



# **Ecosystem map**

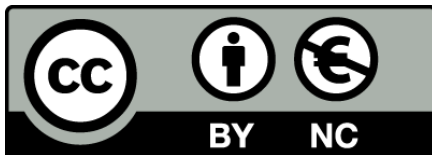
**Estonia / Finland / Italy / Slovenia**

**PARK Guiding Design Leaders**  
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# Introduction

An ecosystem is a chain of interaction and relationships between different stakeholders and their environment. Considering that Talentjourney will represent a network of interconnected regional and EU-wide ecosystems with the emphasis on sharing, networking, working in teams and providing information between different stakeholders, it is important to have a thoroughly understanding of the context in which these interactions are present.

In the development of the Talentjourney platform, it is of utmost importance to implement user-centricity to guarantee that present challenges and pain points are being addressed. Therefore, the activities in WP5 have as a central point the use of Service Design (and broader Design) tools and methods. One of the tools applied in the project development was ecosystem maps; they are an important tool to visualise all the key roles that have an influence on the user, organization and service environment.

As designing an entire ecosystem is an unrealistic task, especially of such a complex industry in several different regions, the developed ecosystem maps focused on aspects that are relevant for bringing excellence to VET provision, having as defined context the Connectivity Devices and Services/CDS (IOT in smart manufacturing) sector in its current status quo (in each region).

## Objectives

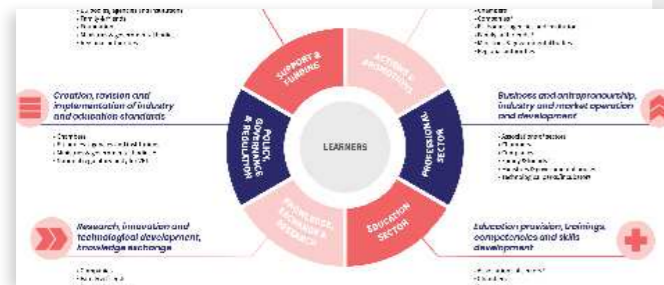
- 1 *Map the status quo and ensure the easy comprehension of regional and EU ecosystems as they are visualised.*
- 2 *Help partners find benefits, disadvantages, challenges and opportunities in the system.*
- 3 *Help reveal opportunities for stakeholders in the ecosystem, as well as evaluate the quality of present relationships.*
- 4 *Extend the comprehension of the insights derived from the WP5 interviews by revealing the interconnectedness between them.*
- 5 *Provide input for the creation of a sustainable and engaging service blueprint for Talentjourney.*

In order to ensure different perspectives were taken into account, workshops were conducted for each region (Estonia, Finland, Italy, and Slovenia). The ecosystem maps showcased in this document are solely based on the input provided by Talentjourney partners in these working sessions. Please note that aspects and notes regarding each region could be applied to others or used as learnings.

This document can be consulted and used as reference as WPs activities progresses; in fact this should be the main application for it. The information presented seeks to be rather impartial, straightforward and visual; and an attempt to use common terms between the regions was sought to increase alignment and understanding between partners.

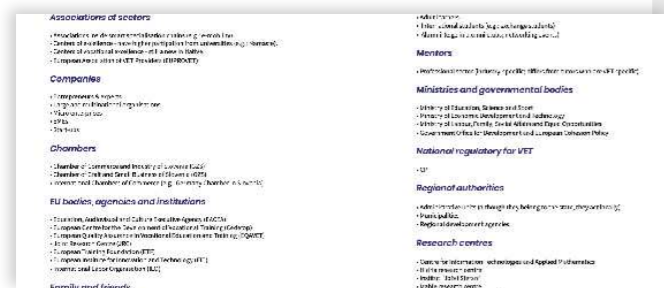
# Structure

The ecosystem map was divided into four different areas (as demonstrated below). It is important to notice that the learners were placed at the centre of the ecosystem, in order to ensure learner-centricity by reflecting on how every aspect in the ecosystem has a relation with the learner and a tangible impact on them.



