



Anticipate Future Jobs on Alpine Remote Areas



Report WP 5 on Awareness raising by training, dissemination and restitution of results

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1. Foreword

Beyond the differences among the selected remote areas, some common vicious cycles are undermining their local development in future by hampering the local innovation on products, services, work organization and technologies, such as aging which causes depopulation which aggravates aging.

These innovations may not always be exploited locally due to lacking or wrong mix of skills and/or knowledge and/or “on the job” ability¹ that are required to import/create new jobs as well as renew/innovate the traditional existing activities.

In Alpine Region, the mismatch between skills demand and supply in certain areas and professional training is clearly visible in the remote areas. Moreover, young people and young adults of these territories are lacking information in particular of some hard/soft skills that either are or will be in demand. In extreme case, some of them are not even interested in finding to filling this gap, working and attending any vocation or education or training².

Current labor market and uncertainties in the local or supra-regional environmental (see extreme events linked to climate change), socioeconomic arena (see current events linked COVID 19 outbreak; changes in public policies or funding) may challenge the chance for them to have or create and maintain own job in future.

Local communities are also changing and will change more and more according to uncontrollable trends (e.g. demography, contrasting dynamics in tourism and use of natural resources). Regional and sectoral innovation systems - formal, informal and not-formal education system included - in the Alpine Region could be not prompt to update or realign competences adequate to deal with the above changes.

Current labor market and uncertainties in public policies or funding might:

- challenge the resilience of local communities towards socio economic uncertainties,
- decrease the chance for the young adults to have or create and maintain own job,
- not allow the mismatch between supply and demand for labour and skills to be filled.

'Intangibles' such as the speed of anticipating skills demand and the capability to customise knowledge in short term are the key to development of a territory; while life-long learning and training for human capital allows to interpret changes as opening up new opportunities and pumping up new trends in local socioeconomy.

To start the introduction of the anticipatory governance WP5 aimed to disseminate the methods that were implemented by stakeholders of the five selected areas between the following two groups:

¹ In order to avoid misunderstanding in the use of the term, competence is here defined as the mix of skills and knowledge and “on the job” ability

² See NEET: Not in Education, Employment or Training.

- young, entrepreneurs, labor agencies, local policy makers and interest groups to be supported and motivated to stay or to return or to be attracted in establishing or creating activities in their territories, and
- formal and/or non-formal and/or informal vocational, education and training (VET) institutions and centres who are operating as the best primers to match skills required within year 2030 by regional/local enterprises and job seekers.

2. Introduction to WP5

The fifth project meeting was held the 9-10 May 2019 at the Polo Poschiavo included the following topics:

- introduction to WP5 activities and learnings from previous WPs,
- experiences in futures literacy (introduction of futures studies in education),
- forecast of skills profiles
- sharing narratives of the ALPJOBs project in terms of skills for 2030, and
- planning dissemination/restitution ALPJOBs activities.

PoP coordinated WP5 activities, supporting the PPs to carry the WP 5.2 and WP 5.3 in their territories assisted by FEM.

3. Preparation of dissemination

It was recalled that WP5 aimed to define a repeatable training methodology about the skill profiles needed in 2030 to be recognised by TEV institutions and labour market.

The following documents supported the PPs in performing the tasks:

- Template Report Jobs Skills Forecast,
- Template Report on Local Restitution and Dissemination,
- Guidelines on dissemination ALPJOBs activity.

PPs began their activities by focusing their attention to reviewing all the results of previous WPs, sharing cases and guidelines for Futures Literacy in order to set up afterwards a common narrative of the ALPJOBs activities.

3.1. Learnings and results from previous WPs

PPs were invited to reflect about the lessons learned from the experimented activities and methods (see Table 1) and retrace the logical path designed for the implementation of the WPs 2-3-4 (see Table 2).

The discussion on the teachings of WP4 (Backcasting and Roadmapping) was only outlined since the PPs were still producing their reports on the local workshops.

PPs were introduced in a simplified way in some of the so called “six Pillars” (Inayatullah 2013) for understanding the future: mapping, anticipation, timing, deepening, creating alternatives and transforming. After a brief recall of the activities, PPs started to specify: what was new to them, what they would do again, which difficulties they had, which improvements they would suggest or apply in possible replications.

Table 1 Methods used in the project and their main characteristics.

Methods	Nature	Capabilities¹	Types of result	Literature References
Strategic Interviews	Explorative (qualitative)	Interaction	Hopes, fears, expectations, priorities	(Ratcliffe, 2002)
Trend Analysis ^S	Explorative (quantitative)	Evidence	Key trends at regional and local level	(Sutherland and Woodroof, 2009)
Strategic Scenarios	Explorative (qualitative)	Interaction/Creativity	Uncertainty-based quadrant of scenarios	(Maier et al., 2016; Ogilvy and Schwartz, 1998)
Systems Mapping ²	Explorative/Normative	Interaction/Evidence	Iceberg model, Causal Loop Diagram	(Maani and Cavana, 2007; Sedlacko et al., 2014; Senge and Sterman, 1992)
Backcasting ²	Normative	Creativity/Expertise	images of future conditions making desirable scenarios possible	(Dreborg, 1996; Manning et al., 2006)
Roadmapping ²	Normative	Expertise	Proposals structured along a medium-long timeline	(de Alcantara and Martens, 2019; Hussain et al., 2017; Schimpf and Abele, 2019)

Table 2 WP goals, experimented activities and methods.

WP2 Framing challenges and drivers as to 2030)	
WP2.2 Megatrends and local trends analysis	WP2.2 Strategic interviews
WP2 Framing the uncertainties as to 2030	
WP2.3 Strategic scenarios for pilot areas	
WP3 Understanding local systems as to 2030	
WP3.2 Systems thinking	WP3.3 Promising local tangible and intangible treasures and skills
WP4 Desirable futures as to 2030	
WP4.2 Backcasting	WP 4.3 Roadmapping

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what they would do again, which difficulties they had, which improvements they would suggest or apply in possible replications.

3.2. Future Studies and Futures Literacy: the basics

3.2.1. Future Studies

“Futures Studies” is the systematic study of possible, probable and preferable futures including the worldviews and myths that underlie each future. In the last fifty or so years, the study of the future has moved from predicting the future to mapping alternative futures to shaping desired futures, both at external collective levels and inner individual levels (Inayatullah 2013)³.

In other words, “Future Studies” deal with the use of the futures in the present.

3.2.2 Anticipation

“Anticipation” comes in different guises: as a lay term it refers to all forward-looking attitudes and activities; as a technical term, anticipation is used in two different contexts: as a component of Futures Studies and as the qualifier “anticipatory” in the expression of “Anticipatory Systems”. The theory of Anticipatory Systems is much broader than Futures Studies and deals with a new understanding of science in which the reactive vision is integrated with the anticipatory vision. In the first: something happens, and the system react, all the causes are in the past. In the latter, the system develops a plan, has hopes and fears, has a model of the future, then the system changes now in order to realize its model at a later moment, in short, the causes come (through models) from the future (Poli, 2017)⁴.

Where future images are constructed by participation the futures become owned by those having interests in those. Obviously, there is no perfect forecast or vision. The futures are continuously revisited and questioned as in continuous learning process. (Inayatullah 2007)⁵.

3.2.3 Futures Literacy

The concept of Futures Literacy (FL) was developed within UNESCO as the capability that allows people to better understand the role that the future and its either uncertainties or unforeseeable challenges plays in what they see and do. FL is important because imagining the future is what generates hope and fear, sense-making and meaning. The futures we imagine drive our expectations, disappointments and willingness to invest or to change. Being ‘futures literate’ enables people, together, to appreciate the world more fully, to use the future to innovate the

³ Inayatullah S., 2013: Futures Studies: theories and methods, in Fernando Gutierrez Junquera, ed., There’s a Future: Visions for a better world (Madrid, BBVA, 2013), 36-66.

⁴ Poli R., 2017. Introduction to Anticipation Studies. Springer International Publishing, Cham, Svizzera.

⁵ Inayatullah S., 2007: Questioning the Future Methods and Tools for Organizational and Societal Transformation. Published by Tamkang University Press Graduate Institute of Futures Studies, Tamsui, Taipei, Taiwan 251.

present (Miller, 2015). Expanding why and how we use the future gives us more choices by expanding what we can see and what we might do.

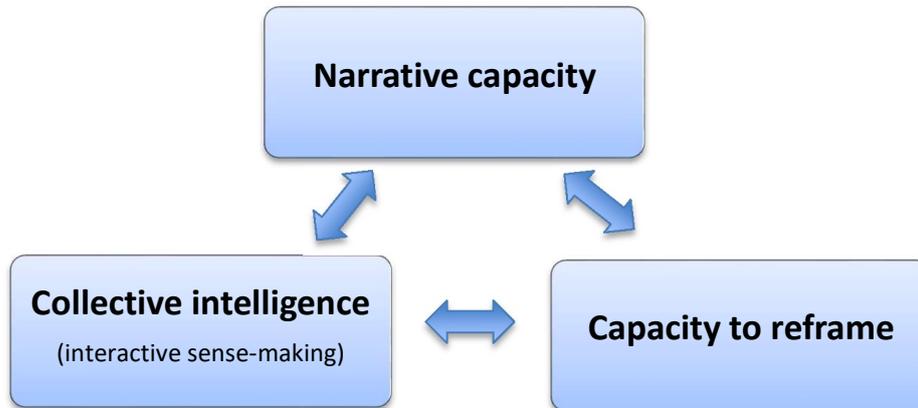


Figure 1 Futures Literacy as a learning process (Miller, 2010).

