exchange in such ecosystems and derives strategies for growth and prosperity

Platforms are familiar to us in terms of their functionality in the matching of supply and demand, for the social exchange and the long-term editing of common topics in forums or wikis. Each platform implicitly offers learning opportunities, which are also based on the steps in this article:

- Onboarding: introduce new participants to the possibilities in the ecosystem
- Empowering: offers to deepen certain skills and abilities
- Enabling: testing new opportunities together, deriving new offers from them

The design of such platforms is applied systemic thinking. There is thus a great opportunity to facilitate those interested in the entry into the formation of sustainable development. Each actor finds his/her own space of possibilities, and can identify with his/her concrete contribution to sustainable development in a joint exchange.

Further readings

UNESCO roadmap GAP - Goal & objectives

Leuphana University

Presencing Institute

Regenesis Group - Transforming the way humans inhabit the Earth

ouishare network / PlatformDesignToolkit

Sustainability meets Entrepreneurship – Methods and Workshop Design

WHAT IS INTERCONNECTED THINKING?

Interconnected thinking - in an older interpretation of the term also called “cybernetic thinking” - is understood as thinking in systematic patterns and at the same time dynamic structures.

The methodology of interconnected thinking helps to proceed in a structured and systematic manner using various work steps and instruments. The advantage of interconnected thinking over other methods of recognizing and solving problems is that not only fast-paced solution options are sought and implemented, but in addition to the effectiveness of the methods, interactions with other factors and long-term consequences are taken into account. Where appropriate, new, sometimes less effective, but less “harmful” solutions are considered.

AIMS OF WORKSHOP

- **Linking sustainable business with creativity and innovation, so that new approaches to business can succeed.** The workshop should be an important part of Entrepreneurship Education and provides a basis for a value- and future-oriented discussion of our business.
- **Promote a departure from pure linear cause-and-effect thinking through interco thinking.** This should lead to an understanding of complex systems and their behavior.
- **Support reflective thinking** with the method of interconnected thinking in connection with decisions to be taken.
- **Analysis of own and third-party ideas or business models with regard to their goals, their environment, their essential factors and their sustainability.** This analysis supports the learning process in developing your own, sustainable business models.

TARGET GROUP

Teenagers from 16 years and adults. Depending on the case study and the method, different entry requirements are necessary.

DURATION

The time span of the workshop can be chosen by you and depends on the type and scope of the chosen case study or the chosen case studies. A total of 21 case studies with different levels of difficulty and different methods are available. At least four lessons should be used to familiarize yourself with the topic and gain insight into how the methods work.

SOLUTION TIPS

www.ifte.at

Edit case studies using the scenario method (scenario analysis)

With a scenario you look ahead and design future pictures. The aim is to anticipate possible developments in order to develop possible solutions already in the present and to be better prepared for future challenges. Thinking in processes is in the foreground with this method.

AIMS

The scenario method is also an integral part of the workshop on interconnected thinking according to Frederic Vester (see there task 7) and is described there in more detail. The first step is to introduce a simpler form of the scenario method.

➤ **Task 1: define problem and time horizon (time dimension)**

IMPLEMENTATION

The problem is defined in terms of content as well as temporal and spatial. For the time horizon, short-term (5 to 10 years), medium-term (11 to 20 years) and long-term (more than 20 years) scenarios can be distinguished.

➤ **Task 2: Define environment segments and key factors**

It is considered which environment segments (e.g. agriculture) are relevant for the creation of a scenario and which key factors (e.g. precipitation) affect the initial situation.

➤ **Task 3: Discuss developments in key factors**

It is discussed in groups which effects the individual key factors can have on the surrounding segments (e.g. effects of increasing rainfall on agriculture).

➤ **Task 4: Develop extreme scenarios**

The initial situation will be further developed, taking into account the key factors. A positive and a negative extreme scenario are developed for which the probabilities of occurrence are low. The entry of the negative extreme scenario is also undesirable. The individual scenarios are to be presented briefly.

➤ **Task 5: Develop a trend scenario (realistic scenario)**

In this task - starting from the two extreme scenarios - a realistic picture of the future is developed. This will usually be between the extremes. The individual scenarios are to be presented briefly.

➤ **Task 6: Develop problem-solving strategies**

The final step is to develop problem-solving strategies to enhance desired development and prevent unwanted development.

After the scenario has been created, one's own behavior (e.g. regarding role in the group, compliance with rules of the game, ability to be creative, etc.) should be reflected. The scenario method can be used in different areas (e.g. private life, corporate development, environment, society).

REFLECTION



CAUSES OF CLIMATE CHANGE

Fluctuations in the climate have occurred again and again in the history of our planet - but the extent that is visible today has not been the case so far.

Since the beginning of industrialization around the year 1850, a particularly strong warming of the climate can be ascertained, which can only be explained by manmade greenhouse gases (e.g. carbon dioxide - CO₂, methane - CH₄). Greenhouse gases are not bad to a certain extent, as they ensure that UV radiation from the sun can penetrate unhindered through the atmosphere and that long-wave infrared radiation is retained for this purpose. Without this natural greenhouse effect, the global average temperature would be -18 °C - life on our planet would be impossible.

Once released by human activities, greenhouse gases remain in the atmosphere for several decades (CO₂, for example, has a retention period of 50 to 150 years). Thus, the increase in temperatures caused by greenhouse gases is not a problem that can be solved quickly and easily.

PERPETRATOR OF CLIMATE CHANGE

The main causes of climate change are the use of fossil fuels (oil, natural gas, brown and hard coal), transport, agricultural production and land use change (e.g. due to deforestation of forests).

Climate projections predict that by the end of the 21st century - depending on successfully implemented measures in climate policy - global warming of 0.9 to 5.4 °C (based on values in the period between 1850 and 1900) is assumed can be. Based on the temperatures at the end of the 20th century, the climate models predict a temperature increase of 2.5 to 4 °C within 100 years. The effects of rising temperatures are already clearly visible in some areas.

IMPACT ON EUROPE

Studies already show the following effects on Europe:

- The average temperatures rise.
- Precipitation in the southern regions of Europe is decreasing.
- Rainfall in northern Europe is increasing.
- The ice sheets in Greenland, the Arctic and on glaciers melt.
- Snow covers disappear and the permafrost surface thaws.
- Extreme weather events (e.g. heat waves, floods, drought) are on the increase and cause more and more damage.
- Sea levels are rising.
- New diseases continue to spread in Europe.
- Features of plants and animals change (e.g. altered habitats, ...).
- In some regions there is again and again a shortage of water.
- The energy demand in the summer increases through the operation of air conditioning systems.



PROBLEM AND TIME HORIZON

TASK 1

A **scenario on the effects of climate change on Europe in the year 2100** is to be prepared. In order to put yourself in a more concrete position, there are four short descriptions of places or regions that can be helpful in the considerations:

- **Region around Sölden in Tyrol (Austria):** Sölden has a ski area between 1 400 and 3 250 meters above sea level with two glacier ski areas. Snow-making facilities for all slopes below 2 200 meters above sea level are available. The main source of income in the region around Sölden is tourism. In the winter season in Sölden about 2 million overnight stays are recorded annually.
- **Region around Liepaja in Latvia:** Just south of Liepaja there is one of the most beautiful stretches of beach in Latvia, where there are also long white sandy beaches with meter-high dunes. In summer, the air temperatures are between 14 and 22 ° C - more than 30 ° C, there are only very rare, the Baltic Sea has a water temperature between 16 and 21 ° C on.
- **Region around Koblenz in Germany:** The region is heavily agricultural. Viticulture also plays a role. The Moselle flows into the Rhine in Koblenz. In Koblenz and the surrounding area you can also find companies from the machine and automotive supply industry.
- **Almere region in the Netherlands:** Almere has almost 200,000 inhabitants and is located about 25 km from Amsterdam. The city was built in the 1970s on a ditch-drained area. Overall, 26% of the total area of the Netherlands is below the sea level.

TASK 2 SETTING ENVIRONMENTAL ELEMENTS AND KEY FACTORS

The following environment segments can be defined in the context of climate change:

- Nature and agriculture
- Water management
- Construction, housing and cities
- Health
- Energy supply and transport
- Tourism

In each environment, there are the key factors of temperature and precipitation, with which different effects can be associated.

DISCUSS DEVELOPMENTS OF KEY FACTORS AND DEVELOP SCENARIOS

TASKS 3, 4 AND 5

The following tables each show a simple positive, negative and probable (realistic) scenario for Europe in the year 2100, taking into account the surrounding segments and the key factors.

Positive scenario
Assumption: The rise in temperature is only slightly, the precipitation remains constant.
<ul style="list-style-type: none"> • Biodiversity remains almost intact, with even a few new species coming in from the south. This also creates many new attractions in tourism. Agricultural yields are increasing overall as the vegetation period is extended. • There is still enough drinking water available. Water scarcity occurs only in exceptional cases. New species of fish become indigenous in the waters, because the water temperature rises, existing fish species adapt quickly to the changed conditions. Extreme rainfall is less common. There is enough rainfall in the mountains and the temperatures drop far enough to be able to operate the snowmaking systems. • Because the buildings are better isolated in the cities, the higher temperatures are no problem for the residents. The demand for energy and water increases only slightly. The existing structural measures against floods or storm surges are completely sufficient and need only be maintained on an ongoing basis. Settlement areas are not endangered. At times, additional dikes are used to gain more land to cope with the increasing population. • There are hardly any new pathogens. If it does, there are good treatment options. The pollution with exhaust gases and ground-level ozone is unproblematic. The population has learned over time to deal better with heatwaves. • There is enough energy to supply the population completely. The road and rail network can easily cope with the higher temperatures. • Because it gets warmer, other regions can benefit from tourism. Overall, the number of travelers in Europe is increasing. Because water temperatures are rising in the Alpine region and in northern Europe, many more bathers can be registered here in summer.

Negative scenario

Assumption: The rise in temperature is high, there is a decline in rainfall in some regions, in others it is increasing.

- Biodiversity is falling sharply. Some species move, others die. Overall, yields in agriculture are falling.
- In many regions of Europe there is a regular shortage of water. Especially drinking water is very scarce. There is again and again extreme rainfall, which leads to flooding of agricultural land and settlements. As the sea level rises, dikes must be massively strengthened. In some regions, settlements must be abandoned because of the risk of flooding.
- In cities, energy and water consumption are rising sharply due to the high temperatures. Above all, air conditioners contribute significantly.
- New pathogens occur and can be difficult to treat. Skin cancer occurs more often. Overall, the health burden is high and there are also more and more deaths that can be attributed to the high temperatures. After flooding, there are bacteria in drinking water.
- There are always bottlenecks (e.g. In some regions hydropower plants deliver less electricity because there is less rainfall) in energy supply due to the high demand (especially for cooling in the summer).
- Weather extremes such as storms repeatedly ensure that the power grid temporarily fails. Road and rail networks suffer greatly from the high temperatures. There is always an increased need for maintenance
- In some regions of the South, tourism collapses because it is just too hot during the summer months. For the tourism shifts z. T. north (e.g. from the Mediterranean to the Baltic Sea). Skiing below 2 000 m above sea level is no longer possible in winter in the Alps, because the slopes cannot be covered with artificial snow even with the latest technology.

Realistic scenario

Assumption: The increase in temperature is around 2.5 ° C compared to the year 2000, precipitation is falling in some regions, in others it is increasing.

- There are significant changes in the number of species and species composition. Vegetation periods are getting longer and new species of heat-loving pests and diseases are spreading. There are species shifts on land and in the waters.
- In some regions (mainly in the south), yields are falling from agriculture, while yields are rising in the north. Some plants (such as wine) become indigenous in other regions.
- The quality of the drinking water is affected by the higher temperatures. In some regions there is always a shortage of water. Floods along rivers and in regions directly on the sea increase.
- Particularly in the cities, the population suffers from heat waves. There are climate-related migration movements within Europe.
- The number of diseases that are directly related to rising temperatures (caused by insects, increased UV radiation, heat waves, ...) is increasing.
- In winter, energy consumption decreases, but in summer it increases all the more.
- The high temperatures and floods or floods lead to faster material fatigue and material damage to the infrastructure (e.g. roads, rails, lines, ...)
- The tourism flows are moving north, because in the summer, for example, too hot in the Mediterranean. Winter tourism in the Alps can only be operated at more than 2,000 m above sea level. Tourism focuses more on a few regions.

TASK 6 DEVELOP PROBLEM-SOLVING STRATEGIES

To achieve the desired results and to avoid the unwanted negative results, the following measures can be taken:

- Expansion of green electricity (e.g. wind energy, photovoltaics, biomass and, where possible, hydropower) and thermal solar energy
- Efficient use of waste heat (e.g. from industrial plants)
- Improve energy loss in existing buildings and promote energy-efficient construction
- Expansion of public transport and renouncement of private transport
- Reduce power consumption and fuel consumption through the use of new technologies
- Promote technical innovation to curb emissions in the industry
- Take structural measures in cities so that heat waves can be mitigated (e.g. roofing of roofs, ...)
- Take measures for the economical use of water (especially with drinking water)
- End deforestation and slash-and-burn of forests worldwide and reforest them
- Environmentally friendly management of agricultural land
- Reduce meat consumption and put more emphasis on plant-based foods
- Structural measures in order to be able to react better to weather extremes (e.g. flood protection, renaturation of rivers, ...)
- Setting up early warning systems to better predict forest fires, floods, droughts, and the spread of diseases (transmitted by, for example, insects)
- Development of new offers in tourism

All of these measures are designed to reduce the emission of greenhouse gases and thus stop the trend in global warming. Both private individuals and companies and the states are called upon to make a contribution.

Sources:

www.help.gv.at, www.klimawandelanpassung.at, www.umweltbundesamt.at

European Environment Agency: Climate change, impacts and vulnerability in Europe 2012



Edit case studies with the cause-and-effect diagram by Kaoru Ishikawa

With a cause-and-effect diagram, one can **systematically establish a connection between a problem and the multitude of possible causes**. Other names for this method are Ishikawa diagram (after the Japanese chemist Kaoru Ishikawa) or fishbone diagram (due to the representation form).

AIMS

Possible causes or influences that lead to a specific problem are systematically broken down into main and secondary causes and graphically displayed. This makes it easier to assess the causes and to develop appropriate measures.

► Task 1: Define problem and draw diagram

The starting point for the cause-and-effect diagram is a horizontal arrow pointing to the right, at the top of which the most succinctly formulated problem (e.g. There are no fish left in the lake) is entered.

► Task 2: Define main influencing variables and complete them in the diagram

The arrow shows the main influencing factors which can lead to a specific effect. The following main influencing variables are usually used: human (all actions of people who cause the problem), machine (machines, plants, tools and other equipment that can cause the problem), method (procedures which may be the cause of the problem), material (causes attributable to defects in the materials, materials or other parts used) and the environment or environment (causes resulting from external influences, such as nature, competitive situation, ... are justified) In addition, other main influencing variables, such as management or measurability can be added.

► Task 3: Evaluate causes

In groups using for example brainstorming, the individual manifestations of the causes of the problem are found and assigned to the individual main influencing variables. It should be asked several times in order to get to the root of the problem.

► Task 4: Rate causes

The possible causes are analyzed to determine the most probable cause (s). These causes should be highlighted in the diagram.

► Task 5: Develop measures

In the final step, measures will be developed to solve the problem.

As part of the reflection of the cause-and-effect diagram, the possible uses and limits of this method can be questioned and discussed.

REFLECTION

CASE STUDY WHY ARE THERE NO MORE FISH IN THE SEA?

TASK 1 DEFINE PROBLEM AND DRAW DIAGRAM

Jakob and Johanna, both 17, are with a group of teenagers at a lake camping. Both of them were avid anglers as children, but have not tried to catch a fish for ages. Now they really want to get fish out of the lake for dinner. They ask the locals if it is allowed to go fishing and get the old fishing rod from their grandfather, who has not been trying to catch a fish for more than ten years.

Together they look for a nice place on the shore and throw the fishing rod out with some bait. Nothing happens! And that for hours. Not a single fish bites! They have not seen a single fish in the whole time. **Why are there no fish left in the lake?**

Note: The full diagram can be found on the opposite side.

TASK 2 ESTABLISH KEY PARAMETERS AND COMPLETE THE DIAGRAM

In order to be able to systematically explain the causes of this problem, the following main variables are defined: human, method, material, environment

TASK 3 ELABORATE THE CHARACTERISTICS OF THE CAUSES

The following text should help to be able to work out the causes systematically.

Jakob and Johanna set off to find out why there are no fish left in the lake. They meet an old man sitting on the shore. Johanna addresses the man and asks if he can tell her about the history of the lake. The old man is very happy and starts to report:

“Seventy years ago, this reservoir was built because it was used to generate energy and it was essential to use the electricity. For a long time everything worked really well and there were a lot of fish in the lake. A few families have even lived from fishing because there was a particular species of fish that was very popular here. Every day the fishermen came back with full nets. I often fish myself and have caught huge fish.

They also bred fish and unfortunately introduced a disease. Then other fish - many of them predators - were exposed. There have also been a few restaurants that specialize in fish. Nobody in the four villages by the lake now lives from fishing. Many have moved away in recent years.

A few years ago it was a very bad flood. At that time there was a danger that the dam would break. That's why a lot of water has been drained off. It was unbelievable how much water was shot through the valley below the dam.

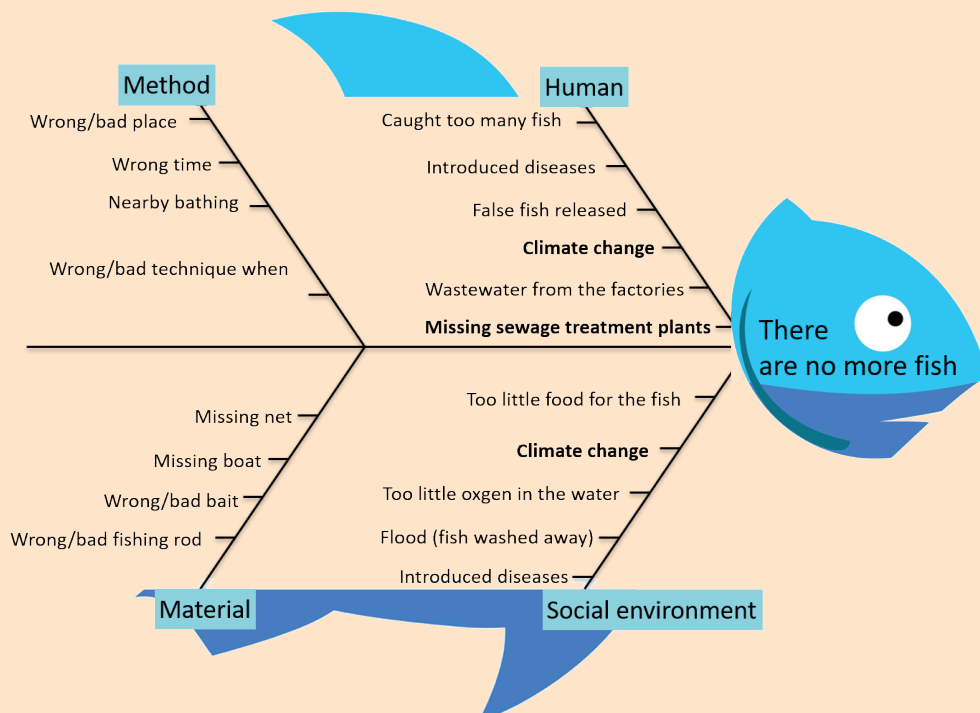
This year it was incredibly hot and dry. That is why there is so little water in the lake. When you go swimming, you come out full of algae. This is anything but pleasant!

The river, which is dammed here, is very long and also flows past two large factories, which are located directly on the river bank. There are now many who used to live in the villages! I do not know if there are sewage treatment plants all along the tributary river.”

EVALUATE CAUSES

The individual causes are analyzed again and the most probable are highlighted. In this specific case, the main causes can be identified as the missing sewage treatment plants and the changes due to climate change.

TASK 4



DEVELOP MEASURES

Above all, measures should be taken that lead to an improvement of the water quality (e.g. construction or optimization of sewage treatment plants). All other measures (e.g. refurbishment with fish, zone regulations for fishermen and swimmers, ...) require a better water quality as a prerequisite. The causes that are caused by climate change can hardly be influenced in the short-term and small-scale.

TASK 5

To-do exercise: “Harvest” by Dennis Meadows

AIMS	<p>With this game, all participants recognize their own (joint) responsibility for common goods and learn how to find solutions together through communication and cooperation.</p> <p>The background to this method is the so-called “common endemic dilemma” or “tragedy of common property”. This refers to the overuse of a common good or resource by individuals who initially benefit greatly from it, before they themselves and everyone else suffer from the consequences of their trade.</p> <p>In addition to air, water, plants and animals (e.g. fish stocks in the sea), the most common public goods today include all the fossil resources of our planet in the broadest sense. The stated goal in the sense of sustainable development is, on the one hand, a fair distribution between all people living today and, on the other hand, forward-looking action so that all future generations can satisfy their needs (e.g. have clean air to breathe).</p>
“WORSE BEFORE BETTER”	<p>In order to be able to use resources on a long-term basis, less exhaustion often has to be accepted in the short term. These strategic decisions are often initially perceived as “worse”. However, if politicians, managers, or academics were to base their strategies on short-term success, the long-term outcomes could have tragic consequences.</p> <p>So it is crucial to understand the long-term dynamics of a system in order to make decisions for sustainable use, thus ensuring the long-term well-being of all concerned.</p>
DURATION	50-80 minutes, depending on the number of rounds (6 - max. 10) and duration of the reflection
MATERIALS	<ul style="list-style-type: none"> ➤ 200 coins / game chips It is best to use 1-cent coins or game chips ➤ 2 containers / boxes (including lid) Tray 1: This should be opaque and provide space for 50 coins / game chips. It is important that you reach in and get out the coins / game chips individually (e.g. coffee can). Tray 2: This should also be opaque and big enough for the remaining coins / game chips. ➤ 1 paper cup and 1 sheet of paper per group Each paper cup represents a ship with which the group will catch their fish. Each of these ships must have a clearly identifiable number or name.

The aim of the game is that **all participants catch as many fish as possible**. At the

beginning of the game, the fish stock (= number of 1-cent coins or game chips) is between 30 and 50 fish, the exact number decides the game master - the participants do not know this exact number.

In order to catch fish, each team receives a ship (paper cup) and sheet of paper. A total of six to ten rounds (= years) are played and every year each team can decide how many fish it wants to extract from the entire fish stock.

The ocean can feed a maximum of 50 fish, a higher number can not be achieved. Every year, the number of fish that remain behind in the ocean after catching orders doubles - but a maximum of 50 fish can live in the ocean.



GAME RULES

The participants form three to six **teams** of two to six persons (the groups should be of different sizes). Each team forms an armchair island, so that all groups in the class are well distributed and no one can overhear the conversations of the others.

TASK 1

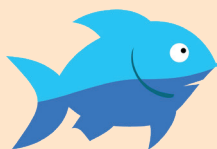
Explain the rules of the game and hand out a paper cup and sheet of paper to each team. Show “**the ocean full of fish**” (= container 1) and shake it so that the participants have a first (acoustic) impression of how many fish are in the ocean (the participants only know that the number is between 30 and 40) 50 is).

TASK 2

Each team now decides on its strategy and writes on its sheet of paper the number of fish it wants to catch in its first year. The sheet is placed in the paper cup and brought to the game master.

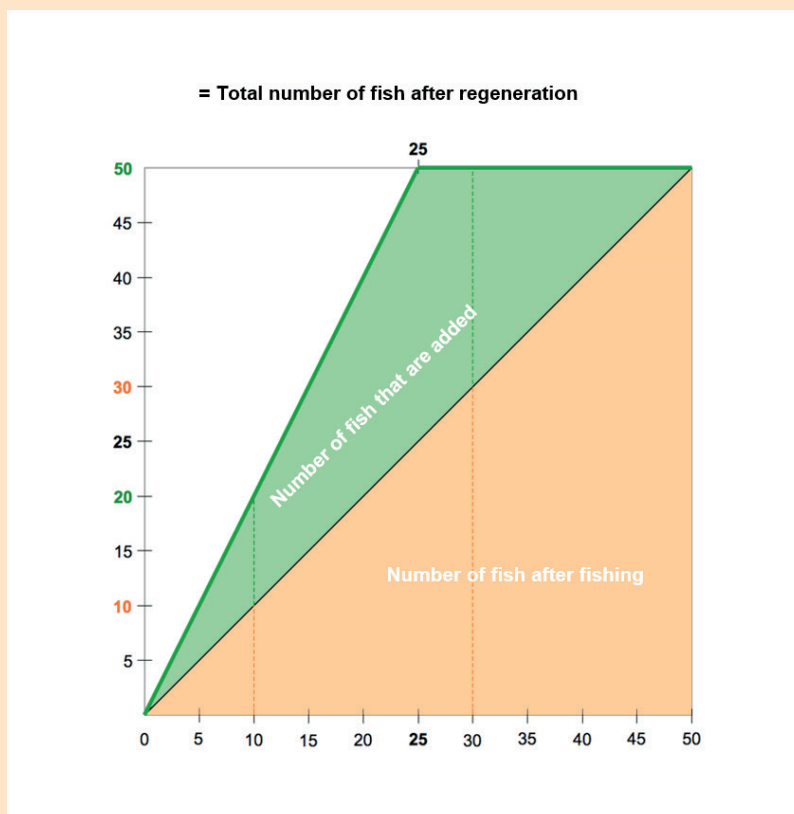
TASK 3

When all the teams have handed in their ships, the **fish are distributed**: Now carry out the capture orders randomly - it's best to “mix” the ships before you start distributing. The ship with the number one should not automatically be the one that receives its fish first.



Now distribute the desired amount of fish from the entire ocean into the individual paper cups. If a team's mission exceeds the number of fish remaining in the ocean, that team will not get a single fish in that round. After all orders have been completed, each group receives their ship back with their fish.

TASK 4 After all the fish have been distributed, the fish stock “regenerates” according to the following curve:



The fish population doubles, but can reach a maximum of 50 fish. So if, for example, 10 fish are left, add another 10 fish (from container 2) to the “ocean” (= container 1). In total there are 20 fish in the “sea”.

TASK 5 If there are 30 fish remaining, only 20 new fish can be added, because the maximum number of 50 fish cannot be exceeded. If there are no more fish in the ocean, no further fish can follow.

For all other rounds (max 10), repeat steps 3 and 4. Always allow the participants a few minutes to discuss their strategies, collect the vessels with the capture orders and distribute the desired number of fish. Even if all the fish have been caught and no regeneration is possible, let them play at least two more rounds to make the participants aware of the consequences of their actions: There are no fish left!

If several or all groups develop a strategy to save the fish population together, or

keep it at a very high level, let it continue for two to three rounds to see the effects.

EVALUATION

Typically, one or two teams initially pursue an aggressive strategy by placing large orders. This causes a reduction in the fish population and a decrease in the potential for catching all.

Sometimes there are serious efforts to coordinate the decisions of all teams to achieve a catching yield that can be maintained over the entire period of the game. But this effort often fails: Either one or more groups do not stick to the agreements or the maximum number of fish that can be caught annually is misjudged.

REFLECTION

Have each group analyze their behavior and strategy during the game and share their experiences. Afterwards, hold a discussion with all participants:

- What happened in this game?
- How has the strategy of each team changed in the course of the game?
- Who is responsible for the result?
- What income did the participants achieve?
- What would have been the maximum achievable value for all groups?
- Which strategy would you have to pursue to achieve the maximum value for all teams? Why was not this done from the beginning?
- Who is the winner in this game?



From game to real life:

- What other public goods do you know?
- Which are your own concerns? How do you and others handle it?
- How can natural resources and communities of the earth (e.g. oceans) be used sustainably?
- How do companies deal with community goods? Who bears the costs if companies use these carelessly?
- In real life, where do you see examples of the behavior you could observe in this game?
- What strategies can be followed in real life to achieve more sustainable outcomes?

Edit case studies with instruments of interconnected thinking by Frederic Vester

GENERAL

The instruments shown are characterized by their analytical power. If you want to understand a complex system or a problem situation, you should not look out from the system or from the problem on the environment and try from there to analyze developments and factors. The more goal-oriented approach is to look “from outside to inside” - into one’s own system in order to examine its structure and behavior.

It can then be used to determine which parts of the system can be controlled, which parts are not suitable for control, where buffers are located, how flexible the system as a whole is, how its self-regulation works, where there are symbiosis possibilities, etc.

WHAT TOOLS AND PROCEDURES?

The method of interconnected thinking according to Frederic Vester works with concrete instruments, which are presented below in the case study “The Alpenschule in Westendorf”. At the performance, all the instruments are shown; in the case examples in the core part only a few of these instruments are used.

The following instruments (as steps in the workshop) are applied:

- Target analysis
- Environment analysis
- Systematization of ideas and problems (mind map)
- Effect structure of the factors and description of the effect relationships
- Impact matrix - analysis of the interaction and influence of factors
- Intensity portfolio as a graphical representation of the impact matrix
- Future projections of key factors (scenario method)
- Analysis of the control options
- Environment impact matrix

These tools help predict how the system is likely to behave when a particular environmental condition occurs, how it responds to certain changes, how its behavior may be improved or optimized.

The possible strategies for changing a given situation should therefore not be determined externally, but should be predetermined by the system itself. It should always be attempted to make the system stable and less prone to failure (see Vester 1999, pp. 100ff.).

The aim of the instruments of interconnected thinking is the recognition of basic connections and modes of action. Objectivity and completeness of the solution are - depending on learning progress - only secondary.

Rather, it is about multi-faceted wealth and looking at a complex problem from different perspectives. It is therefore ideal if the instruments are used by different persons to analyze the problem and the resulting findings are brought together. However, one should also be aware that the instruments have tool character, which - as in the craft - is that good tools do not automatically guarantee a good product.

Many years of practice show that the use of the instrumentation is extremely worthwhile for various economic and socially relevant problems and has also proved very successful due to the “aha effects” that can always be achieved. In addition, it can also be fun to be enthusiastic about it and to go to the very bottom of certain problems, issues, etc.

AIMS

Copy the selected case study for young people.

PREPARATION

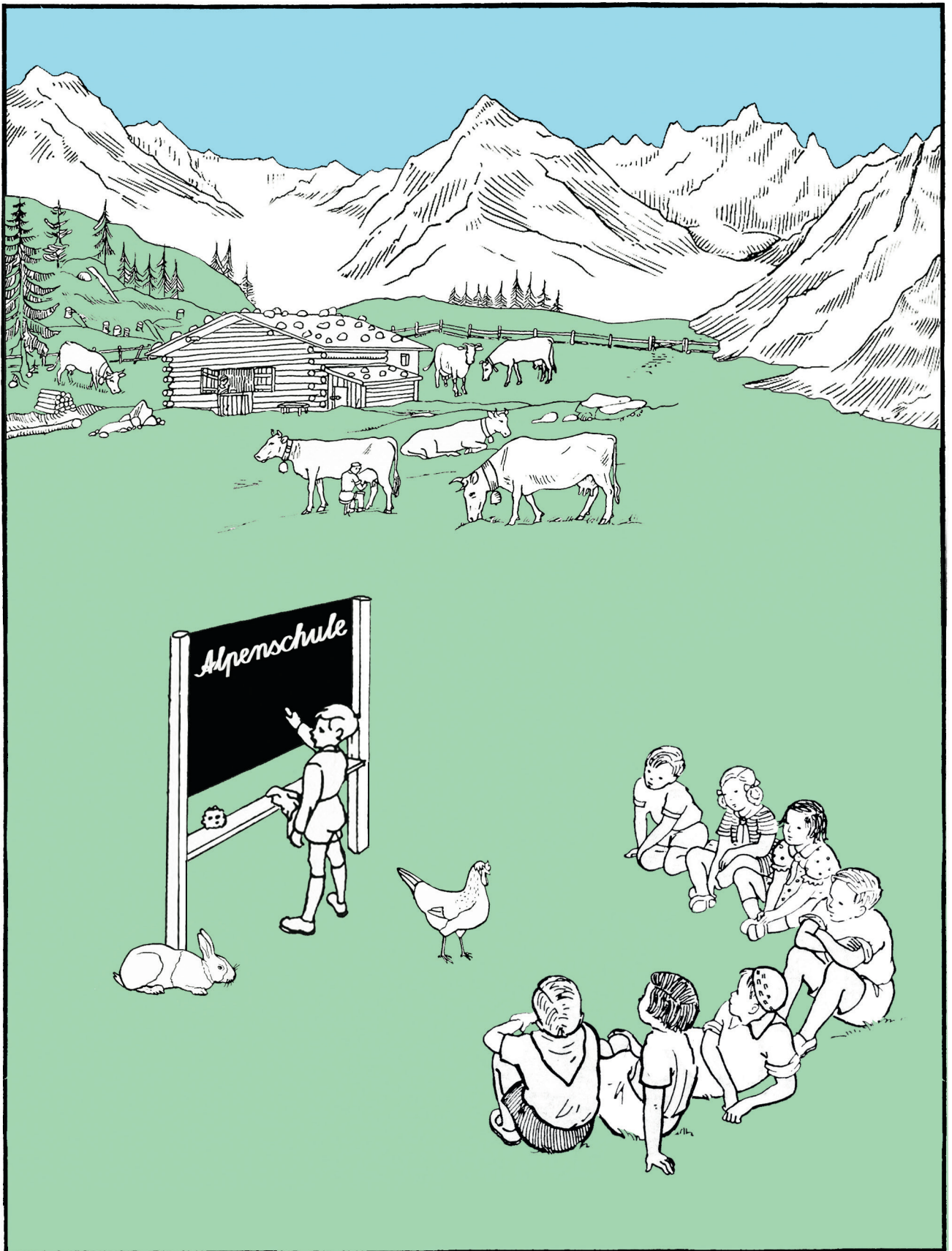
- Formation of small groups
- Each participant reads the case study quietly.
- Whisper phase: brief discussion of the case study with the seat neighbor
- All the steps are first processed in a small group.
- After each individual step, the results are collected in plenary and supplemented if necessary. This task is taken over by the moderator (usually the teacher).
- After creating a common solution for a single step, the next step in the small group is processed and then returned to the plenum (“accordion system”).

