

Vocational Education and Training (VET) in Slovenia

Research Study

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In order to achieve a higher level of knowledge and, consequently, faster employability, effective and efficient education systems are the most important. One of the major challenges is also acquisition of key competences and how to increase levels of reading, arithmetic, computer, social and cultural literacy. Education affects the quality of individual's life at all stages of his life as well as society as a whole. To achieve this motivation and the will for continuous improvement are playing a big roll. Despite non-compulsory secondary education, the transition from primary to secondary level is very high. The need for a lower skilled workforce decreases year after year and employment without at least a basic occupation is becoming increasingly difficult.¹

1. What is understood by Vocational Education and Training (VET) in Slovenia?

By Vocational Education and Training (VET) in Slovenia we understand education and training to acquire knowledge and skills for a given profession and technical skills. The sectors where vocational education and training are particularly common are catering, retail, engineering, accounting and office work.

Vocational education and training can offer young people fun, practical and creative opportunities. It combines pure academic knowledge and focus on practical skills, which can help people discover talent. Vocational education and training is also important in the curriculum vitae, as it can open the door to find a job.

For businesses and organizations, potential employees are created through vocational education and training, as they provide students with skills and knowledge that are in line with the needs of the industry. Direct investment in vocational education and training enables current employees to improve their skills, thus helping the company or organization to maintain competitiveness and growth.

Many schools, higher education institutions, universities and organizations provide vocational education and training in various fields. Some combine learning in the classroom with practical work, while others emphasize the extraction of experiences in real-life situations, such as haircut in the salon of a higher education institution or cooking for guests in a restaurant of a higher education institution.

Online courses are becoming increasingly popular due to their flexibility. The choice of time, place and study dynamics is a particularly good option for people with prior obligations or restrictions on traveling.²

¹ JARC, BRANKA, 2017, POKLICNO IN STROKOVNO IZOBRAŽEVANJE TER POMEN MOBILNOSTI [na spletu]. 2017, p. 5.

² Povzeto po: https://ec.europa.eu/eures/public/sl/news-articles/-/asset_publisher/L2ZVYxNxK11W/content/what-is-vet-and-why-should-it-matter-to-me-?inheritRedirect=false&redirect=https%3A%2F%2Fec.europa.eu%2Feures%2Fpublic%2Fsl%2Fnews-articles%3Fp_p_id%3D101_INSTANCE_L2ZVYxNxK11W%26p_p_lifecycle%3D0%26p_p_state%3Dnormal%26p_p_mode%3Dview%26p_p_col_id%3Dline-2-column-3%26p_p_col_count%3D1&_101_INSTANCE_L2ZVYxNxK11W_backLabelKey=news.articles.back.to.list&_101_INSTANCE_L2ZVYxNxK11W_showAssetFooter=true

Vocational education and training may also include apprenticeships and internships in companies or organizations, as individuals acquire the necessary skills to acquire them in a particular industry.