A “futures literated” young is better skilled to cope uncertainties, to choose the track to be followed to reach its goals and prepared to overcome likely obstacles during his/her professional/personal life. As to market labour as to social life it means to exercise different freedom’s degree to realise his/her aims.

Capability to use of the future needs to be acquired, taught and learned: future is other than the continuation of the present, there are different types of futures (Amara, 1981) and many ways to use the future in the present (Miller, 2007). This means that there are many methods or tools to deploy in order to put and keep the future “at work” today.

3.3. Forecast of skills profiles

PPs were invited to rethink what is the future and how to use it at the best to discover desirable skills profiles in the 2030. Thus, PPs were asked to sketch out skill profiles considering the future needs and conditions in 2030. In details, during the meeting PPs were asked to develop two CV promising in tourism and agriculture sector in 2019, then in 2030, considering all the possible changes in local conditions as suggested by previous analysis and considerations (local trends, strategic interviews, strategic scenarios, system thinking/mapping, local treasures, Backcasting and Roadmapping). They had to imagine how the uncertainties of the future (such as digitalization, further globalization, climate change and their local impacts) might change the skills needed and develop a job profile accordingly.

Each PP was therefore asked to complete the two CVs drafted (see Agro-Food and Forest and Tourism (including recreational and outdoor activities) value chains) in Poschiavo and develop, in the following weeks, the remaining two skills profiles related to Arts-Craft and Services sector (other than tourism, such as education, healthcare, social work value chains). They had to use the common terms included in the European standard (Europass CV), distinguishing hard skills such as foreign languages and , digital skills, from soft skills such as communication skills, organizational/managerial skills), job-related skills and other skills.

The expected output of the forecast exercise was fictional future curricula (at 2030) illustrating the needed developments in training and education initiatives, considering the continuously changing contexts and all the socio-economic issues explored in the previous WPs. The above curricula had to be presented and commented during dissemination/restitution activities. CV 2030 and other project outcomes provide inspiring references and motivations for local communities and VET institutions to introduce Future Literacy in education, training and social innovation.

3.4. Narrative for dissemination and local restitution/final conference

A dissemination plan was presented and debated among PPs to:

- enhance the uptake and implementation of the ALPJOBS methodologies publicising the project's outcomes and promoting the culture of Futures Literacy,
- enrich the skills able to modernize current jobs and morph them in future ones
- involve regional formal, informal and not formal VETs institutions and other stakeholders aiming to create a favorable socio-economic and political environment, and
- collect further insights from TEV institutions and communities of PPs' Country or Region.

PPs agreed to have physical meeting rather than web-conferences/webinars. Dissemination should be consolidated through updating the ALPJOBS website regularly, sharing information through articles, reportages in local media, creating local events etc.

PPs were asked to communicate a complete list of the dissemination events to be carried out between May 2019 and February 2020. A shared Excel table was created to report how the dissemination will develop (articles, reportages, posts etc.).

PPs discussed when and where to stage collectively all participants of the project. A first proposal was that activities should end with a Final Conference where the main results of the project will be presented. PPs proposed to hold it within November 2019 in San Michele all'Adige (Italy) by FEM or in Innsbruck (Austria) by Alpine Convention head quarter or during an event of 3rd EUSALP Annual Forum planned at the end of November 2019. This option was linked to the capability of the WP5 leader and PPs either to find extra funds for the organization of the Final Conference or convince EUSALP AG 3 and 6 Leaders to contribute for the organization of the event at of 3rd EUSALP Annual Forum planned at the end of November 2019. PoP should be in charge to organize and provide funds to organize it and FEM would help accordingly to its possibility. A second alternative to be taken into consideration was linked to possible shortage of remaining funds of PPs because of dissemination activities. In this case, it would be preferable that each PP should be prompt to organise within December 2019 a Local Restitution within its selected area/territory and invite the other PPs. Of course, in case of Local Restitution, each PP would additionally have been free to organise a Local Final Conference. PPs agreed on both cases with a duration of a half a-day. Local Restitution/Local Final Conference events had to inform the stakeholders (notably those involved in the participatory sessions of former WPs) of the five pilot areas about final issues and get further indications for possible future-proof projects of local development.

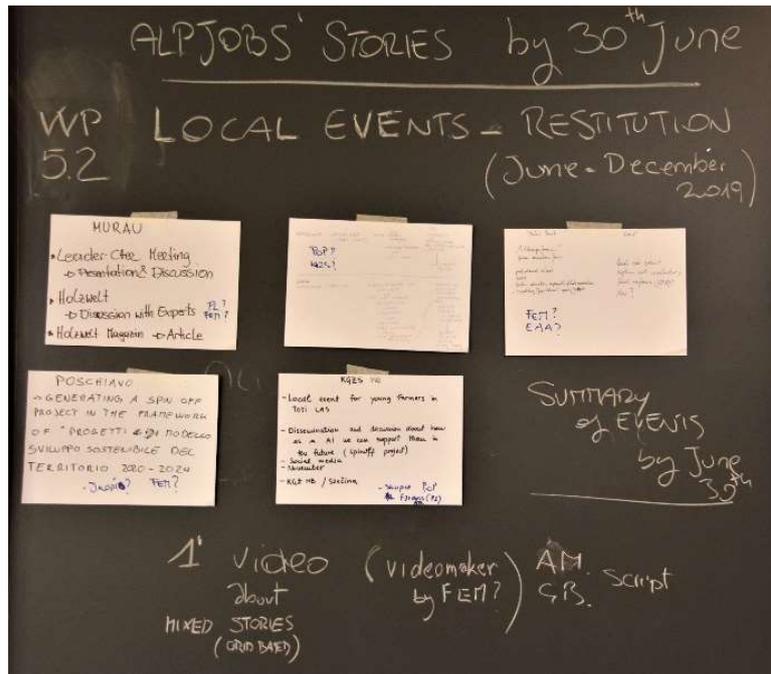


Figure 3 Inputs for local restitution/local final conference.

4. Outcomes

4.1. On learnings from previous WPs

All PPs gave a positive feedback of the WP2 activities. The analysis of local trends was not new to PPs but noticed as an important and necessary step for following activities. Most difficulties were encountered during the gathering the data (difficult to find comparable data). The related suggestions concern a better categorization of statistics to be searched.

Strategic interviews were considered a good method to engage stakeholders and understand the situation "from the inside", revealing relevant information difficult to grasp with other approaches (for example, attitude towards possible futures). The reported difficulties were finding the right and willing stakeholders, while the suggested improvements consisted of formulating simpler questions (possibly, adding an eighth question about personal commitment to the desirable and possible future) and involvement of a larger group of respondents (for example involving more women).

The construction of strategic scenarios had been perceived as a valid tool to consider the uncertainties in the planning of the strategy and to broaden the ideas on more possible futures, even if they are not easy to execute. The definition, selection and evaluation of uncertainties were perceived as the most difficult, the reliability of the scenarios (some seemed too extreme) and the links between today's conditions and scenarios were not explored enough. The suggestions are to replicate it with local stakeholders, with more time dedicated and greater attention to the territory, possibly using multimedia tools (videos) and simpler language to involve them in the process.

With regard to WP3 (focusing on the mapping of systems and local treasures) PPs expressed good appreciation. Systems thinking had been perceived as a useful approach to understanding how the local system works. According to the experience of the PPs, the participants in the local seminars

began to improve their understanding of the main system drivers and the interrelationships between them. The search for leverage was initially difficult, but they quickly understood the relevance of these levers. The exercise of the iceberg model has contributed to making visible tangible and intangible parts of the systems concerned. The PPs agreed that more training would be needed to achieve better results, as the approach was complex.

The review of local, tangible and intangible treasures was developed without difficulty, also because it is a very common activity, and many local partners or stakeholders often collect this information. If there was no difficulty, a greater involvement of the local stakeholders themselves would have improved the results.

The approach was new for all PPs and for all participants in local seminars; however, it had been generally appreciated. Many expressed their willingness to repeat it and apply it on other issues or in other contexts (eg. local planning or corporate strategy design). Backcasting was appreciated because it allowed a group to develop visionary objectives (future desirable in 2030) and to link them to concrete measures, combining creative and strategic thinking on concrete measures. Participants liked how the approach made them reflect on possible obstacles and solutions, beyond what should be done to achieve a goal. The main difficulties involved keeping the group discussion precise, concrete and avoiding repetitions or vagueness in the debate. In some cases, the Backcasting procedure was not completed or led to repeated ideas, like those that emerged in the strategic interviews. Everyone recognized the need for a professional facilitator or facilitation skills in the group.

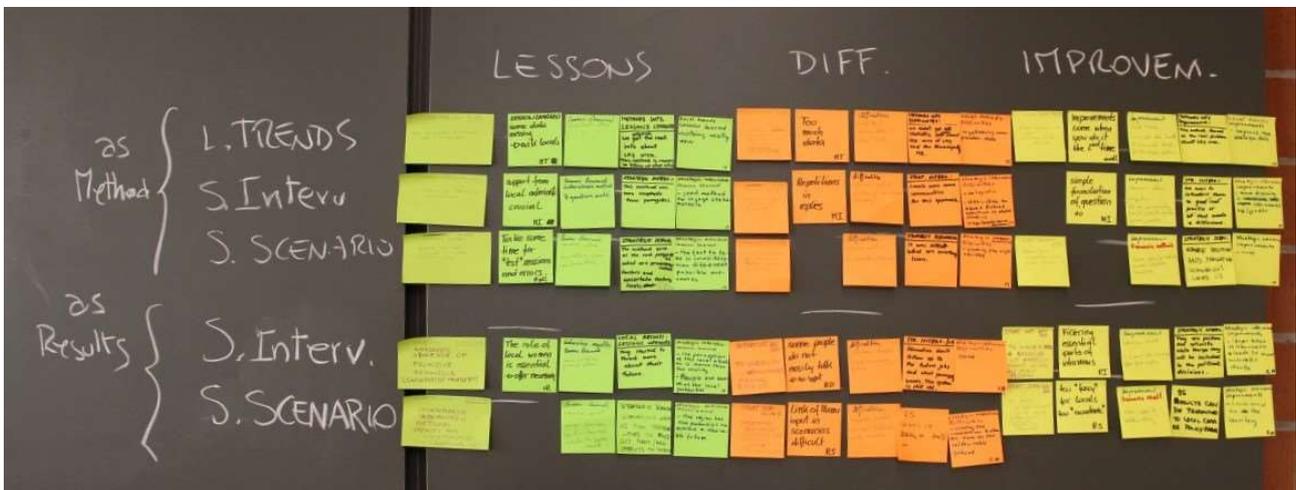


Figure 4. Results of the discussion about learned lessons from WP2.