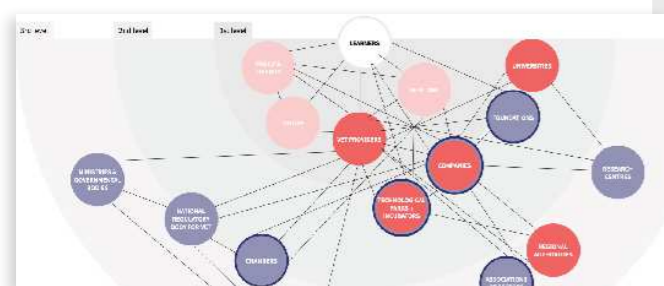
## Enablers

The core areas that allow the ecosystem to function. Used to understand what are the foundations for the system, as well as their contributions.



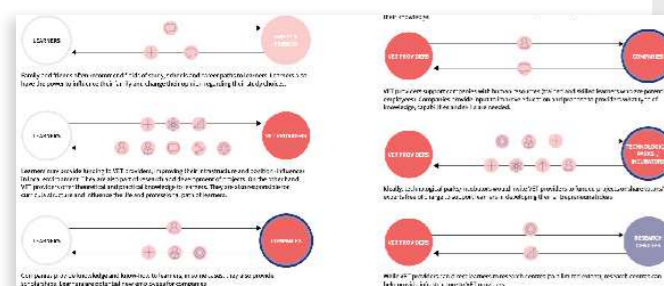
## Stakeholders

The main stakeholders in the system. Used to map the categories of stakeholders, to identify them in further detail and to better understand what role they play in the system.



## Relationships

The formal and informal interactions in the system. Used to understand how close a stakeholder is from the learner, as well as to reveal decision-making authority or power structures.