1. 1. VET in Slovenia

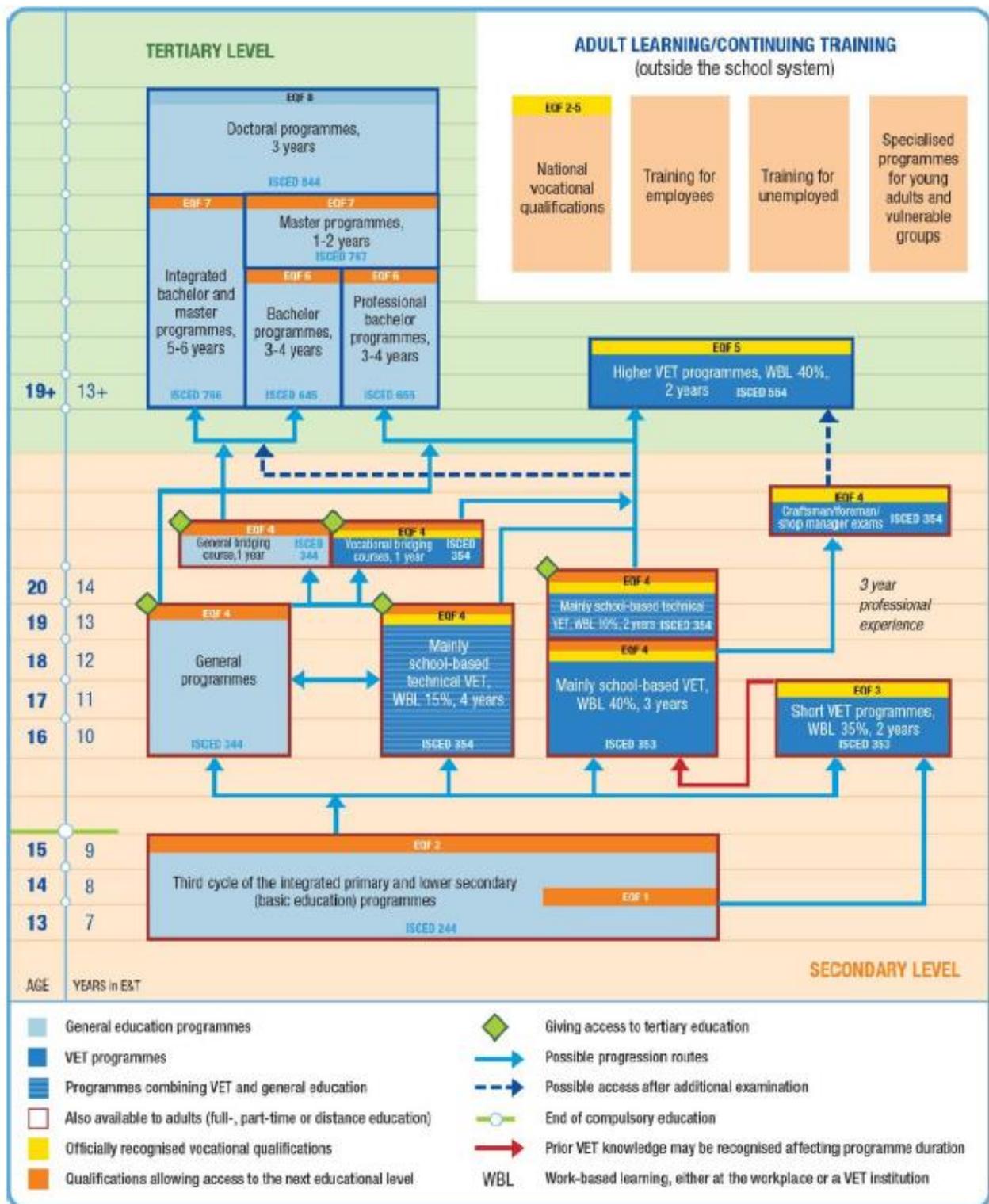
Slovenia is reforming its vocational education and training (VET) system to ensure that it responds to economic and social change.³ Currently many reforms are being implemented in order to reduce the dominance of the State in the VET system and to set major targets for the system itself: to raise the level of basic education to improve employment; to encourage people's autonomy and their ability to work in a team; to expand the study of foreign languages; to develop private initiative; and to forge closer links between education and the world of work.

In Slovenia, the education system is organised as a network of mainly public schools. There are some private providers who have concession to implement officially recognised programmes. The Ministry of Education, Science and Sport (education ministry) is responsible for pre-school education (*predšolska vzgoja*), basic education (*osnovnošolsko izobraževanje*) and upper secondary level (*srednješolsko izobraževanje*). Tertiary education comprises professional and academic programmes and is under jurisdiction of the education ministry.

Pre-school education is not mandatory. The compulsory school starts at age of six and lasts nine years. VET starts at upper secondary level, with the first external differentiation after nine years of compulsory basic education (16) at the age of 15, when learners can opt for IVET programmes or general upper secondary programmes, gymnasias (4 years, completed with the *matura* examination). One type of gymnasium is the so-called professional gymnasium. Despite its title, it provides general education programmes only.⁴

³ Vocational education and training in Slovenia: Short description, ISBN 978-92-896-0512-0, 2008, p. 3.

⁴ Hergan, M.; Čelebič T. (2016). Vocational education and training in Europe – Slovenia. Cedefop ReferNet VET in Europe reports; 2016, p.