Figure 5. PPs discussing the outcomes.

4.2. Futures Literacy

In the field of Futures Studies, it is agreed that the future does not exist other than as anticipatory systems and processes in the present.

4.2.1. Futures Literacy Laboratories

If Future Literacy (FL) is the capability that is rooted in the broader context of Futures Studies, and draws on the elements within the Discipline of Anticipation. FL is a skill, and like all skills it must be learned⁶. Futures Literacy Laboratories (FLL) are the tool to test hypothesis and impact of FL⁷. Since 2012 UNESCO⁸ has been collecting evidence on how public and private institutions as well as people imagine and use consciously the future. This means what anticipatory methods and tools are they using to achieve this objective. UNESCO has been organizing FLLs all around the world with communities representatives and stakeholders to enhance this capability on vast range of topics such as⁹: the future of education; the future of work; the future of human settlement, etc..

UNESCO has already established 8 UNESCO Chairs¹⁰ in Anticipatory Systems, Futures Studies and Futures Literacy:

- UNESCO Chair on Anticipatory Systems (2013), University of Trento,

⁶ Miller R., Sandford R., 2018: Futures Literacy: The Capacity to Diversify Conscious Human Anticipation. Author's version – Forthcoming in Handbook of Anticipation – July 2018. doi - 10.1007/978-3-319-31737-3_77-1.

⁷ <https://www.hanze.nl/eng/research/overviews/FutureLiteracyKnowLabs>

⁸ UNESCO, 2020: Futures Literacy: A Skill for the 21st Century, retrieved from <https://en.unesco.org/themes/futures-literacy>.

⁹ UNESCO, 2019: Futures Literacy: Anticipation in the 21st Century.

¹⁰ A UNESCO Chair is established for an initial period of four years by means of an agreement between UNESCO and a university or any other institution of higher education and/or research, to initiate programmes that advance teaching, learning and research in areas that are a priority for UNESCO. A Chair may be created to institute a new teaching and research unit, or to strengthen an existing teaching or research programme while giving it an international dimension. Retrieved from <https://unescochairs-c2c.net/about-us/unesco-chairs-and-unitwin-networks>.

- UNESCO Chair in Learning Society and Futures of Education (2016), University of Turku,
- UNESCO Chair on Futures Research (2019), Foundation for Research and Technology Hellas (FORTH),
- UNESCO Chair on Future Studies (2016), Universiti Sains Islam Malaysia, Nilai,
- UNESCO Chair on Futures Literacy (2019), Hanze University of Applied Sciences, Groningen,
- UNESCO Chair on Socio-cultural Anticipation and Resilience (2019), South American Institute for Resilience and Sustainability Studies (SARAS), Maldo,
- Chaire UNESCO de Prospective, Anticipation et Décision Stratégique (2019), Université de Carthage,
- UNESCO Chair on Responsible Foresight for Sustainable Development (2019), University of Lincoln.

and over 20 more applications are being processed within 2022.

According to United Nation Sustainable Development Goal 4 on “Educational Goal”, this UNESCO network aims to establish anticipation and future literacy as a normal component of education and training for everyone. The attainment of this objective has been recognised at the UNESCO-UNEVOC Conference “Skills on the move: global trends and local resonances”¹¹. In that occasion special focus was placed on Technical and Vocational Education and Training (TVET) for youth employment and entrepreneurship and systems too.

In Finland the UNESCO chair is exploring the value of introducing Futures Literacy into the secondary school curricula^{12,13}. In the Netherlands undergraduated students take FL courses at the Hanze University and Teach the Future Foundation is piloting a project to introduce steadily FL in primary and secondary schools¹⁴. In Italy, the UNESCO Chair established the first post-graduate Master course in Europe on Social Foresight and the biennial international conference on anticipation (2015 Trento, 2017 London, 2019 Oslo). Since these initiatives, pilot projects concerned education and training at different level, from elementary school to the Ph.D. students’ level, have been conducted on a variety of issues concerning the local communities, such as: futures of mountain tourism jobs¹⁵; desirable and possible career paths in remote alpine areas¹⁶; shared and desirable long term vision (2060) for local community¹⁷; anticipation of flood risks at community level¹⁸; “Future-labs in the classroom”¹⁹. Local initiatives of FLL in Alpine remote areas of Trento province²⁰ have been initiated.

¹¹ The Conference took place in Tangshan, People’s Republic of China from 4 – 6 July 2017.

¹² Pouru L., Wilenius M., 2018: Educating for the future: how to integrate futures literacy into secondary school. 6th International Conference on Future-Oriented Technology Analysis (FTA) – Future in the Making Brussels, 4-5 June 2018, retrieved from <https://ec.europa.eu/jrc/sites/jrcsh/files/fta2018-paper-a4-pouru.pdf>.

¹³ Wilenius M, Pouru L., 2019: Developing futures literacy as a tool to navigate in a uncertain world. In UNESCO, 2020: Humanistic future of learning. Perspective from UNESCO Chairs and UNITWIN Network, pag. 207-210.

¹⁴ Bol E. M. 2018: Futures Education – Pilot NL. 6th International Conference on Future-Oriented Technology Analysis (FTA) – Future in the Making Brussels, 4-5 June 2018, retrieved from https://ec.europa.eu/jrc/sites/jrcsh/files/fta2018-paper-a4-erica-bol_0.pdf.

¹⁵ “Anticipate future professions of mountain tourism” (2016): a 1-year pilot project on a strategic scenario building about 2030 tourism in the region, involving 120 VET-students.

¹⁶ “My future in the valley: 2035 in career and satisfied” (2017): a 1-year pilot project on a systems thinking and career-orientation, involving 80 middle school students.

¹⁷ “Trentino 2060 - a participatory visioning and backcasting exercise”, 2019, involving about 50 citizens.

¹⁸ LIFE project FRANCA (2016-2019) – Flood Risk Anticipation and Communication in the Alps, www.lifefranca.eu.

¹⁹ Emanuelli C., Scolozzi R, Brunori F., Poli R. 2018. «Future-Labs in the Classroom: The Experience of -Skopia». World Futures Review 10(4):294–302.

²⁰ See chapters 2.1 (p.8) and 2.2 (footnote p. 19) of FEM “Report on Local Restitution and Dissemination” (<https://eventi.fmach.it/alpjobs/Work-packages-Reports/WP5>).

Recently EIT Climate KIC funded the project “Futures Literacy across the Deep” (FLxDeep) that aims to co-create and implement processes that introduce, develop and actively apply the capability called futures literacy to support climate-related social, business, technological innovation, and systems' transformation²¹.

Workshops can have different duration and different goals such as:

- introduction into the capability to use the Future,
- introduction into the methodology of FLLs,
- catalysator for innovation.

Leading an FLL consists usually of three phases²²: 1) Revealing (Collective intelligence), 2) Reframing and 3) Rethinking (Narrative). In the first phase, attendants explicate their existing anticipatory assumptions by debating their hopes, fears, uncertainties and predictions concerning futures of the topic under discussion. In the second phase, participants have to reframe the future using unfamiliar anticipatory imagines of futures connected to the topic. In the third phase, they have to compare the anticipatory assumptions worked out in phases 1 and 2 and identify insights and ways of seeing potential futures in the present.

FLLs help therefore to discover and share how to anticipate the futures and create the conditions to be “futures literated”. FLLs operate as learning by doing/action-research workshops enabling participants to explore new alternatives, test a wide range of hypotheses, and learn about using the future to improve their knowledge arena. In a FLL, people are empowered throughout a learning-by doing approach to use the future in new and more effective ways. FLLs are always co-designed/co-created with the local partner and customised as much as possible to a selected topic and application context giving to anticipation a specific role.

Many governments use information from skills assessment and anticipation exercises to update occupational standards or to design or revise retraining programmes for workers or the unemployed.

4.2.2. Skills needs Anticipation

A lot of global and local drivers affect the dynamics of skills demand and supply (see figure 6)²³. When one of these variables is uncertain and not well discussed and anticipated a skills mismatch could occur in the present.

²¹ This initiative is led by Finland Futures Research Centre at Turku School of Economics, University of Turku in cooperation with futures literacy experts at UNESCO <https://www.utu.fi/en/university/turku-school-of-economics/finland-futures-research-centre/research/FLxDeep> .

²² Balcom Raleigh N.a., Pouru L., Leino-Richert E., Parkkinen M., Wilenius M., 2018: FUTURES LITERACY LAB FOR EDUCATION. Imagining Complex Futures of Human Settlements at Finland Futures Academy Summer School 2017. Writers & Finland Futures Research Centre, University of Turku.