IMPLEMENTATION

The last step is to create a learning balance sheet. Here is a summary of what the students learned in the workshop.

REFLECTION

The individual tools for working on the case study “The Alpenschule in Westendorf” will now be explained step by step and solutions will be presented. These are intended as an aid to the preparation of solutions to the other case studies cited in the book.



Learning in harmony with nature - the Alpenschule in Westendorf

In particular, children from the urban area today often have only a vague idea of what rural life means and what it means to live with and in nature. In 1996 Dr. med. Josef Ziepl, former director of the tourism association Kitzbühel, together with Hans Ludwig the idea of an Alpenschule. Their aim is to make schoolchildren more familiar through active experience and cooperation with nature and agriculture, to arouse interest, to playfully transfer knowledge and to express the senses



LEARNING COUNTRY LIFE

To create a “school of seeing, feeling,

tasting and experiencing”: “We want to explain our life to our young visitors on the alpine farm [...] But not with dry lessons, but with a colorful program, the makes the rural area with all its facets come alive. “

After several years of preparation, in 1998 the specially established Agricultural and School Development Association welcomed guests for the first time to the Alpenschule Westendorf - the first of its kind in Austria and Europe. About 15 km away from Kitzbühel within the Brixental, Westendorf extends at an altitude between 800 and 2,444 m. The town has just over 3,500 inhabitants and can be described as a typical Tyrolean mountain village. The Brixental is still heavily agricultural. Especially livestock and dairy farming play a crucial role here.

In the meantime, numerous school classes from Austria and neighboring countries have spent a project week in harmony with nature. A varied program was developed for students between the ages of eight and twelve, offered from April to November.

The topics food, plants, animals, life are the agenda. Visits to the farms, where they can be helped, bring the country life, customs and culture closer to the students. On excursions and hikes, the students are familiarized with flora, fauna and minerals.

At Salvenberg, at 1100 m above sea level, there is the Tageshort building, which serves as the center of the Alpenschule. Here, the school classes are also fed during the day.

Example of the sequence of a week in the Alps School		
	Morning	Afternoon
Monday	<ul style="list-style-type: none"> • Arrival at the railway station Westendorf • Transport by minibus to the mountain farms • Billeting 	<ul style="list-style-type: none"> • Welcome, introductory games • Easy hikes with visit of the mountain farms • Positional orientation
Tuesday	<ul style="list-style-type: none"> • Demonstration and participation in the preparation of cheese and yogurt, followed by tasting 	<ul style="list-style-type: none"> • Short hike to the source • Nature experience games •
Wednesday	<ul style="list-style-type: none"> • All day long into the realm of insects led by biologists on the way to the "Kälbersalve-Alm" • In the evening barbecue by the open fire 	
Thursday	<ul style="list-style-type: none"> • Examining life on the farm - mountain farm, pets and the work of the mountain farmers 	<ul style="list-style-type: none"> • Crafting, e.g. Processing of sheep wool or works of art made of natural materials • Evening hike
Friday	<ul style="list-style-type: none"> • Visit of a craft business (tannery, turnery, blacksmith or glass-cutting) 	<ul style="list-style-type: none"> • Walk to the quarry, collect minerals • In the evening, award ceremony for the Alpenschule certificates, award ceremony for search or riddle games
Saturday	<ul style="list-style-type: none"> • Get ready for departure • Bread baking under the guidance of the Alpenschule cook 	<ul style="list-style-type: none"> • Departure by minibus to the valley • Farewell • Return home

Three or five nights are possible. During their entire stay, the classes are supervised by an experienced teacher of the Alpenschule. Only one school class is accepted at a time. This has the advantage that all schoolchildren know each other and trust their accompanying teachers. The teachers, in turn, know the strengths and weaknesses of their students.

GET TO KNOW FARMS

The children are housed in small groups on the four mountain farms Nieding, Örgen, Rothen and Schwendt in the vicinity. All farms are located on the southern slope of the Hohe Salve. In addition, there are the two partner farms Eichl and Fumterhof, on which part of the program is carried out. For example, attendees learn how cheese is made or immerse themselves in history.

Not only the school classes, but also the mountain farmers profit from the Alpenschule. Many farms are too small for full-time farming. As a result, income often does not suffice for life, forcing families to pursue second jobs or to rent rooms. The income from the accommodation of school classes thus represents a welcome additional income for the farmers and helps to secure their livelihood. At the same time, this helps to prevent migration from the region and to maintain mountain farming as an essential actor in cultivating the cultural landscape.

The local tourism industry also benefits, as schoolchildren who have completed an Alpenschule week come to Brixental with their parents to spend their holidays here.

The Alpenschule is supported and accompanied by various Austrian federal ministries, the state of Tyrol, the Austrian National Bank and the University of Innsbruck. The Alpenschule is still dependent on sponsors and subsidies. To reduce this dependence, an increase in utilization is required. Especially in the summer you can see potential, because during the summer holidays the Alpenschule was initially closed for eight weeks. There are four weekly one-week summer offers: an English course, two holiday programs and the opportunity to spend a holiday with the family at the Alpenschule. Since these offers are well received, they are gradually being expanded.

Due to the shorter summer holidays, special hopes are placed on school classes from Bavaria to increase their capacity utilization. An increase in capacity utilization would also be possible if school classes increasingly use the 5-day offer instead of the 3-day offer. In addition, the premises are also available for lectures, trainings and seminars.

In the meantime, the Alpenschule can look back on a very successful development and has already received several awards. A special honor was given to Dr. med. Josef Ziepl. In recognition of his achievements for the Alpenschule, he was given the honorary team and given his name to the day nursing home.

Now you would like to gain a foothold with the concept across the Alps. For this purpose, Alpenschulen based on the example of the Westendorf facility are to be gradually built in the mountain regions of the other Alpine countries.

PLAN FOR FUTURE

“We are a school that is not a school, as you know it: our school building is the outdoors, our classroom is the meadow, the forest and the mountains, and our teachers are the plants, the animals and the people who live there live on the mountain farms.”

Excerpt from the homepage www.alpenschule.at

HOW CAN OBJECTIVES BE ANALYZED? (INSTRUMENT: TARGET ANALYSIS)

One of the most common mistakes in dealing with complex (problem) situations is the unsystematic objective. Goals should be set in such a way that they ensure or increase the viability of a system. Often goals are only set as an end in themselves. For example, to be larger than a rival company, it wants to increase its sales volume or bring an innovation to market faster. It is not infrequently overlooked that, at a certain point, growth also entails inflexibility, making higher sales volumes more dependent on the market, and that innovation does not necessarily mean real progress.

In many cases, goals are set against the system rather than with others, as shown by numerous merger efforts aimed at increasing market power and leverage, but ultimately failing.

Whenever one's own goals ("target") deviate from the real situation ("actual"), problem-solving processes are initiated. A problem therefore exists when an actual situation changes while the targets remain the same or the goals are modified while the reality remains the same.

At the beginning of a problem-solving process one should therefore get an overview of the situation: What are the goals? What is the reality?

For this it is necessary,

- to formulate the goals clearly, precisely and unequivocally,
- to derive concrete sub-goals,
- to prioritize the objectives when target bundles occur,
- to check the compliance of the goals with higher values and norms,
- to set the goals with the utmost objectivity, taking into account the uncertainties of selective perception.

Subsequently, the already formulated or set goals should be scrutinized:

- Is the overall objective clear and unambiguous?
- Have (meaningful) sub goals been derived from this overall objective?
- Are these goals acceptable by all concerned and ethically?
- Are priorities assigned to these sub-goals or have these sub-goals been put in a reasonable order?
- Has a realistic timeframe been set for all goals? (see Karbach / Dorsch 1999, pp. 6)

TASK 1:

TARGET ANALYSIS

What are the goals of the Alpenschule concept?

TIPS FOR THE SOLUTION OF TASK 1

- Collect goals that you associate with the Alpenschule.
- Consider which of the goals you have formulated as the overall objective.

Priorities	Aims
Overall objective	<ul style="list-style-type: none"> • Sensitization and playful imparting of knowledge about rural areas - especially in the areas of food, plants, animals, life
1	<ul style="list-style-type: none"> • Making schoolchildren more familiar with nature and agriculture through active living and working, explaining life at the alpine farm
2	<ul style="list-style-type: none"> • To arouse interest
3	<ul style="list-style-type: none"> • Communicate knowledge about customs and culture
4	<ul style="list-style-type: none"> • Create a “school of seeing, feeling, tasting and experiencing”
The offer is aimed specifically at students from urban areas.	

Table 1: Objectives, priorities

HOW IMPORTANT IS THE ENVIRONMENT? (INSTRUMENT: ENVIRONMENT ANALYSIS)

Often, when dealing with complex problem situations, different system levels - those to be considered, higher and lower - are mixed. The data collection can be problematic. The resulting flood of information means that important networks, interactions, repercussions and time delays are overlooked.

Therefore, it is important to classify the position of the system under study within the surrounding economy and society in order to identify the relevant perspectives or perspectives. The following procedure is suitable for this:

1. First, the considered system level is identified. It does not necessarily have to be the middle level.
2. Then determine the next highest level and the highest level still relevant. Likewise, the deeper levels are dealt with.
3. Now you determine the equal ranking levels.
4. Finally, the environment of the system is identified.

Once this has been done, all detected levels are examined for their views and attitudes to the problem. In this way it can be found out whether support or resistance can be expected to solve the problem (see Karbach / Dorsch 2000, pp. 21).

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Which actors are involved in the “Alpenschule” concept? What contributions do these each make?

TASK 2: ENVIRONMENT ANALYSIS

- On the basis of the objectives formulated in task 1, try to identify interest groups for the Alpenschule.
- Bring the stakeholders you identified into a hierarchical one order and graphically display them.
- Formulate goals and expectations for all stakeholders.

TIPS FOR THE SOLUTION OF TASK 2

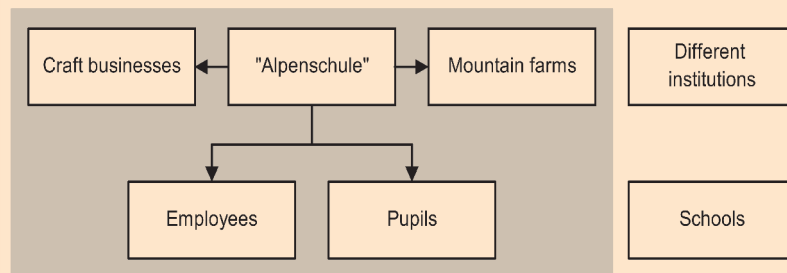


Figure 1: Using the context (main players)

SUGGESTED SOLUTION TO TASK 2

Interest groups	Expectations and goals
Alpenschule and its employees	<ul style="list-style-type: none"> • Concept, organization, coordination • Knowledge transfer • Sensitization • Catering
Mountain farms	<ul style="list-style-type: none"> • Accommodation, meals • Provide insights into rural life • Knowledge transfer - Learning by doing: experiencing rural areas with all their facets, also through active collaboration
Craft businesses	<ul style="list-style-type: none"> • Insights into the respective craft • Knowledge transfer • Sensitization
Schools and pupils	<ul style="list-style-type: none"> • Willingness to use the offer • Appropriate preparation and follow-up
Various institutions	<ul style="list-style-type: none"> • financial and methodical-didactic support

Table 2: Main players, their expectations and goals



HOW CAN IDEAS BE SYSTEMATIZED? (INSTRUMENT: MIND MAP)

The technique of mind mapping, which can be used at various points in the analysis process, is suitable for this purpose. It is suitable for. For example, it is especially good for analyzing and structuring complex problem situations, for planning or for strategy search.

The technique of mind mapping is based on Tony Buzan (see Buzan / Buzan 2005). It is an instrument to facilitate the brainstorming technique, illustrating the problem to be dealt with. Identified factors or found ideas are systematized or thematically arranged in the form of “branches” (or “boxes”). Here, important aspects can be highlighted or relationships clarified. Due to its open structure, a mind map can grow on all sides and be supplemented at any time. A disadvantage is the great simplification of complicated facts: As easily as it is presented in a mind map, complex situations often cannot be overlooked.

How do you go about creating a mind map?

- The starting point is the problem to be solved, which is noted in the middle of a sheet of the largest possible size.
- Based on this, the individual ideas or aspects are recorded in the form of “branches” (or “boxes”). New aspects and ideas related to those already noted are added to the respective branches. In this way, the mind map can grow in all directions.
- Connections between the individual branches can be made clear by connecting lines or arrows.
- Different colors, underlines, borders, etc. can also be used to differentiate or emphasize ideas or aspects.

If a mind map is created in a team, the participants can inspire each other. Then the records should be examined for their meaningfulness and usability.

Which factors contribute to the success of the Alpenschule? Put this in a mind map.

TASK 3: SYSTEMATIZATION
OF THE IDEA

TIPS FOR THE SOLUTION
OF TASK 3

- Define the success factors of the Alpenschule as the starting point for the mind map.
- From this point of view, draw the most important factors as branches.
- Consider which aspects are relevant in relation to the Alpenschule and assign these aspects to the individual branches.
- Try to find connections between the branches and consider them when creating the mind map.

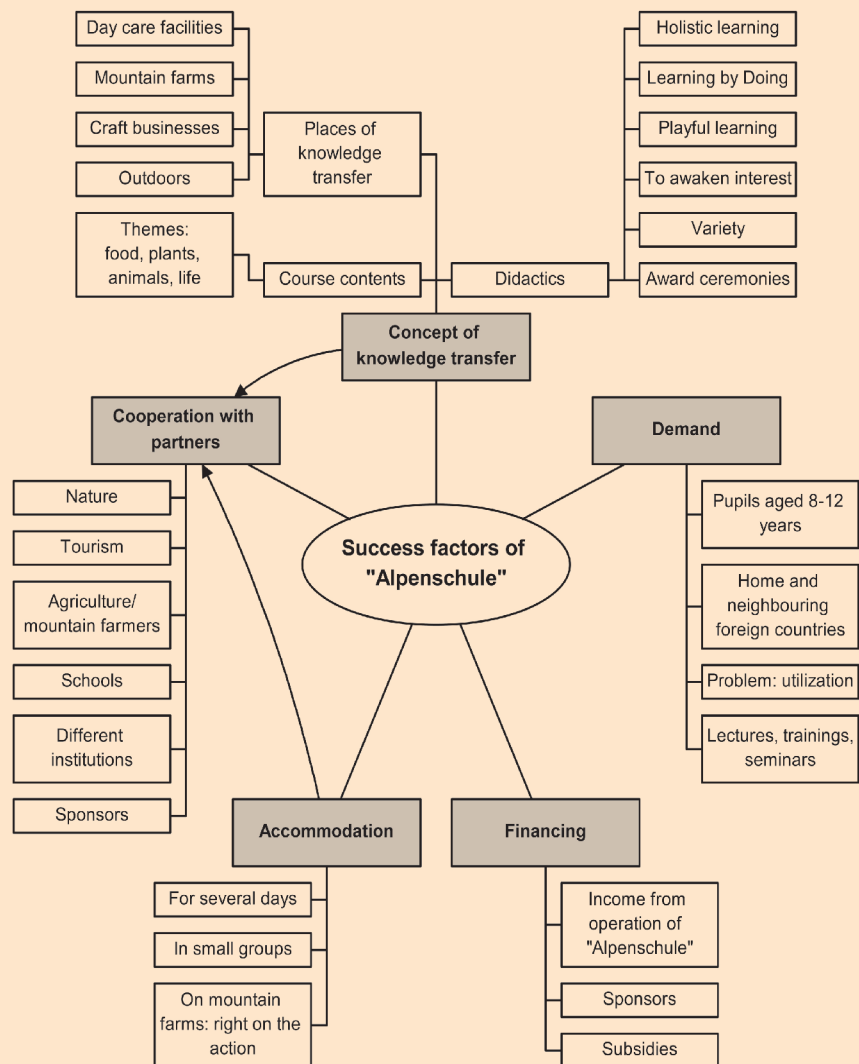
SUGGESTED SOLUTION TO
TASK 3

Figure 2 Mind map: Success factors of the Alpenschule

WHAT ARE THE CONNECTIONS? (INSTRUMENT: EFFECT STRUCTURE)

Another mistake in dealing with complex problem situations is often that relationships are underestimated or not at all recognized. However, it is precisely these relationships and effects, the resulting side effects and feedback that are of great importance when analyzing a problem situation. If these relationships are not recognized, even the collection of even more detailed data will not succeed.

Only when the relationships between system elements are recorded can statements about susceptibility, control circuits, system dependency on the environment, etc. be made. From the interplay of the system elements can be derived, which sub-areas are particularly important for the system and at what points thoughtless interventions u. U. could have devastating consequences.

In order to purposefully intervene in a complex problem situation, but without destroying the self-regulation mechanism of the system, one needs an accurate picture of the effect structure or influencing pattern.

The following instrument is used to show the relationships between target variables and influencing factors or system elements. It aims to investigate to what extent factors and elements are networked, how and how quickly they interact. This involves answering the following questions:

1. What are relevant influencing factors? - First of all, it is important to identify the internal and external factors and variables that are relevant for the system.
2. Which factors influence each other? - Now, relationships between these factors are recorded in an effect structure. The respective effects can be shown by arrows.
3. In which direction do the influencing factors work? - It then examines whether the effects are rectified or counteracted effects. A rectified relationship is called when, given a relationship between the factors A and B, the factor B increases, although A increases. In the effect structure, the direction of action is characterized by a “+” (for a rectified relationship) or a “-” (for an opposite relationship).
4. Do effects occur quickly or with a time delay? - Finally, the maturities of the effects (short, medium or long term) can be presented in the structure of action. This can, for example, be done through different arrow thicknesses or different colors.

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Analyze and describe the essential connections of the factors that are crucial for the operation of the Alpenschule.

TASK 4: NETWORK EFFECT
STRUCTURE

TIPS FOR THE SOLUTION
OF TASK 4:

- Try to define the essential factors for the effect structure. Take into account the factors that occur in the environment analysis or in the mind map.
- Analyze the effect of each factor on each other and wear the connection with arrows. In parallel, create a table in which you describe the individual impact relationships. You can either consider all combinations and, if there is no effect, leave the row empty or consider only those factors that give rise to effects. Note the direction of influence with “+” (the more, the more - the less the less) or “-” (the more, the less - the less, the more) in the effect structure. Does, for example, an attractive concept of knowledge transfer lead to an increase in demand for activities of the Alpenschule, this is then typified by “+” and the arrow leads from “concept of knowledge transfer” to “demand”.
- If necessary, you can also check the terms of effects in both enter the structure of effects as well as a separate column in the matrix.

SUGGESTED SOLUTION TO
TASK 4

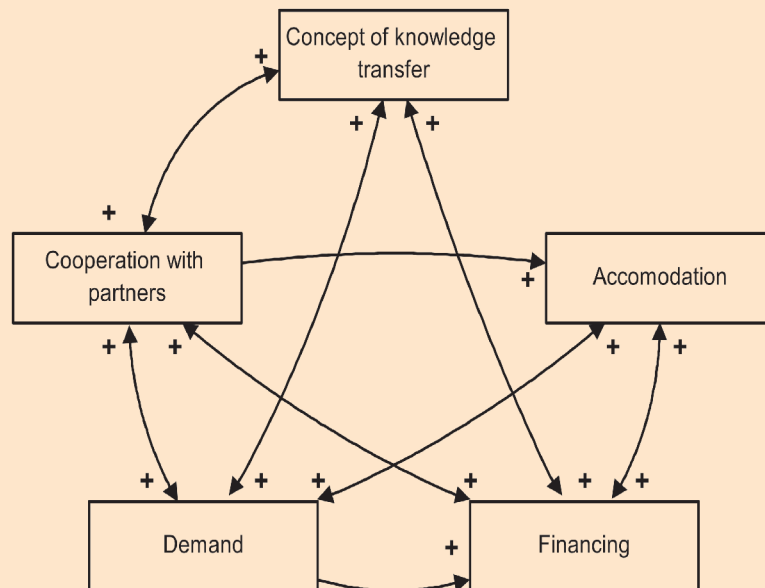


Figure 3 Effect structure

For a better understanding of the developed structure or network, it is advisable to describe the individual impact relationships in more detail. This can be done like in the following table:

SUGGESTED SOLUTION TO
STEP 4

Effect of ...	on...	Description of the activity relationships
concept of knowledge transfer	collaboration with partners	The more attractive the concept of knowledge transfer, the more likely it is that partners can be won / held
	demand	The more attractive the concept of knowledge transfer, the greater the demand
	financing	The more attractive the concept of knowledge transfer, the more sponsors can probably be addressed
cooperation with partners	concept of knowledge transfer	The better the cooperation with partners (here: mountain farms, craft businesses), the more attractive the concept of knowledge transfer
	accommodation	The better the cooperation with partners (here: mountain farms, craft businesses), the more attractive the accommodation
	demand	The better the cooperation with partners, the greater the demand
	financing	The better the cooperation with partners, the easier the financing can be realized
accommodation	demand	The more viable the accommodation, the cheaper this will affect demand
	financing	The more viable the accommodation, the higher the prices can be set (however, there is an upper limit on purchasing power of the families of schoolchildren to allow participation of all)
demand	concept of knowledge transfer	The more demanding the customer, the more attractive the concept of knowledge transfer should be
	collaboration with partners	The higher the demand, the stronger the partners are (here: mountain farms, craft businesses) required
	accommodation	The higher the demand, the stronger the partners are (here: accommodating mountain farms) required
	financing	The higher the demand, the sooner the financing will be secured through revenues in this regard
financing	concept of knowledge transfer	the better the financial situation, the more you can invest in the concept of knowledge transfer
	collaboration with partners	the better the financial situation, the easier the cooperation
	accommodation	the better the financial situation, the more can be paid to the participating farms

Table 3: Description of the relationship of effects

HOW STRONG ARE INFLUENCING FACTORS? (INSTRUMENT: IMPACT MATRIX)

Usually, not all effects between the individual factors are equally strong. In addition to the simple recording of the effects, these should therefore also be assessed in terms of their strength. For this purpose, a so-called impact matrix can be created in a few steps:

1. All factors recorded in the effect structure are first entered in the header columns and rows of the matrix.
2. Next, estimate the magnitude of the direct effect between any two factors on a pre-determined scale (e.g. from “0” for no or very little effect to “3” for a strong effect). The respective value is entered in the corresponding field of the matrix.
3. If all effects are evaluated, the values are added in rows or columns. High row sums indicate that the influencing factor influences (very) other factors. Factors that have high column sums are (very) heavily influenced by other factors.



What does an impact matrix derived from the impact structure look like for the Alpenschule?

TASK 5:
IMPACT MATRIX

Try to estimate the strength of the effect. With the help of the row or column sums you can judge from which factors strong effects on others emanate and which are particularly strongly influenced.

In the example, due to the impact matrix, the effects of “cooperation with partners” and “demand” are strong (high row total). Weak on the other factors act z. For example, the factors “accommodation” and “financing” (low row sums).

The factor “financing” (high aggregate sum) is strongly influenced by other factors - weak influence is “cooperation with partners” (low column sum).

TIPS FOR THE SOLUTION
OF TASK 5

Effect of \ Effect on	concept of knowledge transfer	accommodation	collaboration with partner	financing	demand	Row total
concept of knowledge transfer	x	0	3	2	3	8
accommodation	0	x	0	3	3	6
cooperation with partner	3	3	x	2	2	10
financing	2	2	2	x	0	6
demand	3	3	2	3	x	11
Column total	8	8	7	10	8	x
0 = no or very little influence 1 = low influence			2 = moderate influence 3 = strong influence			

SUGGESTED SOLUTION TO
TASK 5

Figure 4 Impact matrix

WHICH CATEGORIES OF INFLUENCING FACTORS ARE THERE? (INSTRUMENT: INTENSITY PORTFOLIO)

The results obtained in the impact matrix can now be converted into a so-called “Intensity portfolio” transferred. Using this portfolio, the drivers can be classified into four distinct categories - critical, active, reactive, and inert. Specifically, one proceeds as follows:

1. First, the portfolio is created by yourself. The maximum values of the axes (influence = abscissa or x-axis, influenceability = ordinate or y-axis) are derived from the number of influencing factors.¹
2. Now the factors are entered in the portfolio. The coordinates of the factors result from the respective row sums (abscissa values) and column sums (ordinate values) in the impact matrix.
3. Then divide the resulting portfolio into the four fields “critical”, “active”, “reactive” and “sluggish” and interprets the result.

Based on this assignment, recommendations for action can be derived or statements about their effects can be made:

- Critical factors have a strong impact on other factors and become strong themselves influenced by other factors. They are therefore suitable as a kind of “initial ignition”. Control interventions should, however, be carried out with extreme caution, as uncontrolled rocking may also cause the entire system to lose its balance.
- Active factors also have a strong influence on other factors, but they do themselves less influenced by other factors. Control intervention is well possible, but should be done with care, as this can (sometimes unforeseen) affect the system.
- Reactive factors only weakly influence other factors, but they do themselves heavily influenced by other factors. Control actions on these factors generally have no significant effect on the system. However, these factors are well suited to estimate the effects of control intervention on other factors.
- Sluggish factors only weakly influence and are subject to other factors minor influences. Interventions in such factors involve a fairly low risk, but accordingly do little.

Factors that settle in the mid-range of the portfolio are less likely to be targeted at the system. At the same time, however, they play an important role in self-regulation (see Vester 1999, p. 205).

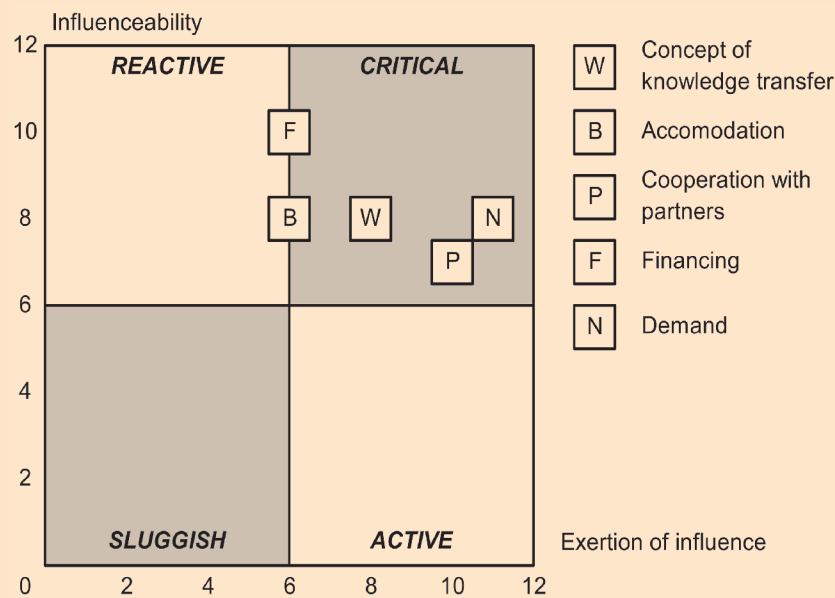
¹ Number of factors = x; Maximum value = (x - 1) * 3

What are the examined factors in an intensity portfolio?

TASK 6: INTENSITY PORTFOLIO

- Create a coordinate system for five factors (according to the structure of effects and the matrix of effects). Thus, the coordinate system must range from 0 to 12 ($(5-1) * 3$).
- Divide the coordinate system into four equal-sized quadrants. For example the Alpenschule is divided at the value 6 each.
- Transfer the values from the impact matrix. If you choose z. For example, the factor “demand”, the value 11 must be entered on the x-axis and the value 8 on the y-axis.
- Create a table in which you can interpret the critical, active, make reactive and inert factors.

TIPS FOR THE SOLUTION OF TASK 6



SUGGESTED SOLUTION TO TASK 6

Figure 5 Intensity portfolio

Factors	
Critical factors	<ul style="list-style-type: none"> • Concept of knowledge transfer: The concept creates the core benefit for consumers. With its design and implementation customers can be won and convinced. At the same time, the concept is strongly involved in the overall structure of the factors and provides the framework, for example, for the selection of partners, the type of accommodation, the scope and possibilities for financing. • Cooperation with partners: Without partners, the concept would not be feasible. The type and number of partners, their commitment and reliability contribute significantly to the overall success. The choice of partners should be well considered. • Demand: On the one hand the Alpengschule pursues an educational mission, which is reflected in the offer. On the other hand, the needs of the customers in the offer design (i.e., the concept of knowledge transfer including partners and the accommodation concept) must be taken into account. So far, the critical position of this factor has mainly been that the offer has hitherto been aimed at schooling during the summer half-year, and has only recently been supplemented by alternatives during the holidays.
Active factors	<ul style="list-style-type: none"> • none at this factor selection
Reactive factors	<ul style="list-style-type: none"> • Accommodation: This factor (with a strong tendency towards the critical area) is an important element in the overall concept. Only through the accommodation on the partner farms can the concept of the Alpengschule be implemented holistically. How and where the school classes can be offered accommodation depends primarily on the participating farms and their possibilities and also on the financing. • Financing: The financing (with a strong tendency towards the critical area) on the one hand forms the basis for the entrepreneurial activities of the Alpengschule and thus has a creative effect. On the other hand, the financial position also results from the specific features of the other factors
Sluggish factors	<ul style="list-style-type: none"> • none at this factor selection

Table 4: Explanation of factors

WHAT DEVELOPMENTS ARE POSSIBLE? (INSTRUMENT: SCENARIO METHOD)

The planning and implementation of problem-solving measures requires a tremendous amount of time. If a problem-solving process is to be successful, the solutions developed in the present must continue to be appropriate and effective in the future. Therefore, it is necessary to anticipate developments and to grasp and interpret future possibilities of change in a current problem situation.

Future developments of complex situations can not be accurately predicted. This is because their factors and effects are subject to constant change and changing power of influence. Therefore, only scenarios for possible developments can be drawn up.

With the help of scenarios, future development possibilities of a currently given situation can be anticipated on the basis of the currently available information. As a result, the observer can prepare for changes and adjust the affected targets and measures accordingly. Such scenarios can equally be developed for short, medium or long-term periods.

When creating a scenario, the following steps are taken:

1. Based on the previously created effect structure, factors are determined that you can only partially or not control. These (key) factors are grouped into groups (environment segments).
2. A significant step is the identification of the potential for development of the (key) factors. It is beneficial to create an optimistic, pessimistic and probable scenario. This defines a certain bandwidth within which the observed factors could develop.
3. The trend statements should be meaningful and concise. In addition, they are evaluated for their impact on the target size, for example on a scale from “++” (for very favorable effect) to “-” (for very unfavorable effect).
4. Finally, it should be examined to what extent the development emerging in the scenario can support or jeopardize the implementation of the project or project.