Picture 1: VET in Slovenia's education and training system⁵

⁵ Source: Cedefop and ReferNet Slovenia

1. 2 Administrative structure

Responsibility for the administration of education is divided among national authorities, local authorities and schools. The former Ministry of Education, Science and Sport was split (at the beginning of 2005) into two new ministries: the Ministry of Education and Sport and the Ministry of Higher Education, Science and Technology. The Ministry of Education and Sport is responsible for: developing pre-university education policies; inspection procedures; allocating funds; implementing laws and administrative decisions relating to pre-primary institutions, compulsory, upper secondary and higher vocational colleges. Local authorities are responsible for the administration of pre-primary and basic education establishments.

Schools councils (sveti šol) act at local level, autonomously. They play an important role in the process of administrative decentralisation. The education inspectorate is the responsibility of the National Inspectorate for Education and Sport, which comes under the authority of the Ministry of Education and Sport. The Ministry of Higher Education, Science and Technology is responsible for higher education, universities and single higher education institutions (faculties and colleges).

Four national councils of experts have been set up by the Government of the Republic of Slovenia: the Council of Experts for General Education, the Council of Experts for Adult Education, the Council of Experts for Higher Education and the Council of Experts for Vocational and Technical Education. The councils offer assistance in the decision-making process. In addition they are responsible for preparing new laws and regulations.

The main responsibilities of the councils are to: adopt new publicly recognised education programmes and cooperate in the decision-making process for new programmes (such as producing the new curriculum); make decisions on new text books and handbooks in schools; decide on the standards in private schools; prepare proposals for changes to the Minister for Education and Sport. The councils of experts can nominate special commissions as working bodies in various areas of their authority.⁶

1. 3. Institute of the Republic of Slovenia for Vocational Education and Training⁷

In 1995 Ministry of Education, Science and Sport, Ministry of Labour, Family and Social Affairs, The Chamber of Commerce and Industry of Slovenia and The Chamber of Craft and Small Business of Slovenia founded Institute of the Republic of Slovenia for Vocational Education and Training, the central Slovenian institution dealing with development, research and counselling in the field of vocational and technical education.

The world we live in is undergoing constant changes. Facing the European labour market and education space brings new challenges to the field of vocational and technical education:

- increasing flexibility,
- raising the level of quality,

⁶ Vocational education and training in Slovenia: Short description, ISBN 978-92-896-0512-0, 2008, p. 19.

⁷ www.cpi.si

- strengthening social partnerships.

The Institute is achieving new goals through its numerous activities. Their work is guided by the fundamental principles of further development and quality in vocational and technical education:

- **fundamental vocational qualification** with the possibility of additional education for every Slovene citizen,
- **linking** education with the labour market,
- **employability**,
- **lifelong learning** and
- **equal opportunities** irrespective of gender and other characteristics.

The following organisations operate within the Slovenian National Institute for Vocational Education and Training:

- National Reference Point (NRP)
- Slovenian Quality Assurance Reference Point for vocational education and training – SIQAVET
- National Europass Centre
- National Observatory of Slovenia

The Institute also acts as a national coordinator for the European TT-net network as well as the national representative for Euroskills.

In accordance with the basis provided by the Organization and Financing of Education Act (Official Journal of the Republic of Slovenia, No 12/96), the Institute conducts research, development and consulting, and is a place where the state interests and social partners meet, harmonise with one another and connect within the field of vocational and technical education.

The following are the Institute's main areas of operation:

- studying development trends in the labour market and preparation of occupation profiles as well as competently conceived occupational standards,
- development of methodologies and preparation of modern, module-based education programmes for pre-secondary and secondary vocational education and secondary and college expert education,
- monitoring the process of the introduction of education programmes, evaluation of final examinations and vocational matura and development of new methodical and didactical concepts of knowledge, learning and teaching,
- training and improvement of knowledge in teachers, professionals and mentors in the framework of vocational and technical education, and provision of professional support and counselling to providers of vocational and technical education,
- stimulation and coordination of various development and innovation projects in vocational and technical schools,
- development of modern education tools and education technology,

- participation in professional organisations and EU networks dealing with vocational and technical education,
- management of the National EUROPASS Centre,
- representation of Slovenia within the European Skills Promotion Organisation (ESPO) and at the EUROSILLS competition in vocational skills,
- promotion and encouragement of vocational education,
- National Reference Point for quality assurance in the field of vocational education SIQA-VET
- By preparing development and professional solutions, the Institute will raise the quality and appeal of vocational education and training. By doing so, CPI contributes to the competitiveness of the national economy as well as to the social inclusion of the Slovenian population.