²³ ILO, 2015: Guidance note. Anticipating and matching skills and jobs, retrived from https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_534307.pdf.

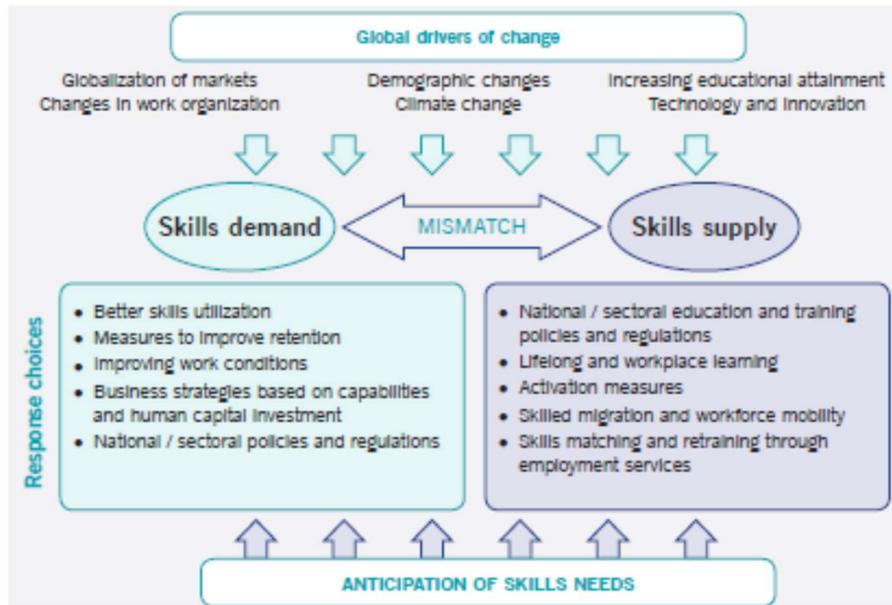


Figure 6. Drivers of change and necessary responses to avoid future skills mismatch (ILO 2015).

Even though “skills needs”, “skills needs assessment” or “forecasting” are often used as synonymous, skills needs anticipation can be considered as a robust and systematic assessment of future needs through different methods and tools.

4.2.2.1. Who is doing what in EU

At EU level, the activity to develop and implement EU vocational training policies has been delegated to the European Centre for the Development of Vocational training (Cedefop). Among its various activities the Agency²⁴ deals with socioeconomic and demographic trends, demand for skills and forecasting future skills to be provided to VETs and labour market, too.

Cedefop started in 2003 during the International Conference “Early identification of skill needs” to exchange experiences and examples of good practice in identifying, anticipating and monitoring skill needs. It was recognised that European countries, developed and applied - at different territorial level and different topics, time horizons, degrees of representativity and involvement of stakeholders - various methods and tools to anticipate challenging and uncertain skill need²⁵.

Since 2008 Cedefop reviewed its earlier forecast and extended the time horizon from 2015 to 2020. Cedefop started a regular pan-European forecast of skills supply and demand available for the EU as a whole and each Member State to support the European Commission in preparing its communication, “New skills for new job”²⁶. This Agenda recognises that anticipation methods can help develop people with the right mix of skills according to labour market needs, in a way that promotes job quality and lifelong learning.

Cedefop surveys skills needs and jobs in selected sectors. All data and intelligence are delivered to end-users in a fit-for-purpose and timely fashion via the Skills Panorama²⁷ that, launched in 2012, is

²⁴ https://europa.eu/european-union/about-eu/agencies/cedefop_en.

²⁵ Cedefop, 2005: Identifying skill needs for the future. From research to policy and practice. Susanne Liane Schmidt, Olga Strietska-Iliina, Manfred Tessaring, Bernd Dworschak (eds.). Cedefop Reference series; 52.

²⁶ EC COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, 2016: A new skills agenda for Europe. Working together to strengthen human capital, employability and competitiveness. COM(2016) 381.

²⁷ <https://skillspanorama.cedefop.europa.eu/en>

a unique central access point for data information and intelligence on skill needs in occupations and sectors across Europe.

Cedefop's overviews examine skills anticipation approaches in all 28 EU Member States. They show differences and similarities in skills anticipation methods and tools, governance structures, dissemination and its use in policy-making. The overviews explore current approaches to skills anticipation, giving insights and possible policy lessons on how to get the best out of a potentially powerful policy tool.

4.2.2.2. Forecast of needed skills in 2030 in PP's countries

In 2017 Cedefop began to provide technical advice to countries asking for its support to improve their 'governance of skills anticipation and matching. Many Member States and Cedefop²⁸ continue to use quantitative skills forecasts. Qualitative foresights continue to be less frequently used in Member States with the exception of the Scandinavian and North Western countries. Cedefop skills forecasts offer quantitative projections of future trends in employment by sector of economic activity and occupational groups. These forecasts allow cross-country comparison, but do not substitute national forecasts, which use more detailed methodologies and data. The latest round of Cedefop forecasts covers the period up to 2030:

- as to Austria, see "Skills forecast 2018. Key facts: Austria"²⁹,
- as to Italy, see "Skills forecast 2018. Key facts: Italy"³⁰,
- as to Slovenia, see "Skills forecast 2018. Key facts: Slovenia"³¹.

Regarding Switzerland Cedefop does not provide this kind of information. The State Secretariat for Economic Affairs (SECO), that is federal government's centre of excellence for all core issues relating to economic and labour market policy, developed skill forecast regarding digitalisation with the use of explorative qualitative tools³². Partial data on labour economy can be also obtained by "OECD Economic Surveys: Switzerland 2019"³³. The OECD Surveys are available also for Austria³⁴, Italy³⁵ and Slovenia³⁶.

Anyway, all these studies are hardly useful for anticipating of strategies / policies at the local level, in remote areas, and have rarely involved EU rural remote communities.

²⁸ Cedefop, Eurofound (2018). Skills forecast: trends and challenges to 2030. Luxembourg: Publications Office. Cedefop reference series; No 108. <http://data.europa.eu/doi/10.2801/4492>

²⁹ Cedefop, 2018: <https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/austria-2018-skills-forecast>.

³⁰ Cedefop, 2018: <https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/italy-2018-skills-forecast>.

³¹ Cedefop, 2018: <https://www.cedefop.europa.eu/en/publications-and-resources/country-reports/slovenia-2018-skills-forecast>.

³²

https://www.seco.admin.ch/seco/en/home/Publikationen_Dienstleistungen/Publikationen_und_Formulare/Arbeit/Arbeitsmarkt/Informationen_Arbeitsmarktforschung/kompetenzanforderungen_digitalisierung.html. Further forecasts on this topic were developed by Economiesuisse W.I.R.E. – Think Tank für Wirtschaft (see https://www.thewire.ch/data/files/zukunft_digitale_schweiz_w.i.r.e._economiesuisse_2017.pdf).

³³ OECD, 2019: <http://www.oecd.org/economy/switzerland-economic-snapshot/>.

³⁴ OECD, 2019: <http://www.oecd.org/economy/austria-economic-snapshot/>.

³⁵ OECD, 2019: <http://www.oecd.org/economy/italy-economic-snapshot/>.

³⁶ OECD, 2019: <http://www.oecd.org/economy/slovenia-economic-snapshot/>.

4.2.2.3. Methods and tool for skills anticipation

The European Union (EU) places great emphasis on skills anticipation and better matching. Already in 2008 in the context of the EC Agenda on ‘New skills for new jobs’ initiative, Cedefop provided a review of systems for anticipation of skill needs in the EU Member States (the Czech Republic, Denmark, Germany, Estonia, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Hungary, the Netherlands, Austria, Poland, Slovenia, Slovakia, Finland, Sweden and the UK)³⁷.

In 2016 Cedefop, in collaboration with the ILO and ETF, published five methodological guides to anticipation including one specifically focused on “Developing skills foresights, scenarios and forecasts”³⁸. The guide focuses on quantitative (forecast) and qualitative (foresight) approaches and methods to be applied in mid- to long-term anticipation, ranging from five up to 20 years. Different methods are analysed and compared. Even though approaches have similar goals in informing policy makers and labour market actors/stakeholders about likely future outcomes and their probable consequences, they differ in implementation, inputs and outputs. Qualitative and quantitative approaches and their variables can be mixed to develop a specific skills anticipation model or method that is suitable for a territorial purpose.

OECD and ILO³⁹ have set up the following steps to get an effective skills assessment and anticipation systems:

- identifying clear objectives (have clear idea on final use of the information to be collected and involving all relevant stakeholders in setting objectives),
- setting up information systems supporting the established objectives (develop effective exercise to get the most qualitative information) according to sector and territorial level),
- ensuring effective use of the information collected through skills assessment and anticipation exercise (adjust outputs according to final use, disseminate the results with a consistent narrative, build consensus among stakeholders and use the stakeholders’ involvement as channels for the dissemination and use of results).

4.3. Forecast of skills profiles

As to hard skills,

- a foreign language is generally considered in 2019 satisfactory; in 2030⁴⁰ all PP recognize as necessary a second or even a third foreign language, that may include Chinese, or Russian, besides German and English; as at least a general improvement and diffusion of a English proficiency in the whole local community is desirable;
- digital skills considered as needed in 2030 include two main application marketing and automation of production and the specific dimension of service personalization for special needs. In the commerce, tourism, service sector, candidate worker will have competence to profit from digital tools for e-commerce, marketing communication and advertising or from automatization of field operations. In the agro-forestry and manufacturing sector, competence

³⁷ Cedefop, 2008: Systems for anticipation of skill needs in the EU Member States. Cedefop working paper No 1. Basic information were used for Ireland and Portugal. Belgium, Bulgaria, Luxembourg, Malta and Romania were missing from the database.