Since the setting up of scenarios is usually characterized by uncertainties, one should not only rely on a scenario when developing problem-solving measures but also create different variants.

TASK 7: FUTURE
PROJECTIONS
TIPS FOR THE SOLUTION
OF TASK 7

How could the environment of the Alpenschule develop in the medium to long term?

- Consider which environment segments are relevant for creating a scenario. In this particular case, demand, competition, support and the natural environment are available.
- Define the corresponding key factors for the individual environment segments. In the demand segment, these are primarily the number of guests, the attractiveness of rural destinations and environmental awareness or interest.
- For each key factor, consider what developments are possible and try to evaluate them. In an optimistic scenario, for example, demand is increasing, resulting in a positive impact on the Alpenschule. Pessimistically, additional competitors could enter the market.

SUGGESTED SOLUTION TO
TASK 7

Environment segments	Key factors	Development - trend statements	Effect on Alpenschule
Demand	Number of guests (school classes, others)	O) increases (also thanks to the acquisition of new target groups) P) decreases (parallel to pupil numbers) W) increases	+ - +
	Attractiveness of tourist destinations in rural areas	O) remains the same P) decreases W) remains the same	+ - +
	Environmental awareness and -interest	O) increases P) decreases W) increases	+ - +
Competitor	Number of competing offers	O) increases P) increases sharply (in many places special offers for school classes) W) increases	- - -
	Type of competing offers	O) becomes more diverse P) becomes much more diverse (farms, hiking, city tourism, project days) W) becomes more diverse	- - -
Support	Number of cooperating partners	O) remains the same P) decreases W) remains the same	+ - +
	Economic structure of the region	O) overall strongly mixed structure is retained P) structure remains W) structure remains	+ + +
	Promotion of Environmentally aware holidays	O) increases P) remains the same W) increases	+ +/- +

SUGGESTED SOLUTION TO
TASK 7

Environment segments	Key factors	Development - trend statements	Effect on Alpenschule
Natural environment	Attractiveness of the landscape	O) remains the same P) possibly impaired by construction measures W) remains the same	+ - +
	State of the landscape (e.g. soil sealing)	O) remains the same P) worsens W) remains the same	+ - +
O) Development with an optimistic observation P) Development with a pessimistic observation W) Likely developments		++ (very favorable effect) to -- (very bad effect)	

Table 5: Possible developments

WHAT OPTIONS OF CONTROL ARE THERE? (INSTRUMENT: ANALYSIS OF THE CONTROLS OPTIONS)

With the aid of the previous instruments, the problem situation or the considered system was examined with regard to its own behavior. Now it is of interest, which possibilities of the own intervention offer themselves. However, what is controllable depends on who is the actual problem solver in a given problem situation and what competences or powers he has. First of all, it is therefore necessary to determine the decision level or steering level, since these decisively influence the control options.

In addition, it is of relevance whether the possible control interventions are also successful in the long term. Therefore, appropriate indicators should be identified to assess the effectiveness of the control measures.

The key factors previously identified in the scenario are examined in the following step for their controllability by the problem solver. There are four categories of factors (see Karbach / Dorsch 2000, pp. 10):



- **Controllable factors** are environmental factors that the viewer can generally influence.
- From the group of controllable factors, the so-called **effectively controllable factors** are determined. These are environmental factors that can be effectively influenced with reasonable effort. It should also be examined which of the factors considered respond to a control intervention quickly and which respond with a delay. This avoids that, if the expected effect does not occur immediately, regardless of the time delay, further control measures will follow and then, in conjunction with the initial interventions, lead to an override of the system.
- Environmental factors that cannot or only insignificantly be influenced by the problem solver do constitute **non-controllable factors**. Often, such factors can only be influenced indirectly (ie via other factors).
- **Early warning indicators** are those factors that are likely to indicate changes in the environment at an early stage.

TASK 8: ANALYSIS OF THE CONTROL OPTIONS

To what extent could or maybe can the operators of the Alpengschule control the key factors covered in the scenario?

TIPS FOR THE SOLUTION OF TASK 8

- Consider which of the factors defined in task 7 are not controllable. These factors are relatively easy to find. In this specific case, this includes the number and type of competing offers, the economic structure of the region and the attractiveness of the landscape. All other factors are basically controllable.
- Try to find justification for the controllability of the other factors.
- Review the controllable factors individually and see if they are effectively controllable. Looking at z. As the number of guests, this can be quite effectively controlled by the Alpengschule. If you create a suitably attractive offer and communicate it correctly, more guests will visit the Alpengschule.
- As early warning indicators, the attractiveness of rural destinations, environmental awareness and interest, and the state of the landscape can be assessed. Sinks z. For example, the attractiveness of rural destinations can hardly be counteracted in the short term. If you recognize this trend in good time, you can develop a medium to long-term strategy so that the destination will be successful again.

SUGGESTED SOLUTION TO
TASK 8

	Factors	Reason
Controllable factors	<ul style="list-style-type: none"> • Number of guests (school classes, others) • Attractiveness of tourist destinations in rural areas • Environmental awareness and -interest • Number of cooperation partners 	An attractive offer and appropriate advertising can influence the number of guests , as well as the attractiveness of tourist destinations of rural areas . Although the environmental awareness or interest is derived from societal values, it can to some extent e.g. also be influenced by curricula or concepts such as that of the Alpenschule. In addition, supporters (including sponsors) can be actively recruited, thereby influencing the number of cooperation partners.
Effectively controllable factors	<ul style="list-style-type: none"> • Number of guests (school classes, others) • Number of cooperation partners 	see above
Non controllable factors	<ul style="list-style-type: none"> • Number of competing offers • Types of competing offers • Economic structure of the region • Attractiveness of landscape 	Neither the number nor the nature of the competing offers can be controlled by the Alpenschule. It has as little influence on the economic structure of the region as the attractiveness of the landscape in its entirety. These factors should be taken for granted.
Early warning indicators	<ul style="list-style-type: none"> • Attractiveness of tourist destinations in rural areas • Environmental awareness and -interest • State of the landscape 	Based on these factors developments in the environment are legible. Changes do not show up abruptly, but gradually, which, with continuous observation, makes it possible to look for the causes of this change and, if necessary, initiate countermeasures.

Table 6: Controllability of factors

WHICH ENVIRONMENTAL INFLUENCES ARE RELEVANT? (INSTRUMENT: ENVIRONMENT IMPACT MATRIX)

Within the framework of this instrument, the influences of environmental factors on the strategic fields of action in the context of the problem situation are examined. Strategic action fields are those areas that the viewer can actively influence within his system and thus work toward the fulfillment of his goals.

To analyze the influence intensity of the environmental factors, a so-called environmental influence matrix can be used.

The concrete evaluation is carried out as follows:

1. In the left column of the matrix the individual strategic action fields are entered, in the header columns the relevant environment factors.
2. The effectiveness of the environmental factors on the action fields is now evaluated based on a scale from 0 (no or very little influence) to 3 (very strong influence).
3. Then add the results in rows and columns. A high row sum indicates which of the action fields are inferior to the strongest influences from the outside. A high column sum shows which environment factors have the greatest impact on the action fields.

As with all other instruments, it goes without saying that the results of the analysis should be interpreted. First, it is about deducing consequences for the strategic action fields. After evaluating the effectiveness levels in the environmental influence matrix, it should now be considered which kind of influences are involved.

After all, it is important to develop measures to be able to use positive influences that act on strategic fields of action efficiently or to mitigate negative influences accordingly. For example, measures that have already been implemented could be promoted and accelerated as part of the strategic action areas through positive influences. On the other hand, it is of course also possible that external influences negatively influence the course of a project. Experience shows that it is precisely this aspect that should not be underestimated.

TASK 9: ENVIRONMENT IMPACT MATRIX

What influences do environmental factors have on the strategic fields of action of the Alpenschule?

In the present example, the strategic activities of the Alpenschule identified the concept of knowledge transfer, the type of accommodation, the accommodation capacity, cooperation with partners, financing and pricing policy and communication policy.

- Try to define strategic action fields.
- Consider which environmental factors are essential in this specific case. For the Alpenschule, among other things, the number of guests, the number of competing offers and the state of the landscape were selected.
- Try to evaluate the potency (0 to 3).
- Interpret the result of the environmental influence matrix. The matrix shows that the strongest effects come from the number of guests and the number of cooperation partners (high sums of columns). These numbers determine the dimensions for the further planning of measures in all strategic fields of action. The strongest effects are subject to the concept of knowledge transfer (high line total). On the one hand, the environmental awareness and interest on the one hand and the state of the landscape on the other hand are of great relevance here.

TIPS FOR THE SOLUTION OF TASK 9

Strategic action fields	Environmental factors									Total
	Number of guest (school groups)	Attractiveness of tourist destinations in rural areas	Environmental awareness and -interest	Number of competing offers	Type of competing offers	Number of cooperation partners	Economic structure of the region	Attractiveness of the landscape	State of the landscape	
Concept of knowledge transfer	2	1	3	0	1	2	1	2	3	15
Type of accommodation	2	2	1	0	1	2	1	0	0	9
Accommodation capacity	3	1	0	1	0	1	0	0	0	6
Cooperation with partners	2	1	1	0	1	3	3	0	0	11
Finance / pricing policy	2	1	0	1	0	2	1	0	0	7
Communication policy	2	2	2	1	0	1	1	2	1	12
Total	13	8	7	3	3	11	7	4	4	x
0 = no or very little influence 1 = low influence				2 = moderate influence 3 = strong influence						

SUGGESTED SOLUTION TO TASK 9

Table 7: Environment impact matrix

WHAT HAPPENS NEXT?

The previous analysis forms the basis for further work. After examining a complex problem situation from different perspectives, we will now show various alternatives for action and finally develop recommendations for action. Here are the following problem areas in the foreground:

- Complex problem situations generally leave many different opportunities to. To solve a problem, various measures are often required. In this context, it is of importance that these measures are coordinated with each other both in terms of content and time.
- Have different options or strategies been developed? The best or most effective strategy will be selected. For this purpose, the individual options are evaluated and analyzed regarding their effectiveness in the problem situation
- Overall, therefore, it is important to consider possible alternative courses of action and strategies. Identify and, in a further step, derive suitable and effective measures in terms of content and time.

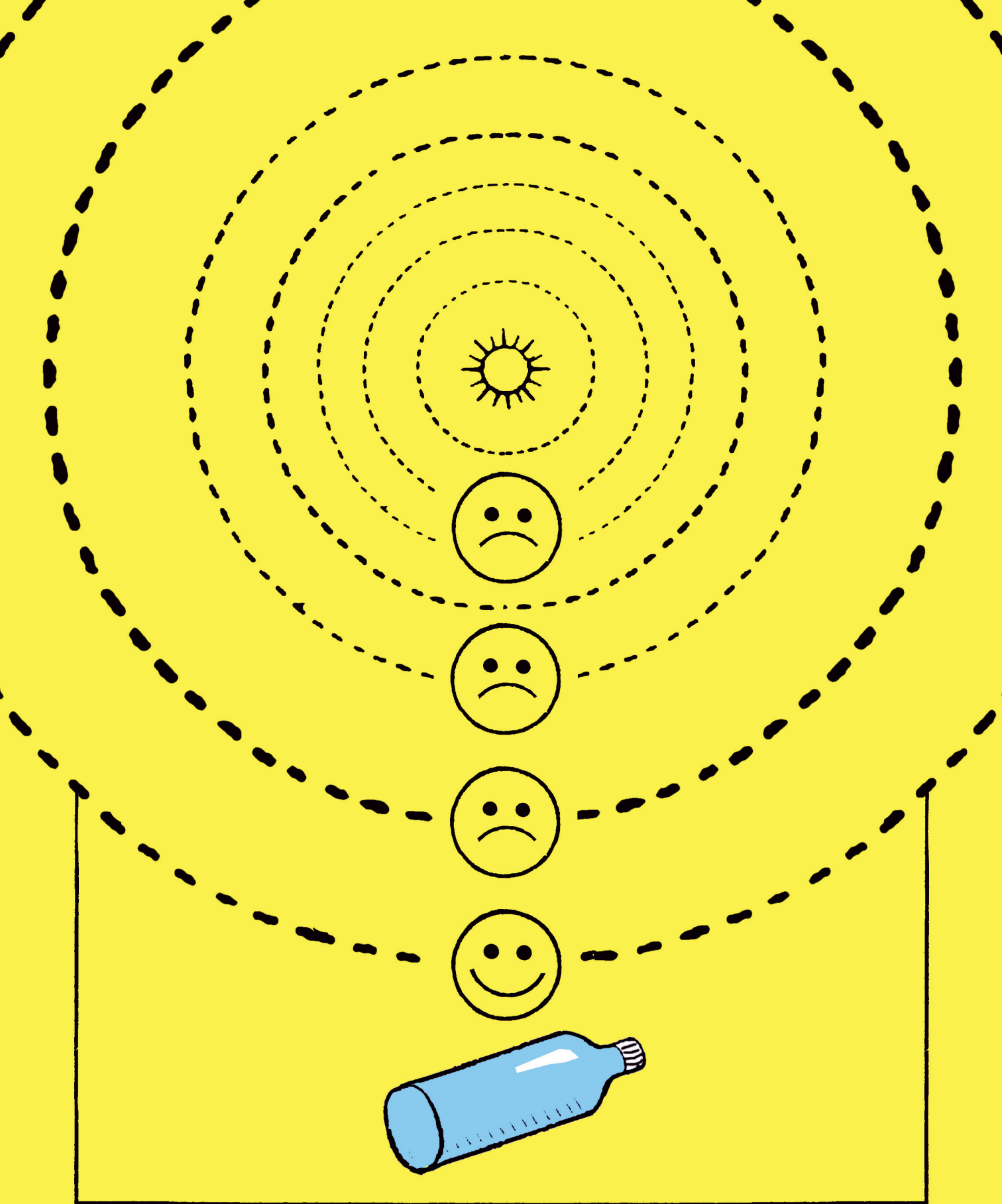
Complex problem situations cannot be solved permanently by a single, controlling intervention. Since they are constantly evolving, on the one hand a further observation, on the other hand an adaptation of the measures introduced is necessary. To correctly assess (possible) changes in the situation and to be able to adapt the measures accordingly, a large amount of information is required.

In the context of a concluding consideration of the problem analysis, the following questions are of importance:

- How to ensure that the effects of control intervention and associated changes in the problem situation will be perceived, recorded and interpreted accordingly in the future?
- How can an automatic process of problem-solving be promoted in the future - using existing control loops?
- How can the further development of a problem solution be supported or the system's ability to learn be developed and promoted?

“The success of an idea depends on the idea to be realized. From the comprehensive preparation, a precise and swift implementation, the willingness to work with others in a team, to value sustainability, not to be discouraged by setbacks, but often by external circumstances that cannot be influenced.”

Hans Philipp



Drinking Water with the Power of the Sun –

Martin Wesian,

Helioz

Martin Wesian has made the painful experience of catching an illness through contaminated water – he had become infected with cholera on a journey in Venezuela. He is not alone with this experience.

According to the World Health Organisation (WHO) more than 660 million people globally have no access to safe drinking water. Every 90 seconds a child under the age of 5 dies from an illness that can be linked to contaminated drinking water (e.g. diarrhoeal diseases, cholera or typhus). More than 80% of all diseases in Africa, Asia and Latin America are deemed to be caused by contaminated water. To treat these diseases, the afflicted countries are using on average 2% of their GDP.

Precisely these people, Martin Wesian wants to help. He wanted to invent a product, which could prove in an easy way (and manner) when water would be safe to drink.

WITH WADI™ TO DRINKING WATER

As part of his studies he designed *Wadi*™ (abbreviation for 'Water Disinfection') and made it the subject of his diploma project. He is drawing back upon the Sodis-method – a long known technology – which uses only sunrays (UV-radiation) to disinfect contaminated water and turn it drinkable again. He founded his company *Helioz* in 2010.

Martin Wesian is solving a problem, which up until now had been unresolved for the Sodis-method: You could not tell precisely **when** the water would be drinkable again. He designed a device to place next to multiple full PET bottles, place them into the sun and press the reset button.

The solar-powered and maintenance-free *Wadi*™ device is produced in Upper Austria and measures solar radiation with a chip. If the display shows a laughing smiley, one may safely drink the water – without the use of filters, batteries or chemicals (the water should neither be too cloudy nor be contaminated with metals or chemicals and the bottles should have a maximum capacity of three litres). There is

no need to boil the water, which additionally could cut CO2 emissions. The guaranteed durability of a *Wadi*™ is two years and; they are working to extend the durability.

The World Health Organization has confirmed that *Wadi*™ meets the established microbiological guidelines and is classified as a safe water treatment.

SOCIAL ENTERPRISE HELIOZ

Martin Wesian is a fighter and had to endure some crisis with his company *Helioz*. He even had to close his company temporarily. There was a risk that *Wadi*™ could not be saved, even though it is so urgently needed. With the help of new partners he was able to get back at it again.

Wadi™ can save lives and costs approximately 10,00 EUR in bulk orders. In addition, it can also help micro-entrepreneurs who sell the treated water to fund themselves.

You only need the sun, PET bottles and the invention of Martin Wesian.

Further information:

www.helioz.org

Task 1: “Cause and effect”-diagram

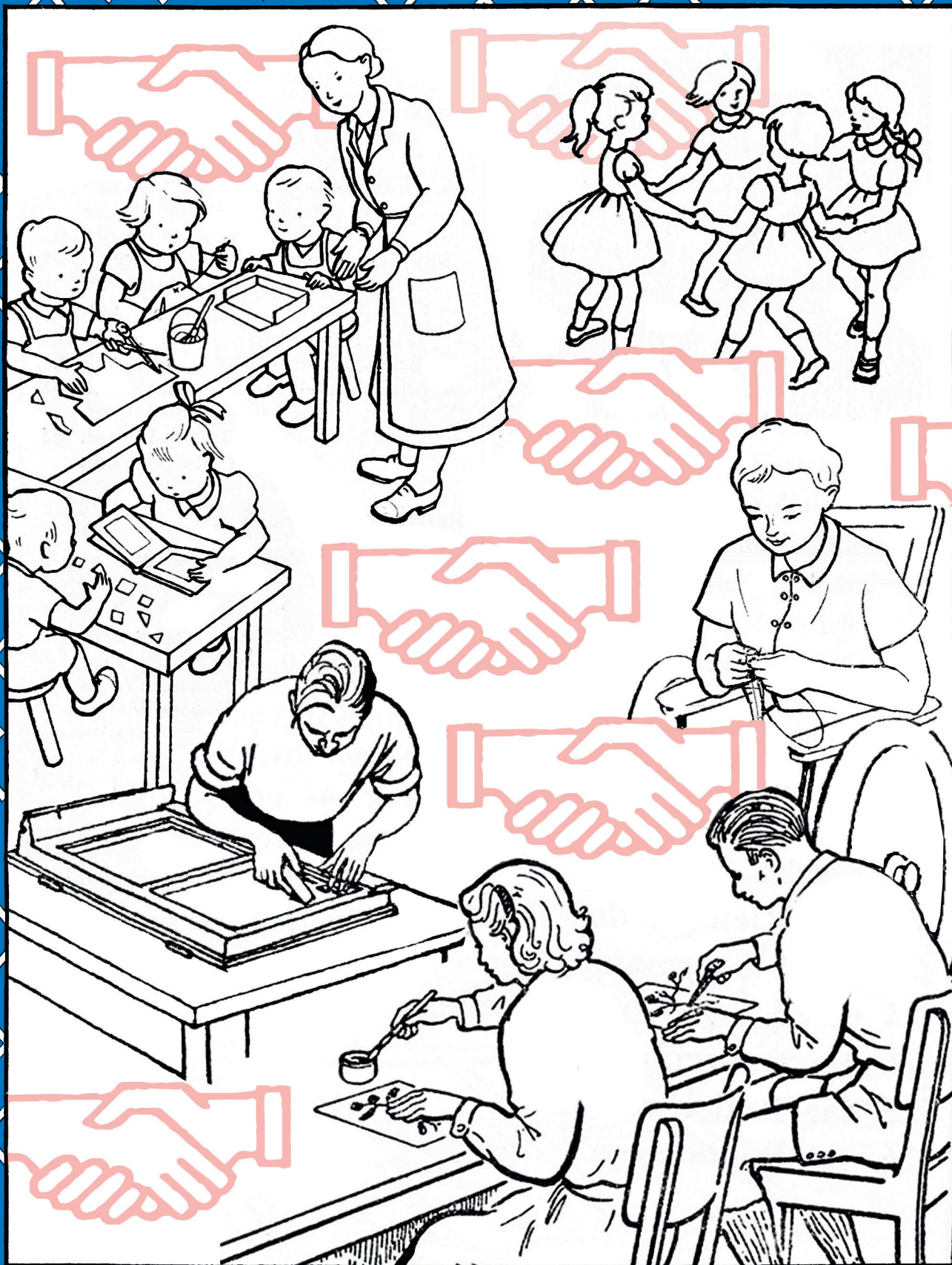
People who live in countries without access to safe drinking water have a significantly lower life expectancy compared to people living in Europe. Create a diagram to illustrate the reasons (alt. causes) that contribute to decrease life expectancy.

Task 2: Goals

Formulate goals for *Helioz*.

Task 3: Scenario

Develop an optimistic, a pessimistic and a realistic scenario for *Helioz*.



Live, Learn, Work – Chances for People with Disabilities Andreaswerk e. V.



BACKGROUND

The *Andreaswerk* is a state-approved institution that supports and assists more than 1,400 people with disabilities (handicaps) in and from the district of Vechta in Germany. It is their stated objective to support locally, close to their clients home.

In order to ensure the best help and living environment possible for people with disabilities and their families, the *Andreaswerk* maintains facilities throughout the entire county.

Areas of expertise and services for people with disabilities:

- Early pedagogic and therapeutic care for children with disabilities
- (Inclusive) nurseries
- Day care centres
- Speech therapy kindergarten
- “Heilpädagogische” kindergarten
- “Erich Kästner”-school at three sites
- multiple facilities for work and living

- “Manufaktur” (workshop) and the “Café am Campus”
- Department for Assistance with a family support service
- Department for citizens’ involvement (provides support to all those who wish to be volunteers)

Around 480 employees go to work at the various locations. For about 50 young women and men, the *Andreaswerk* is a recognized place of work within the framework of the Federal Voluntary Service (Bundesfreiwilligendienst) and the employer for a voluntary social year. In addition, the different departments offer opportunities to complete an internship.

The *Andreaswerk* is a state-registered association, working in disability care on the principle of the subordinate status of state care (subsidiarity principle) since 1969. It is part of the Caritasverband, the social aid organisation of the German Roman-Catholic Church.

The paper on their guiding philosophy expresses their vision and serves as a compass for the work in the *Andreaswerk*. In the mutually formulated paper both Executive Board and working staff formulate their aspirations for work in the *Andreaswerk*.

“TOGETHER” - GUIDING PHILOSOPHY OF THE ANDREASWERK

The six fundamental principles formulated and defined in the *Andreaswerks* guiding philosophy paper are:

1. We realise integration and participation!
2. We practice Humanity on the basis of Christian values!
3. We are reliable partners!
4. We will be in the lead with our values!
5. We are a service association!
6. We meet economic principles of business!

FRÜHFÖRDERUNG

“Frühförderung” - to offer pedagogic and therapeutic care for children with disabilities early on - gets things moving. Every child can participate. That is the goal of the *Andreaswerk*. With early care, impending disadvantages or conspicuous differences can be prevented, removed or relieved. The *Andreaswerk* offers counsel sessions and works out individual concepts for care which are provided in an environment specially suited to stimulate development.

KINDERGARTENS

Being inclusive is a guiding principle as well as a fundamental structure for the work of the *Andreaswerk*. All children are fostered, educated and nurtured together in speech therapy kindergarden, “Heilpädagogischen” kindergarthen as well as inclusive nurseries.

Pre-school aged children meet the optimal conditions for our care. Individual programmes, qualified personal, small groups, and a great environment that addresses children's needs helps in their development. Music, movement, riding, trampoline, swimming, exploring the forest, daytrips, speech therapy, physiotherapy and more activities shape the week. The earlier children receive promotion and support, the greater the likelihood of preparing an optimal school visit.

To ensure great education and care, day care centers need qualified and committed specialists. That is why the *Andreaswerk* is committed to an intensive and practically orientated training of their specialist staff.

SCHOOLS

80 The Erich Kästner School in Vechta, Visbek and Damme is a state-approved educational institution for school-aged children and young people with intellectual disabilities.

Their work is based on the core curriculum for the promotion of mental development. The Erich Kästner school is an all-day educational facility providing for the area of the district of Vechta. Enrollment is initiated at the request of the parents in cooperation with the government's school agency. The costs are funded by the State of Lower Saxony.

WORKSHOPS

For more than 40 years the *Andreaswerk* has been offering attractive employment in its workshop to people with disa-

bilities. Their offer is aimed at people who are, due to a disability, unable or just are not able yet to work in the general labour market. More than 700 people at the *Andreaswerk* receive work, education, qualification and counseling. Specialist staff allow for individual care and support.

The workshops offer people with physical and mental disabilities a suitable place for work and education. For example, people with a psychological disability find suitable employment in the workshop Brägeler Forst in Lohne. The *Andreaswerk* is an appreciated service provider for industry and trade in the region.

HOUSING

People with disabilities increasingly want to be in charge of their own lives. Therefore, their different needs, desires and rights for support have to be taken into account. For more than 30 years now, the Housing Department of the *Andreaswerk* has been providing accommodation and assistance facilities to people with disabilities in the district of Vechta. During this time, a multitude of different living arrangements have been created.

Whether they are part of Vechta's city centre or situated in one of Lohne's calm neighbourhoods, accommodations are always “right in the middle”. People with disabilities are provided with personal assistance and support, orientated on their wishes, skills and abilities.

The *Andreaswerk's* goal is that people with disabilities can live as self-determinedly as possible up to old age as well as participate equally in society. The *Andreaswerk* has differentiated options ready to provide for the enormous range of competences and characters. Some may need support for almost every task part of daily life -for them a residential home for disabled people which can provide regular care and extensive support may be the right choice. Others can handle their daily routines nearly completely autonomous. They therefore want an alternative care program, for instance outpatient support in their own living space.

ASSISTANCE - CARE AND COMPANIONSHIP DURING FREE TIME

The family support service (“Familienunterstützende Dienst/FuD”) is available to people with disabilities throughout the district. They take care of and accompany people with disabilities in their free time and provides the opportunity to partake in a group or a trip. They addi-

tionally provide domestic support as well as short term care. As much as possible, Participants individual wishes are supposed to get realized. Together they develop ideas and create opportunities to organise free time in company. They offer everything from regular meetings to visiting a concert, the cinema or simply going for a walk. Their services can be reimbursed by nursing care insurance funds.

ANDREAS-FOUNDATION (ANDREAS-STIFTUNG)

The work of *Andreaswerk* is supported by *Andreas-Foundation*, which is active in the following areas:

- *Andreas-Foundation* enables life quality for disabled people that exceeds the minimum standard of subsistence. The support starts, where governmental help ends.
- The support of *Andreas-Foundation* is sustainable. People with disabilities and projects of *Andreaswerk* can be supported with donations effectively and in the long run.
- *Andreas-Foundation* assists local. They help people with disabilities in county of Vechta and support projects for disabled of *Andreaswerk*.

- *Andreas-Foundation* prioritizes people which includes donators and founders.
- *Andreas-Foundation* informs about the use of donations and offers high transparency for donators and founders.

All activities of *Andreaswerk* and *Andreas-Foundation* are an important contribution to offer opportunities to people with disabilities, so they can attend a self dedicated life in society.

Further information: www.andreaswerk.de

Task 1: Interest Groups (participants)

Define the most important interest groups of *Andreaswerk* and describe their goals.

Task 2: Impacts

Create a structure of impacts and explain the correlation of the most important interest groups. Try to define the direction of relations.

“The world lives from people, who do more than their duties.”

Martin Buber

Mittwoch d. 4. XII.

Am Freitag von Fränklingen, Colm, Rott
— vorstern absteigend im Herbsttag.

Gehalts erhöhung für ein typistinnen.

Spektation der internationalen

Leisten: In der letzten Lage: der im

Kampf: "verraten" für "zu erhell"

gesehen. Die Be... der die Feme-

Mordprozess... durch die...

Romern... können...
Man... "gular...
für...
... et. 1. XII.



Am Freitag...: Famine

... in der ...

... von ...

... gesetz — ...

... von ...

... Klassen...

To Travel by Foot – Christian Hlade, “Weltweitwandern” (world wide hiking)



HIKING AS A LIVING

18 years old Christian Hlade, not yet an Architect from Graz, wrote his wish into his diary: “One Day, I will make my hobby, travelling, into a living! Weltweitwandern is my calling. It suits my inner voice and vision! I love my work and work a lot because being able to make the project real on a daily basis just fills me with intense energy and joy. I live my dream. A dream that I have had since my childhood.”

The idea of *Weltweitwandern* was born, a slightly different sort of tourism business. Walking is put at its center to experience landscapes, culture and people of the various travelled regions at your own slow pace. Both physical and mental enjoyment and recreation are at its center.

A vision turns into reality, when Christian Hlade and his brother reach the small village Lingshed in the mountains of the Ladakh region (India). He soon recognises that a school in the much deserted area is urgently needed. He devotes an entire year to build a solar-school. To finance his “offtime from work”, his hobby of organising trips turns into more and the company *Weltweitwandern* is founded. A social project was the starting point for work as a travel business.

A NETWORK OF OVER 500 PEOPLE

Founded in the year 2000, the company currently employs 11 staff members in Graz. All around the world however, close to 500 people care for their guests as guides cooks and partners in 69 countries and offer more than 200 different trips. Popular destinations include Morocco, Portugal, Spain, Cuba, Argentina, Peru, Nepal, Ladakh (India), Great Britain, Ireland and Mongolia. Annually, more than 3000 guests take one of *Weltweitwandern's* offers to travel in a small group of usually eight to twelve people and altogether put approximately 225.000 km behind them - this translates into roughly 5,5 circumnavigations (of the earth).

TRAVEL WITH A PURPOSE

An important building block of *Weltweitwandern's* success is offering trips with values and guaranteeing sustainable local development. Which is exactly what their target demographic is looking for - they want travel with a purpose. Which is also made visible by the evergrowing number of people who want to spend their holidays doing something meaningful. They want to actively approach foreign cultures and sometimes even get to work themselves on different social initiatives.

Around 40% of their guests are between 20 and 49 years with a quarter aged older than 60. Approx. two-thirds of their guests come from Austria, while 25% are from Germany and the rest from other countries. Around 60% of their guests are female.

SUSTAINABLE GROWTH

The company is growing and now generates a turnover of almost eight million euros. Christian Hlade says: “In general, I have no problem with growth, as long as it takes place on a sustainable basis.” Such a sustainable basis constitutes deliberate economic management to make the business run longterm, to keep jobs safe and to create new jobs. It

also means being able to provide people with an offer.

Integrative tourism raises criteria on multiple areas of life concerning sustainable development: beyond economical and ecological dimensions found in every aspect there is also sociocultural work, the specific religious dimensions as well as cultural autonomy which all carry a fundamental role.

REGIONALLY BASED

Sustainable tourism can - under certain conditions - energise sustainable, regional and socio-economic development. Culture and landscapes need to be retained and preserved. Being appreciative and respectful to each other, which includes fair wages, is a precondition to this goal. Sustainable tourism should enable positive change within the respective countries instead of just improving someone's personal economic gain. This is further made visible through support of ecological and social projects in travelled regions. *Weltweitwandern* employs only competent local guides who have been additionally trained by Christian Hlade. Guests are not staying in international hotel-chains but in more local, lovely guest-houses. Through all this, the generated economic value is largely kept inside the region.