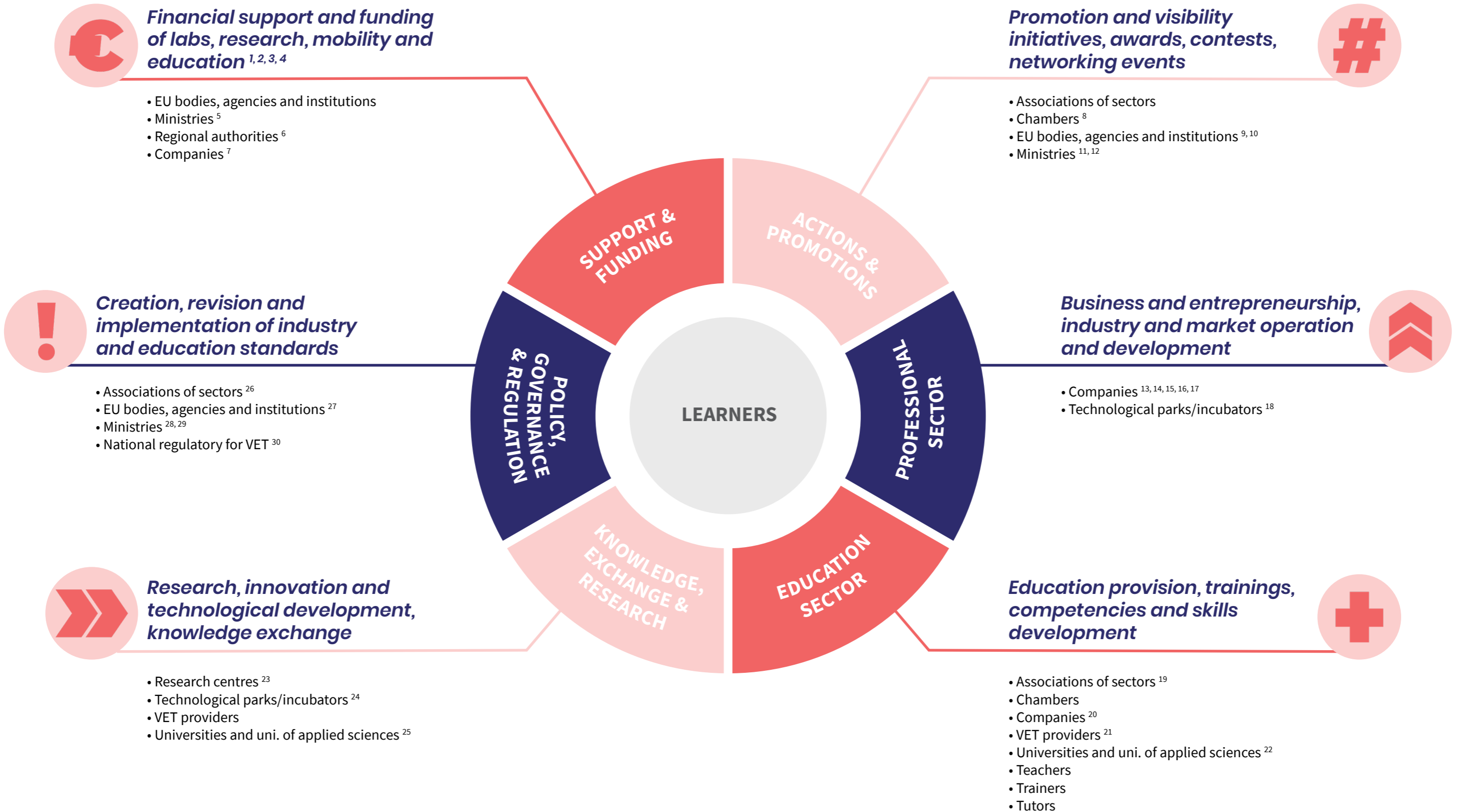
## Value network

The network of value exchanges between stakeholders. Used to understand the flow of values, such as money, goods, services, information, or trust.

# Ecosystem map Estonia

In order to create the Estonian ecosystem map, interviews with 6 stakeholders were conducted, as well as a workshop with the participation of partners from the VET system and industry. One aspect that can be observed is the national scope of most stakeholders (including VET providers and universities) - they act and have an impact/visibility on a national level rather than within regions. Although the difference between teachers (at schools), trainers (at companies) and tutors (student to student) was considered, a decision was made to maintain them as one stakeholder. Foundations were not considered as a relevant stakeholder, therefore they were not included in the Estonian ecosystem map.

# Ecosystem enablers



# Ecosystem stakeholders

The list below showcases some examples for each stakeholder category; therefore, there can be institutions/organisations involved in the ecosystem which are not listed.

## Associations of sectors

- Association of Engineering
- Electronics Industries Association
- Estonian Association of Electrical Enterprises
- IT & Telecom Association

## Companies

- Engineering companies (mostly small and local; create solutions/products in hardware, software or design-related)
- Industrial companies (SMEs that are manufacturers)
- Multinational/large industrial companies (e.g.: Ericsson)
- Public sector employers

## Chambers <sup>31</sup>

- Estonian Chamber of Commerce and Industry
- Estonian Employer's Confederation

## EU bodies, agencies and institutions <sup>32</sup>

- Education, Audiovisual and Culture Executive Agency (EACEA)
- European Centre for the Development of Vocational Training (Cedefop)
- European Quality Assurance in Vocational Education and Training (EQAVET)
- International Labor Organisation (ILO)

## Family and friends

- Parents and/or grandparents
- Partner / Spouse
- Friends

## Learners

- Young learners
- Adult learners (e.g. certification courses)
- Re-learners (second degree)

## Ministries

- Ministry of Economics and Communication
- Ministry of Education
- Ministry of Social Affairs

## National regulatory for VET

- Estonian Quality Agency for Higher and Vocational Education
- Estonian Qualifications Authority
- The Education and Youth Authority

## Regional authorities

- Municipalities <sup>33</sup>
- Regional development agencies <sup>34</sup>
- Regional educational boards

## Research centres <sup>35</sup>

- Cybernetica AS (research on cybersecurity and blockchains / incorporated in another organisation)
- National Institute of Chemical Physics and Biophysics (independent institute)
- STACC (independent institute)

## Technological parks / incubators

- Private (e.g.: Technopolis)
- Mixed ownership (e.g.: Tehnopol, Tartu Science Park)
- Start-up scene (e.g.: Garage48)

## Teachers, tutors and trainers

- Teachers (at school)
- Trainers (from industry)
- Tutors (student to student)