By developing, creating, expanding and applying new knowledge, the Institute will be able to respond to the needs of service users in a flexible and innovative manner, strengthen its advantages and increase its recognisability in Slovenia and internationally.

The following are the Institute's long-term plans:

- to develop strategic and development documents in the field of formal and informal education,
- to become the reference point for international and national networks,
- to establish and run an educational and consulting centre for further education and training of educators in the field of vocational education and training based on the principles of lifelong learning,
- to establish and run a national centre where informal knowledge is to be ascertained and acknowledged,
- to establish and run a national centre where the level of quality in the system of vocational and technical education as well as training is to be ascertained and assured,
- employee development,
- to establish a network designed to develop and promote vocational education.

2. What VET subjects are being offered in your country? How are subjects being structured to reflect VET status? What is the VET educational set up like in Slovenia? (more theory or practice?)

There are four VET programme types at upper secondary level. For each type, the typical learner age, the duration and number of programmes, the leaving certificate, access to further education and the entry requirements are presented in Table 16 (Annex 1).

Short vocational upper secondary education (*nižje poklicno izobraževanje*, NPI, ISCED 353) lasts for two years and enables learners who have completed compulsory schooling (nine years of regular schooling or schooling for special needs learners) to enrol in three or four year IVET programmes.

In **vocational upper secondary education** (*srednje poklicno izobraževanje*, SPI, ISCED 353) enrolment is allowed to anyone who has successfully completed primary school or short vocational upper secondary education and fulfils specific conditions if required (22). After completion of a three-year SPI with a final exam, learners can enrol in the **vocational technical upper secondary** programmes (*poklicno tehniško izobraževanje*, PTI, ISCED 354). The two-year PTI programmes target learners who have completed level 3 and want to attain a higher level of vocational education or want to increase their opportunities to enter tertiary education.

The entry conditions for **technical upper secondary education** (*srednje strokovno oz. tehniško izobraževanje*, SSI, ISCED 354) are the completion of primary school or an NPI programme and the specific requirements of some programmes (23). After four years, SSI programmes are completed with a vocational *matura* (see Annex 2) and enable enrolment in higher vocational education and higher education.

All the VET programmes are modular. Each vocational module (i.e. professional programme unit) or several modules together enable the acquisition of a vocational qualification. The modules are competence-based and include vocational theory and practical training. Besides vocational modules, VET programmes also comprise general education subjects and work-based learning (WBL), meaning practical training in schools and in-companies. The share of practical training is defined in the programme and varies by type of the programme:

(a) NPI: 35-40% of practical training, of which 4 weeks (152 hours) is intended for in-company training.

(b) SPI: 40% of practical training, of which 24 weeks (24) (912 hours) is for in-company training, which can be prolonged to up to 53 weeks if an individual learning contract is signed (see below).

(c) SSI: 15% of the educational programme is intended for WBL, of which 4-10 weeks (152-380 hours, depending on the programme) is set aside for in-company training.

(d) PTI (2 years, after the vocational upper secondary programme): 10%, of which 2 weeks (76 hours) is assigned for in-company training.

In-company training is a part of the educational programme and takes place in a real working environment, in companies or partly at intercompany training centres (MIC, see Annex 2). In the area of agriculture, it can also be carried out entirely on school premises.

In order to implement a WBL in companies, a learning contract must be signed. A learning contract contains the competences the learner should acquire and develop, the duration of the in-company training as well as the other responsibilities and obligations of both parties, and contains no elements of employment. It is usually concluded between the school, an employer and student or his/her legal guardians (a collective learning agreement). In SPI programmes, there is also an individual contract between the employer and the student, which also allows the WBL in companies to be extended to up to 53 weeks (in this case, practical training in school is reduced). Students with individual contracts are required to pass a mid-term test of practical skills in the second year, which is provided by the relevant chamber. In the 2015/16 school year, the education ministry published a call for enrolment in some programmes for which an individual contract was required (see Section 1.4.1).