Christian Hlade has received multiple awards for his business a couple of which will be noted here:

- *Weltweitwandern* is the first Austrian travel business to receive the CSR-certificate (Corporate Social Responsibility) for fair travel with all areas of economic gain being checked on criterias of sustainability.
- The company won the Austrian State Prize for tourism ("Österreichischer Staatspreis für Tourismus")

- GEO-Saison's "Goldene Palme" are awarded in different categories for the most innovative, beautiful and original travel options. *Weltweitwandern* has already won in multiple categories.
- Concluding, the Austrian-Styrian company won in three different categories a Trigos-award for social commitment in the travel business. Following the principle of "Empowerment – tourism in two directions", Christian Hlade gave a new face to his company. There are extensive education programs for native travel guides. Travel guides from Morocco, India, Bhutan, and Nepal had been invited and learned in guide-trainings (on mountain-rescue-technique, first aid and leadership) not just speaking German but also got to know the Carinthian Lesachtal, Graz and Vienna.

The unusual empowerment-project is transcending not only national borders but also mental barriers and fosters intercultural communication. *Weltweitwandern* supports and contributes to the public via multiple local projects on education, the environment, intercultural perspective, women's issues and emergency relief.

More information (in German): www.weltweitwandern.at

Task 1: Goals

Describe the entrepreneurial goals Christian Hlade pursues.

Task 2: Effects

Analyse the effects *Weltweitwandern* has. By referring to the three pillars of sustainable development, illustrate these effects in a mind-map.

“I would like to never ‘work a job’ and to never ‘go into retirement’. Instead, I would like to do the things that bring me joy and to make a living doing them. Free time, work, family, friends and hobbies should all come together as one and be in harmony. My company Weltweitwandern made this motto of mine come (mostly) true. I am incredibly happy about that!”

Christian Hlade



You will be laughing, it is serious –

Roman Szeliga,

Happy&Ness



Roman Szeliga founded his agency *Happy&Ness* in 2004. As an agency for events and communications, they specialise in three big areas: events & emotions, business & brands as well as speaker & stage. An area of work that is a hit with schools, colleges offering a degree are being overrun. Everyone wants to be an event-manager and there is an enormous amount of advisers and trainers on the market. Why should one point out this one particular agency?

Potentially, because its founder took additional thought on how and in which way he is doing business and because he made sustainability one of his leading principles. Additionally Roman Szeliga's personal development can be regarded as very extraordinary.

STARTING OUT WITH GREEN EVENTS

Austria took a leading role internationally with the “Green Events Austria” initiative started by one of its ministries in cooperation with the Austrian institute on ecology. The

event-business is growing just as fast as their related environmental and social costs. Green events are different as they consider sustainability issues during the whole organisational progress.

At first, the concept was applied only to large events such as the European Soccer Championship 2008 in Austria. Roman Szeliga however found a way to integrate Green Events into *Happy&Ness*' corporate philosophy. Social and environmental aspects are to be considered more and events should be planned with sustainability criteria in mind.

Invitations are sent via e-mail with a friendly reminder to please not print them. The arrival is done on the bus and used as a first step at communication. All badges are non-plastic and instead produced out of starch, a wheat by-product. Also, the management of energy, waste and water is reimagined: Disposable plates and cutlery are avoided while regional delicacies and flowers are offered. Absurdly, choosing the local option often gets pricier than a typical international buffet including its decorations would - which then requires further explanations towards your clients. Once they are persuaded they do however take pride and communicate their choice! A value that can not be underestimated.

Even if only some parts of the wider concept can get realised they still are steps into the right direction. Especially small and medium-sized enterprises frequently lack funds to entirely apply Green Events' concept. Nevertheless, their demand is increasingly growing and not just because they want to give their brand a positive, sustainable image. Their primary care is to raise awareness for these issues among employees. Still, all Green Events are always custom-made and entirely individualised and can not be done with a checklist. The “green philosophy” very often grows on people and they really enjoy it.

CLINICLOWN MASTER-MIND AND MUCH MORE

Maybe this is what is so special about his company and how he deals with people. He got to know the event business very early as he had to earn his livelihood as a stage-magician during his studies. He had a defining moment on a medicinal congress in the USA where he got to learn about “Humor and Laughter as a positive influence on Health and therapy”. Infected with the thought, he returned to Vienna and founded together with Dr. Suzanne Rödler the “CliniClowns”. His personal project quickly caught on and expanded onto multiple hospitals in Vienna, Lower Austria, Upper Austria and Vorarlberg - today seriously ill children but also adults are regularly visited by CliniClowns. They are integrated into the treating staff at the wards and also in the treatment plan, which takes the therapeutic concept into account. Particularly little patients receive appropriate emotional support from the clowns just when they need it most.

Roman Szeliga: “I wanted to help people and share some of my strength and humour with them.” A rather unusual vocational combination: doctor, clown-mastermind, management trainer, stand-up-comedian, stage-magician, head of an agency...

Roman Szeligas dissatisfaction with a health system that lacks humanity and puts on intense pressure was ever growing. “It did not feel right.” Surprisingly, he found a perfect fit on health as a Health Care Manager in an executive position at the American enterprise Johnson & Johnson. Given great freedoms, he developed a system focussing on sustainable healthcare with high-quality medicinal products for all those who need it. Using his talent for communication, he succeeded in presenting complex issues in a vivid and effective way.

He quickly inspires policy makers with his message, starting in Austria followed by Central and Eastern Europe and ultimately reaching far beyond Europe. Due to his leadership qualities and additionally trained soft skills, he

successfully organizes meetings, trainings and other educational programs.

Despite showing consistency and rigour in his work he always took care to stay sensitive and kind. He is aware of his effects as a role model and keeps a supportive and caring attitude towards staff and partners in mind.

His success increasingly made a move out of Vienna necessary, which he privately however did not want. The idea of his own business took shape and so *Happy&Ness* sprung into existence.

He now puts his energy full-time into his agency and into sharing his personal philosophy which “makes happy”. Founded in 2004 with two part-time employees, he now employs six staff members with a couple of freelance workers on call for peak times.

His primary goal is offering lifelong quality to his customers and to manage his business efficiently to ensure his employees a sustainable and high-quality job.

Unfortunately, business meant he could not work regularly as a CliniClown for a couple of years now. Roman Szeliga is still as a humour-ambassador and as a creative, dedicated co-thinker active for the CliniClowns. He supports them financially as well as through creative fundraisers at which he also occasionally raffled himself to raise money for a good cause.

*Further information: www.happyundness.at
and www.greeneventsaustralia.at*

Task 1: Interest groups

Describe the goals that executives set for *Happy&Ness*.

Differentiate between the main goal and its subsequent effects and subgoals.

Task 2: Effects

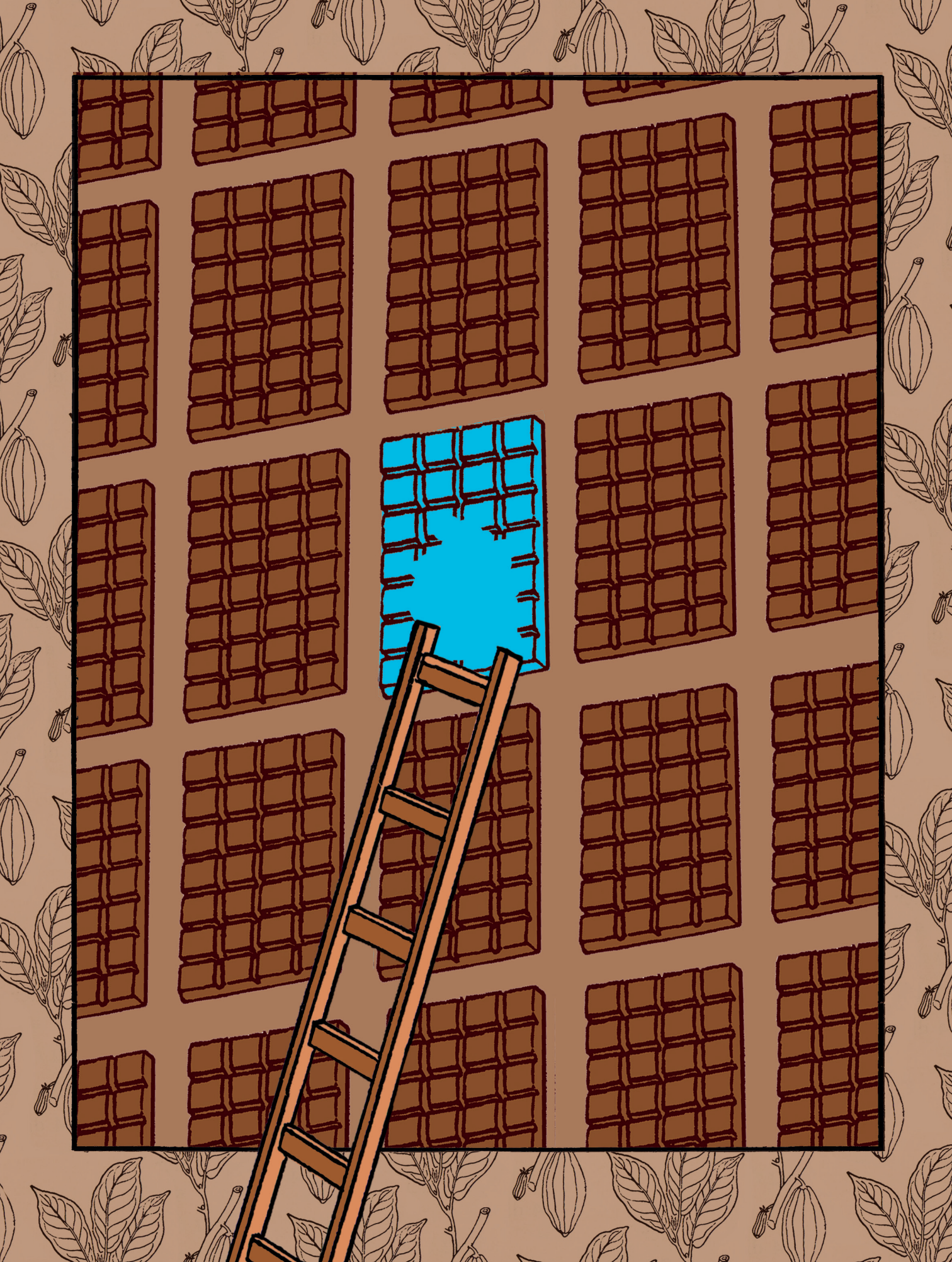
Analyse, which aspects lead to the foundation of *Happy&Ness* and which principles guide the agency now? Summarise your findings and present them in a mindmap.

“You need ideas, dedication, and hard work to be successful but most of all you need to the courage to fail.”

“Be yourself, stay authentic! Someone else is already like someone else.”

“The best motivation is wanting something personally. Only you can motivate yourself. Phrased differently: It’s important to give yourself the first push on a swing set.”

Roman Szeliga



More than Chocolate – Teun van de Keuken Tony Chocolonely



DOES SLAVERY STILL EXIST?

In 2003, the Dutch journalist Teun van de Keuken discovered the ugly truth: slavery does still exist in the world. (To explain: Modern slavery includes every form of forced labour and/or unpaid work including every form of illegal child labour.)

Slavery has existed up until today in the global cocoa-trade - even though in 2001 some of the largest international chocolate-manufacturers and cocoa-distributors signed the “Harkin-Engel-Protocol”. The protocols aim is to stop child labour and child trade within cocoa-farming and to hold companies responsible. The “Harkin-Engel-Protocol” is a voluntary accord/treaty/ agreement and non-compliance has no consequences.

Roughly 60% of cocoa world-wide originate in Ghana and the Ivory Coast. Because global demand for chocolate keeps rising there is a high number of people whose occupation is cocoa-farming.

An example: If someone buys a bar of chocolate for 2,50 EUR in a supermarket, the farmer earns approximately 12 cents and ends up with an annual income of around 1.000 EUR. Since a typical Ghanaian family consists of six

people, this results in less than one euro per day and person to survive. This falls below the African poverty line of 1,90 US-Dollar a day.

CHILD LABOUR FOR CHEAP CHOCOLATE

The attitudes of Western consumers contributes significantly to this problem. They demand cheap bars of chocolate at high quality. They lack knowledge about the economic relations their chocolate has and how it results in low prices for cocoa-farmers in Africa. The result is a low-income for the farmers, which makes it impossible to invest in machinery and equipment or to improve their living conditions. What is probably hidden from the average consumer is that these extremely low prices open the door to the worst possible case imaginable: (child) slavery.

Shocked, Teun van de Keuken continues his research. He discovers that of the approximately 2.5 million people working on cocoa plantations in Ghana or the Ivory Coast, there are 1.8 million children (15,000-30,000 of these children are modern slaves).

What is child slavery? Children are taken away from their families, they are denied education and forced to work in dangerous circumstances. However, not all child labourers in the cocoa trade are automatically illegal. It is normal for children to work alongside their parents on plantations after school. Child labour is illegal when children are put in dangerous situations or are deterred from visiting schools.

Multiple attempts to stop child slavery have failed. “It is time to take matters into our own hands. Slavery is wrong and child slavery is a tragedy,” so Teun van de Keuken.

CHOCOLATE-CRIMINAL

What to do next? Teun van de Keuken wants to make a point and does so by finishing 17 bars of chocolate on the Dutch TV-show “Keuringsdienst van Waarde”. He then calls himself a “Chocolate-Criminal”. He claims to have consciously bought an illegally manufactured product and therefore committed a criminal act. Similarly to stealing a

bike - he would be guilty.

"I understood that I need to take responsibility as a consumer. After speaking to one of the best judges on criminal law I made the decision to take myself to court for buying and eating chocolate," says Teun van de Keuken.

GOING TO COURT

Getting a case going against yourself is a tricky thing and at first he was dismissed. This then led to a public outcry and thousands signed a petition to take Teun van de Keuken to court. He wondered how he could indict himself and went to West Africa to see the victims of his chocolate consumption. They would be able to prove his guilt. At the Ivory Coast, he located four former child slaves who had worked on cocoa-plantations and were willing to testify against him.

THE FIRST BAR OF CHOCOLATE

Teun was fed up with waiting on the courts to act and became more and more impatient. He wanted to do something right away and to create a bar of chocolate that is free of slave labor in order to break this vicious cycle. Only then could he eat chocolate without turning into a criminal. Teun van de Keuken contacted several multinational chocolate-manufacturers and asked them to make a slave-free chocolate for him - all ignored him.

Without backup from any chocolate company, he decides to lead by example and create his own chocolate bar. Teun presents his first slavery free chocolate on 29th November 2005 - and is therefore one of the global pioneers in this area. The first shipment included 5.000 fair trade bars of chocolate - far below public demand and he quickly ordered another 13.000 bars.

Thousands of chocolate bars in supermarkets practically sell themselves. Teun registers his company under the name "Tony's Factory" with the Dutch chamber of commerce in 2006.

TONY CHOCOLONELY

Being its founder, Teun names his bars after himself but in the more easily understood English equivalent "Tony". Since he felt left alone within the chocolate industry in his endeavour to extinguish slavery in their branch, he called his chocolate "Chocolonely". The chocolate industry is a lonely place for 100% slave-free fighters!

FIRST HICCUP

The success of *Tony's Chocolonely* was noticed by large chocolate companies in 2007. *Tony's* celebrated their first court case! Bellissimo, a Swiss chocolate-producer, claimed it would be impossible to produce entirely slave-free chocolate and sued *Tony's Chocolonely*. They additionally argued *Tony's* were damaging other chocolate manufacturers and guilty of defamation of character.

The court declared it assumable that informed consumers would be aware of hyperbole in advertisements. The Max-Havelaar-Foundation reviewed *Tony's* Ghanaian cocoa-distributor and unrolled their entire process from harvest through transportation up to the arrival in the Netherlands. Based on this information, the court decided that *Tony's* claim to be 100 % slave-free could be proven, was sufficiently plausible and therefore correct.

That decision made it clear that there was still a small amount of doubt left with regards to slave-free cocoa and *Tony's* were unable to ignore this.

They therefore placed their "slave-free"-logo on all their bars of chocolate. Passed this point *Tony's* were on their way to 100 % slave-free chocolate. Not just *Tony's* bars but all chocolate around the planet should be made free from slavery. "If we ever reach our goal, we promise to change our logo again," says Teun van de Keuken.

In the same year, the Dutch courts refused to prosecute Teun as a "cocoa-criminal". They however still recognised the "severe abuse of young people and their victimhood" within the chocolate-industry. The court stated it would be the responsibility of both manufacturers and consumers to rid the earth of this despicable problem.

TONY'S THREE PHASE MISSION

The mission of *Tony's Factory* is clear: A chocolate that is 100 % slave-free. Since *Tony's* is still a minor player inside a global chocolate-business, this goal can not be reached alone. If we want big companies to change to 100 % slave-free chocolate, we need to prove to consumers that there is a better way. Here is how *Tony's* way towards 100 % slave-free looks like.

► Phase 1: Create Awareness

There is something really, incredibly wrong going on with the global chocolate industry and you as a consumer need to know about it. From their very start on, *Tony's Chocolonely* played an active part in unveiling abuses within the

international cocoa-trade whether through mainstream-press, open debate or the inclusion of chocolate-fans into the discussion. Every unequal bite is a constant reminder of inequality inside the cocoa-trade. Enjoy the chocolate but understand the reality of things.

► Phase 2: Lead by Example



To inspire change, Tony's led by example. They chose fairtrade from the very beginning - Tony's was actually the first certified fairtrade-brand in Dutch supermarkets. Since 2012, cocoa is directly bought from Ghanaian farmers and by implementing the "Bean to Bar"-approach the farmers enter long-term relationship. They received fair pay and had financial stability which meant they were able to invest into their own future. Tony's is one of only a few chocolate-companies that can tell precisely where their cocoa is from. The exchange between farmers allows them help each other learn and enables them to move on the right track. On one thing, Tony's is however very tough: Slavery, especially

child slavery, is absolutely unacceptable.

► Phase 3: Inspire Change

Tony's is growing and wins influence but they can not on their own change the entire industry and shift all production towards exclusively 100 % slave-free chocolate. Tony's Chocolonely has however proven that there is a functioning and profitable alternative to the current system.

THE CHOCOLATE OF THE FUTURE

A chocolate that is 100 % slave-free is possible! *Tony's Chocolonely* proves that a fair, honest and profitable chocolate-business can be established in West Africa. Now, more companies are needed, following the wake-up call from *Tony's Chocolonely* and carrying it further into the world.

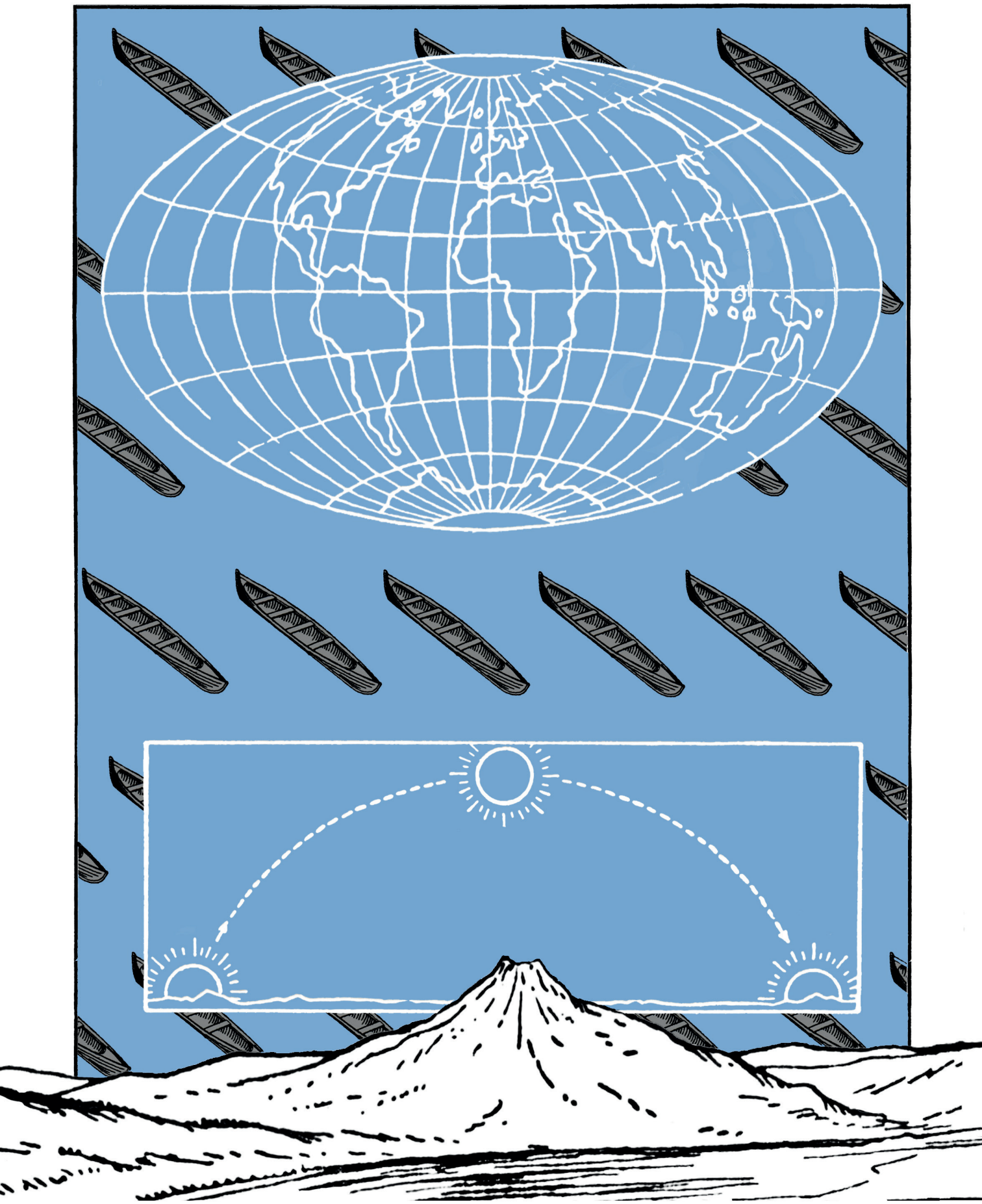
If things on earth do not run like you want them to, you need take initiative. It takes small steps and a lot of persistence. Tony's prove and show the world is possible - this hopefully inspires us all.

Task 1: Cause-and-Effect Diagram

Even though many initiatives have tried, child labour is not entirely over - it even recently increased in a couple of regions. Create a cause-and-effect diagram to illustrate the underlying factors for child labour.

Task 2: Effects of Child Labour

Put yourself in the situation of a child that has to work. Analyse the effects work has on this child.



In Charge of Your Own Development –

Rony Monsalve Pérez,

Ecotours Boquilla



ON THE EFFECTS OF A SUSTAINABLE TOURISM-CONCEPT ON THE LIVE OF A SMALL COMMUNITY

Rony Monsalve Pérez swells with great pride when talking about the sustainable tourism happening in La Boquilla, a sleepy fishing village approximately 7 kilometers northeast of the Colombian city Cartagena de Indias. The business owner and founder of *Ecotours Boquilla* is a proud Boquillian.

Rony is dynamic and a cosmopolit - rather unusual for someone growing up in a place where digital media and mobile telephony were considered foreign words. Only 15 years old, he started working for the Fundación Uvita de Playa a local organisation addressing hunger and supporting children and teenagers. In 1999, the Fundación spearheaded a campaign to aid starting micro-companies. “Back then, we were trying with our project to enable ourselves to use the natural resources of our region

- the biodiversity of the region and the cultural identity of people - for a sustainable economy,” so Rony. Tourism in La Boquilla? Many residents declared him and his idea for crazy. “We believed in ourselves and in the potential of our idea - from the start on,” tells Rony.

About twenty Boquillians, mostly fishers and beach workers, founded with the aid of the Fundación the company *Ecotours Boquilla*, which now guides many tourists through the village. US-Americans, Germans, Italians - through cooperations with tourism-businesses the native population got to see many, to them, exotic faces walking around their streets. Tourists are offered among other things spectacular canoe tours with varying durations and different themes (e.g. fish, bird-watching, mangrove forest exploration).

Even folkloric presentations, such as the afro-caribbean dance Champeta typical for the region, are included in guests programs. The cooperative venture *Ecotours Boquilla* is aiming to position its “product” in a way which may allow it to develop into a source of constant revenue to **all** residents. Depending on the season, the companies provides jobs for up to 50 local people and provides their families with an income.

“Thanks to our model of gentle, ecological tourism we also make headlines. Newspapers used to have nothing to read about our village nowadays it is different,” says Rony.

He has by now become a regular at tourism-fairs in the distant capital Bogotá. For economical and ecological reasons he takes all his trips there by bus: they take him 18 hours per trip - oneway.

Task 1: Goals

Describe Rony Monsalve Pérez entrepreneurial goals.

Task 2: Effects

Analyse the effects companies like Ecotour may have. By referring to the three pillars of sustainable development, illustrate these effects in a mind-map.

Colombia

Inhabitants:	47.9 Millions
Languages:	Spanish, 65 indigenous languages and English (San Andrés and Providencia)
GDP per capita:	4.680,00 USD
Currency:	Peso Colombiano (COP)
Neighbouring states:	Panama, Venezuela, Brasil, Peru, Ecuador
Human Development Index:	Place 97 (97th (Austria is 23rd, Germany is 6th out of 188)
Biodiversity per unit of area:	2nd place worldwide, 10 % of all existing animal and plant species can be found within the Colombian national territory.



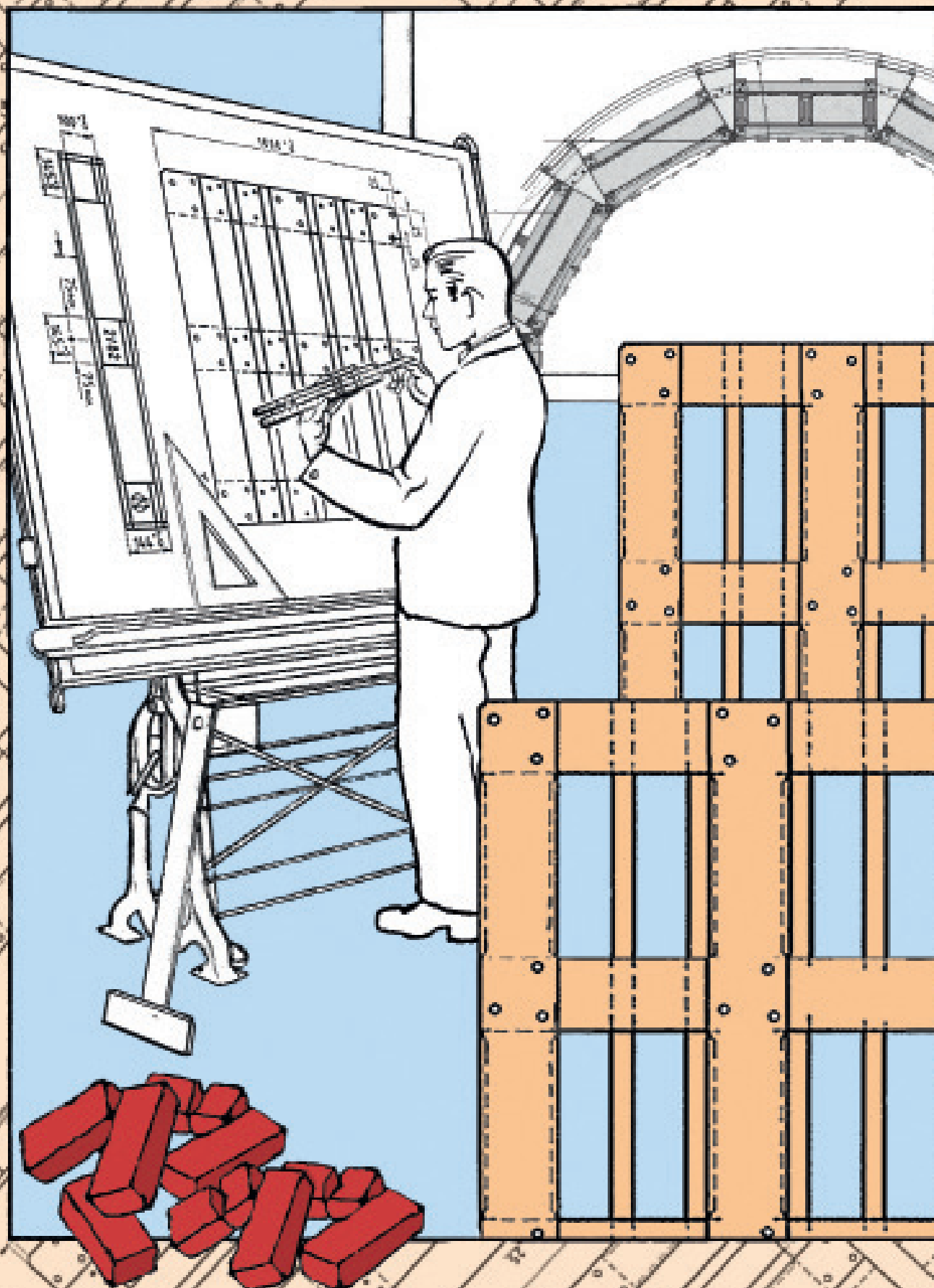
“Back then, we were trying with our project to enable ourselves to use the natural resources of our region - the biodiversity of the region and the cultural identity of people - for a sustainable economy”

Rony Monsalve Pérez

“Thanks to our model of gentle, ecological tourism we also make headlines. Newspapers used to have nothing to read about our village nowadays it is different.”

Rony Monsalve Pérez

*“It’s a remarkable world out there...
...will you be a giver or a taker?”*



Simple, Extraordinary, Smart –

Gregor Pils und Andreas Claus Schnetzer

Future Houses



BUILDING FOR THE FUTURE

Gregor Pils and Andreas Claus Schnetzer met each other during their architecture studies at the Technical University (TU) in Vienna and are a well attuned team. After finishing their studies, they stayed with their university as lecturers and project managers and now work as independent architects on multiple projects - their contact to the university was never interrupted. Courage, perseverance, willpower and creativity are their marking features. Through their blueprints which they also realise, they want to show that it is possible to create cool things out of simple materials. "We pay special attention that our projects use regional, ecological and sustainable products. Our buildings are supposed to be built for everyone - no matter whether they are rich or poor," says Gregor Pils. Their realised projects also work as a means of communication. They appeal to use sustainable material and are supposed to encourage thought.

A HOUSE OUT OF PALLETS

During their studies at the TU Vienna, they were encouraged by Ass. Prof. Karin Stieldorf to both learn about energy-conscious and ecological building and participate in international competitions. Gregor Pils and Andreas Claus Schnetzer got to work and decided to build a house only out of pallets. Pallets are often burned when they are no longer needed for transportation and are available globally. In a house made out of pallets they may be recycled as valuable construction material and be given a new function.

They designed a draft for a home made from pallets and managed to win the European Student Competition for Sustainable Architecture (GAU:DI).

Their draft was then further developed into a prototype built out of 800 pallets and then exhibited in Grenoble, Venice, Linz and Brussels. During its construction, Gregor Pils and Andreas Claus Schnetzer worked themselves on the prototype and incidentally turned into incredible forklift drivers.



The pallet-house consists of two modules which can be quickly assembled into a house - it can obviously also be de- and reconstructed somewhere else. It is ecological, energy-efficient, minimalistic in form, dimension and material consumption. Simple yet also high quality materials are used for the pallet-house. It is a self-sufficient

house reaching the rigorous energy-efficiency standards for passive houses.

The multi-layered structure of pallets can be used for different installations, insulation and also lighting. Heating as well as cooling can be individually adjusted to wherever the house may be built. Water consumption was also considered: rainwater is harvested and domestically used.

The pallet-house is designed for people who want to focus on ecology and sustainability. However, this version of a pallet-house was not yet enough for Andreas Claus Schnetzer und Gregor Pils and they developed further scenarios for their project-house.

SLUMTUBE - THE PALLET-HOUSE FOR SOUTH AFRICA

As part of a social project in 2010, Gregor Pils and Andreas Claus Schnetzer were commissioned to develop a new version of their pallet-house for the Ithuba Skills College in a Township southwest of Johannesburg. A focus was put on reducing building cost, general affordability and the sharing of know-how - since enabling local residents to build Slumtubes on their own was a goal of the project.

The result was a house which no longer had the shape of a cube and instead a round one because it requires much less wooden beams and structural loads are transferred directly through the pallet. "Basically, the house is structured like a vault - but instead of bricks you use pallets," explains Gregor Pils.