## Universities and universities of applied sciences

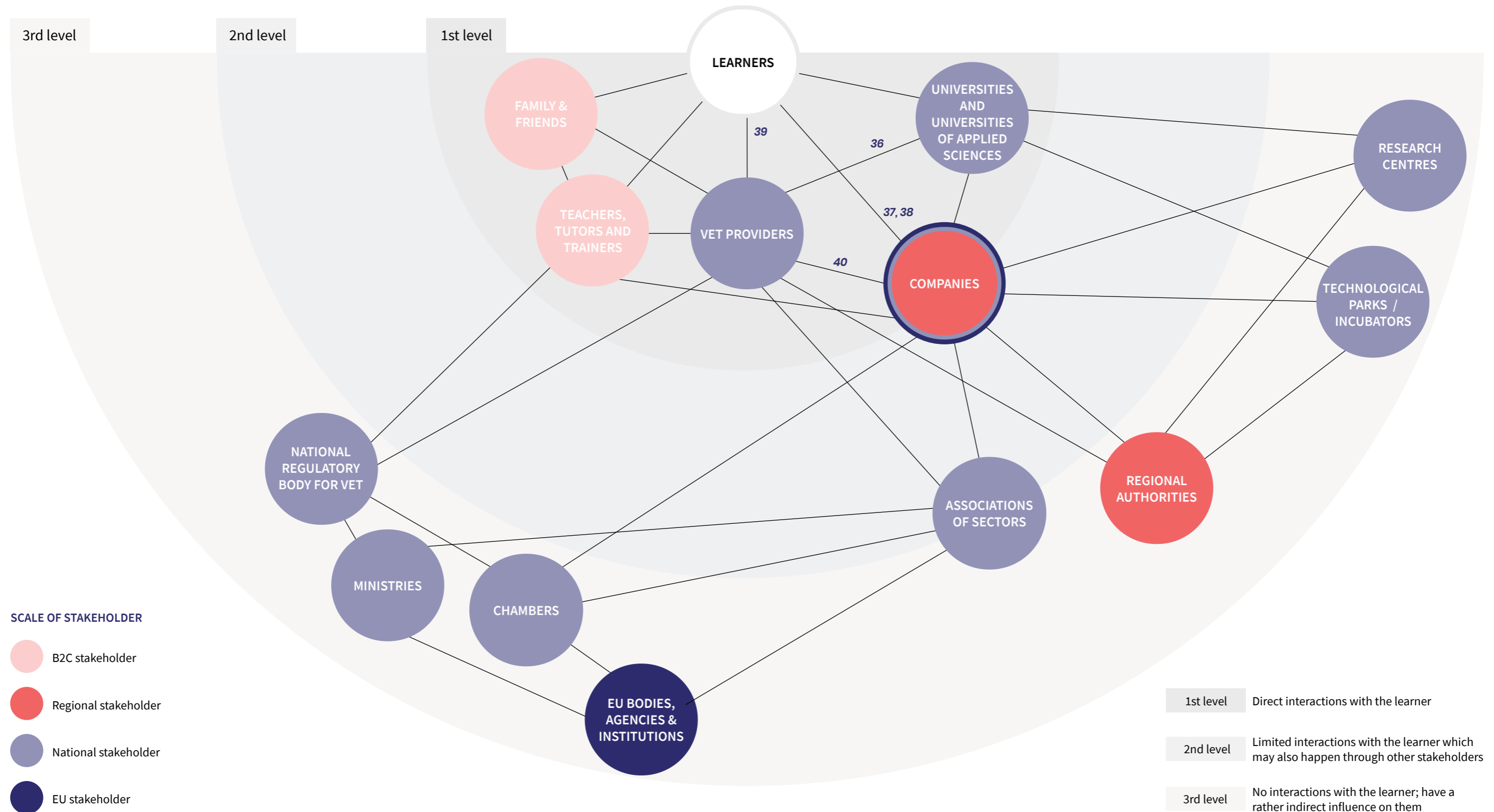
- Tallinn University
- Tallinn University of Technology
- Tartu University
- TTK University of Applied Sciences

## VET providers

- Pärnumaa Vocational Education Centre (PVEC)
- Tartu PVEC
- Tallinn Polytechnics School
- Vocational Education Centre