³⁸ Bakule M., Czesaná V., Havlíčková V., Kriechel B., Rašovec T., Wilson R. ETF, Cedefop, ILO, 2016: Volume 2 Developing skills foresights, scenarios and forecasts. Guide to anticipating and matching skills and jobs. Jointly published by Cedefop, ETF and ILO.

³⁹ OECD, ILO, 2018: Approaches to anticipating skills for the future of work. OECD Publishing, Paris.

⁴⁰ See annexes 1, 2, 3, 4.

in automated, remote controlled, web-based, GIS-based, robot-AI-IoT-aided operations in the field. In the service sector, the candidate should have knowledge and competence about telecare and assistive technologies for elderly people.

Regarding soft skills:

- communication, is the basis for employability both in 2019 and 2030 being empathetic, responsible, flexible with different customers or adapting to conditions. The differences lie in the different importance of the ability to create relationships with customers (possibly using new tools, digital communities, social networks for a digital storytelling of their services or products) and with colleagues and actors from other sectors, e.g. collaborating in the creation of local cultural events or recreational / entertainment initiatives. Furthermore, the understanding and ability to face different cultures (intercultural competences) and different ages (intergenerational competence) will be increasingly relevant. Satisfying elderly customers or families or sporty teenagers requires emotional intelligence and attention to different needs. In short, the candidate employee in 2030 should be a proactive communicator and narrator of his services and products, able to build collaboration in interdisciplinary teams (for example with partners in urban areas and knowledge and research centres);
- organizational/managerial skills: if the employee should have in 2019 a good ability to organize work independently, in the future (2030) young people should be able to organize work activities in groups, perhaps by building remote collaborations (based on digital / web tools). The crucial skills will concern strategic and integrated planning, considering the changes in the territory in the medium and long term, not only focusing on the market and current trends. Another increasingly important aspect will be the organization of diversification and interconnection in services and products, looking at social sustainability, educational entertainment, healthy activities and technological innovation in traditional practices (eg. "green precision agriculture", multifunctional or multipurpose natural resources). As mentioned above, competence for cooperation with other sectors, for managing an online store or for coordinating multicultural and multinational teamwork would be an advantage.

The job-related abilities mentioned by the PP mix hard and soft skills. The skills differ according to the sector, the common thing is the variety of skills and knowledge needed (a variety of general knowledge seems more profitable than a meticulous specialization). Candidates will need to know the "local treasures" (those sought in WP3, such as local crop varieties, traditional and cultural events) as well as the most up-to-date technologies in interested sectors, but they must have also skills on sustainable practices, such as water resource management and energy efficiency systems, which contribute to the local circular economy. This in agriculture also means promoting eco-compatible crops, organic, biodynamic / products and eco-friendly precision agriculture, as well as the experience in organizing services and products thinking about their local life cycle (eg local recipes, local menu). For works with direct customer interactions (tourism, recreational activities, commerce) basic knowledge of medical needs, and competence in recognizing the requests of an aging society will be considered valuable. In the agro-forestry and manufacturing sector, competence in automated, remote controlled, web-based, or IoT-based operations in the field will be a must. Particularly important for remote areas, increasingly required skill will be the ability to renovate traditions, for example by combining traditional materials and new technologies and new uses and products. This will require creativity and design skills or ability to collaborate with creative partners.

The "other skills" mentioned for 2030 mix hard and soft skills, too. The skills form a large and heterogeneous group, with some very specific skills, others more holistic and interdisciplinary, for

example: drone license, sustainable energy production, skills in wellness practices (meditation, yoga), experiences with local cultural associations in organizing local events of territorial promotion, knowledge of local biodiversity, sports and outdoor training/coaching skills, group facilitation skills in projects for social innovation, knowledge of the social / emotional / cultural needs of the elderly or other specific customers (different cultures).

Some PPs have also identified possible future works or developments of existing ones: from the waiter to the local food consultant, from the caregiver to the manager of services differentiated by age of the guest, from the farmer to the farmer for sustainability, from the carpenter to the designer of handcrafted furniture, from the winegrower to the owner of a farmhouse and producer of organic wine.

Considering the 20 profiles as a whole, it can be argued that as to 10 soft skills needed to survive the rise of automation⁴¹:

- complex problem solving (creative solutions),
- critical thinking (turn data in insightful interpretation),
- creativity (ability to build something out of ideas),
- people management (leadership and managerial role),
- coordinating with others (effective communication and team collaboration),
- emotional intelligence (empathy and curiosity),
- judgment and decision-making (insightful interpretation and measured decisions),
- service orientation (offering value to clients in the form of assistance and service),
- negotiation (for business and individuals win win situation),
- cognitive flexibility (accommodate the challenge at hand),

all are accomplished, even though is not clear their ranking in term of the importance.

Based on the results of the foresight exercises, the most relevant uncertainties, on the most significant megatrends for the contexts studied, we have defined few suggestions for innovation or improvement in the education, and developed a policy agenda with the aim of increasing sustainability through education in and for mountains.

⁴¹ Desjardins J., 2018: 10 skills you'll need to survive the rise of automation, retrieved from <https://www.weforum.org/agenda/2018/07/the-skills-needed-to-survive-the-robot-invasion-of-the-workplace>

Table 2. Promising skills and suggestions for innovation in education and training.

2030 Skills	Suggestions for sustainable development	Motivations/assumptions
<u>Foreign languages</u> : at least two foreign languages	Promote language competences at community level	Tourism expansion will bring more international visitors/customers.
<u>Digital skills</u> : digital marketing and automation	Boost competence in digital communication, e-commerce, and automation in all economic sectors in the area (e.g. agriculture, tourism, public services, craft sector)	Marketing and production processes will increasingly be based on the Internet and personalization.
<u>Communication skills</u> : being a “storyteller” of own stories about products and service	Enhance and renew the knowledge of “local treasures” (tangible and intangible), e.g. natural resources, traditional practices, traditional culture	The distinctive local character will be the added value of mountain areas, within a growing competition between agricultural and tourist areas.
<u>Managerial skills</u> : ability to build collaborations and integrated approach for the medium-long period	Encourage futures literacy at community level	The ability to consider different possible futures and future changes in the design of local development will be increasingly crucial to cope with climate, economic and social changes.
<u>Job-related skills</u> : <u>digital applications</u>	Beyond the specific technical competence, promote competence for cooperation building between peers and with other sectors (facilitation skills)	Creating broad collaboration will be increasingly important for the resilience of the local economy and communities. Ensure not to lose colleagues that have lower technical understanding
<u>Other skills</u> : multi-disciplinary knowledges, including e.g. wellness, outdoor coaching, telecare and assistive technologies	Enhance creativity and intercultural and intergenerational understandings Teach soft skills also in schools and vocational training	Creativity will be increasingly important for adaptation to novelties and the unexpected, intercultural and intergenerational understanding will be increasingly relevant with the aging of the population all over the world.

To achieve these innovations, policy developments in education and training should focus on the following:

- further improvement of local education policy:
 - determine the possible local impacts of trends recognized at the European and national level, especially in terms of demand and supply of education services;
 - examine the local trends and available services, looking at the possible reasons for the “brain drain” and the dynamics in quality of life for local population (differentiated by age group);
 - identify educational needs and accessibility to educational services for the next 10 years (or more) in the local community;
- further improvement of education and training local services:
 - support life-long learning opportunities for whole the local community (including all age groups), about languages, digital communication, cultures of hosts and visitors’ countries;
 - systematically promote creativity in partnerships between local education and training institutions and local businesses (e.g. benefiting from the dual system);
 - setting up professional orientation period including all sectors and fields of possible future activity in the local area especially for school leavers to enhance practical experiences for young people;
- foster futures literacy at community level by experimenting with:
 - implement co-design process for participatory definition of desirable futures about the local jobs and sustainable business, including local inhabitants, administration and economic actors;
 - systematically apply participatory foresight exercises in all dimensions of local development policy.

For all gathered information see the file of “*Job Skills Forecast*” elaborated by each PP in the ALPJOBS web page <https://eventi.fmach.it/alpjobs/Work-packages-Reports/WP5>.

4.4. Insights of dissemination and local restitution/local final conference

PPs have organized a series of dissemination and restitution events, besides publications on social media and in newspapers, magazines and scientific journals.

As to dissemination and local restitution/local final conference events a common narrative⁴² was proposed which can be summarized in four slides below (see figure 7).