This version of a pallet-house is perfectly suited to the economic and climatic conditions of South Africa also thanks to the support of the Austrian Government/ Bundesministerium für Verkehr, Innovation und

Technologie (bmvit). It had been a particularly difficult challenge to take the extreme difference in temperature (between -2°C and +45°C) into account.

Gregor Pils, Andreas Claus Schnetzer, two Austrian and five African workers used and built with 400 pallets, sponsored by a South African company, over a period of three months. Straw was used as an insulating material since it is both a local resource and easily available. Additionally, clay was used as a construction material and the house was roofed with sheet metal. All resources used in construction are available locally, there is no need to transport them and they are cheap.

Temperature differences were dealt with through appropriate isolation and also a ventilation system. These installations increase comfort and save energy at the same time - you also will not have to burn valuable pallets for warmth. The necessary know-how to build further Slumtubes is available to the residents of the township - true to the motto: helping people help themselves.

REFUGEE TUBE - PALLET-HOUSES FOR RELIEF OPERATIONS

As a third possible application of pallet-houses, Gregor Pils and Andreas Claus Schnetzer have developed a house which may be used as an emergency shelter for catastrophic situations and called it Refugee Tube.

Construction material and time needed to build were both cut down to a minimum. The self-supporting structure only needs pallets and timber and can be constructed in 40 minutes without the aid of electrical machines.

As a substitute for an actual roof, plastics or a truck tarpaulin could be used in contexts of transitory protection. After the initial setup it is possible to flexibly develop it further into a real house. Because it is a sturdy construction, insulation and other installations can be added later. "Having this option was especially important to us. After all, refugees unfortunately are often housed in refugee camps for multiple years," says Andreas Claus Schnetzer.

Gregor Pils's and Andreas Claus Schnetzer's preoccupation with pallets as construction material still has not finished - they keep researching their project, concerning themselves intensively with question regarding the field of energy-efficiency and a more provident usage of available resources.



HOUSE OF THE FUTURE

Under the impression of rising energy-costs and great environmental pollution through fossil fuels, energy-efficient building is getting more and more necessary - and fortunately also more popular. Since 1999, research and technological development have been advanced by the fmitit/bmtit as part of their research program “House of the Future”. Multiple low-energy and passive houses have been constructed in Austria since then. Some of those houses even produce more energy than they need (energy-plus-houses).

Energy-efficient ways of building are usually more expensive during their construction but turn mid- to long-term to be more economical due to their low energy-costs and their autonomy oil prices on the global market. Houses of the future are designed and constructed today - they provide a high standard for living and usage at a low level of energy consumption.

CHAMPIONS LEAGUE FOR SOLAR CONSTRUCTION

The globally most esteemed competition for solar construction is the Solar Decathlon by the United States Department of Energy. Participants need to design a house whose energy demand is entirely self-sustained through solar power. Only 20 projects out of many submissions get chosen to present their prototype and be judged in ten categories. These categories are architecture, market appeal, engineering, communications, affordability, comfort zone, hot water, appliances, home entertainment and energy balance. The winning team needs to combine these factors in the most convincing way and score the most points in total. While some categories the score is awarded on the grounds of measurements other categories are judged on

by a jury.

TEAM AUSTRIA

70 people, and another 102 companies involved in the project, belonged to “Team Austria” which managed to qualify and win the Solar Decathlon. Ass. Prof. Karin Stieldorf had project leadership while Gregor Pils and Andreas Claus Schnetzer worked as project managers. Team members worked for three semesters on a multitude of concepts from which the best were then included into their blueprint. Their aim was to develop a solution to the growing global demand for compact, affordable and energy-efficient housing in urban peripheries. All included, people from the Technical University Vienna, Universities of Applied Science in St. Pölten and Salzburg (Campus Kuchl) as well as the Austrian Institute of Technology (AIT) worked on the project. They were supported by the Bundesministerium für Verkehr, Innovation und Technologie (bmvit). Three years passed between the initial idea and participation at Solar Decathlon. The result of the cooperation of people and institutes from many different fields was the LISI-house.

LISI - THE WINNING HOUSE

LISI is an abbreviation for “Living Inspired by Sustainably Innovation” and is a sustainable house all around the base up to the roof. It is structured into three zones: service core (bath, sleeping room and house technology), living area and adjacent inner courtyards, which may be closed of by a flexible outer hull. With its textile façade, the house is a perfect combination of modular lightweight construction (its parts can be transported in international shipping containers), ecological materials and renewable energy.

The LISI-house is designed to be adapted to different



demands of inhabitants and places (i.e. different climate zones). Additionally, the house may be de- and reconstructed multiple times - a flexibility which only very few houses can offer.

Due to its prudent energy concept, the LISI-house is producing more energy than it consumes, is therefore a energy-plus house, and is redistributing surplus energy into the public energy grid. The energy is provided by means of a photovoltaic system, while the cold and hot water supply is provided by air-to-water heat pumps. A ventilation module takes care of good air conditions. Depending on the respective needs, the house can either be heated or cooled.

Even the heat of the shower's waste water can be recovered through an innovative shower tray with integrated heat



exchanger - this also reduces energy consumption. Wood is CO₂-neutral, good to work with and easy to transport. Therefore it plays a crucial role in the LISI Haus as raw material and it is ensured that all components of the tree are used. It is therefore a crucial element of the LISI-house and to responsibly use natural resources all components of a tree find good use. Wood is a renewable resource and put to use in the construction, as covering for walls and ceiling, for the floors and of course in furniture. Overall, approximately 96 % of the house are wood.

THE FUTURE OF LISI

For the future, LISI is going to be manufactured by a specialist for wood construction in Carinthia (Weissenseer Holz-System-Bau GmbH) and a model home can be exhibited in a centre for prefabricated houses south of Vienna. Nothing stands in the way of LISI's continuing success. After all, demand for the house of the future is definitely going to be there.

A GLANCE OF THE FUTURE

According to Andreas Claus Schnetzer and Gregor Pils, finding a solution to high resource consumption has become the next biggest challenge for humanity since there now already are multiple alternatives to conventional energy production (even though there is of course still a lot to improve). Every year, humanity is annually depleting more resources than regrow as

The Earth Overshoot Day reminds us that humanity is annually consuming more resources than what is regrowing. At this point of each year (it currently is the beginning of August but it is continuously getting earlier) humanity has consumed as much resources as it should for an entire year. All the more reason to deal with the issue of sustainability in all areas and to look for solutions - which is exactly the focus of work for Gregor Pils and Andreas Claus Schnetzer.

We may look forward which project the duo together with their cooperation partners will realise in the next couple of years. One thing we can however be sure of: it is going to be a simple, extraordinary and smart solution which the two of them develop ... and they will come up with cool ideas for simple materials which are both ecologically sustainable and available everywhere. Responsibility for our planet and humanity will always be there focus.

Further information:

www.schnetzerpils.com

www.palettenhaus.com

www.solardecathlon.at

www.nachhaltigwirtschaften.at

vimeo.com/solardecathlonaut und www.youtube.com

(Suchbegriffe: Palettenhaus, LISI Haus, EESC, Refugee Tube)

Task 1: Cause-and-Effect Diagram

Many existing buildings use up too much energy. There are not just economically wasteful but also harmful to the environment. Choose the appropriate main influencing variables and create a cause-and-effect diagram for the following problem: The house consumes too much energy.

Task 2: Actors and people affected (Refugee Tube)

Define both the most important actors and people affected surrounding the pallet-house for emergency situations (Refugee Tube). Describe which goals they have set themselves.

Task 3: Actors and people affected (LISI-house)

Define both the most important actors and people affected surrounding the LISI-house. Describe which goals they have set themselves.

Task 4: Structure of relations

Analyse the important factors in building an energy-plus-house. Illustrate their relations graphically and define the directions of these relations. Determine what are the relevant factors for the LISI-house.

Task 5: Scenario

Design a scenario, what would the European house in the year 2050 look like.

“For the future, construction will not only have to deal with energy-efficiency but also with conserving resources.”

Andreas Claus Schnetzer

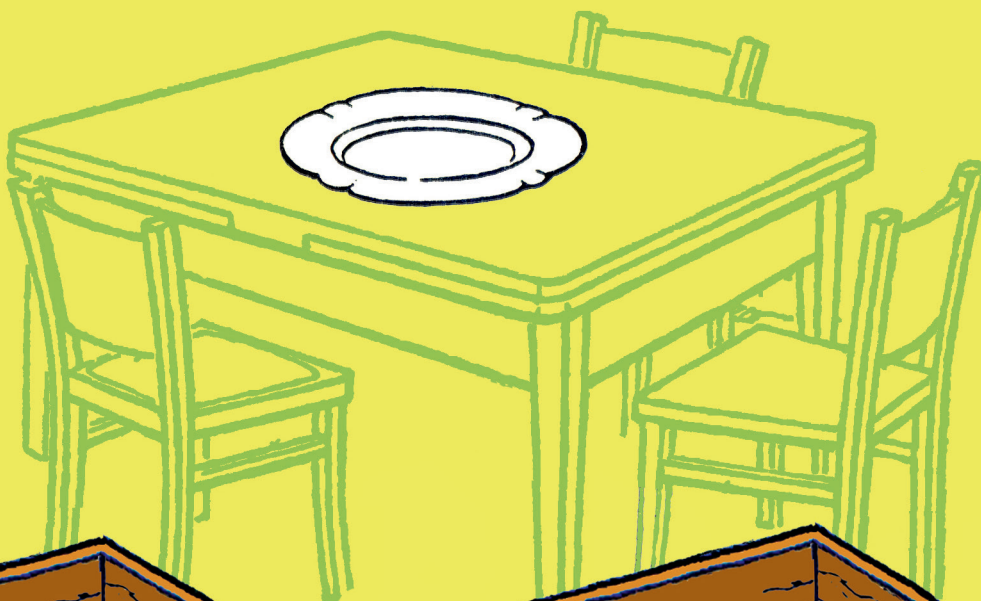
“The house of the the future has to react on the individual human needs and their environment.”

Gregor Pils

103

“I hope the principle of not just planning but also implementing ideas catches on.”

Karin Stieldorf, project leader TU Wien



An Organic Farmer with a Vision – Gerhard Zoubek, Organic Farm Adamah



ENTREPRENEUR BY DETOUR

Adamah, the organic “Biokistl”, is the company which Gerhard Zoubek founded together with his wife in 1997 and also what he is associated with. Growing up in Groß-Enzersdorf, he quickly came into contact with farming on his parents farm. During the 60s, his father changed his focus onto trading with agricultural machines also putting him in vicinity of business management.

Believing academics to be superior, Gerhard Zoubek visited an esteemed secondary school in Vienna but felt that the strict routine limited his creativity and his school career went not without trouble. He graduates and starts to study business management at a University of Economics. He simultaneously kept working in his parents business and got a lot of practical experience. It is experience he needed to put to use quickly as his father suddenly passed at a young age.

Gerhard Zoubek takes over the company and soon recognises his talent for leadership. Historical events however do not pass without effect and as the Eastern borders

open up, the protected market for agricultural machinery collapses and his company gets liquidated after four years. Unfortunately, the German proverb “Either you keep up with the times or times keep going without you” came true for him. The loss was substantial, his financial obligations laid at 70 million schilling (approx. 5 million Euro) but after the necessary quota was paid nothing is in the way of a new beginning. After this series of unfortunate events, he looked for professional help and eventually, once he came to terms with the major crisis, began training as a psychotherapist but stopped short of his qualification.

NEW BEGINNINGS

Nowadays he is married, has two children and lives in Glinzendorf inside of Marchfeld by Vienna. As fate would have it, his wife took over the agricultural business of his parents. Together they faced the challenge and started an organic farm in 1997.

They wanted to change their traditional agricultural business into a trail-blazing organic farm. Gerhard Zoubek and his wife Sigrid get in close contact with the very first organic farmers and learn their basics. What now follows is a decisive factor in the further development of their business: they meet Dr. Peter Lassnig an assistant for botanics at a university and back then also board president of “Arche Noah” (a society protecting rare plants and seeds). He gets employed as scientific consultant to put “science in economics” a motto inspired by the famously successful concepts for IT in the Silicon Valley. A logical step for the high-tech economy, it is also groundbreaking to this business.

They focus on retaining the rich multitude of varieties. For example, they grew 72 different varieties of pumpkins in their first year. Gerhard Zoubek went through his fields and felt an almost naive glee over the diversity of his crop. Naivety is an important entrepreneurial facet. According to creativity scientist Csikszentmihalyi, it is a crucial dimension of a creative attitude.

The conversion period took two years in which they sold fodder. Enough time to contemplate alternative marketing concepts.

They tried to offer products beyond the conventional

distribution methods, close to their customers yet also valuably processed. They also tried to generate jobs within agriculture, a rather unusual strategy for the time in the late 90s. It is also always important to broaden one's horizon. Inspired by journeys through Germany, Gerhard Zoubek comes up with the idea of subscription boxes. The company *Adamah*, hebraic for "soil of vital earth - healthy human", is founded in 2001. At the start, between two and five employees deliver 60 BioKistln per week. Their workload is rarely below 10 hours per day but, since everyone is enthusiastic about the new business, joy overweighs - and the business grows! In 2010, sales are already at 5 millions Euro and 80 staff members are employed. By now, revenue has doubled and the company employs 140 staff members of whom 105 work full-time. Around 5 500 Bio-Kistln are delivered weekly to Vienna and parts of Lower Austria and Burgenland.

IMPROVISING A PLAN / FROM IMPROVISATION TO PLAN

Gerhard Zoubek started without a business concept and instead acted on the principle of trial and error. He now is certain that there may be a couple of errors which are easily avoided through a well-considered business plan. Most important to him now: how can such rapid growth be dealt with?

He employs an external consultant and learns a painful lesson. A purely economical and business-oriented perspective had previously been alien to him as a visionary - yet he understood: you can not live on visions. Generating a profit gives autonomy and enables one's free decision on what to spend it. Nowadays, the organic farm is run very professionally and well structured.

Finally, he realises how liberated he can be by the combination of an economic frame of mind and his continuous growth as an entrepreneur and innovator. Today, he is very thankful to his tax accountant and values their work.

NEW IDEAS

He does see room for improvement for communications with customers. He views himself as an alternative to regular supermarkets where a wide range of products is inevitable. But at *Adamah* everything is controlled, 100% organic and high quality processed. Between their own vegetables, selfmade bread, dairy products, meat, sausage as well as cheese varieties and even tropical fairtrade product they

really got everything.

Seven academics (mostly graduates of the University of Natural Resources and Applied Life Sciences but also some from the Technical University Vienna) work in executive positions to guarantee quality and standards. They are also responsible for complying with the criteria and, among other things, they are committed to providing extensive information to their customers.

High gloss can not on its own make products high quality and most importantly: local is not necessarily environmentally friendly. Despite the transport, a soil-grown organic tomato from Sicily causes far less CO2 compared to tomatoes grown in glasshouses in Austria. Thus, "Adamah"-customers themselves turn into experts on multiple products.

Gerhard Zoubek already has a couple of new ideas. Recognising current trends, he wants to produce organic convenience food. His potential demographic would surely be immense. Single households are on the rise and healthy diets are hard to maintain during work hours.

SUSTAINABLE LIFE / SUSTAINABLE LIVING

In his point of view, sustainability is not limited to just products. His farm has four photovoltaic installations supplying solar power and if need be they buy 100% green power in addition. Both the office and the shop are heated using water heat pump technology.

The business is a longstanding partner of SOMA (Social markets selling everyday products at very low prices to people with a low income), the "Wiener Tafel" project (an association distributing donated good to people in need) and the Red Cross. In cooperation with the association "WUK Werkstätten und Kulturhaus" 20 long-term unemployed are prepared for vocational rehabilitation.

EXCHANGING WITH OTHERS

However, his particular concern is young people. Under the slogan "soil is the skin of the earth" he is trying to teach students about agriculture. Currently, he is hosting around 100 field trips on his farm. *Adamah* is an important participant of the European programme "Schlaues Kistl", which supports the delivery of organic fruit to schools and kindergarten with up to 75 %. There are concepts for his great concern changing school lunches to be run healthy and organically. However, implementation has been tried

and was not satisfactory.

His cooperation regarding research and development are still intact. For example, together with the University of Natural Resources and Applied Life Sciences he is constantly reworking his logistics to reduce his CO₂-output by improved planning of his deliveries. Economical agendas, such as marketing concepts and PR are further developed in cooperation with the Vienna University of Economics and Business. He is a board member of the research Institute of Organic Agriculture (FiBL).

He would like to establish his business into a centre of competence for sustainable management and food processing and offer informational events. If you know Gerhard Zoubek, you are certain he will also be successful in this endeavour. The consumption of resources is a very serious concern of him and he wants to contribute his knowledge - especially now when summer after summer is recorded as one of the hottest of climate history. Even in Marchfeld, Water has turned into a valuable commodity. Knowing its value has to result in special know-how on watering. Once again, scientific insights are the basis of further work.

WHAT IS SUCCESS?

Gerhard Zoubek is proud that people are interested in his story but what he really takes pride in are his four children who all show interest and work with his business. The family council takes the decisions - that is how his life's work will continue.

Further information: www.adamah.at

Task 1: Goals

Identify Gerhard Zoubek's goals for the organic farm "Adamah". Structure these goals according to the three pillars of sustainability.

Task 2: Environmental analysis

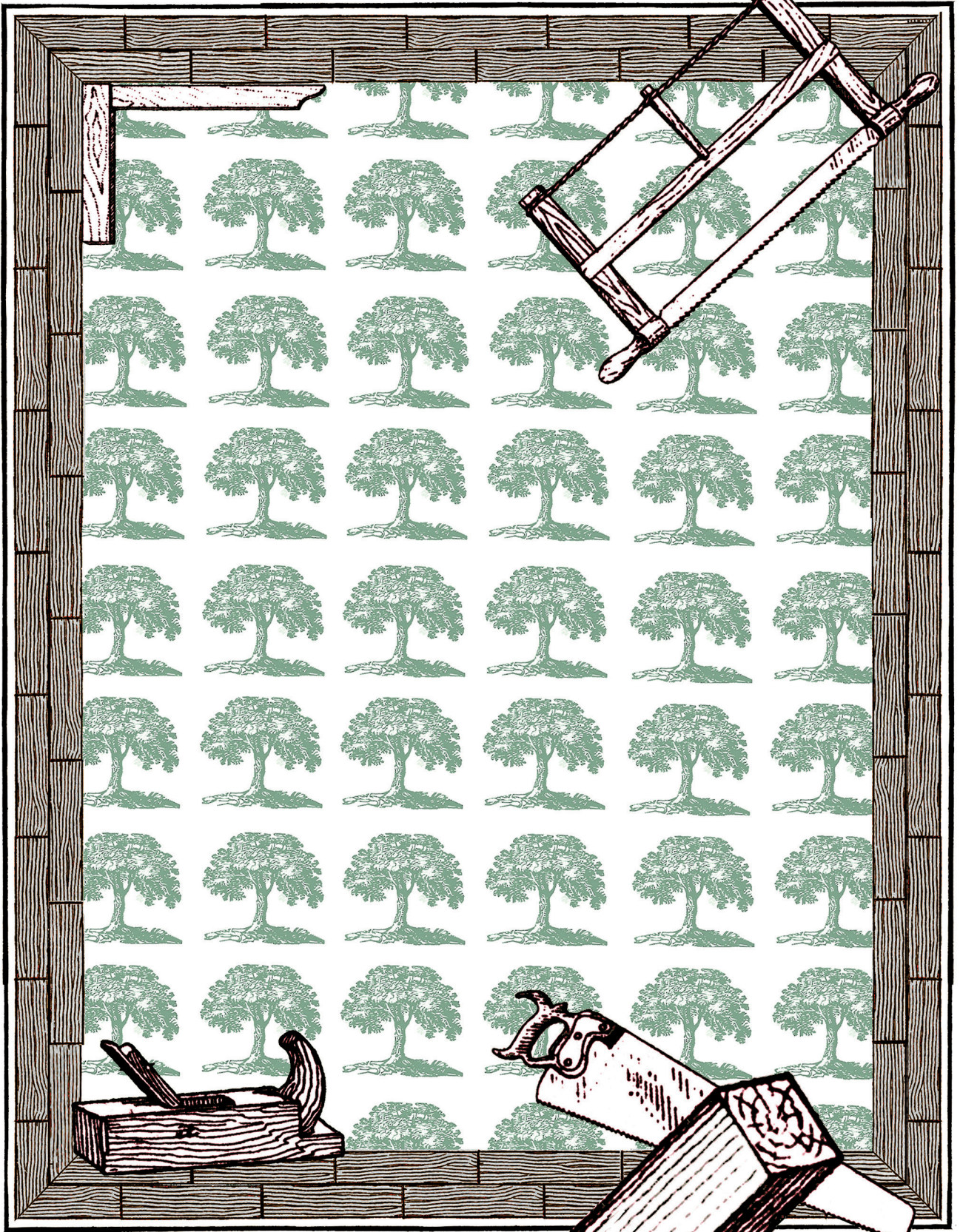
Do an environmental analysis on the organic farm "Adamah" and identify groups of interest.

Task 3: Expectations

Describe the expectations of your identified groups of interest.

“You need to learn to get back up, learn from your mistakes, never do the same mistake twice. You need courage but also hard work and know-how.”

Gerhard Zoubek



100 % Natural Habitat – Erwin Thoma, Thoma Holz



You need some time to find your way to *Thoma Holz's* office. It was also surprising to look for the main quarters of a company with so many employees and high export ratio in such a small place like Goldegg in Salzburg. However, once you have arrived at the house things immediately fall into place. A beautiful wooden construction with a welcoming exterior, surrounded by wood.

Company founder Erwin Thoma is a passionate mountain climber, who did many tours on his own and without protective rope, a forester, a businessman and a pioneer rediscovering wooden construction.

A HEALTHY HOME FOR THE FAMILY

The story, which turned him into a pioneer of wooden construction, starts out almost corny. Erwin Thoma tells: "I had built a home for my family and shortly after the move our children fell ill. The reason: toxic building materials." It was enough impulse for Erwin Thoma to build his family a healthy home.

Inspired by an old carpenter, he decided on wooden construction and tried - as much as possible - to cut out all other materials. With success. And as soon as his prototype of a healthy home was finished, people were interested

immediately. One thing led to another and Erwin Thoma researches, develops and culminates his experiences into a patent which ensure his innovational leadership: *Wood100* was born. Like the name may tell, it is to built 100 % wooden construction. This does not just include walls but also elements of ceilings and the roof which all interlock.

WOOD100 HOUSES

To be able to offer highest quality, the timber used in *Wood100* houses needs to be harvested at the right time to ensure the best resistance against fungi and insects possible. Standing and lying post are turned into all solid, without intermediate spaces, compact construction elements. Wall plugs take residual moisture left in their place and become an inseparable part, like well grown together branches, of the adjacent woods. They powerfully combine the separate parts into a massive whole.

Wood100 houses have withstood strongest earthquakes unscathed in Japan. Up to 10-stories high buildings may easily be built with *Wood100*, as the hotel Waldklausen in Tirol proves to show. What is so particular about the *Wood100* patent is the combination into a single, durable element without any glue or metal - 100 % wood.

The *Wood100* patent resulted in Thoma setting certified worldrecords for quality:

- Reaching Low-energy house standards without insulation materials
 - Fire safety record without any additional protective devices (at a sufficient thickness, wood only chars but will not burn)
 - exceptional shielding from mobile phone radiation (up to 99 %) and
 - its function as a natural air conditioning system via 100 % solid wood which emits and absorbs humidity.
- Due to *Wood100*, one may build an energy-self-sufficient home without wrapping it in plastic or using elaborate technology.

Wood as a construction material has the additional advantage of a care-free disposal at the end of its life cycle whereas other, often toxic, construction materials may

need to undergo a complex recycling-procedure. Erwin Thoma builds, not brews, strictly according to his purity requirements. No kind of chemical is welcome to Thoma's wood.

Thanks to a newly developed method, we now also can scientifically prove the positive influence wood has on human health. For example, people sleep better in wooden constructions and also have a more relaxed heartbeat. Erwin Thoma believes these findings prove that the knowledge passed onto him, and which he also believes in, can be scientifically verified.

PART OF A NEW CONSCIOUSNESS

The company *Thoma Holz* sees itself as part of a new consciousness and works on solutions which are technologically better and at the same time are socially and environmentally responsible. They focus and research and development and regularly cooperate with different universities on scientific projects. Thanks to the technologies developed at Thoma's research centre in Goldegg, the renewable construction material Wood finds new, magnificent applications and taps markets.

The realisation of ideas is then carried onto the four additional business sites which plan, produce and prepares assembly.

Erwin Thoma comes of as deeply balanced and much

of what he says sound almost philosophical, his voice and his gleaming eyes however tell that those texts are not just PR but proof of his firm conviction and lived moral values. There is no waste with regards to trees and wood, there are only cycles.

Currently, *Thoma Holz* finished over 1 000 project in over 30 countries. Among others, they build a church in Japan, a royal residency in Norway, hotels and obviously also family homes in many different styles.

Erwin Thoma is giving lectures and wrote a substantial amount of books all around wood.

His work also won him multiple awards. Multiple awards for innovation and sustainability, a prize as family- and women-friendly workplace, the renowned RIO award for innovation and a Cradle to Cradle prize.

Visitors often leave Goldegg with a new certainty: My home will be wooden house.

Further Information: www.thoma.at

Task 1: Groups of Interest

Illustrate which expectations and goals the different groups of interest associate with wooden construction.

Task 2: Effect

Analyse the effects wooden constructions may have. By referring to the three pillars of sustainable development, illustrate these effects in a mind-map.

“It has always been important to us to build houses which are just healthy.”

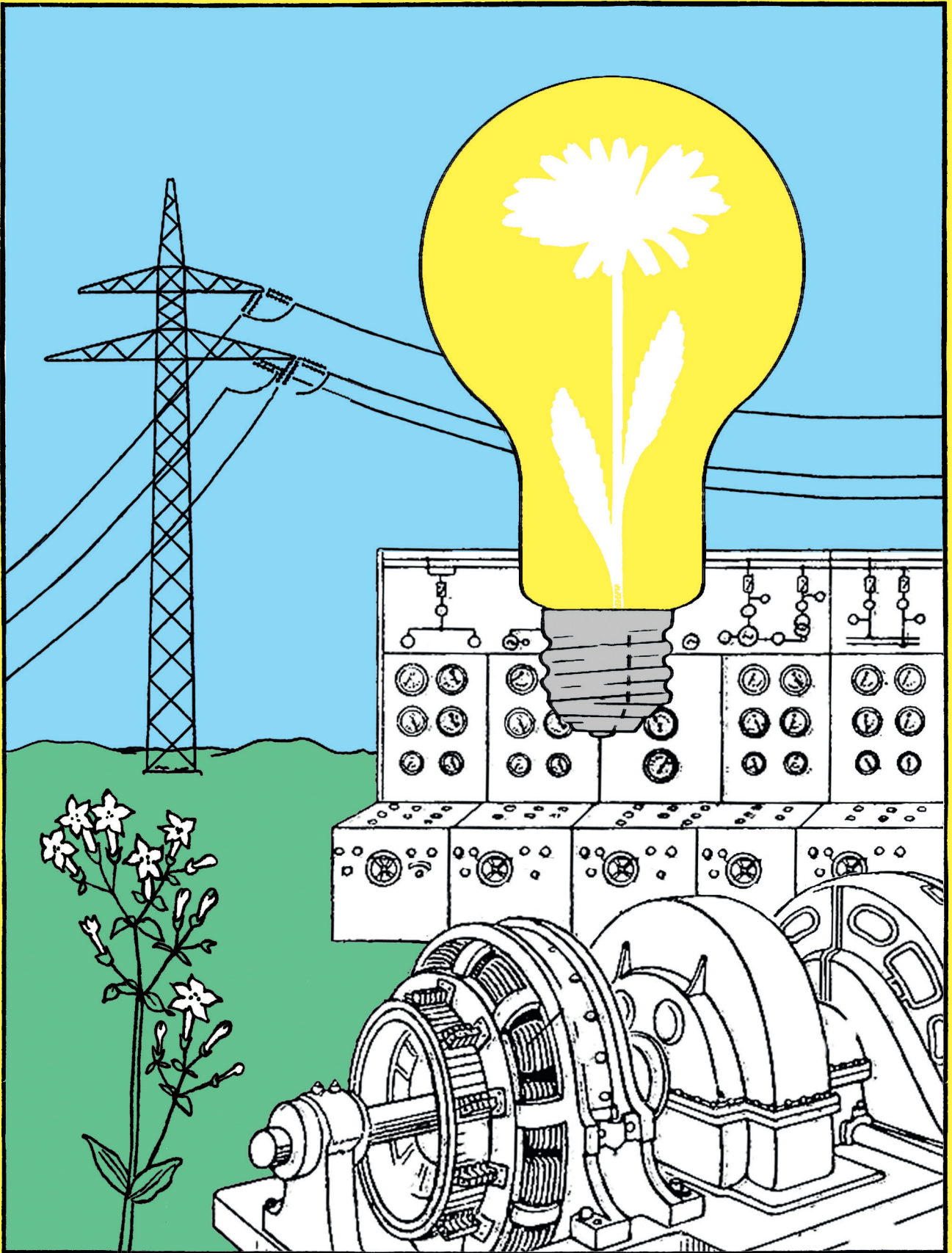
Erwin Thoma

“We build wooden houses which greatly surpass what one might expect from wood. We build solid wooden construction which are energy-self-sufficient passive houses without needing any insulating material.”

Erwin Thoma

“Economics, like we do them today, can not continue on. An economy that thinks it is only functioning well if it is turning ever-faster and discarding products at an ever-faster pace can not be an economy - it is sheer madness.”

Erwin Thoma



Clean Energy for the Baltic States – *Latvenergo AS*



The energy sector is liberalized in the European Union (EU). This means that, in principle, there is free competition between energy providers within the EU. The Latvian energy provider *Latvenergo* is one of the players in this market.

STRATEGY. VALUES. AIMS

Latvenergo has set itself the goal of becoming one of the leading and most preferred energy suppliers of the Baltic States. In order to achieve this, the activities focus on high quality, safe and environmentally friendly energy production and provision. Responsibility, efficiency and transparency are core values of the company. The company's strategy takes into account both the regulations of the energy sector in the EU as well as the regional conditions in the Baltic States and the changes that are to be expected in the future.

The strongest development trend in the Baltic energy sector is the liberalization of the energy market and the associated integration into the Nordic market. Of course,

there is also the desired reduction of greenhouse gases. This can only be achieved by increasing the use of renewable energy sources and by increasing energy efficiency.

Latvenergo has set itself the following strategic corporate goals:

- Strengthen the position in the Baltic market to be a broad and evenly positioned electricity seller in all three Baltic States. A reasonable market share and an increase in the number of customers should also be achieved. The focus is on small and medium-sized enterprises as well as private households.
- Diversification of sources of electricity, paying particular attention to minimizing emissions. In this context, the safety and working life of existing energy production facilities should also be improved.
- Balanced grid development to ensure power supply. Scheduled maintenance and the modernization of the line network are also essential components of this strategy.

In addition, the strategy of the *Latvenergo Group* focuses on living the principles of corporate governance and communicating to clients and partners: openness, efficiency, responsibility

ENVIRONMENTAL PROTECTION

As is the case with all industrial activities, *Latvenergo's* activities also have an impact on the environment. Taking care of the environment is one of the cornerstones of the *Latvenergo Group's* sustainable development. The company's efforts to both invest and ensure the proper operation of facilities are based on environmentally sound measures to minimize or eliminate the risk of environmental damage.

The central principles of the *Latvenergo Group* in the context of the environment are laid down in the environmental policy of the consortium. One of the priority objectives is to minimize the impact on climate change through the initiatives and decisions of the European

Parliament and the European Court of Justice. The basic principles of the environmental policy of the *Latvenergo Group* and their attitude towards the environment can be summarized as follows:

- Reduce emissions that pollute the environment
- Use natural resources efficiently
- Preserve biodiversity
- Inform the public and other stakeholders regularly and publicly about environmental activities
- Act green and encourage its partners and the public to do likewise

At *Latvenergo*, in addition to the legal requirements, there is also an externally certified environmental management system that helps to implement the targeted environmental protection measures.

Latvenergo prides itself on the results of renewable energy production, the measures taken and the use of environmentally friendly technologies. Nearly 75% of the energy produced comes from renewable energy sources, the rest comes mainly from power plants that use natural gas to produce electricity.