Schools must prepare 20% of the curricula by themselves. Legislation delivers 80% of the content of VET programmes, and the rest is so-called “open curriculum”, which should be designed by schools in cooperation with local employers and local communities in accordance with local specifics or needs.

NPI and SPI programmes are completed with a final exam. For NPI programmes, the final exam comprises the final work (a product or service) with a presentation, and, for SPI programmes, a mother tongue exam is included. Upon successful completion of the final exam, the candidates may be employed without the need for any further formal education or training (traineeships), or may continue their education. SPI and PTI programmes are completed with a vocational *matura* examination (see Annex 2).

After completing the vocational *matura*, learners can gain entry to the labour market or continue their education in higher vocational education programmes or first cycle professional education. It is possible to pass one additional exam (5th exam) from the general *matura* subjects, which enables learners to enrol in some first cycle academic programmes.

Besides the vertical transition (see Figure 7 and Annex 1, Table 16) learners also have the option to transfer from one programme to another or between different types of programmes, including general upper secondary education. The entry requirements are the same and any knowledge already gained in previous programmes is recognised individually. Students (or dropouts) who have successfully completed the fourth year of gymnasium, the fourth year of an SSI programme or the last year of a PTI programme can attend vocational courses (*poklicni tečaj*) or a *matura* course (*maturitetni tečaj*) (25) that is one year in duration.

Vocational courses are only available for four qualifications (economics, catering and tourism, early childhood education and computer science). Upon completion of a vocational course, entry to the *matura* examination is made possible, with a technical upper secondary level of education acquired as a result.

3. What are the statistics of Slovenia as regards STEM subject uptake from 2010 onwards?

Tertiary education students by: TYPE OF EDUCATION, GENDER, STUDY, EDUCATIONAL FIELD (KLASIUŠ_P), STUDY YEAR										
			2012/ 13	2013/ 14	2014/ 15	2015/ 16	2016/ 17	2017/ 18		
Type of education - TOTAL	Gender - TOTAL	Mode of study - TOTAL	1 Educational sciences and teacher education	7786,0	7469,0	7639,5	7553,0	7521,5	7417,5	
			2 Arts and Humanities	9381,0	7949,0	7390,5	7322,0	7299,5	6894,5	
			3 Social, business, administrative and legal sciences	32667,0	28535,5	24880,5	22700,0	22130,0	20680,5	
			4 Natural sciences, mathematics and computing	9041,5	9196,5	8925,0	8245,0	8030,0	7955,5	
			5 Technology, manufacturing technology and construction	17451,5	16934,0	15237,5	14517,0	14181,0	13664,0	
			6 Agriculture, forestry, fisheries,	3559,0	3475,0	3242,0	3019,0	2938,0	2434,0	

			veterinary medicine						
			7 Health and social work	11099,0	10605,0	10159,0	9579,0	9786,0	10233,0
			8 Services	8892,0	8605,0	8142,0	7863,0	7661,0	7255,0

Footnotes:

Source: Statistical Office of the Republic of Slovenia.

Student enrollment data are recorded as at 15 October and for a given year (eg 2009) refer to the current academic year (eg 2009/10).

Due to students of two-point studies, which are divided into two areas, the data show decimal places

4. What are the current policies in Slovenia regards promotion of STEAM careers? Are there any initiatives to promote those types of careers?

According to Resolution on the Research and Innovation Strategy of Slovenia 2011-2020⁸ the driving force of the concept of a knowledge-based society is individuals that approach problems and challenges from a scientific and research point of view. At the same time this concept implies the presence of a societal environment that functions as an incubator for new ideas and scientists. In such a society knowledge and creativity are values, while in the economy they are capital and investment. As such they are perceived in particular by daring individuals who offer knowledge or an idea to everyone on the market and hence contribute to the blooming of the economy and to common progress of the society as a whole. A balanced research and innovation system equips individuals with both knowledge and with the courage and skills for responsible entrepreneurship.

The public image and position of researchers in Slovenian society are inadequate. Their achievements often remain unknown and their work is perceived as insufficiently relevant to society. Citizens are often not aware of the contributions of researchers to solving social problems and the competitiveness of the economy and are typically not familiar with globally recognized findings and products originating from domestic scientists and innovators.