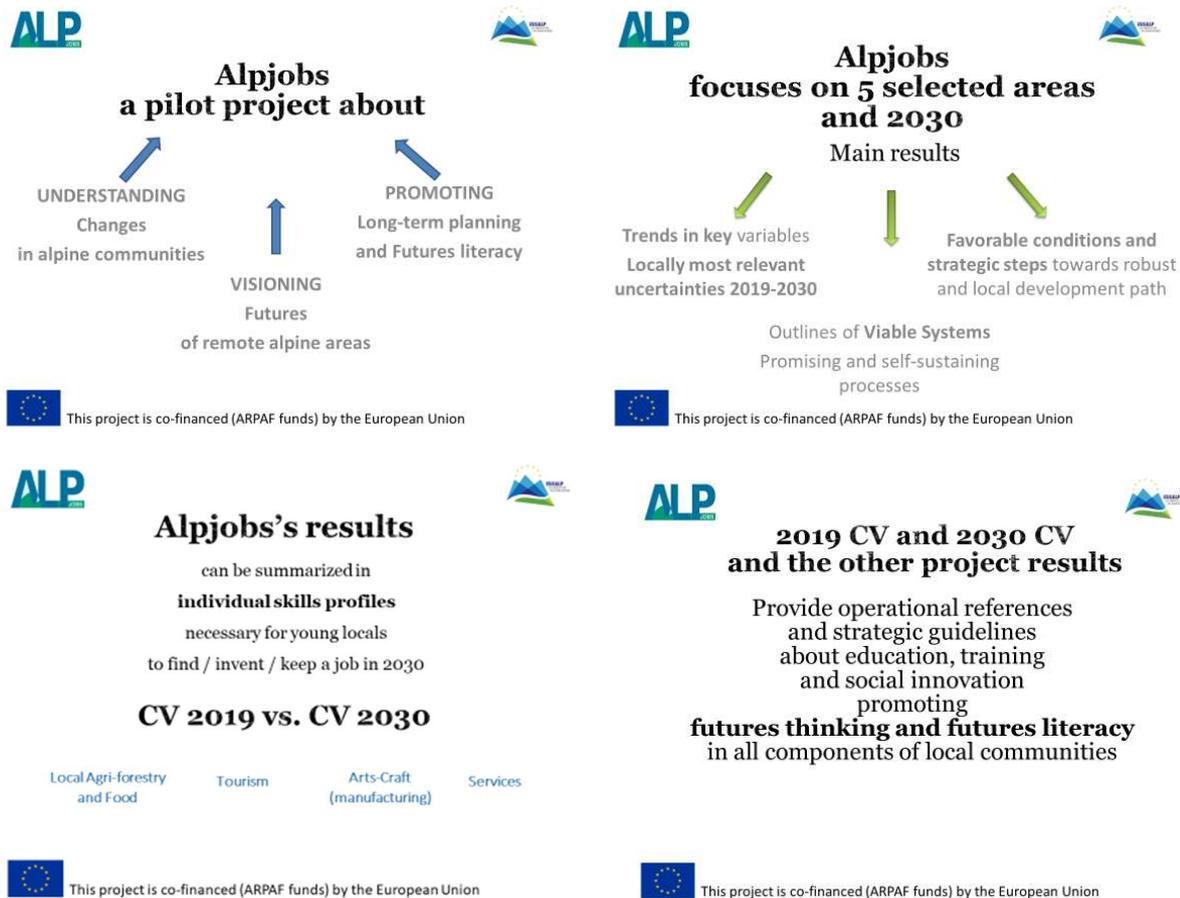


Figure 7. A narrative of the ALPJOBS project for dissemination in four slides.

Regarding the dissemination events, in some case, the PPs had simply participated to conferences or meeting organized by other institutions.

To introduce the speech, a video⁴³ (see ALPJOBS web page <https://eventi.fmach.it/alpjobs>) was produced.

At the restitution events (see Table 3), the participants were invited to express their opinions on the project results and to contribute to the project by suggesting improvements or possible local developments.

⁴² That means: “developing sense-making frameworks and stories that are meaningful to the participants in the process and “targets” decision makers relevant to the process” according to Miller R. 2011: Futures Literacy - Embracing Complexity and Using the Future. Ethos, Issue 10, October 2011, pag. 23-28.

⁴³ This short video (less than five minutes in English-Italian version) is realized via an interview of a young Italian farmer. The rationale of the initiative is to facilitate the introduction ALPJOBS activities carried out by ALPJOBS partners and inspire the attendants of both dissemination and local restitution..

Most the attendants agreed with the skill profiles identified in the WP5.2. Speaking two foreign languages is considered essential, preferably three; the entire communities should have and cultivate communication skills, both digital and personal. In their opinion, the key professional skills should include capacity of teamwork, strategic thinking and adaptability, dealing with increasing complexity due to climate change and international market. Other aspects mentioned as important were innovation capacity considering local sustainability with a continuous collaboration with research and science.

Table 3. Local restitution events.

Partner	Date	Participants (not considering PPs)	Location
PoP	27.08.2019	15	Poschiavo (CH)
EAA	12.09.2019	4	Murau (A)
PL	10.10.2019	7	Schlanders (Bz-I)
KGZS	25.11.2019	7	Maribor (SI)
FEM	13.12.019	7	Castello Tesino (Tn-I)

All these skills require dedicated training courses and innovation in education and training systems, considered slow in accepting and facilitating developments. In some cases, local educational institutions or bureaucracy seem to be slowing down these innovations. Other obstacles concern the reputation and quality of life perceived (balance between work and private life) associated with some jobs (for example in agriculture or forestry) which can reduce the number of motivated students even for the most innovative training courses. In addition, resistance to innovation is expected to emerge from more traditional workers, with poor technological skills, who may not be able to benefit from the available technologies.

Many participants at different events observed a lack of cooperation between local organizations, local private companies and local VET institutions. All these organizations should pay attention on the orientation for young people, especially those at age 18-20, because this is critical age to choosing a job and deciding to stay or leave the region.

In these meetings some questions and proposals also emerged: “non-work related skills” could be acquired in inter-professional training courses; following young people on their way of working can help define the best conditions for a fulfilling job and a good balance between work and private life. It is worth mentioning the following proposals:

- standing committee that coordinates new career guidance and vocational training approaches to permanently establish the format of the ALPJOBS seminar in the region;
- project dealing with development of competence foresight frameworks and practices to strengthen the role of autonomous (that means without commitment to existing professional, sectoral or academic degree structures) competence foresight (see “future orientation”) in the local government sector and to produce long-term foresight data regarding competence needs in the local government sector;
- establishing either at local or regional level (see council) a permanent “think tank” acting as Committee for the Future where target groups meet decision makers to update and draft a “Future of Alpine Remote areas Report” to be submitted to Government at the beginning of Council/Parliamentary term with all measures foreseen to adapt or mitigate drivers affecting or triggering future and traditional jobs (and not only).

Thanks to dissemination and restitution activities some PPs developed spin off projects applying or aiming to implement the new skills in FL:

- PoP: Valposchiavo Smart Valley⁴⁴,
- PoP: ARPAF “100% Local”⁴⁵,
- KGZS, PL, EAA, FEM: ARPAF “From Intelligent Land to Sustainable Municipalities” (Impuls4Action)⁴⁶,
- FEM: ARPAF “Multifunctional forests in the Alps” (REDIAFOR),
- FEM: EIT Climate-KIC “System and sustainable Approach to virtuous interaction of Urban and Rural Landscapes” (SATURN)⁴⁷,
- FEM: EIT Climate-KIC “Holistic resilience of territories to extreme events. Improving Ecosystemic, economic, social and natural hazard territories resilience to (extra)ordinary meteorological events” (Holistic resilience)⁴⁸,
- FEM: EIT Climate-KIC “Deep Demonstration Forging Resilience in Dolomites” (GOETHE)⁴⁹,
- FEM: ERASMUS + “Futures Literacy in Vocational Education and Training for Climate and Social challenges 2040” (FULVET2040)⁵⁰.

For all gathered information see the file of “*Report on Local Restitution and Dissemination*” elaborated by each PP in the following ALPJOBs web pages <https://eventi.fmach.it/alpjobs/Work-packages-Reports/WP5> and <https://eventi.fmach.it/alpjobs/News-and-events>.

⁴⁴ <https://www.are.admin.ch/are/it/home/sviluppo-e-pianificazione-del-territorio/programmi-e-progetti/progetti-modello-sviluppo-sostenibile-del-territorio/modellvorhaben/dare-maggiore-valenza-al-paesaggio/valposchiavo-gr-salvaguardare-nel-tempo-i-valori-paesaggistici-per-le-generazioni-future.htm>

⁴⁵ <https://www.alpine-region.eu/projects/100-local> .

⁴⁶ <https://www.alpine-region.eu/projects/impuls4action-intelligent-land-use-sustainable-municipalities-0>

⁴⁷ <https://eventi.fmach.it/saturn> .

⁴⁸ <https://italy.climate-kic.org/news/giornata-internazionale-foreste-fondamentali-per-la-crisi-climatica/> .

⁴⁹ https://www.climate-kic.org/?partner_type_taxonomy=deep-demonstrations .

⁵⁰ Submitted and not yet funded. Call The application context is constituted by VET institutions of relatively small communities, in marginal areas, where agriculture and tourism are a significant engine of the local economy, such as: Novo Mesto (south-eastern Slovenia), Valtellina (central Italian Alps), San Michele all'Adige (in the autonomous province of Trento), Arcos de Valdevez (along the northern frontier of Portugal and Galicia, Spain), Tolmezzo (in the autonomous Italian Friuli-Venezia Giulia region). The project entails participatory foresight activities ("futures exercises") with local communities, in which students, supported by trained teacher - together with representatives of local community or stakeholders - are considered active and participating subjects of local development.

5. Final notes: common issues and strategic insights

The entire project has been dedicated to search for answers to a circulated question. “What is the future of work in Alpine Remote Areas?” is an imperative question raising by urban, rural and remote areas. *“Work environments in the near future are expected to feature more autonomy, less routine, more use of ICT, reduced physical effort and increased social and intellectual tasks. Labour market skill needs will be shifting, and workers will have to supply new skills to match changing needs. An aging workforce, overqualification and job polarization at the top and bottom of the skills scale will be some of the key challenges of the next decade; they call for action now”*⁵¹.

Skills anticipation is a process that helps decision makers, current and future young entrepreneurs and job seekers, VET institutions to prepare to meet future skills needs. Understanding future skill needs is essential for shaping education and training policies, particularly as labour markets undergo dynamic transformation driven by demographic change, digitisation, extensive value chains and increased complexity in work organisation⁵² and territorial development. Identifying skill needs means detecting, anticipating and monitoring new and changing skills needed in future and traditional labour markets. This applies also to individuals, particularly young at risk, e.g. low-skilled people, the long-term unemployed etc.