AWARDS FOR LATVENERGO

- *Latvenergo* has been awarded several times as the most valuable company in Latvia and is one of the 10 most valuable companies in the Baltic States.
- The company has already achieved several times the highest category (platinum) of the sustainability index. Based on international standards, the sustainability of the company is assessed based on all aspects of corporate social responsibility. *Latvenergo* has as part of this reward repeatedly received an award as a family-friendly company from the Ministry of Social Affairs of Latvia.

- *Latvenergo* has also been honored for its long-term cooperation with the union and its contribution to the social dialogue.
- *Latvenergo* received a state award because all the facilities of the company meet the requirements to the highest degree and measures are taken to minimize the impact on the environment.
- The company has been honored for its dedication to educating young people in the safe use of electricity. In this context the project “Don’t approach! In the game with electricity the loser will be YOU!” was carried out.
- *Latvenergo* has been awarded as the most attractive employer in Latvia. The key factors that make *Latvenergo* an employer include the company’s strong image, strong focus on sustainability, and the development of the company and its strong brand. In addition, fair pay, career opportunities, pleasant corporate culture, values, traditions, as well as inspiring and professional management, colleagues and a good working environment were mentioned.

Latvenergo contributes to ensuring that energy from renewable resources is available to all in the Baltic States, and customers accept this offer as well. Hopefully many other energy providers will follow suit.

Further information: www.latvenergo.lv

Task 1: Effects

Analyze the effects of the liberalized energy market on the following stakeholders: customers, suppliers, states

Task 2: Goal conflicts

Latvenergo relies heavily on hydropower to generate energy. Identify possible conflicting goals that may arise in this context.

“It’s not enough that resources are renewable, they also need to be used conservatively - so they remain renewable.”

Hans Christoph Binswanger

“The question of a meaningful life is important to all of us.”

Helmut Wisiak

“Entrepreneurship and sustainability are outstanding together, because it is the innovators and changemakers that show that change is possible.”

Bernward Brenninkmeijer



The fresh cell cure – Gerhard Liebming Café Frischzelle sweet and spicy



Gerhard Liebming is a trained confectioner and loved his profession from the very beginning. Confectioners find work in restaurants, bistros, large hotels, casinos and bakeries. They are renowned professionals preparing desserts and cakes among many other pastries for distinguished kitchens. Confectioners work with sugar and other ingredients to prepare tiny delicacies like confectionery, chocolates, toffees and many more sweets.

After finishing up his apprenticeship, Gerhard Liebming desperately tried to find work in his profession but had to quickly realise it would not be easy to find a suitable position. He could have gone abroad, apply to work at a luxurious cruise ship or an international hotel - but he wanted to stay in Vienna and was therefore forced to look for a job to pay his bills. He worked in retail but never let go of his dream to return to work as a confectioner.

THE ROCHUSPARK ENTREPRENEURSHIP-CENTER

When Stefan Leitner-Sidl and Michael Pöll, two friends of Gerhard Liebming, funded the Rochuspark Entrepreneurship-Center they contacted and offered him a spot to open up his own little restaurant.

“In the last few years, we funded three innovative ‘co-working ‘ spaces in Vienna - the “Schraubenfabrik” , “Hutfabrik” and the Rochuspark Entrepreneurship-Center. All three objects are relicts of the industrial age - old factories right at the city-centre of Vienna now serving as as homes to 21st century entrepreneurs and companies.

A diverse group of organisations is engaged in entirely different types of work and need individual work-facilities. Architects, freelancers as well as microbusinesses are among the wide range of entrepreneurs. This diversity creates a network of like-minded people, an appreciative work atmosphere and an inspiring community which you enjoy being a part of,” both founders say about themselves and their co-working spaces. Rochuspark has been the exactly the right place for Gerhard Liebming to open up his *Café Frischzelle sweet and spicy*.

CAFÉ FRISCHZELLE - SWEET AND SPICY

Gerhard Liebming calls his business *Café Frischzelle sweet and spicy* since he is offering a fresh dish everyday and his cafe is as tiny as a cell. His initial business plan has been to open up a type of canteen with an outdoor garden to serve Rochuspark's entrepreneurs, their business partners, friends and people from the neighbourhood.

The building is a beautiful, newly renovated fin-de-siècle house. Without much financial aid to furnish his café, he picked up old tables and chairs - what he is calling “industrial-chic” - to create a very individual, personal and cosy atmosphere.

Frischzelle is offering a daily menu including soup, a main dish and dessert - they are usually vegetarian dishes. Gerhard Liebminger wanted to create a place where guests could relax, discuss ideas, make plans, eat and drink and just overall feel at ease

Around three months after its opening, Gerhard Liebminger was sure his concept had promise and after one year he knew his *Frischzelle* would survive.

His most important goals - individual service, fresh meals out of fresh foods and sustainability have been his key to success. He wanted to prove that it is possible to offer good food at reasonable prices without using any processed foods. "Better to be simple and fresh than to offer a wide range of meals out of a deep freezer," is his philosophy.

Organic ingredients, regional and seasonal products (e.g. dishes with apricots in early summer and pumpkin variations during autumn) and local fruit and vegetable varieties are his fundamentals to sustainable growth of his café and at the same time they also guarantee his ecological sustainability.

At its beginning, *Frischzelle* relied on word-of-mouth advertising. Gerhard Liebminger then worked together with university students who conducted a market analysis and created a website (www.frischzelle.cc). The competition is tough since his café is located next to a popular shopping area. His innovative concept, the cosy atmosphere and the extraordinary quality of his meals however make *Frischzelle* something special.

CREATIVE PASSION

Gerhard Liebmingers creativity does not just show when he is preparing the dishes at *Frischzelle*. In particular, it resonates very prominently within his greatest passion - pastries. Customers can order individually baked and designed cakes according to their every wish since 2011. "My love for details and the rush to creatively design a cake, to sometimes make the impossible possible is fascinating and challenging to me every time again," he says about himself.

THE SPECIAL (BIRTHDAY-)SURPRISE

How do you get one of these special cakes? People who are interested approach Gerhard Liebminger and pick their preferred theme - just for childrens' birthdays that could include a fire engine, a princess, a cartoon character, ...

(almost) anything is possible.

Even adults get delighted over individually designed birthday treats - beaches, planes, footballs and much more - creativity knows no bounds. Customers sometimes approach him with photographs and their expectations are talked about in detail. The *Frischzelle* website also works as a reference with many pictures of the exclusive cakes. It is also where you find a link to their facebook page (www.facebook.com/frischzelle) where you can admire all the sweet delicacies and see how carefully everything is crafted.



"It sometimes takes up to a week until a cake matches all the expectations of customers," says Gerhard Liebminger. Which is why people ideally should order two weeks in advance.

Around Christmas and Easter, Gerhard Liebminger also prepares little pastries for people to buy as gifts.

THE FUTURE

The *Café Frischzelle sweet and spicy* has successfully established itself and its business concept "small, fresh, regional and sustainable" worked out well. Custommade cakes in particular have been getting evermore popular and demand for them keeps rising.

Because of this, Gerhard Liebminger is commonly working between 85 and 90 hours a week which he thinks is no problem. He loves what he is doing and he cherishes every opportunity to get creative, to work with new ideas and to make life for himself, his patrons and all his customers a bit more worth living - just by being fresh, sweet and spicy.

Further information: www.frischzelle.cc

Task 1: Goals

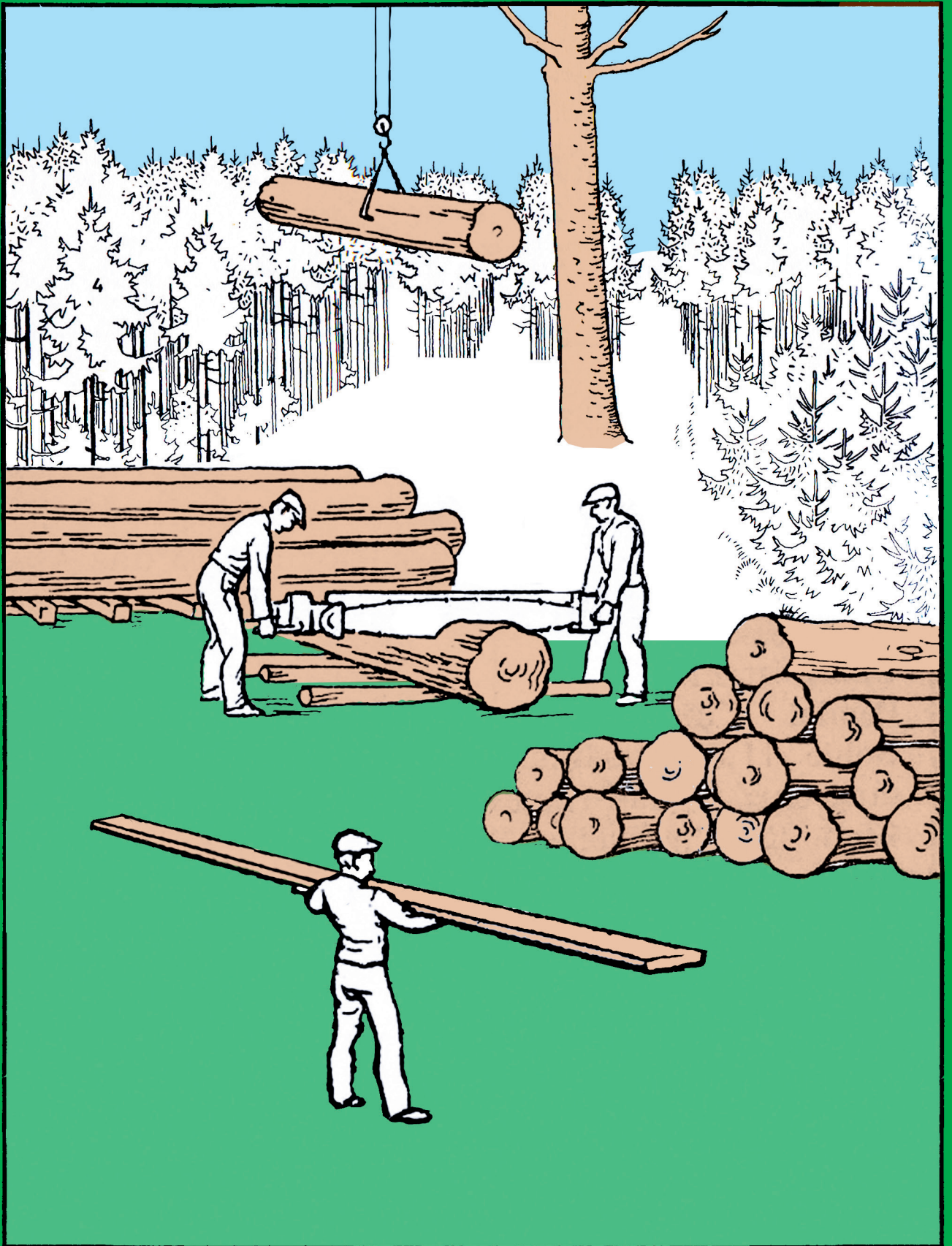
Formulate goals for Gerhard Liebmingers *Café Frischzelle* *sweet & spicy*. Use the three pillars of sustainability for reference and differentiate between main and sub goals.

Task 2: Mindmap

Create a mindmap on the factors which have an influence on Gerhard Liebmingers business concept.

“Fresh regional products are the new lifestyle of nutritionally conscious customers.”

Gerhard Liebming



Sustainability as a guiding principal and corporate goal – Austrian Federal Forests



SUSTAINABILITY AS MISSION STATEMENT

It is no coincidence that the term “sustainability” originated in forestry - no other branch is by nature so fundamentally tied to sustainability. One may only cut down as many trees as trees are regrowing.

The *Austrian Federal Forests* (“Österreichischen Bundesforste” - *ÖBf*) work forests, lakes and mountains on approximately a tenth of Austrian soil. The company, which is being operated as a stock corporation and owned entirely by the Republic of Austria, is the largest forest managing company and owner of hunting and fishing licenses.

Overall, the entire forestry includes 510 000 ha of forest, 74 lakes (> than 1 ha), more than 2 000 km of flowing bodies of water, stretches of land within the National Parks Donau-Auen and Kalkalpen, ca. 14 000 km hiking trails, ca. 2 100 km mountain bike network and ca. 620 km horse trails. They employ ca. 1 100 people (full-time equivalent) on yearly average.

At its core, the *ÖBf* works in forestry. Their timber supplies sawmills, papermaking and cellulose industry as well as biomass power plants. Other important business areas include real estate (loaning, leasing, building rights), services (e.g. forestal consulting on working privately owned forests, planning natural environments for customers, ...) and renewable energies (e.g. small hydro, wind power, photovoltaics).

To the company, sustainability is the evolution of forestry’s quantitative rationale into a value-based system and their guiding economic principle. Which also features prominently as a headline in their company’s mission statement: “We live sustainability.”

The mission statement is also orientated on the three pillars of sustainability. The *ÖBf* has formulated respective aims and refers to them as such:

- **Nature and environment:** We preserve and improve the natural resources left to our care and the diversity of life with regards to the quality of life of future generations. We reach this **goal** of ours by using all our resources responsibly, providing renewable resources and playing an active role in matters regarding environmental protection and preservation.
- **Human beings and society:** We are a responsible partner to humankind and the region. We reach this **goal** of ours first and foremost through our dedicated and qualified employees. We furthermore do so by providing equal opportunity in hiring, providing safety to the different functions of the forest, by keeping in dialog with the many different stakeholders of our lands and developing local communities and adding value.
- **Business:** We ensure the profitability of our company long-term and on a basis of partnership. We reach this **goal** of ours by providing high quality products and services as well as having good relationships to customers and business partners, by developing new areas of business and by keeping our overhead low.

To measure and evaluate our process we use a Sustainability Balanced Scorecard.

FROM A BALANCED SCORECARD ...

To work out the long term direction they are going in, Companies develop strategies based on their mission statement, the results out of company analysis and the chances provided by the market.

Concrete actions are then derived out of this strategy. One of the instruments often used by companies is the balanced scorecard (BSC). It is used to implement a companies' strategy and to evaluate in how far specific goals are reached. At its simplest, a balanced scorecard has four dimensions: finances, customers, processes (within the company) and learning (staff development).

These four dimension are supposed to be "balanced". A balanced scorecard lists specific goals, sets operating numbers and includes actions aimed at reaching a goal. Companies adapt these dimensions to their specific situations.

... TO THE SUSTAINABILITY BALANCED SCORECARD

It is no coincide that the balanced scorecard method was further developed into a sustainability balanced scorecard (SBSC) at a company such as the *ÖBf*. Similar to their mission statement and strongly linked to it, the SBSC is structured into the three parts business, society and nature. The four fundamental dimensions of a balanced scorecard are visible for the respective goals.

Each area has strategic goals set with specific indicators (of success) linked to them. These numbers are used to evaluate success, to plan and control actions. Part of these relevant strategic goals are:

- regarding **business**: Raising economic value long-term, increased self-financing, Raising and preserving profitability, partner-like customer relations, promoting industrial developments through innovation
- regarding **society**: Protection of the conservation, recreation and welfare function of the trees, complying with contract partners in matters of woodcutting and right of use, utilise and and develop employees' potential
- regarding the **environment**: sustainable development and use of forests (to different degrees, mostly concerning the amount of woodcutting)



SUSTAINABILITY REPORT AS SOURCE OF INFORMATION

The *Österreichischen Bundesforste* release an annual report of how their company developed in diverse areas of business over a certain amount of time.

FORESTS AS AN ECOSYSTEM

While forests provide a diverse ecosystem to a high number of different plants and animals, they also benefit humans in multiple ways. Among other things, forests are supplying wood while also improving the quality of air and water. They provide a recreational space and have protective qualities in cases of natural danger such as avalanches.

These ecosystems are however also threatened by the effects of climate change. The reduced rainfall and dropping numbers of insects brought on by global warming will change Austrian forests. While some types of trees will extend further into other areas others will retreat. There will also be noticeable changes in bodies of water and animal life.

More than ever, forestries are required to work sustainably to preserve the ecosystem of forests and all their functions.

Further Information www.bundesforste.at

Task 1: Interest Groups

Think about the expectations and goals groups of interest might have regarding the *Österreichischen Bundesforste*. Present your results.

Task 2: Effects

Show what effects a sustainable business (i.e. the *Österreichischen Bundesforste*) has on stakeholder groups.



“Nature is giving us the general conditions and every year we are challenged to make the most of it.”

Rudolf Freidhager, Chairman of the Österreichischen Bundesforste



Preserving plant variety – Kate McEvoy and Ben Gabel Real Seed Collection Ltd.



hybrid seeds, new seeds can be recovered, and it is not necessary to buy new seeds every year. In addition, the knowledge and the ability to store seeds should be passed on among the customers.

A SUSTAINABLE BUSINESS MODEL

The philosophy of the company is reflected in all its activities. This is reflected on the one hand in the orientation as a non-profit-oriented company and on the other hand in the fact that the needs of customers and employees are paramount. This focus contributes to the company's success and its economic sustainability. The environmental, social and economic dimensions of sustainable development are substantially supported by the company's key activities.

BACKGROUND INFORMATION

Real Seed Collection Ltd. is a non-profit corporation founded in 1997 in the south-west of Wales (United Kingdom). The company produces and sells vegetable seeds through its website, *The Real Seed Catalog* (www.realseeds.co.uk), and was founded by Ben Gabel and Kate McEvoy, who both run and work full time there. In addition, the company employs three part-time employees.

The corporate structure was deliberately chosen because the non-profit limited liability company serves the interests of clients and employees rather than the interests of shareholders and external investors. This meant that the company had to start small and was able to develop within the scope of the funds generated.

Sales have increased steadily since its founding. Annually *Real Seed Collection Ltd.* processes around 15,300 orders from 12,000 customers. Wages were initially very low, but have meanwhile quadrupled with rising sales. Everyone who works in the company receives the same salary.

The aim of the company is to assemble and provide a collection of reliable, tasty and interesting vegetables for home gardeners, allotment gardeners or small farmers. From the seeds of this vegetable, in contrast to so-called

AN ALTERNATIVE TO HYBRID SEEDS AND GENETIC ENGINEERING

The entire selection of seeds in the online catalog has been compiled on the basis of personal experiences in the garden and kitchen. Before a selection of seeds is offered for sale, it is tested by the company. This is done by sowing them, tasting the product and winning the seed.

The company sells only genuine, open-pollinated seeds - hybrid seeds or genetically-modified seeds are not offered. *Real Seed Collection Ltd.* explains this claim in her catalog: "Hybrid seeds are the result of crossing two different but inbred parents. Seeds from these hybrid plants are either infertile or provide a great mix of shapes and types. Usually they produce a poor yield."

Growing these crops means that every year the gardener has to buy new seeds from the big seed companies. The endeavors of the supermarkets to produce uniform products are also responsible for the fact that hybrid seeds dominate and that only a reduced selection of seeds is available. Above all, there is a lack of older varieties and a variety of products of each variety. Hybrid seeds are manufactured industrially and yet the costs for the users remain high.

“Hybrid seeds can certainly benefit the industrial-chemical farmer who wants to harvest everything at once. But for the little gardener who wants to have good yields over a long period of time, real seeds are usually productive, “according to information from *Real Seed Collection Ltd.*”

The position of the company in relation to genetically modified seeds is clearly stated in the online catalog. Although one of the founders has studied genetic engineering at the university, *Real Seed Collection Ltd.* only traditional methods for plant growth. Due to concerns about safety and ethics, the company rejects all genetically modified plants and the patenting of plants.

Genetic modification is considered a new science, and the common practice of using genes in plants from other organisms is distinctly different from traditional plant breeding. The fact that the debates about genetic modification are complex is acknowledged by the company, but it is convinced that the dangers are real and that the release of genetically modified seeds into the environment threatens the whole ecosystem.



SOCIAL, ECOLOGICAL AND ECONOMIC TRIAD

Real Seed Collection Ltd. describes itself as “philosophically organic”, but is not externally certified due to the extra costs and bureaucratic requirements. The careful handling of soils as well as the daily operational decisions, which serve to minimize carbon dioxide emissions and ecological impact, contribute to ecological sustainability locally and globally. Environmental awareness is part of the organization’s everyday thinking and decision-making and should not be seen as being held behind closed doors.

The social aspects of sustainable development are linked to the company’s environmental sustainability through its

core business and daily activities. The company is working to empower its customers to keep the seeds of their plants themselves. This is done by attaching storage information to each seed packet being sold. In addition, there is additional information in the catalog on the website, e-mail advice on the growth and harvest of the plants and information on the seed collection.

From a purely economic point of view, it may be detrimental for the company to encourage customers to keep their own seeds because less can be sold in the future. However, the company has greater goals than profit maximization. *Real Seed Collection Ltd.* aims on the one hand to support the allotment gardeners and, on the other hand, challenges the big companies in the seed industry that produce terminator seeds and promote the patenting of varieties.

Developing good customer relationships is seen as key to the success of the business. For this, *Real Seed Collection Ltd.* takes the needs and desires of their customers serious: they work in partnership with them and encourage them to work as gardeners. The company manages to maintain economic sustainability and at the same time build a customer base that has a positive attitude towards the company - and thus remain faithful to *Real Seed Collection Ltd.*

To do good things to people also enriches the employees who work for the company because they can pursue a meaningful activity. This helps to maintain the quality of customer service and the sustainability of the organization. *Real Seed Collection Ltd.* is deeply rooted in the region, because that is also the place where the employees live. The company also organizes local seedstock exchanges and donates seeds to surrounding schools. In this way, *Real Seed Collection Ltd.* supports the local community and the local economy.

Over the last few years, there has been an increase in the interest in food origin. This led to an increase of local production, community gardens and the cultivation of plants in their own garden. Part of this success is also due to the growth of *Real Seed Collection Ltd.* and the company’s belief that there will be a sufficient market in the future. There are also initiatives in other countries that are committed to preserving old varieties and thus ensuring long-term biodiversity.

Further information: www.realseeds.co.uk

Task 1: Aims

Formulate aims for *Real Seed Collection Ltd.*. Consider all three dimensions of sustainability.

Task 2: Effects

Analyze the effects of this as biodiversity continues to decline and present these effects clearly.



*“And if I knew that tomorrow it would be
the end of the world, I would still plant my
apple tree today.”*

Martin Luther



With cleaining products to a sustainable business success –

Reinhard Schneider,

Werner & Mertz GmbH



FAMILY BUSINESS WITH TRADITION

The family business *Werner & Mertz GmbH* originates in 1867 when “Gebrüder Werner”, a factory for wax-based products, was founded. The founders were bell ringers at St. Quintin in Mainz, candlemaking was their additional income. The second naming founder Georg Mertz joined them in 1878. The company has since then been called “Werner & Mertz”. Another nine years later, Philipp Adam Schneider (brother-in-law to Georg Mertz) took over as head of the company. He developed an entirely new form of wax-based shoe polish which led the way to the companies’ unique success. Today, Philipp Adam Schneider’s great-grandchild Reinhard Schneider is the owner of *Werner & Mertz GmbH* and their Chief Executive Officer (CEO).

The companies’ headquarters have always stayed in Mainz. Their main business activities such as product development, product supply, marketing as well as service and logistics are all located here.

Since 1953, *Erdal GmbH* is their subsidiary in Hallein (State of Salzburg, Austria) producing and supplying all neighboring southeastern states. Furthermore, *Werner & Mertz* have their own distributing companies in Belgium, Poland, France, Spain, Italy and the Netherlands and additional partners in the most important European countries. Their products have also successfully been introduced to the Japanese market in 2011.

THE FROG KING

The company owns strong cleaning and detergent brands which are divided into two groups:

- private end users and
- bulk consumers

The oldest brand using the Frog King as product design is *Erdal*. Other well-known brands like Frosch, Emsal, Tofix, Tuba etc. were added later after continuous research, development and creative input. For multiple decades, the brand with their environmentally green frog has been a successful product in the category of sustainable detergents and cleaning agents. They continuously added new products to their brand over the years.

THE STRATEGY FOR THE FUTURE

Using and improving what is established, to keep developing and engaging in new activities - sustainable businesses have to be open to new impulses and need visions. 2003 the *Werner & Mertz Group* published the first sustainability report.

Sustainability relies on three pillars: the ecological, the economical, and the social. For years, the companies’ production has been conscious of their resource consumption and environmentally friendly. They take up social responsibility and face economic challenges. For *Werner & Mertz* sustainability means: “Thinking today about tomorrow and taking the greater consequences of your actions into account.”

An adequate ecological basis of life needs to be preserved

for future generations. CEO Reinhard Schneider notes, “We think our customers want to know under which circumstances their products have been made and we believe that their decisions to buy them will increasingly depend on it.”

ENVIRONMENTALLY FRIENDLY PRODUCTION

The company continuously works on improving their production process to be as sustainable as possible. They strive to reduce byproducts, pollutants and waste products as well as their water and energy consumption. Efficient formulas are being used. They are permanently improving their (eco-)tox profile. Strict guidelines on the usage of packaging are also part of their sustainable idea of business.

The company adheres to external certificates and proves their dedication to a productive and sustainable production process: e.g. ISO 14001 certification, ISO 9001 certification, EMAS certification, ECO-Flower certification, A.I.S.E.-seal for Sustainable Cleaning.

The company also pursues sustainability by providing transparency on their products’ contents. They carefully consider all uses and potential dangers of their products. Logistic partners are chosen based on the sustainability of their methods.

Even the *Werner & Mertz* office building is a “green” house (an energy-surplus house) and represents their businesses’ dedication to sustainability. They are using water, wind and solar power.

LONG TERM ECONOMIC SUCCESS

130 The company pursues reasonable profitability by providing good value for money. Consistent quality and product efficiency speak for themselves. Additionally, product efficiency is continuously improved on. External evaluations and certificates prove this. Technological improvements are also included.

The knowledge gained by research and development on environmentally friendly detergents is a huge help to sustainability.

SOCIAL CONSCIENCE

Social conscience is not just existent within their business but also part of their stances in public matters. Their leadership includes:

- fostering of trust
- upholding values and expectations
- showing open mindedness
- keep discipline.

Werner & Mertz take special care to their staff development. The company offers a monder, process-oriented and holistic training and fantastic opportunities for further qualification. Employees are supported through feedback talks and offers to further training. Furthermore, the company is supporting their employees’ continuous learning - by foreign language classes or enabling simultaneous graduate studies.

Fair pay, suitable working conditions, flexible working time models and job safety ensure job satisfaction. Promoting their employees is one of *Werner & Mertz*’s top priorities. Their employees’ creativity is a valued asset.

FROSCH SAFES FROGS

Under the slogan “Frosch safes frogs”, the company supports the *World Wide Fund For Nature* (WWF) in multiple European countries and in German specifically also the *Naturschutzbund* (NABU). Sponsoring of local football teams, decorating traffic islands and much more is also part of it.

DIALOGUE WITH CUSTOMERS

Dialogue and personal contact with their customers is especially important to *Werner & Mertz*. The company provides their own customer service including an employee-operated service hotline.

By setting up their own Frosch-blog, they are engaged in real conversation between customers, other business and all people interested. They also offer factory showings. *Werner & Mertz* sends employees to inter-company working groups, knowledge sharings or research teams.

Further information:

www.werner-mertz.de

www.erdal-hallein.at

www.ganzheitlich-nachhaltig.de.

Task 1: Companies mission statement and groups of interest

Note the most important groups of interest with regards to a family-owned business. Compare their interests to the companies' mission statement in a summary.

Task 2: Interactions

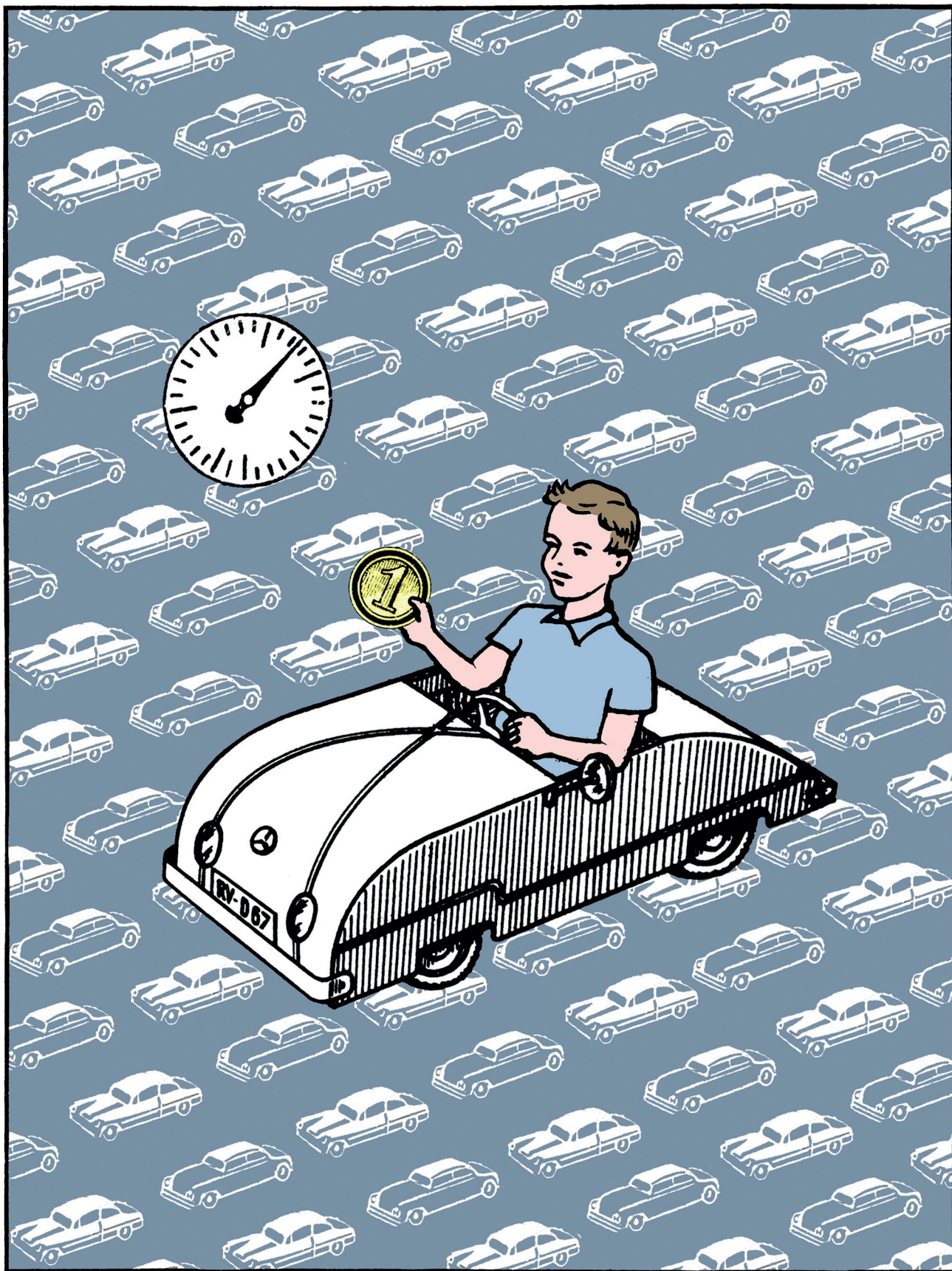
- a. Note down the brands held by the company. Analyse what distinguishes a strong brand.
- b. Assess the factors of success for the Grünfrosch sustainable brand.
- c. Illustrate the connections between strong brands and sustainability for *Werner & Mertz* and their interactions in an overview.

Task 3: Impact matrix

Derive an impact matrix out of your overview.

“I like about our company that we are not just holding onto problems and instead have the opportunities to work on sufficiently good solutions.”

Gerhard Pump



City toll – London, Stockholm and elsewhere



THE PEOPLE AGREE

In July 2006, the pilot attempt to introduce a city toll in Stockholm ended successfully. The residents decided in a referendum for the majority of the final introduction of the inner-city toll.

This was the occasion for a renewed discussion about “pros and cons” of such a toll in Austria. The Austrian Traffic Club called for the introduction of a city toll in major Austrian cities, especially in Vienna. Constantly increasing numbers of commuters, the increased exhaust emissions for residents and constant traffic jams at peak times make the introduction of a city toll seem sensible.