The responsibility that the work of researchers and innovators is not recognized is shared by all – the researchers, their institutions, the mass media, and indifferent individuals and also by the research and innovation system, including ministries and executive agencies that insufficiently facilitate such promotion. At the same time researchers also lack courage and particularly entrepreneurial skills and knowledge for the commercialisation of their findings. Such knowledge is acquired by researchers on their own in most scientific fields and most commonly very late in their careers, as the Slovenian educational system at all levels and, most notably at the lower ones, does not provide for such knowledge to a sufficient degree.

Three main Objectives have emerged from the Reolution:

1) Popularization of science

Establishment of scientific culture and research mentality begins with the education of young people in particular. School curricula are not optimally oriented in this area – insufficient part of their content is dedicated to demonstration of different modes of using science and knowledge. We will therefore strive for an increase of such content. Science must become a matter of curiosity of the young. Through promoting activities and supporting centres that enable spending leisure time in touch with science, RISS will strive to bring science closer to them and establish the basic infrastructure to practically test their ideas.

2) Promotion of creativity, innovativeness and the culture of entrepreneurship

For the development of an innovative Slovenian society it is necessary to promote entrepreneurship and create a positive climate to stimulate creativity, innovativeness and entrepreneurship. The values of creativity and innovativeness should be better communicated in all media and at all levels of the educational process. It should be adapted to enable independent thinking, problem solving, creativity, inventiveness, entrepreneurship and

⁸ <https://rio.jrc.ec.europa.eu/en/library/research-and-innovation-strategy-slovenia-2011-2020>

development of other personal skills, and to encourage realisation of ideas and entrepreneurship particularly at later levels of education. Inclusion of established professionals from the entrepreneurial sector into the tertiary level educational process will provide qualification of more students and improve the quality of research work of the young.

3) Renovation of study programmes at the tertiary level

In modernising university and higher education study programmes, more attention will be paid to measures and content supporting and encouraging creativity, innovativeness, goal-orientation and entrepreneurship. One of the accompanying activities of tertiary level study should include student networking with employees and potential sources of funding, which enables career development. To achieve this, universities and the state have to develop appropriate mechanisms, e.g. meetings with socially established graduates (alumni) and visiting lecturers who are successful entrepreneurs and young student entrepreneurs, networks of connections with chambers of commerce and individual companies, guided and targeted meetings of students of technical trades and business, seminars on entrepreneurship, start-up of company, creativity, legal issues for company success and reputation management, individual mentoring of business ideas, etc. Modernisation of professional study programmes will include participation of companies, specifically to help define competence profiles of study programmes, taking into account the balance between the general academic approach and industry needs.

There is also numerous individual initiatives to promote those types of careers. Ustanova Hiša eksperimentov is a national Science centre.

The idea of establishing such centre started in 1994. HE was established as non-profit foundation in 1996. After four years of development and temporary exhibitions around Slovenia we were able to set up a permanent exhibition in the premises owned by the Ljubljana municipality. HE attracts yearly around 25.000 visitors.

HE is the place where the enjoyment of learning, promoting of science and humour intertwine. In HE visitors can interact with over 50 "hands-on" exhibits with all being developed, designed and build in HE. Each exhibit contains also written explanation that unobtrusively invites visitors to read more and immerse deeply into science while experimenting. The process of improving new exhibits is a never-ending story. After a new exhibit has been put into operation, we are constantly checking its usage, improving weak points and enhancing its attractiveness.

The statement "Learning is fun" describes our main mission – promotion of the enjoyment in learning. It is obvious that learning by experimenting and testing you by yourself are the right way to obtain new knowledge and increase the desire to acquire even more knowledge.

HE is taking part in the process of building the Knowledge-based society, a society open for the exchange of ideas whether they are scientific discoveries, innovations in industry or personal insight. It is a society of inquisitive and open-minded people who are not afraid to admit to some ignorance and try to find the answers to their questions. The free exchange of ideas between individuals makes the society richer.