Of course, skills need anticipation is one element the labour market information system. Nevertheless, right and updated skills joined with life-, wide- and deep-long learning are the basic triggers for competitiveness of remote areas and their capacity to drive innovation. As set out in EC Communication “A new skills Agenda for Europe” (2016)⁵³ *“They are a pull factor for investment and a catalyst in the virtuous circle of job creation and growth. They are key to social cohesion”*. In this way, the capability to embody new skills in the remote territories is a driver to reduce the “development divide” between urban and rural areas. Anticipation skills help to interpret the complexity of relationships between rural areas and rural remote areas and better the integration of them in the growth of a sustainable mix among the traditional socio economic sectors. In fact, Looking at the future *“economic diversification and a balance between sectors remain important for ensuring a vital economy throughout the Alps”*.⁵⁴

“Skills”, “jobs” or “career” require young, entrepreneurs and decision makers to possess a “broad range of skills which opens doors to personal fulfilment and development, social inclusion, active citizenship and employment. These include literacy, numeracy, science and foreign languages, as well as transversal skills and key competences such as digital competences, entrepreneurship, critical thinking, problem solving or learning to learn, and financial literacy. Early acquisition of these skills is the foundation for the development of higher, more complex skills which are needed to drive

⁵¹ Cedefop, 2018: Less brawn, more brain for tomorrow’s workers Cedefop releases new skills forecast, identifying parallel and contradictory trends and challenges. Retrieved from https://www.cedefop.europa.eu/files/2018-05-24_press_release_bn_skills_forecast_2030_en.pdf.

⁵² Cedefop, 2016: Future skill needs in Europe: critical labour force trends. Luxembourg: Publications Office. Cedefop research paper; No 59.

⁵³ European Commission, 2016: A new skills Agenda for Europe. Working together to strengthen human capital, employability and competitiveness. COM(2016) 381.

⁵⁴ Laner, P. 2018: The Alps in 25 maps. Permanent Secretariat of the Alpine Convention.

creativity and innovation. These skills need to be strengthened throughout life and allow people to thrive in fast-evolving workplaces and society, and to cope with complexity and uncertainty”⁵⁵.

The skills of the 20th or 19th century are not necessarily worthless in the 21st century, but in the case of the adoption and adaptation of technology, young people, as well as entrepreneurs and decision-makers must consider the skills basic (i.e. problem solving, resource management skills) together with others such as proactive attitude, creativity and the acquisition of moral and ethical values. Lifelong learning oriented towards Future Literacy can better respond to the different phases of technology, production, consumption, and to the expectations of the local community, consumers, tourists, etc. Decision makers more specifically should overcome "linear thinking" and find time to explore the drivers of change and the discontinuities that are shaping the future of their territory.

Being ‘futures literate’ enables also young of rural Alpine remote areas to appreciate the world more fully, “to use the future to innovate the present and to expand our perception of the present”⁵⁶. Skill anticipation does not predict skills evolution with any certainty, but can inform young to current and possible future skill mismatches and inform decisions on how to tackle them. Being “futures literated” allows them to understand what skills have to be trained and what jobs have to be supplied/demanded and that there is not one way of imagining the future when dealing with complex, emergent and evolutionary ecological and socio-economic systems⁵⁷.

Futures Studies and "Futures Literacy" should be integrated into school, business activities and political decisions. Training of teachers and trainers in these new skills is an important issue. Career management skills would also benefit from the integration of "Futures Literacy" into regular school curricula. Decision makers, VET institutions and businesses need to work together to find ways to create new jobs and make traditional activities attractive in order to maintain local youth and fight brain drain from remote Alpine areas.

Unlike generic forecasts for future jobs, the ALPJOBs project provided PPs with methods and preliminary applications of Future Studies to identify possible future conditions in the study areas and to imagine the skills required for those specific and local conditions. In practice, the project not only proposed a knowledge framework for the construction of strategies, but also provided instruments for its immediate application and dissemination.

To date, ALPJOBs made a considerable effort to improve sense-making capabilities of young and familiarize local decision makers and entrepreneurs to foresights methods and tools enabling to manage uncertainties and use the futures in the present. The participatory approach coupled to enhancement of Future Literacy should be the driver of promoting a new path for an innovating life-long learning of young to be supplied by the regional/local education system of the Alpine remote areas.

Motivating young in reskilling and upskilling with VET institutions and socio-technological services that will be expected in the coming years and meet the requirements of the future satisfying work

⁵⁵ European Commission (2016) A New Skills Agenda For Europe - Working together to strengthen human capital, employability and competitiveness. Retrieved from <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/1-2016-381-EN-F1-1.PDF>.

⁵⁶ Miller, R. (2015), Learning, the Future, and Complexity. An Essay on the Emergence of Futures Literacy. *European Journal of Education*, Vol. 50, No. 4, 513-523.

⁵⁷ Miller, R. (2019), *Interview about Futures Literacy with Riel Miller*, Head of Foresight at UNESCO. Retrieved from <https://www.climate-kic.org/community/interview-with-riel-miller/>.

has a coupled effect: turning the “brain drain” into “brain circulation” and “brain gain” and hampering the closure of services at local level (schools, postal services, shops, bank, minimal sanitary facilities). The Alpine region and the remote areas *“remain positioned in a stronger way as an attractive living and working place for the innovative and skilled labour force on a global scale. Developing the Alpine settlement system into this direction is an important part of economic policy, too”*⁵⁸.

A mixed use of different foresight methods and tools on the five selected areas and robustness of findings show the transferability of results to other Alpine remote areas and sectors.

Furthermore, the new wave of “futures literated” community could trigger a “learning organization” that is *“not only able to solve immediate problems but also to raise capacity of problem solving”*⁵⁹. In the context of Alpine remote communities, this new entity finds its roots into the definition of “Learning Region”⁶⁰ and “Learning Cities” according to UNESCO definition⁶¹. This approach can be transferred to the framework of “Smart and Competitive Rural Areas”⁶² as a sort of “Learning Village” matching in particular UN SDG 4 (‘Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’) and UN SDG 11 (‘Make cities and human settlements inclusive, safe, resilient and sustainable’). To borrow and mix the Baumfeld’s⁶³ and Malerba’s⁶⁴ definitions, in the Learning Village the “futures literated” members (see individuals, firms, decision makers) invest in updating and aligning their skills to integrate further knowledge, actors and networks as well as institutions (see common habits, rules, norms and so on) of the local systems into a process of mutual learning and innovation aiming to a continuous and sustainable development for a resilient territory.

Due to the lack of targeted surveys and analysis on skills needs of young living on Alpine remote areas the following issues could be addressed to EUSALP decision makers to enhance:

- a broader early identification of skill needs,
- the establishment of a network open to all interested actors and agents active in skills anticipation needs,
- a closer cooperation in exchanging skills information not only on new emerging technologies effectively to imported in the remote areas but also on:
 - more traditional fields like manufacturing, handicraft sectors and personal services, and
 - cross-border activities like tourism, transport and logistics, and environmental protection,

⁵⁸ Chilla T., Heugel A., 2018: Alps2050 Common spatial perspectives for the Alpine area-Final report. Towards a common vision. ESPON. <https://www.espon.eu/Alps2050> .

⁵⁹ Lukesch R., Payer H. (2009). Learning Regions, Evolving Governance. Retrieved from https://www.fernuni-hagen.de/polis/download/lg1/projektbmvcl/paper_lukesch_payer_hagen_2005.pdf

⁶⁰ According to R.Florida (1995, p. 527) “learning regions function as collectors and repositories of knowledge and ideas, and provide the underlying environment or infrastructure which facilitates the flow of knowledge, ideas and learning.” Cited in Kozma T., (2014): The Learning Region A Critical Interpretation. *Hungarian Educational Research Journal* 2014, Vol. 4(3) 58–67

⁶¹ In 2015 UNESCO established the “Global network of Learning Cities”, <https://uil.unesco.org/lifelong-learning/learning-cities/unesco-global-network-learning-cities-guiding-document> .

⁶² https://enrd.ec.europa.eu/enrd-thematic-work/smart-and-competitive-rural-areas_en and https://enrd.ec.europa.eu/smart-and-competitive-rural-areas/smart-villages/smart-villages-portal_en

⁶³ Baumfeld L. (2005): Balanced Scorecard für Regionen. LEADER+ Österreich. Wien. Cited in Lukesch R., Payer H. (2009).

⁶⁴ Malerba F., 2003: Sectoral Systems and Innovation and Technology Policy, *Research Policy* 31 (2002) 247–264.

- a dedicated EUSALP website or platform or toolbox to be connected with Cedefop activity and reporting specific information on experience in implementing foresight methods and FLL activities.