LONDON AS A PIONEER

London plays a pioneering role in this area. The 8-million-inhabitant city was considered the worst-performing traffic in the UK. In 2000, the average driving speed was just 16 km / h, the resulting loss of time was calculated at three to

six million euros per week.

In February 2003, an inner-city toll (congestion charge) was introduced in London. Since then, 11.50 pounds (standard amount) are payable for driving on the city center between 7.00 am and 6.30 pm on weekdays - payable in advance or later until midnight of the following day at the latest via “Auto Pay”, by SMS, by telephone or by post and via a special website.

As soon as a car enters the toll zone, its registration number is registered. For this purpose, more than 500 cameras were installed on all access roads and in the city center. Unregistered vehicles face fines. The statistics show that the volume of traffic has dropped after the toll has been introduced. In part, up to 40% fewer vehicles were in London’s city center than before, the traffic flow had accelerated by 37%. Since toll introduction various changes have been made, e.g. in terms of the toll zone, the toll level, the payment options and the exemptions. The revenue from the toll should be £ 1 billion to improve public transport and to implement various road projects.

UNFORTUNATELY BACK TO THE STARTING LEVEL

However, more than ten years after the city toll has been introduced in London, it has become apparent that, despite the relatively high fees, a habituation effect has occurred: the traffic load is at the same level as before the toll was introduced - without introduction, the situation would be even worse. This is also justified by reconstruction measures in the traffic area, which gave cyclists and pedestrians more space and consequently pushed back traffic.

THERE ARE ALWAYS EXCEPTIONS

Although Stockholm, with around 920 000 inhabitants (2.2 million in Greater Stockholm), is considerably smaller than London, the toll zone here is half the size of 34.5 km². Vehicles affected by the “Trängselskatt” (crowding tax) pass through a toll station on workdays between 6:30 am

and 6:29 pm when entering or leaving the toll zone.

Depending on the time of day, between 11 and 35 kroner per passage, up to a maximum of 105 kroner per day. Exceptions are emergency vehicles, buses with a total weight of at least 14 tonnes, vehicles with diplomatic plates, taxis, motorcycles, foreign-registered vehicles, military vehicles and vehicles that can be wholly or partially operated with electricity, alcohol or other gas fuels other than propane or butane and as such are officially approved. In addition, tax exemptions may be applied for in the transport of disabled persons.

With the introduction of the toll, 162 cameras were installed on 18 roads that track the number plates of the vehicles. Since no payment is possible at the toll stations themselves, the sums due must be determined and transferred to the appropriate location, which is associated with relatively high costs, since neither deposit slips nor invoices are sent by the tax-collecting agency.

Billing for the vehicle owner is easier if he participates in the autogiro system. For this purpose, the attachment of a free available transponder on the windshield of the vehicle is necessary. A positive effect on the pilot test was that the technical system worked without any problems.

The Stockholm toll system will cost around € 400 million, but will include the purchase of some 200 new buses for several new express bus lines and the creation of new parking spaces on the outskirts of the city. This created 800 new jobs.

The pilot phase showed that the toll introduction in Stockholm made extremely sense: the volume of traffic decreased by about 20%, the congestion time was reduced by 30 to 50%. Within the toll zone, the exhaust emissions were reduced by 14% and by 3% in the entire floor space. In relation to persons injured in traffic accidents, a reduction of 5 to 10% is expected.

Thanks to the reduced daily traffic of around 100,000 cars, public transport can now better meet its schedules in the city center.

Due to the increasing number of inhabitants and the resulting increase in traffic, the tolls were raised at the beginning of 2016 and the toll zone was extended.

Originally it was planned to invest the toll income exclusively in the public passenger and local traffic, now they are also flowing into the road..

Further information www.cclondon.com and www.transportstyrelsen.se

Task 1: Interest groups

The introduction of a city toll is discussed critically in many places and often blocked from the outset. The most different opinions and opinions of numerous interest groups also have an effect.

Illustrate in a mind map how the individual actors could fundamentally face a toll introduction.

Task 2: Effects

Assess what impact the introduction of a city toll could have on a 1.7 million inhabitant-tough city like Vienna.

Consider these impacts, taking into account the areas of “Individual Inner-city Transport”, “Public Transport”, “Economy”, “Environment” and “Order and Security” in a context of action.

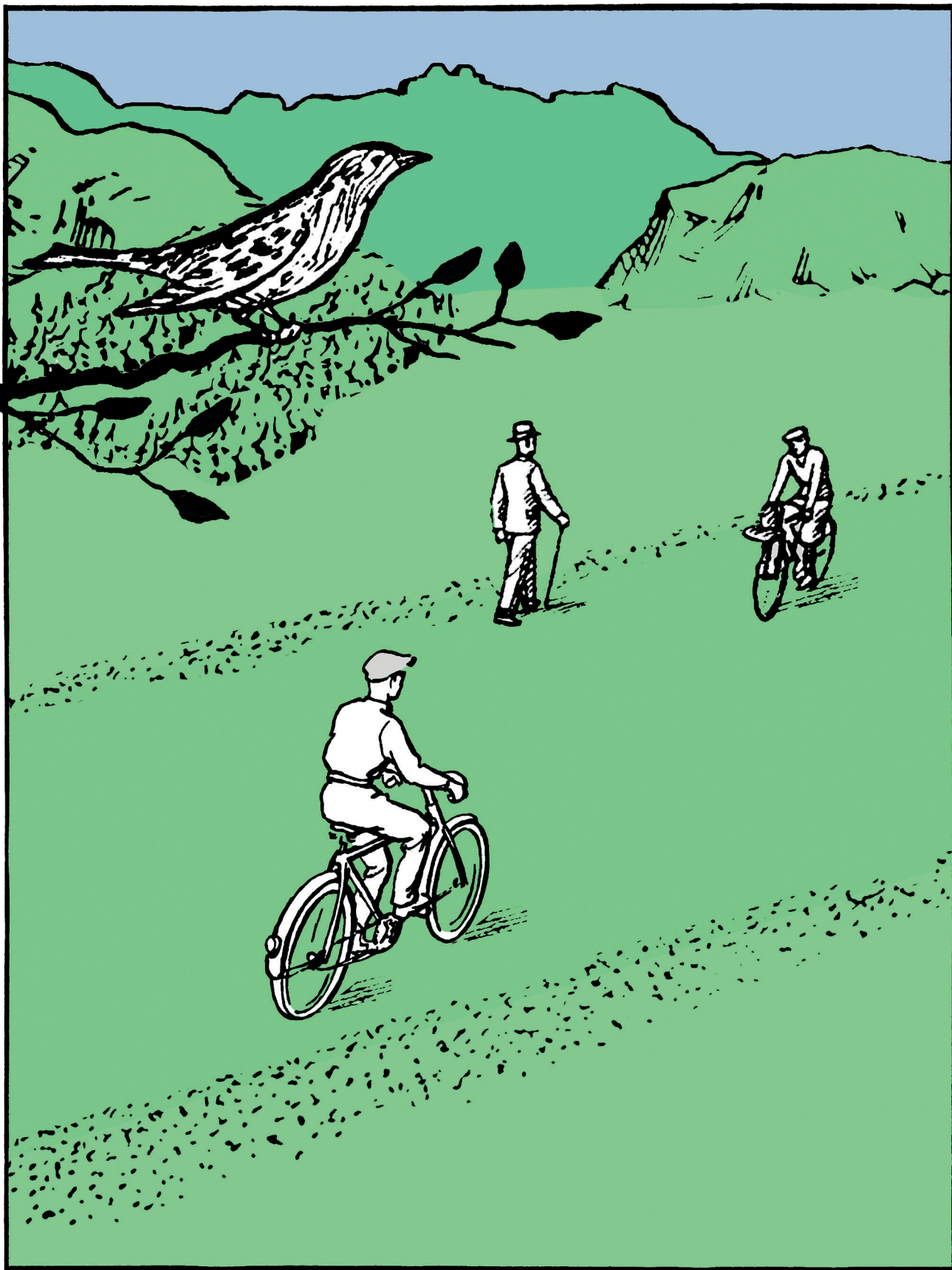
Task 3: Scenario

Create a scenario for the further development of inner-city traffic for a city like Vienna in the event that

- a. actually a city toll is introduced or
- b. it will continue to rely solely on parking management as before.

“You should not tell people how to behave. The toll leaves you with a choice.”

Jonas Eliasson



Soft Mobility - holidays without a car - Werfenweng community



BETWEEN 900 M AND 2 400 M

Werfenweng is a small community located 45 km south of Salzburg with around 800 inhabitants. They are situated 900 m above sea level while the inviting Tennen Mountains all around them reach up to 2 400 m. Werfenweng mostly lives of tourism and farming. Their community has about 1 600 guest beds ready for travellers. Approximately 38 600 guests arrive each year and stay for ca. 202 000 nights which are evenly spread over summer and winter season.

Werfenweng became famous thanks to their project “Soft Mobility (SAMO) - holidays without a car” which has been running successfully since 1997. The projects founders wanted to establish sustainable mobility in tourism and to create a role model for sustainable tourism in their region. Their approach succeeded by relying on environmentally-friendly technology. The entire project actually also attempts to initiate change in general mobility behaviour. An environmentally gentle, mobile alternative is supposed to raise the quality of life not just for local residents but also tourists.

TAKING A BREAK FROM YOUR CAR

Werfenweng has an ambitious goal: they would like to become Europe’s prime holiday train-destination. A goal even more ambitious once you realise, Werfenweng itself has no train station! The project is supported by multiple Austrian Federal Ministries, Salzburg’s government and the European Union.

“Soft Mobility” includes different **components** and most of them are for free. Before you may enjoy these components, you however have to leave your own car at home and have booked an accommodation that is part of the programme. Upon their arrival at these accommodations, guests are handed a so-called “SAMO-card” enabling them to enjoy said programme components.

- **Transfer from the train station/Werfenweng-shuttle:** All guests arriving by train are picked up at the train station Bischofshofen 12 kilometers away. The “Werfenweng Shuttle” is taking people from the train station to the village and back again.
- **E-LOIS:** Within Werfenweng, guests can call a taxi between 9am and 10pm.
- **Night taxi:** On fridays and saturdays, a night taxi is on call between 7pm and 4am.
- **Prepaid mobile phones:** If needed, every family may receive a prepaid mobile phone to partake in activities requiring a phone.
- **Sustainable cars:** Both the “Werfenweng smile-E” and the “Th!nk City” use solar energy. “Werfenweng Grashüpfer” are biogas-fuelled.
- **Mobility options:** Electric cars, electric bikes, funrider and many more vehicles are available for driving within Werfenweng and its vicinity.
- **Bicycle renting and touring:** Bicycles and mountain bikes are available to rent at the village. Guided cycling tours are offered weekly.
- **Horse-drawn carriages and sledges:** The offer is complemented by rides on horse-drawn carriages or sledges.

- **Excursions:** Excursions to for example Salzburg or the ski-jump in Bischofshofen are offered weekly.
- **Hiking:** There are regularly organised hiking trips.
- **Other rental services:** During winter, people can rent cross-country skiing equipment, sleighs and ice skates in Werfenweng.

The rising number of guests prove the increasing popularity of their programme. Around 1.000 SAMO-cards were given out in the year 2000 and triple the amount just two years later. Nowadays, around 9000 guests are using the SAMO-offer annually.

Different sources finance the programme: guests pay 8 EUR as an administrative fee for every SAMO-card handed out while the participating hostels and inns are charged 0,70 EUR per night. Furthermore, the programme is currently financed with 20.000,00 EUR in annual grants.

SUCCESSFUL WITH TOURISTS AND LOCALS

Success cannot be measured just by counting all bookings. While accommodations in different regions had to deal with declining numbers, bookings in Werfenweng have steadily increased since the beginning of the project. It became apparent that new groups of customers (namely customers with higher education and higher environmental consciousness) had been won. At the same time, the amount of regulars increased. 28% of all guests arrive by train.

However, sustainable mobility is supposed to be put into practice beyond the area of tourism. Residents are supposed to be made aware of sustainable mobility options and encouraged to switch to them. Positive change is expected due to the circumstance that the offers of the SAMO-project also profit the local population: the Werfenweng shuttle as well as the night taxi are just as useful to residents as it is to tourists. News of the advantages of “Soft Mobility” spread quickly. 1.300 people used the shuttle in 1999 and just four years later the number increased to 12.000.

Additionally, all the offers provided by SAMO created new jobs. The close cooperation between everyone involved in the project strengthened a feeling of togetherness. Overall, Werfenweng enjoyed a major image boost.

In line with the guiding principles of the community, the energy supply is designed in accordance with aspects of sustainable development. A large part of their required energy is obtained locally and in an environmentally friendly way. A large photovoltaic system is their major energy provider. Moreover, many private households are now also producing their own hot water and green electricity. A solar-powered charging station is located at the centre of the village.

A summary of the project seems positive: Soft Mobility has become a unique selling point of Werfenweng. Residents profit of the developments and are proud of the project’s achievements. As shown by the numerous awards, Werfenweng has established itself as a role model for ecological tourism. Inspired by the success, the project has expanded and created additional soft-mobile offers especially for locals. A new development concept focussing on Soft Mobility and tourism is supposed to be implemented. Improving the link between tourist attractions, Soft Mobility and the townscape, the concept is a holistic approach displaying the communities guiding principles.

Further information www.werfenweng.eu

Task 1: Goals

Formulate the main and deriving subgoals of the “Soft Mobility - holidays without a car” project founders.

Task 2: Groups of interest

Describe the goals individual stakeholders or specific groups of interest have. Note how these stakeholders can contribute to the overarching goal of car abstention.

Task 3: Sustainability concept

Analyse what constitutes Werfenwengs sustainability concept. Design a mindmap to sum up your findings.

Task 4: Scenario

Think about how Werfenweng might further develop their project “holidays without a car” within the next couple of years. Note down the alternatives scenario.

Task 5: Environment

Evaluate how Werfenweng could affect environmental factors noted down in the scenario.

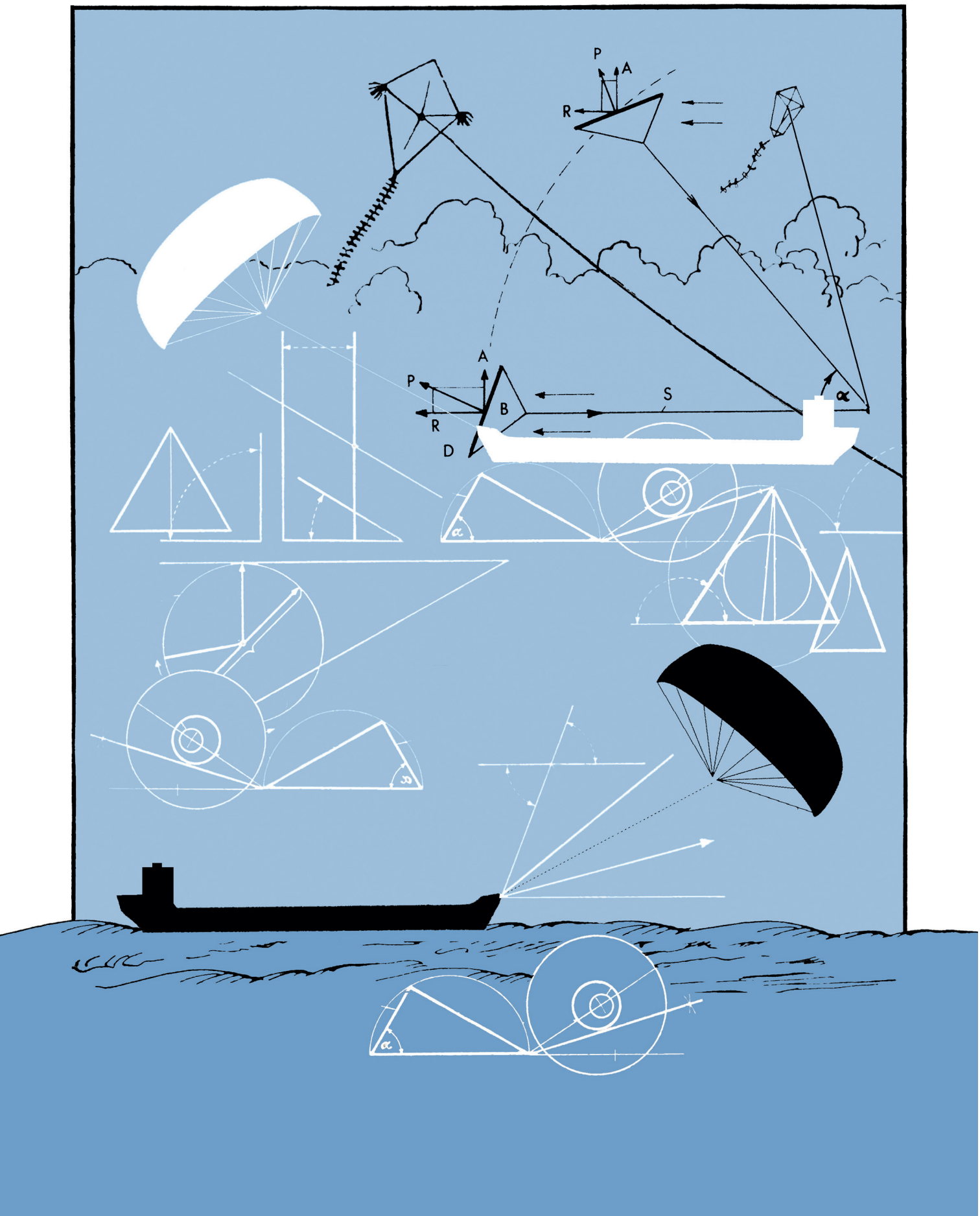
Task 6: Assessment

Assess which preconditions are needed to make this kind of projects successful.

“The holistic concept of Soft Mobility creates a magnificent USP for Werfenweng which enables them to successfully take a niche position with great potential in the tourism market.”

“Finding and implementing the appropriate form of mobility at the right time for the right task is one of the greatest challenges to come. Once overcome, both the environment and thus our valuable living and recreational space but also the people who live there will be the winners.”

Peter Brandauer



Wind is cheaper than oil –

Stephan Wrage,

SkySails



The time of cargo sail ships is long gone. Although wind power remains a cost-effective source of energy it can no longer meet the requirements of modern shipping. The research done by a couple of North German engineers might however turn the tide and reinvigorate wind-powered sailing.

THE IDEA OF A 15 YEAR OLD

The company SkySails - based in Hamburg - produces towing kites, which serve cargo ships as supporting propulsion. The founder of the company, Stephan Wrage, came up with the idea for this system when he was 15 years old: "As a sailing and kite flying enthusiast, I remember being pulled by a kite at high speed all across the beach and wondered what other uses this enormous power could potentially have. That initial spark developed into the idea of using their power to pull entire ships. During the development of our product, we were motivated by and also believed that it is possible to do high-revenue business in harmony with nature."

Having finished his technological studies, Stephan Wrage

founds his company SkySails in 2001 and described his idea this way: "The SkySails-system consists of three simple main components: a towing kite with a rope, a starting and a landing system as well as a control system for fully automated use. Instead of traditional sails, SkySails uses tall towing kites to generate forward propulsion. A highly tear-proof synthetic rope relays the pulling force to the ship. The starting and landing systems respectively are in charge of raising the kite and pulling it back in. The SkySails-system can be operated by the crew from the ships bridge."

WINDENERGY IS FOR FREE

SkySails wants to reduce the fuel consumption of modern shipping by making environmentally friendly, free of charge wind energy more accessible. According to the company, the fuel costs of ships could be on average reduced by 10 to 35% annually and at peak wind conditions could potentially even be halved. Numbers on fuel savings can however only work as estimates as multiple, diverse factors influence them. Among those influences are wind, waves, water temperature, ocean salinity, loading condition, growth on the hull, speed, the efficiency of either the propeller or main engine as well as the ships hull shape.

The system can be implemented on almost every freighter or superyacht. Particularly large and fast containerships moving at 25 knots are however less suited. More than 100.000 commercially used vessels worldwide are recorded at Lloyd's Register of Shipping. Of particular interest to SkySails are the approximately 60,000 long-haul vessels and fishing trawlers. New types of ships are, however, added every year. There are also around 7.500 privately owned superyachts (length above 24 metres).

THREE TO FIVE YEARS AMORTISATION

Depending on the size of the ship, the initial costs range between half and 2.5 million euros. The company estimates however that the towing kite wind propulsion system

will be amortised by customers within three to five years. Amortisation is potentially this fast due to the relatively low costs of acquisition and the expenses saved by a fully automated system. Maintenance of the SkySails system's components is uncomplicated and can be done by qualified on-board personnel at sea (with the exception of the control system as well as the towing kite and rope). SkySails maintenance specialists for wear parts and special components are available on short notice at every harbour across the world.

The company believes that shipping companies will gradually retrofit their entire fleets once their first ship successfully operates the system. The resulting edge on their competition should then be reason enough for other shipping companies to make the upgrade themselves. However, the system did not take over the market as quick as developers had hoped. In 2016, only three ships from Wessels shipping company and BBC Chartering respectively. Another three ships are currently also planning or installing the system. The company was founded in 2001, has 50 employees and is mostly financed by investors (e.g. shipping companies) but also receives public funding. It has since then established itself as market leader for automated towing kite systems. Initially, the companies executives planned on installing their system on 50% of all viable ships. An ambitious goal which remains impossible without the acquisition of license partners.

The company's main business are wind-powered propulsion systems for ships (SkySails Marine). Beyond that, they are involved with development and production of

power generators (SkySails Power). As their third area of business they are also developing software to measure a ship's energy consumption, to monitor and reduce costs. Since 2004, the company has received multiple awards for their technology.

Further information: www.skysails.info

Task 1: Pros and Cons

Analyse the pros and cons of purchasing and using a SkySails-system. Create a mindmap..

Task 2: Environment impact matrix

Create an impact matrix to illustrate in how far external factors can influence shipping companies' strategic actions and how in turn that may link to use of SkySails-systems.

Task 3: Analysis of controlling options

Evaluate in how far shipping companies can control external factors.

Task 4: Amortisation

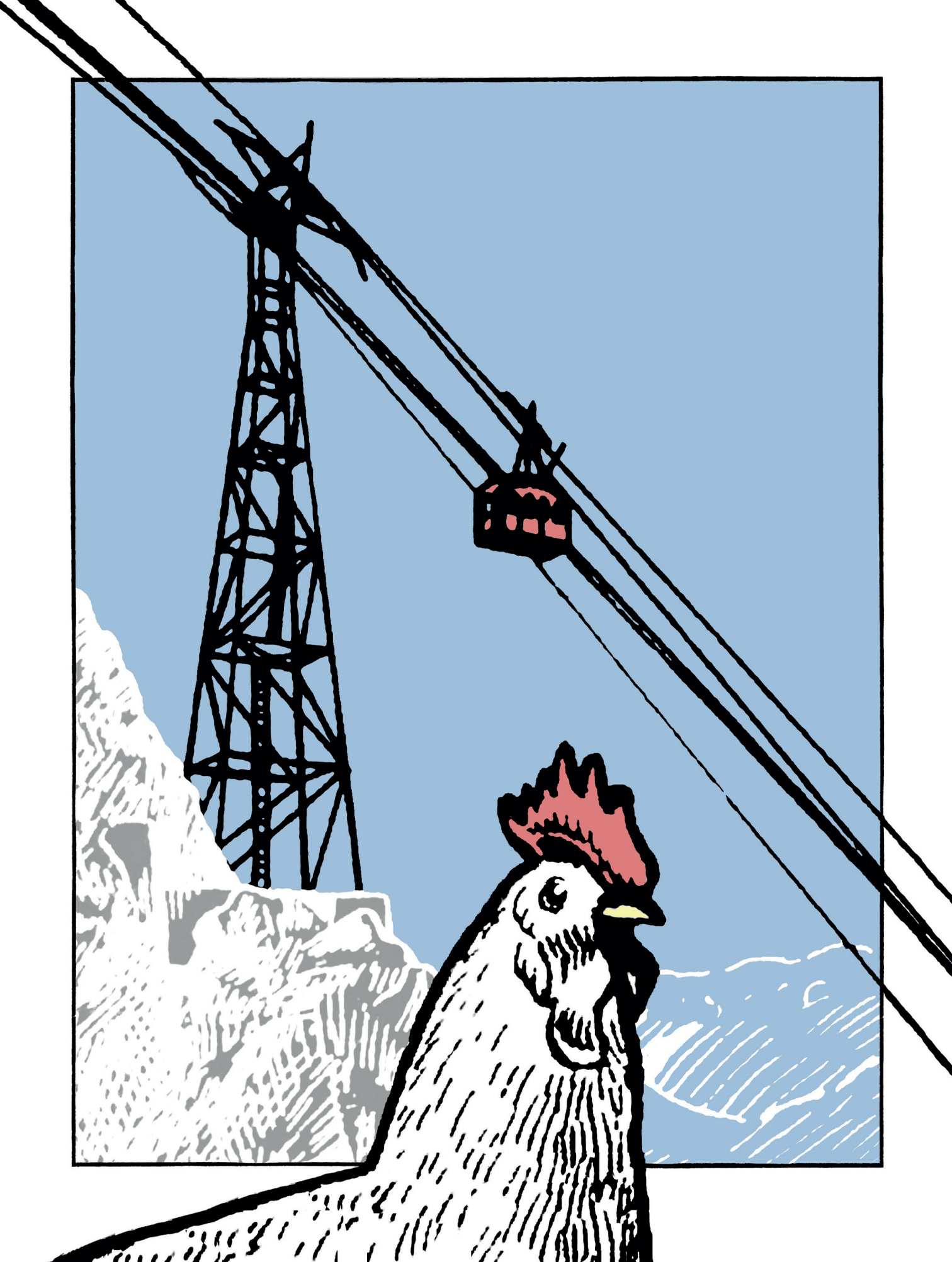
Describe the variables upon which the duration for amortisation of a towing kite system depend on.

Task 5: Comparison

Describe the difference between the SkySails-system and earlier use of wind-power on freight ships.

“Our common motivation in the development of the product was that it is possible to work in harmony with nature in a highly profitable way.”

Stephan Wrage



The first ones on the mountain – Bergbahn AG Kitzbühel



In the Alps, tourist activities are concentrated in selected regions, especially in the higher altitudes. On the one hand, these areas are economically highly dependent on tourism, on the other hand, criticized in many places that the artificially created infrastructures (e.g. in the areas of transport, accommodation, lifts, etc.) and the intensive use of the areas endanger the ecosystems of mountain regions. In addition, there are environmental problems due to climate change (see glacial melting, thawing of the permafrost), which affect the tourism industry. Thus one is confronted with multi-layered, mutually influencing problems.

SUSTAINABLE ON THE MOUNTAIN

Bergbahn AG Kitzbühel, the largest cable car company in Austria, was founded in 1928 and is considered one of the most important economic factors in the region. Around 200 employees are employed here throughout the year, and around 500 in winter. In 2007, *Bergbahn AG* was the

only cable car company awarded by the state of Tyrol as a sustainably operating company and is now an official member of the Sustainability and Business Partnership in Tyrol. Twice the company was honored with the Sustainability Award of the Austrian Federal Economic Chamber. The ski resort around Kitzbühel has already been awarded several times as the “World’s Best Ski Resort”, and *Bergbahn AG* has repeatedly received the award “World’s Best Ski Resort Company”.

The *Bergbahn AG* operates eleven cable cars, 28 chairlifts, seven surface lifts and eight conveyor belts (total transport capacity: 93300 persons per hour), most of which is in operation during the winter season. In addition to the transport facilities, the company offers 215 km of groomed slopes of varying degrees of difficulty and 36 km of ski routes. In order to guarantee unadulterated skiing fun, over 1000 snow producers are in use. Ten storage lakes with a total capacity of approx. 725,000 m³ provide the necessary water.

TRADITION AND INNOVATION

At the beginning of the 1990s, a process of renewal continued until today, during which numerous old lift and railway systems were replaced or renewed. Although several lifts were dismantled, overall the transport capacity could be increased. Every year, tens of millions are invested in the expansion and reconstruction of the infrastructure. The transport systems are mostly sourced from local suppliers. The selection of suppliers is not only based on prices and conditions, but also on the aspect of promoting the regional economy.

In order to be able to enlarge the snow-covered slope area, the snowmaking systems were increased at the same time, which should work as quietly as possible, so that the neighbors are not bothered too much. The plant snowmaking is positively assessed by the farmers. The slow melting artificial snow cover allows the soil to absorb more moisture, resulting in improved spring growth. In addition, it is believed that the turf is better protected than

by a thin natural snow cover.

However, related building projects such as e.g. the plans on the Kitzbüheler Horn for a snowmaking system including storage lake, do not necessarily meet with undivided approval. While the supporters for the preservation of the ski resort at the Horn even consider an even more extensive snow making to be useful, critics argue for the maintenance of the natural ski area.

INNOVATIONS FOR THE SLOPES

The storage lakes serve to provide the water for the plant snowmaking. These lakes not only secure winter runs, but are also a scenic attraction for summer visitors.

Great importance is attached to minimizing the impact on the natural environment, both when creating lakes and when planning new transport facilities. Necessary terrain corrections and deforestation are attempted to minimize, for recultivation seed adapted to the vegetation conditions is used.

To extend the ski season has recently been used a new method: Snow-farming. At the end of the ski season, snow will be collected in depots on the slopes. A cover to protect the snow during the summer, so you can continue working in the winter season with the “old snow” and thus advance the start of the season. After a successful test run, *Bergbahn AG* now stores around 50,000 m³ of snow in five depots.

To reduce energy consumption, wherever possible, automated measures such as motion detectors or daylight-dependent lighting control are used. With low visitor traffic one drives specifically slower or carries out only demand drives. Also, in the administration buildings and catering establishments one pays attention to an economical use of energy.

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Since a large part of the ski slopes are located on a foreign land, a good relationship with the landowners is of particular importance. Equally important to the company is good cooperation with the various stakeholders, such as associations (eg mountain rescue), municipalities, tourism associations, ski clubs and schools.

COMMUNICATION AND COOPERATION

Bergbahn AG has been reporting on developments in the company, current projects and environmental protection measures for several years in the company's own journal “Bahnorama”, which is also distributed to all households in the surrounding communities. In addition,

it cooperates with popular science television magazines, which help make projects and corporate philosophy to a wider audience. The financing of investment measures also builds on the support of the surrounding communities and tourist boards, as the state does not provide subsidies for such investments.

QUALITY AND SECURITY

In order to be able to guarantee a high quality of service combined with a high level of security at all times, risk / crisis management plays an important role in the company. It is all about improved handling of natural hazards as well as a better estimation of the hazard potential. Therefore, lifts and cable cars are checked annually for their safety. Carrying out inspections at transport facilities at much shorter intervals should help minimize the leakage of oils and fats.

FOCUS ON EMPLOYEES

Seasonally, the number of employees varies greatly. However, efforts are being made to enable many employees and employees to work full time throughout the year. For example, during construction work - if possible - own employees are employed. On the one hand this increases motivation, on the other hand one can rely on the experience of the employees in the company. In terms of diversity and equality, the employee structure is not yet optimally developed, which is also due to the fact that men still dominate technical careers.

Training and further education measures are regularly offered on a variety of topics, which are also organized by external providers. Exercises conducted in conjunction with Mountain Rescue, Fire Brigade and Police should ensure that employees are prepared for emergencies at all times and can act appropriately. Ecology-oriented personnel training should help sensitize employees to sustainable development.

Employees have the opportunity to offer praise and criticism in the feedback circles that take place regularly and at all levels of the hierarchy, as well as submit suggestions for improvement. To promote the health of the employees z. For example, a separate program is launched. Overall, employee satisfaction is given high priority.

MEASURES FOR THE CUSTOMERS

Satisfied, returning guests are the basis for the future corporate success. In order to ensure a high customer satisfaction, one not only pays attention to a high quality of service, but also conducts regular guest surveys. In order to attract new customers (especially people who start skiing and families with children), they are counting on the free use of the practice tow lifts in the valley. This should facilitate the (re) entry into winter sports.

The arrival and departure traffic by car usually puts a heavy strain on the tourism communities and is also at the expense of the holiday guests. In Kitzbühel, therefore, a ski bus network was already set up at the beginning of the ski tourism boom, which can be used free of charge with valid ski passes. Traffic control measures (such as temporary one-way regulation) should help to reduce passenger car traffic within the city. At the edge of the ski area, supervised, free parking was set up.