# Ecosystem relationships

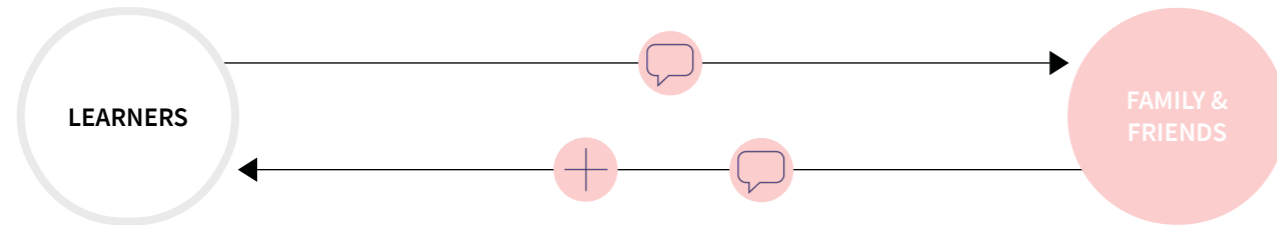
The visual below doesn't attempt to show all of the relationships in the ecosystem, but rather the most relevant ones for Talentjourney.



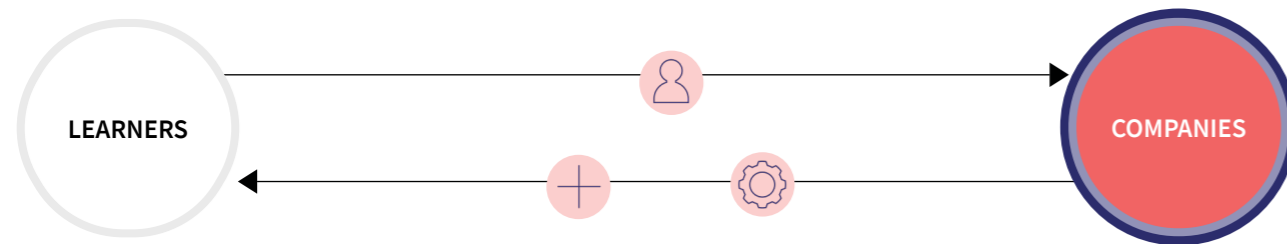


# Ecosystem value network

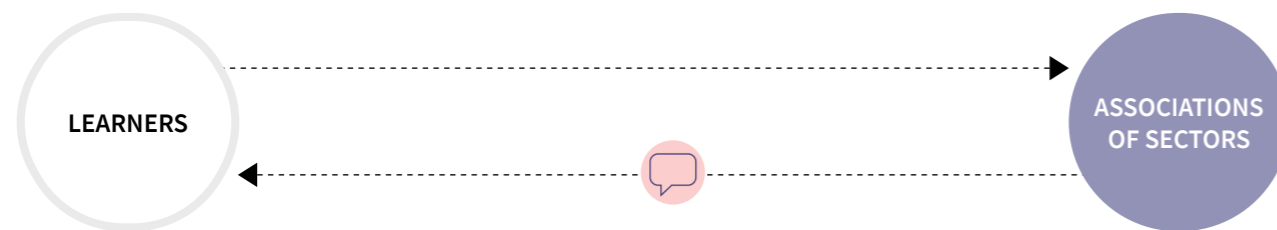
The following visuals don't attempt to show all of the value exchanges in the ecosystem or in each relationship, but rather the most relevant ones for Talentjourney.



Family and friends often recommend fields of study, schools and career paths to learners. Learners also have the power to influence their family and change their opinion regarding their study choices.



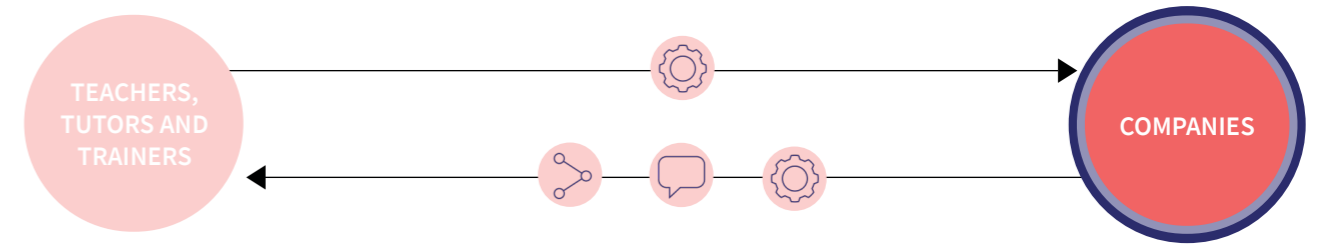
While learners fill the workforce/skills gaps of companies, companies provide financing in the form of scholarships, practical apprenticeship and experience. They also contribute with the development of additional training and skills.