HE also organises Znanstival – the three day's Science Festival event, performed on the bridges and squares of the city of Ljubljana, Science competitions, workshops, open lectures, science and art expositions and reach-out activities. Znanstival yearly attracts over 30.000 visitors.

Our activities reflect good practices of RRI. HE's expertise in promoting science and sustainable learning, encouraging a positive way of thinking, linking formal, non formal and informal education. We have experience organizing workshops and trainings for different target audiences (lay public, pre school and school kids, young adults, adults, museum professionals, school teachers, in service teachers and students).

Over the years has involved more than half a million people in many kinds of activities, among which numerous outreach hands-on and participatory activities for the lay public, first of all an annual science festival (Znanstival) that started in 2009 and gathers over 34.000 visitors per year. The Hisa has therefore a strong experience in the organization of big events. Hisa has also developed innovative formats of activities for the science centre every-day life but also in the framework of national and international projects, such as: Scientific fairy-tales (combining science and fiction), TEAing Science (contemporary topics discussions - café Scientifique type), Sweet-o-biking (focus on Health issues- health prevention, nutrition, diabetes, obesity), Gender Days, Little House of experiments (mobile Science Centre – Roadshow event), organising, HIŠPOT 2017 and 2018 (ISCSMD) The International Science Center and Science Museum Day – participating in a yearly, global event illustrating the impact and reach of all the world's science centres and science museums.

Throughout those science communication projects Hiša has learnt that it is of crucial importance to train the researchers involved in the communication activities beforehand, and to help them to include an element of interactivity and the use of props in their presentations. It is also important that they are aware of the scientist's image that is embedded in several fiction characters and are empowered to offer a different, more realistic but also much more interesting, idea of their work and their personal career paths. Hisa has also been involved in European projects that targeted the involvement of young girl in science (TWIST, STING, R.A.I.S.E.) and will take care that the whole programme, as well as the single activities, are designed and delivered so to fight gender stereotypes and attract young girls and women. Special attention in general will be given to adapt the activities to the specific, different target groups.

Hiša eksperimentov strives to arouse curiosity, stimulate creativity, and impart critical thinking skills through open communication, exploration and discovery.

5. Is there a list of employment opportunities which can be pursued in STEAM?

Not at the moment.

6. Is there data available establishing what is the skills set which are currently missing in specific STEAM jobs? Which are the jobs where demand is bigger than supply, and vice versa?

The factors that need to be aware of when choosing our profession are the existential value of the profession and the developmental perspective. It is, of course, impossible to say with certainty which professions will be most promising in the future, as the dynamics in the field of employment change from year to year and is subject to many economic factors, however, we can deduce a few professions that have good successes for success in the coming years. According to different studies and researches these professions include:

- software developer, IT professionals of all kinds
- system administrator
- financial analyst
- marketer, market researcher
- pharmacist
- biochemist, biomedicine
- doctor, dentist
- All health care jobs, especially related to elderly services (home care ...)
- professions in the field of chemistry and the development of new materials
- Mechanical Engineer
- event organizer
- translator
- financial, tax and insurance consultants and agents
- professions in the field of transport and logistics
- green jobs (energy-efficient and resource-efficient use, woodworking, catering and tourism).

7. Which VET careers are difficult to attract people? What affects uptake of certain careers, versus others?

The research on VET careers and their attractiveness has not yet been done. There are several studies that were done by different faculties exploring the drop of the number of the enrolled students each year.

According to the Employment Service of Slovenia (ESS) in the last five years, among the professions that were more sought-after, faster employability, the following were mainly: mechanical engineers, electrical engineers, electronics engineers, specialists in general medicine, specialists in medicine (except general medicine), dentists, nurses, healthcare professionals, pharmacists, financiers, auditors, accountants, computer application programmers, developers and analysts of software and applications, mechanical engineering technicians, chefs, waiters, bricklayers, carpenters, roofers, drywall contractors, insulators, installers and repairers of plumbing, gas installations and devices, etc., welders, drafters and installers of metal structures, mechanics and repairers of agricultural, industrial and other machines, electricians, electromechanics, grinders, heavy duty trucks and tractors. "Even in the European space (EURES portal) there are no major differences in the searched professions, except that telemarketing is added.

To determine what affects uptake of certain careers, versus others is a topic that demands a broad study over several years.