Annex1: Skill profiles (in bold the future ones) 2030 for Local Agro-Food and Forest value chain

Personal skills	LAG Holzwelt Murau	LAG Trentino Orientale – Inner Area Tesino	LAG Toti Las – Inner Area Kungota	LAG Vinschgau	Valposchiavo
Language	English, German,	Italian (native language) 2+ foreign languages (German or English and others)	National, German, English, Italian, Russian	German (some Italian), English	Italian, German, English
Digital	Artificial intelligence	Good ability to use common web-platforms for communication with clients or colleagues or partners (also from abroad) and for automated operations	Skills in new IT tools, robotization, e-marketing	Mobil devices for precision farming, social media	<ul style="list-style-type: none"> - Selling the products on the local shopping platform - Managing the profiles on social media of the company
Communication	Team leading, taking responsibility, flexibility, perfect in dealing with people of different backgrounds (e.g. local people, Chinese investors,...), Inter-cultural knowledge	Good communication skills with colleagues, clients and other professional figures, I organize courses and demonstrations on the protection of biodiversity and self-production of seeds and other local products at my farm	Skills how to “sell” his farm story	Teaching, communication, story telling	<ul style="list-style-type: none"> - Dealing with costumers and restaurants (mostly online) - Dealing with employees - Presence of the business on social media - Hosting tours to the farm for tourists
Organisational / managerial	Very good organisational skills, ability to deal with various tools, players and higher complexity	Good capacity in collaborative planning of activities with other professionals of other sectors Founding member of local association of young farmers and member of the board	Interdisciplinary skills, managing organic winegrowing production with tourism (spa wine centre)	Organisation of diversification: <ul style="list-style-type: none"> - social/teaching - sustainability/healing gardens - green precision farming 	<ul style="list-style-type: none"> - Planning the work - Accounting - Organising chores for employees - Being able to supply the demand of local restaurants
Job-related	Technical and management skills related to energy production, knowledge about automatization (robots) and climate change adaptation	Good soil cultivation capacity with specialized skills in the automated and remote management of water resources for agriculture	Knowledge in new programs for producing organic wine farm/spa centre	Precision farming, water management, renewable energy, sustainable farming techniques	<ul style="list-style-type: none"> - Caring for livestock - Caring for buckwheat, barley, rye and vegetables - Knowledge of organic and bio-dynamic practices - Being able to cultivate a vast range of plants - Promote biodiversity - Climate change mitigation (water harvesting)

Other	change management, ability to instruct persons with low education and low knowledge in the use of "high end" forestry machines	Car - Driving license B Drone license	Partnership with Alp Region, Holistic and Interdisciplinary skills.	Entrepreneurship	- Storytelling (how the food its produced, local traditions)
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Annex2: Skill profiles (in bold the future ones) 2030 for Arts-Crafts (manufacturing) value chain

Personal skills	LAG Holzwelt Murau	LAG Trentino Orientale – Inner Area Tesino	LAG Toti Las – Inner Area Kungota	LAG Vinschgau	Valposchiavo
Language	German, English	Italian (native language) English, good level (C1)	National, German, English	German, Italian, some English	Italian, German and English
Digital	Digital skills related to craft and marketing	Basic skills of 3D design and programming Basic skills in use of 3D - GIS programs	Skills in new IT tools, robotization, e-marketing	Mobil devices for wood processing; Social media	Being able to run the website and social media account of the businesses Online marketing to reach new clients Being able to use highly technological work tools (3D printer)
Communication	Good communication skills with potential customers and funding organisations, understanding of senior/elderly clients incl. tourists as clients	Good capacity of interpersonal and digital communication Good teaching in wood crafts courses and support local events for international tourists/visitors and partners	Promoting and selling his artwork online, collaborating with other designers for mixing wood with other materials, for taking a new approaches of promoting themselves	Story-telling, connected communication with other branches like e.g. agriculture; Customer advisory, customer relationship management	Dealing with costumers in person and online, Dealing with other sectors (forestry, chestnut producers) to get local raw materials
Organisational / managerial	Delivering on time, ability to sell hand crafted products, marketing and advertising	Good ability to organize work activities in groups and even remote collaborations	Interdisciplinary approach, advance organizational skills for organising the traditional wooden art craft event in Kungota, knowledge to appeal on international competitions. Wood craft transit to business	Organisation of interconnection: - cooperation with other sectors - product development with designers or open innovation; Know-how about wood as a multifunctional eco-resource	Being able to work in group in big projects, Accounting, Planning the work Managing online shop
Job-related	Hand Crafting, ability to combine new and traditional technologies and materials, Ability to adapt to demand from an ageing society	Ability to use 3D printers for wood and GIS (geographical information systems) programs	Knowledge in new programs for designing	Procurement of sustainable grown wood sustainable wood treatment techniques, life cycle thinking energy efficient production	Being able to create quality objects with local wood that Creating personalized artefacts on request Creativity Creating more products valorising waste produced in other sectors (using wood produced by the chestnut value chain)
Other	Creativity, thinking beyond borders, being provokative in a positive sense Integration of hand crafts and deceleration	Interest and knowledge in biodiversity (wildlife and flora of Trentino) Work experience in guided outdoor tours in alpine huts	Partnership with Slovenian art craft organisation, Holistic and Interdisciplinary skills	Entrepreneurship	Finding a niche market in order to better compete with other businesses

	Change management	Volunteer activity in a local cultural association and organized events			
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Annex3: Skill profiles (in bold the future ones) 2030 for Tourism_including recreational and outdoor activities

Personal skills	LAG Holzwelt Murau	LAG Trentino Orientale – Inner Area Tesino	LAG Toti Las – Inner Area Kungota	LAG Vinschgau	Valposchiavo
Language	English, Czech, Hungarian, Chinese, Spanish (on low level - most important words for communication with clients)	Italian (native language) Fluent in German and English (B2/C1)	National, German, English	German, Italian, English	Italian, German, English, French
Digital	Related to organisation, book-keeping software , marketing skills	Skills on using digital tools for web-social communication (including video-audio, and visual marketing)	Knowledge in high tech wine producing technology, photography skills for photo promoting their T spot	All in one mobile device (order, payment, translation programmes)	Accounting Updating the website of the hotel Online booking Managing social media profile (Business will be more active online)
Communication	Sportive, empathetic, patient, inter-cultural competences	Good ability to interact with local and foreign people and associations and institutions	Team leader, entrepreneurship, successful wedding manager/communicator, empathic communicator	Intergenerational and intercultural competence, emotional intelligence to consult clients (“food psychologist”)	Welcoming guests Storytelling about the local food heritage and culture Explaining and showing where the food is being produced
Organisational / managerial	Being on time, Collaborative planning of work with other outdoor trainers	Skills for strategic planning in the medium and long term, with aids of futures studies (participatory scenarios building)	Organising selecting weddings and the whole culinary offer, the staff, working schedule and their tasks, organising partnerships with neighbouring tourisms, farmers	Job-sharing, self-organisation, time management	Managing employees, accounting Dealing with more local providers (majority of the food will be produced locally)

Job-related	Knowledge of area and risks, Basic medical knowledge, entertainment knowledge, good knowledge about customer demand, use of robots	Ability to create narratives of the territory and organize related public events Ability to create welcoming settings for guests and tourists	E – marketing	Assistant technology to animate people to eat healthy	Create a seasonal and local menu Organising cultural, sport and activities related to food production (in collaboration with farmers) Making sure that the costumers are comfortable
Other	Additional training in health issues, meditation, Yoga, mindfulness, breathing, Ayurveda, knowledge of demands of senior tourists	Various sports, personalized athletic training for active seniors	Business skills, transfer new practice regarding climate change	Know-how about cultural, health specifics of main clients, explanation of regionality	Being able to make the costumers feel like at home Offering more options also for different type of clients (vegans)

Annex4: Skill profiles (in bold the future ones) 2030 for Services sector (other than tourism, such as education (teaching, ...), health (healthcare, ...), social work (social security, welfare, ...), PC services, ...): energy expert

Personal skills	LAG Holzwelt Murau	LAG Trentino Orientale – Inner Area Tesino	LAG Toti Las – Inner Area Kungota	LAG Vinschgau	Valposchiavo
Language	German, English	Italian (language), Fluent in English	National, German, English	German, some Italian, some English	Italian, German, English
Digital	Broad knowledge of software, programming of specific software, Artificial intelligence	Good knowledge on tools and platforms for digital communities	Updated knowledge of computer skills for organisational work	Email, Internet, health and telecare appliances, video-calls know-how about assistive technologies for elderly people or people with handicap	Master's degree in computer sciences Deep and full understanding of digital technologies
Communication	Good relations to all national stakeholders plus relations to international experts to gain knowledge, understanding customer needs	Good ability to relate with local people and associations and institutions, also using digital channels (digital communities/web platforms/social networks)	Good ability to relate with local people, associations and institutions	Good communication with people in need, their family members, professional caregiving organisations and public administration	Dealing with costumers both in person and online (distance work) Promoting the company to new, more distant customers Working in a team with other businesses on software and apps Working in interdisciplinary teams (local employees with partners in urban centres of knowledge and research)
Organisational / managerial	Good knowledge in organisation, management	Skills for integrated planning in the medium and long term, considering the coming changes	Organising outdoor poetry reading, work as a lead dramaturge/dramatist of	Personal time management	Managing more employees (business will probably grow)

	and finance, incl financial calculations	in the community and a systems thinking approach	local theatre class for youngsters	Planning of health and insurance appointments for people in need, working times including holiday substitutes Working in network with other health professionals and family members	since more people will need informatic support) Accounting Coordinating the teamwork (both online sessions as well as in person)
Job-related	Knowledge on all aspects of electronics, energy sufficiency, Expert knowledge in circular economy. Knowledge of regional and local energy plans and development Ability to compile comprehensive technical documentations, maintenance of machines Adaption to new technologies (battery systems, ...) Management of small scale energy providers	Social secretariat and professional social service activities with young people and families as well as with temporary inhabitants (including foreigners)	Teaching reading, writing seniors at (nursing) home, establish local theatre class for youngsters	Plus low-skilled health appliances, non-medical-health treatments Fostering of social activities and individual activation, biographical work Know-how about dementia and other age-related illnesses	Informatic support and general advice Graphic and design Engineering apps and software Creating websites and domains
Other	Ability to learn from mistakes, change management	Volunteer activities as group facilitator in project building for social innovation	Became a dramaturge/dramatist for local theatre	Know-how about social/emotional/cultural needs of elderly some intercultural competence	Italian, German, English, French