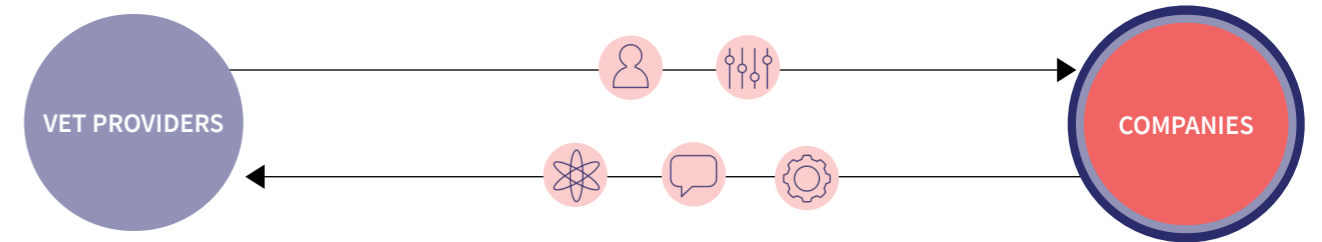
Although there is no direct link from associations to learners, associations have a great influence on general awareness about career opportunities using media and PR.

## CATEGORIES OF VALUE EXCHANGE

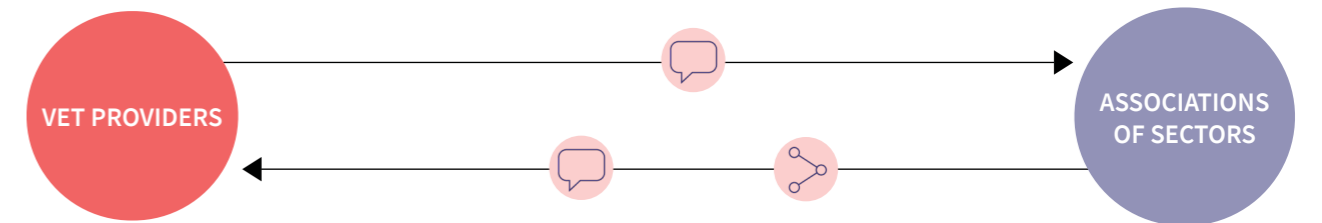
- |                      |                      |                            |                           |                          |
|----------------------|----------------------|----------------------------|---------------------------|--------------------------|
| Business development | Fill of resource gap | Influence / insight        | Regulations and practices | Research and development |
| Curricula structure  | Funding / financing  | Infrastructure improvement | Practical know-how        | Theoretical knowledge    |



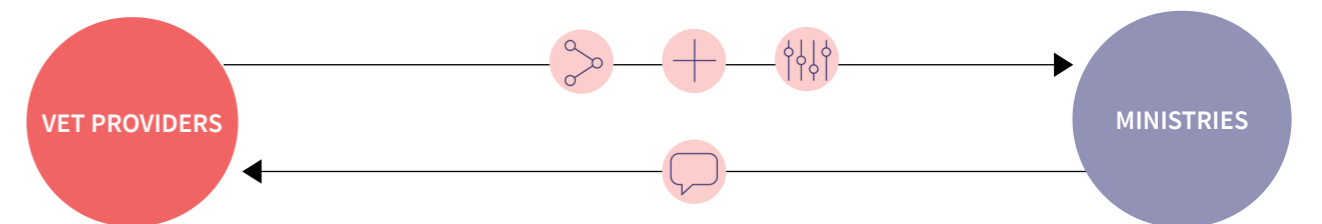
Teachers can help to find gaps in companies; in this way, companies can gain wider knowledge of the field.