The construction of new transport facilities (three-rope orbit and panoramic lift) allowed ski areas to be connected. Skiers can now get into the ski area faster without having to take longer journeys by car to the next cable car.

In addition, the *Bergbahn* participates in the combined tickets of the Austrian Federal Railways. Passengers traveling with these tickets benefit from discounts on both the fare and the lift pass. But not only guests who stay longer on site, but also day guests want to facilitate the journey. For them, there are cooperations with rail and bus companies that bring especially guests from southern Germany to Kitzbühel. Even at major events such as the Hahnenkamm race, you are looking for an environmentally friendly journey. These offers are favored by the Hahnenkamm railway station, which is located in the immediate vicinity of the valley station of the cable car.

In addition to the transport facilities, *Bergbahn AG* operates the Aquarena, a bathing, wellness and health

center in Kitzbühel, as well as catering facilities. In restaurants, great value is placed on the use of seasonal and regional products. In addition, multi-use bottles and recyclable items are used.

On top of that a mountain railway museum was established in 1992 on the Hahnenkamm, which informs about the history of the company. An alpine flower garden and a four-season hiking trail are another contribution to sensitizing the guests.

Further information: www.bergbahn-kitzbuehel.at

Task 1: Regional significance

Describe the importance of *Bergbahn AG Kitzbühel* for the town and region.

Task 2: Factors – effect structure

Analyze which factors are important for the successful operation of the cable cars and lifts. Show their interaction in a context and briefly explain the relationship of effects.

Task 3: Impact matrix

Derive an impact matrix from your effect structure.

Task 4: Intensity portfolio

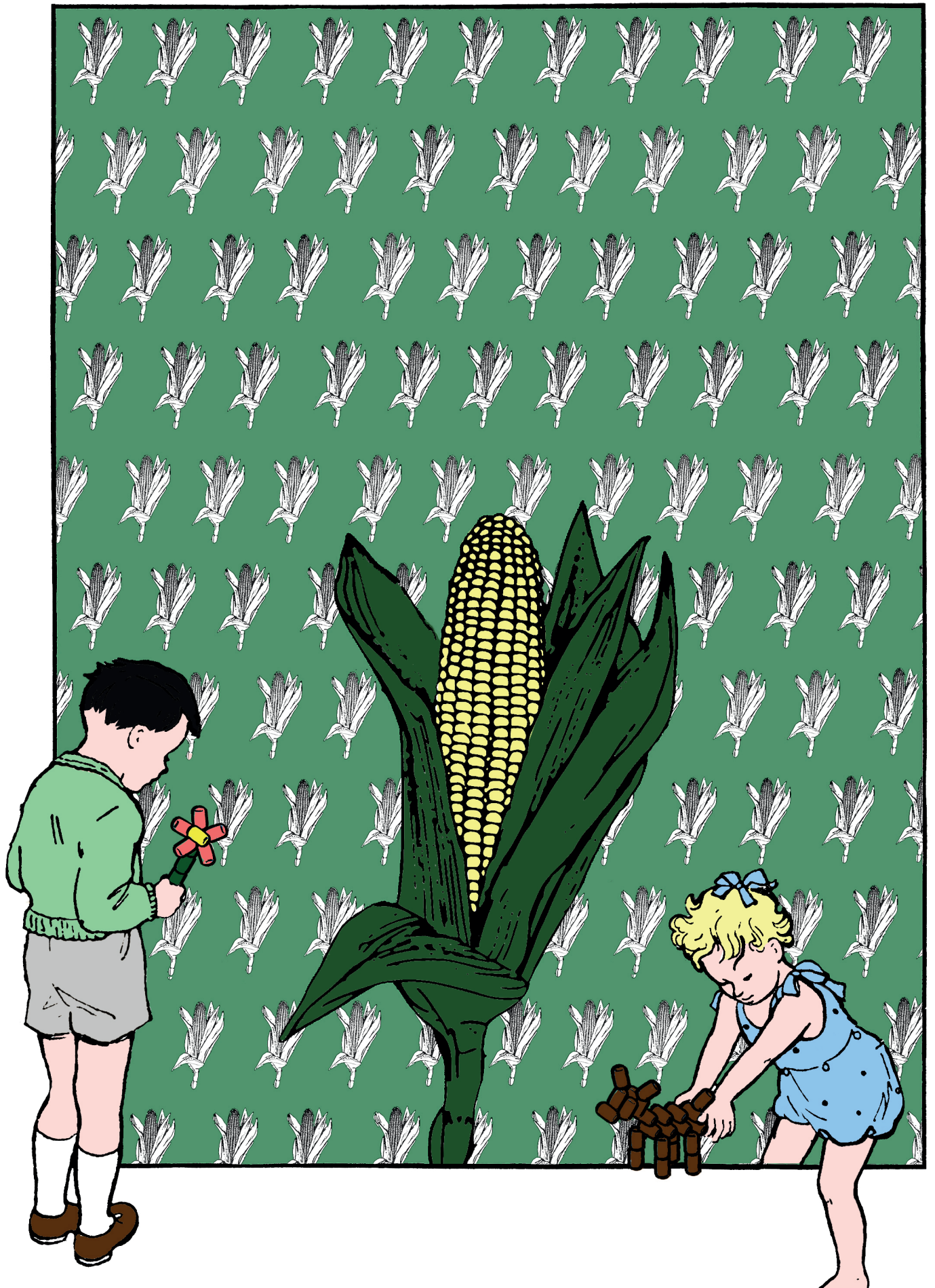
Based on your impact matrix, develop an intensity portfolio and briefly comment on your result.

Task 5: Aims

What are the interests and aims of the individual actors? Explain this in a perspective focus.

Task 6: Mind map

Explain how skitourism and sustainable development can be reconciled. Create a mind map for that.



Playful into the future – Sandra Gstrein and Siegfried Wurm PlayMais®



Together with the maize farmer Hubert Loick, Siegfried Wurm came up with the idea in the mid-1990s to make corn more than feed, corn semolina or popcorn. Corn is one of the most important agricultural products in Austria and can be grown almost anywhere. Hubert Loick thought about doing something for children and thus also impressed Siegfried Wurm, who at that time worked in the management of a wholesale company.

Together, they developed the product idea for a natural craft toy and from 1999, the production took place. Since 2000 the brand *PlayMais®* is protected. With this seemingly simple idea, the two innovative entrepreneurs were able to enter a niche area. *PlayMais®* is a natural toy designed to help children develop their personality and promote the sense of touch, dexterity and spatial and temporal thinking when modeling.

WHAT IS PLAYMAIS® ACTUALLY?

It is a toy and craft tool (suitable for children from the age of three), which consists of small, fluffy-light and light colorful “sausages”. With a bit of moisture, objects can be formed from the material and stuck together. There are no limits to fantasy: houses, animals, plants, fairy-tale

characters or abstract structures can be created.

PlayMais® is a natural product made from heated, pressurized corn meal similar to popcorn. Then everything is dyed with food color. The material is 100% biodegradable and therefore does not burden the environment in any way. It offers almost unlimited possibilities through deformation, pressing, cutting, rolling, plucking and is glued completely without adhesive - only with water. It is also liable for various documents such as paper, glass and ceramics. The tiles can be composted and reused after use.

Due to the variable design options *PlayMais®* can also be used for therapeutic purposes. It strengthens the ability to handle tasks and can also promote social behavior in groups.

FUNCTION INSTEAD OF CONVENTION

Despite the international trend, *PlayMais®* is developed and produced in Germany, which is not a matter of course if you take a closer look at the toy market.

PlayMais® is available in different pack sizes (at least 500 colored components); In addition, there are craft manuals and a *PlayMais®* WORLD edition. 145 Here, the building blocks are additionally pre-cut parts made of cardboard plates are added (eg *PlayMais®* WORLD SEA or *PlayMais®* WORLD FARM). Since July 2009, the collaboration with the Walt Disney Company, so that licensed products can be offered on popular themes from the world of comics. Kindergartens and schools are offered their own Megaboxes.

PlayMais® also sets trends in advertising. The market is increasingly demanding high-quality “give-aways” made in Europe, with which a company can convey its sustainable value. Here can be produced completely according to the respective customer requirements.

COMMUNICATION WITH CUSTOMERS

PlayMais® supports the sale in particular through live craft activities in the context of large and small children's and family events (eg creative days at ToysRus, Bee Maja Roadshow, Confetti on tour, games fair in Essen, hobby shows in Leipzig and Berlin). Cooperations with companies active in the area of children and families (eg through advertisements in the Ori-ginal Children's Hotel Catalog) are also being entered into. In total, around 850 doctorate appearances are carried out and numerous (print) media, radio or television reports are reached.

*“Understanding”
agriculture and the
environment with
children.*

SUSTAINABILITY

... is the opposite of short-lived and shortsightedness and is a significant philosophy behind this business idea. Specially grown maize is used, the grain of which is used for the production of *PlayMais*®. The rest of the plant goes into the production of regenerative forms of energy. It is therefore the recovery of renewable raw materials, their composting and thus also the return of the substances in the natural cycle. In addition, corn is a valuable oxygen producer and thus a contribution to CO2 reduction.

The commitment of the company was u. a. received the “Award for Sustainable Groth Excellence” from DUPONT, the environmental protection award of the state of Steiermark and the second overall winner in the TOP 100 young entrepreneurs competition. With *PlayMais*®, sustainability can be playfully experienced, understood and “understood” - the product is therefore an image carrier for a promising circular economy.

PLAYMAIS® - VISION

by Farm-Fill Umweltinnovations- und Vertriebs GmbH 2008

INITIAL SITUATION:

Agricultural knowledge and the associated appreciation for agricultural raw materials and bioenergies, through whose use the environment can be spared and waste avoided, is increasingly becoming a foreign word in the high-tech age.

THE IDEA:

Playfully experience, understand and comprehend sustainability. *PlayMais*® is a toy made from the natural product corn, which our children know as food plants and food stuffs. With this material, children will get to know and understand another agricultural field and a positive example in environmental education. Children want a clean environment, and the compostability of *PlayMais*® illustrates the ideal path of a circular economy of how we humans can conserve the fossil resources of our planet.

The toy smells of its raw material “corn” and stimulates the children to creative play. Agricultural surpluses can be used for everyday necessities through educationally-aided, age-appropriate expertise combined with a lustful, creative-playful approach and sensitivity to nature. Catering accessories, packaging materials, foils, etc. In order to underline the advantages of children's toys in manufacturing, use and disposal, we as entrepreneurs have committed ourselves to supporting charitable organizations on an ongoing basis within our capabilities.

Our idea is not to be seen as a beginning or an end, but as a permanent endeavor from “knowledge to action”.

The great importance of our idea lies in the fact that with the medium *PlayMais*® not only children are addressed, but also their parents and grandparents get to know the difference between sustainably “ACTING” and “REACTING” through the positive concern of the children.

NEW FORMS OF DISTRIBUTION

The Austrian company now also has several *PlayMais*®-partners in other European countries, such as Italy, Hungary, Germany and the Czech Republic. In the age of internationalization and e-commerce, of course, the need for packaging materials for distribution increases, since the goods do not run on a classic shelf but must be sent. There is a huge opportunity here to combine new forms of distribution with modern, environmentally friendly packaging.

Further information: www.playmais.at

Task 1: Aims and environment

Create a mind map that addresses the aims and environment of the business.

Task 2: Effects

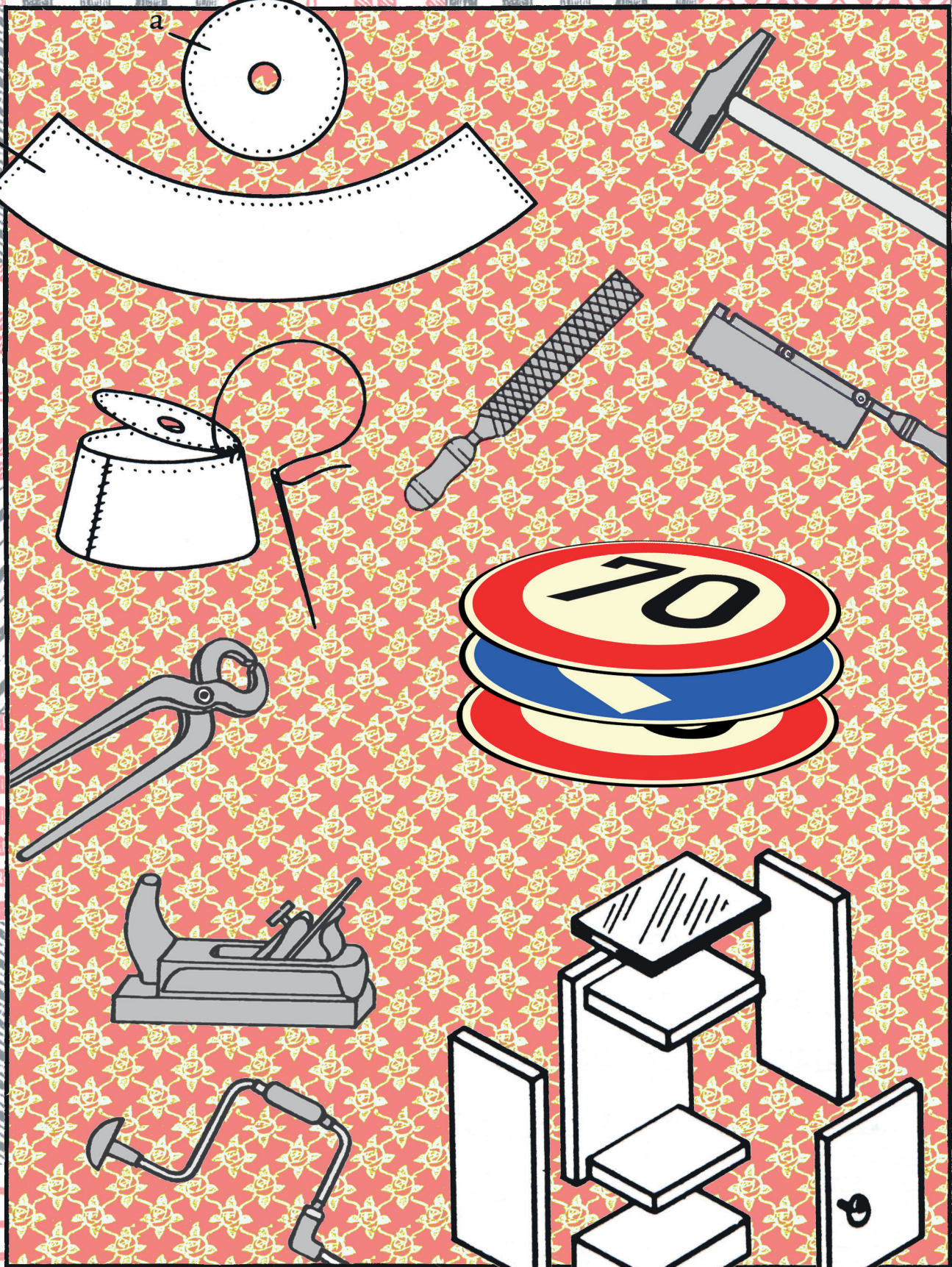
Analyze and describe the factors that determine the success of the *PlayMais*® business idea in an impact/network.

Task 3: Scenario

Demonstrate future development opportunities through scenarios.

“The concept of sustainability is a guideline for a meaningful and happy life. It reminds us to be something to other people - now and in the future. It encourages expanding one’s own horizon, thinking beyond oneself and developing entrepreneurial solutions with added value.”

Johannes Frühmann



Design sustainability and social responsibility – Gabriele Gottwald-Nathaniel, *gabarage upcycling design*



integration of people struggling with addiction in her socio-economic business.

People who are taken care of by her business want to lead a new self-determined life - free from their addiction. They undergo a one-year allround training on various activities typical to a line of work, among those are woodwork, sewing, administration and sales. The aim is getting back into the job market. Today, *gabarage* has two workshops set up and has already helped many people re-enter the job market. 60% of the people trained at *gabarage* can find employment immediately again after re-entering the workforce. After three years, 30% are still in employment. Considering the often very difficult conditions, the people responsible for the project can be proud of these figures.

The costs of running their operation are covered by the funds of the Anton Proksch Institute and the Addiction and Drug Coordination Vienna GmbH as well as the (hopefully steadily rising) businesses' own revenues. The personnel costs for the transit employees are covered partially by the Vienna Public Employment Service.

ON YOUR SHOULDER INSTEAD OF THE WASTE DUMP

THE WAY BACK

The way out of (drug) addiction is rocky and hard. Supporting people along this path and showing them new perspectives is the goal of Gabriele Gottwald-Nathaniel. She is the Administrative Director at the Anton Proksch Institute the largest addiction clinic in Europe and head of the socio-economic company "*gabarage upcycling design*".

In 2002, the socio-economic business "*gabarage upcycling design*" was launched. They bring former drug addicts to work together with selected designers to design products that consist exclusively of waste or residual materials. Production and sales are also handled by the employees of *gabarage*.

Gabriele Gottwald-Nathaniel and her team successfully merged the areas of upcycling design and social (re-)

Nothing gets thrown away at *gabarage*. All products are completely sustainable and made from materials that are no longer needed or have already been disposed of. Upcycling is a method to reuse old materials, refurbishing and using them in a new or different way. The newly created objects can have both an artistic character or represent a new interpretation of existing things. With upcycling, *gabarage* proves that waste products should not necessarily end up at a landfill or in the incinerator and that we can recycle resources without using up large amounts of energy. Summed up, *gabarage* successfully combines design, sustainability and social responsibility.

Truck tarpaulins are repurposed into shoulder bags, old file folders are turned into wardrobes or loungers. Old garbage cans serve as stools, discarded materials are used for the construction of lamps and shine in a new light.

They create unique pieces in limited series characterized by individuality and the history behind their materials.

gabara manages to create material and immaterial value at the same time. Besides adding utility to their creations, design pieces from *gabara* also have an added social value. Evoking the creativity of former addicts, increasing their self-esteem and additionally destigmatizing their condition.

Inside *gabara*'s showroom at Schleifmühlgasse in Vienna's 4th district, people can get an overview of the product designs and immediately start shopping while there here. With the product lines *upstyle@gabara* and *ideen.reich*, *gabara* also opens up new business fields in the areas of clothing, interior, accessories and jewellery.

COMPANY WITH RESPONSIBILITY

In addition to private individuals, *gabara* also appeals to companies that want to take on social responsibility in the context of Corporate Social Responsibility (CSR). All part of their sustainable business philosophy, *gabara* takes over waste products from companies, upcycles them, creates design pieces and thus makes old materials usable again for the company. Among the companies profiting of *garbarage's* work are Siemens and the Academy of Fine Arts Vienna who use bags made out of old tarpaulin or old.

This way Siemens and the Academy of Fine Arts already profit from *gabara* and use bags from old industrial tarpaulins and old covers.

Further information: www.gabara.at

Task 1: Goals

Phrase social, ecological and economical goals for *gabara*. Define main and sub goals for each area.

Task 2: Environment analysis (actors – stakeholders)

Define the most important actors or stakeholders from the environment of *gabara*. What goals have these set?

Task 3: Effect structure

Graph the relationships and try to define the direction of the relationship. What are relevant factors for *gabara*? In what context are these actors or stakeholders related to each other?

Task 4: Impact matrix

How strong are these influencing factors? Create an impact matrix.

Task 5: Intensity portfolio

Enter the results of the impact matrix into the intensity portfolio. What conclusions can you draw from the intensity portfolio?

Task 6: Scenario

Which developments are possible for *gabara* in the future? Define key factors and create an optimistic, a pessimistic and a probable scenario for *gabara*. Evaluate the impact of the adopted developments on *gabara*.

Task 7: Control options

Analyze in which areas *gabara* can actively influence the development.

*“We give both
people and things
a second chance.”*

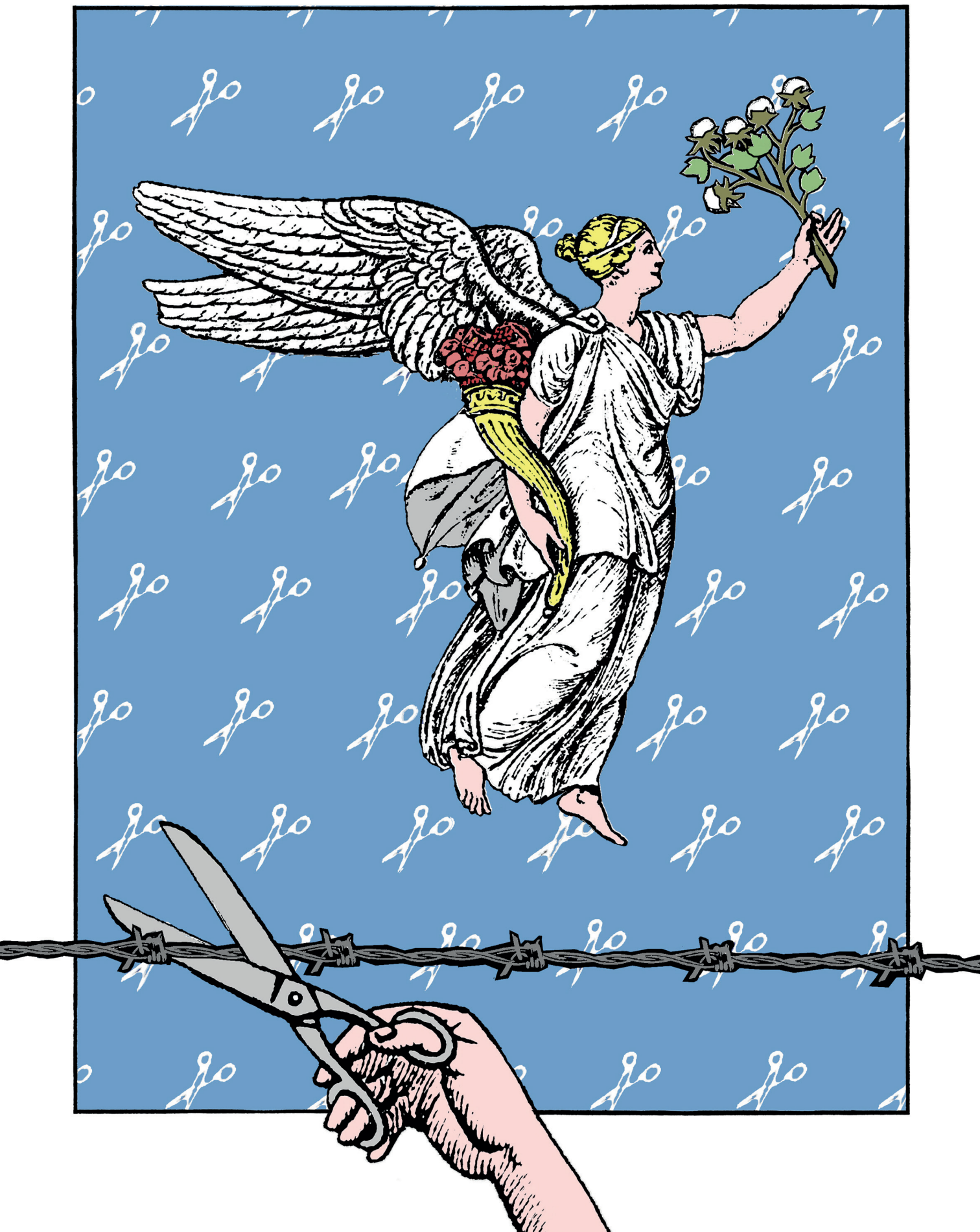
Gabriele Gottwald-Nathaniel

“When I meet former gabarage employees and they tell me that they have been working for a few years now and how happy they are to have been with gabarage, then I know I am doing the right thing and I would not want to do any other job.”

Gabriele Gottwald-Nathaniel

“The work and, above all, the ideas of gabarage correspond to our corporate culture: they are sustainable, incorporate ecological, social and cultural factors and place people at the center.”

Peter Baumgartner



Clean clothes in every way – Lisa Muhr and Igor Sopic Goddess of Happiness



INITIAL SITUATION

To minimize production costs, many large corporations - including well-known brand companies - have ceased to produce themselves, but have companies manufacturing in so-called low-wage countries. In countries such as Indonesia, China, Vietnam, Thailand, Bangladesh, Mexico and the Philippines, so-called export production zones have been created, where tax concessions are produced at very low prices.

The original purpose of these zones, created with the support of the UN, was to promote the development of the economies of the countries concerned and to enable them to enter the global market. Worldwide, there are already more than 3 500 such zones in which, according to estimates by the ILO (International Labor Organization), some 66 million people are employed.

In addition to the elimination of jobs in the home countries, the working conditions in the so-called sweatshops were repeatedly criticized: The requirements are so high that they cannot be mastered in normal working hours. Working hours of up to 14 hours are therefore not uncommon. If the norm is reached more often, you increase it. The workplaces are similar to prisons: high walls, barbed wire, security forces. Wages are vanishingly small and are not enough to feed a family.

One of the many campaigns dedicated to eliminating existing grievances and engaging in active educational work is the Clean Clothes campaign, which is targeted specifically at the textile and clothing industry.

The goals are clear: as consumers become more critical and buy more consciously, they can put more pressure on brand companies. This has gotten around in the meantime. Demand for decent-production clothing is increasing. As a result, more and more companies are voluntarily creating codes of conduct, imposing a commitment to work to improve social conditions, to ensure minimum social standards, and to demand this from their suppliers. In this context, the Clean Clothes Campaign requires independent monitoring of compliance with these codes, which also considers the interests of the employees.

GODDESS OF HAPPINESS IS ECO-FAIR

In 2005, the fashion label Goddess of Happiness (GDG) was founded in Vienna, which is committed to this purpose and creates its feel-good collections under the motto “Thank you, I’m fine”. Behind the label initially stood a four-person international designer collective. “Humor, creativity and diversity make our group so innovative,” explains designer Lisa Muhr, who still manages the fate of GDG to this day.

The fashion label Goddess of Happiness combines fair trade with organic farming. The combination of the two, which the designers call the “eco-friendly”, is implemented in a complete fashion line (from underwear to outerwear for men and women).

“A feel-good collection that exploits people and harms the environment is simply not possible.” This is how Lisa Muhr explains the decision to abandon conventional producers one year after the founding and to work on the implementation of ecology and fairness throughout the entire production chain. The Goddess of Happiness was thus Austria’s first fashion label to consistently build on the use of certified organic cotton from Fair Trade and to offer transparency in all stages of production.

COOPERATION PARTNERS ALONG THE PRODUCTION CHAIN

The production of eco-friendly fashion would not be possible without cooperation partners. Since 2006 one has been working together with EZA Fairer Handel, Austria's largest FAIRTRADE import organization. Fair trade cannot override the laws of the world market. But it can set the course, which also takes into account the interests of the producers involved. This includes appropriate remuneration as well as the establishment of long-term, preferably direct trade partnerships based on dialogue, transparency and mutual respect.

Through the cooperation of the Goddess of Happiness with EZA, the claim of the designer label Goddess of Happiness to consider social and ecological standards along the entire production chain could be realized. FAIRTRADE-certified cotton, which comes from organic farming, is processed.

FROM COTTON CULTIVATION TO SPINNING TO SEWING

Cotton cultivation takes place in the west of India, in the state of Gujarat. There, the service organization Agrocel supports and advises some 15,000 smallholder families, with biological cultivation being of great importance. Chemical fertilizers and pesticides are not used. Fertilization takes place with the manure of livestock, pests are combated by means of organic substances. For example, an effective insecticide is made from the leaves of the neem tree. Since only harvested by hand, you can do without additional defoliant. Hand picking - albeit an extremely strenuous job - has qualitative advantages over machine harvesting. The pickers carefully collect only the fully ripe tufts and leave the less mature capsules on the bush.

Organic farming ensures the long-term fertility of the soil, as well as the health and food security of the farming families. Because there, the cotton is grown in mixed cultures - in India with mung bean, chickpeas and peanuts. So organic cotton also contributes to a healthier diet of the population. Lower spending and better harvest prices provide a more stable economic basis for farming families.

140 million people around the world live on cotton tree cultivation and processing. The annual world cotton production amounts to about 25 million tons. The cultivation of organic cotton is still in its infancy with a

share of less than 1% of world production but has been experiencing a veritable boom for several years.

In Africa and Asia, about 28,000 farmers produce FAIRTRADE-certified cotton. These are exclusively small producers in cooperatives. These can count on guaranteed minimum prices for their valuable raw material as well as on the payment of social and organic premiums. Fair trade not only improved the working and living situation in the affected regions, but also changed thinking. The interest of the community, combined with the pursuit of long-term improvements, became more prominent. Other farming families are encouraged to follow the same path, not only to improve one's own situation, but also to strengthen the community.

FROM AFRICA VIA INDIA AND MAURITIUS TO AUSTRIA

In the Indian spinning company Ramkrishna Spinning yarn is made from raw cotton. From there it goes to Mauritius, where the fabrics are made from it at RT Knits. In accordance with the FAIRTRADE criteria, both companies pay attention to compliance with minimum social standards, based on the core labor standards of the International Labor Organization (ILO): no exploitation of children, no forced labor, regular working hours, right to freedom of association, freedom of organization, right to collective bargaining, equal pay for equal work, no discrimination, observance of the legal minimum wage, minimum age of employees and safety and health at work. Compliance with the minimum standards is verified by FLO-Certification, the international certification organization for FAIRTRADE-certified products.

Cutting, sewing, printing and packaging in Mauritius will be handled by Craft Aid, a partner organization of EZA Fairer Handel. The socially engaged company with 225 employees is a member of the World Fair Trade Association (www.wfto.org) and is also committed to the criteria of fair trade. Dignified working conditions and a safe working environment, higher incomes for workers - wages are about 40% above the minimum wage required by law - and the integration of people with disabilities are business practices practiced at Craft Aid.

Finally, the goods are sent by ship to Europe and ends up at the cooperation partner EZA near Salzburg. EZA Fairer Handel is a permanent cooperation and production partner of Goddess of Happiness. The collections are designed by GDG and commissioned by EZA, which are

produced by Craft Aid. The collections are distributed in several ways: on the one hand through own shops in Austria and one own webshop, on the other hand over approximately 65 boutiques and 90 world shops in seven countries.

Worldshops are specialist shops for fair trade. They offer the widest range of fair trade goods. Beyond the sales activities, they inform customers about the origin and production conditions of the products. They participate in campaigns that aim for more justice in world trade.

AWARENESS RAISING AMONG CONSUMERS

In addition to the sale of fair-produced clothing, the “Goddess of Happiness” also wants to be active in the context of raising awareness and ultimately influencing consumers’ purchasing behavior. An example is set e.g. also through a cooperation with the Wiener Tafel, which receives all fees from lectures. In addition, they worked together, for example, with the Fashion School Wiener Neustadt. Students were able to create designs in an annual project, which were implemented for the summer collection 2014 of the fashion label.

For a company that sells eco-fair fashion, it goes without saying that dealing with just over 20 employees is also characterized by fairness and trust. Staff discussions, feedback rounds, free working hours (within the given opening hours of the shops), the consideration of (changing) needs and wishes in the job profile, the involvement of the employees in the annual planning, flat hierarchies, the equal treatment of men and women as well as a respectful interaction with each other are a matter of course and lived everyday life.

PRICES AND AWARDS

In 2008, the design collective was awarded an entry in the CSR best practice handbook for small and medium enterprises 2008, followed in 2010 by the TRIGOS Award, Austria’s award for Corporate Social Responsibility, in the category “Market”, 2015 the “Sustainable Designers 2015” award.

Unfortunately, the company had to be closed in mid-2018 after 10 years.

Task 1: Production chain

Describe who is involved in the production chain of Goddess of Happiness products. Identify what aims the stakeholders are pursuing.

Task 2: Benefit of fair trade

Through a mind map, keep track of who can benefit from fair trade in what ways.

Task 3: Environmental influence matrix

Analyze which factors in the environment influence the strategic fields of action of Goddess of Happiness.

Task 4: Analysis of the control options

Assess the extent to which Goddess of Happiness can influence the observed environmental factors.

Task 5: Business idea

Develop suggestions on how to secure this business idea in the long term.

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“We are all sprinkling seeds now so that in the future our youth will grow into a different society. These seeds form very different roots, roots that have an ethical conscience and consciousness that grow a forest that gives the earth the opportunity to survive. A world in which one can breathe, a world in which one can laugh, a world in which every person can LIVE again.”

Lisa Muhr

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