VET providers supply trained workforce for the companies and institutions; as they may also act as consultant to companies, they can also provide practical and theoretical information on technologies and processes. Companies ideally give the VET provider feedback on curricula and training quality; they can also support them with practical know-how and infrastructure improvement.



VET providers inform associations about their capabilities and issues; they can also provide a platform for joint events. Cooperation may involve common industry-oriented and publications. Associations participate in curricula development at VETs and inform them about expectations of relevant industries.



While ministries provide financing, general rules and curricula structure (in cooperation with the qualifications authority), VET providers give feedback and insights. They also fill resource gaps for the national economy.

# Notes

The points listed below were highlighted during discussion. Please note that they could be linked to the findings presented in the first WP5 deliverable: WP5 interviews consolidation - key insights.

1. It's easier to approach national schemes (EU funding that is allocated to Estonia through local agencies) than centrally located EU ones. Companies are not aware on how to apply for them; and need professionals who have info on the schemes, technicalities and details.
2. Overall, it is easier to get funding for new equipment than for calibration - maintenance of equipment and the system (when setting up labs) can therefore be a challenge.
3. Challenges in this area are more usually related to management in VET rather than the funding itself.
4. There are many funding opportunities available for areas like green; although there is awareness, organisations still have doubt on how to approach it.
5. Foundations are already integrated in the ministry of education; private foundations are not relevant.
6. Regional authorities don't usually provide enough funding to support education.
7. Companies do donate some money + grants, but mostly for university students.
8. Mostly the chamber of commerce.
9. EU bodies, agencies and institutions don't do promotions directly, but rather participate via local partners.
10. As insufficient popularity of education in tech is a global problem, the EU could do more in promoting it.
11. Ministries offer unemployment insurance funds, offering jobs and financing the studies of unemployed people; thus promoting education).
12. While ministries decide how the finances are used (planning), local agencies do the actions and promotions (implementation).
13. There is a lack of strong lobby from industry (industrial IT vs programming); companies could also invest more time and resources.
14. There is the opportunity is to increase companies' participation at professionals curricula and standards.
15. There is more focus on IT than industry (e.g.: industrial engineering). Start-up scene is more related to software companies + financial applications; usually very different from the industry scene.; start-ups cannot get financing easily for hardware development projects.
16. One challenge can be the lack of value companies assign to vocational education; they relate their needs to higher education programmes.

17. Many companies claim they cannot develop sufficiently fast because they don't have man power from schools.
18. There is more focus on IT than industry (e.g.: industrial engineering). Start-up scene is more related to software companies + financial applications; usually very different from the industry scene.; start-ups cannot get financing easily for hardware development projects.
19. Association of sectors can facilitate information exchange.
20. Companies offer apprenticeship opportunities to VET students and help them further develop competencies.
21. VET providers face lack of awareness among potential students regarding field of study (technology is still not so clear to them); there is also lack of direct feedback from the industry.
22. Universities can support with educational research and methods.
23. Research centres are mostly focused on topics such as cyber-security and blockchain; they focus on the industry on long-term. They are either national research centres or incorporated.
24. Technological parks/incubators are mostly focused on start-ups, and not so involved in VET education. They could further provide competencies and incubation opportunities.
25. Universities could provide research in the field of VET education; knowledge between universities and research centres can be locally created and shared through conferences.
26. Associations are involved in creating curricula & standards (industry associations like the electronics associations)
27. EU bodies, agencies and institutions provide general policies for financing.
28. Mostly the Ministry of Education, Ministry of Economics and Communication)
29. Ministries: Several policies but unclear national industrial policy (policies are more advanced in general horizontal levels; IT strategies are usually better defined)
30. The national regulatory body for VET is part of the ministry of education
31. They promote education as a resource for members.
32. Usually don't affect at all, just hear from them from a higher level.
33. Municipalities own some schools and provide some funding eg. for company tutors.
34. They are not so involved.
35. They are not really involved in vocational education
36. Formal cooperation between VET and universities could be better (works on a personal level but on a formal level can be improved). Universities have a different approach, focus more on scientific research).

# Notes

37. It is a challenge for companies cannot address their needs to learners via VET providers and teachers.

38. There could be a better link between companies and learners to adjust the curricula to market needs

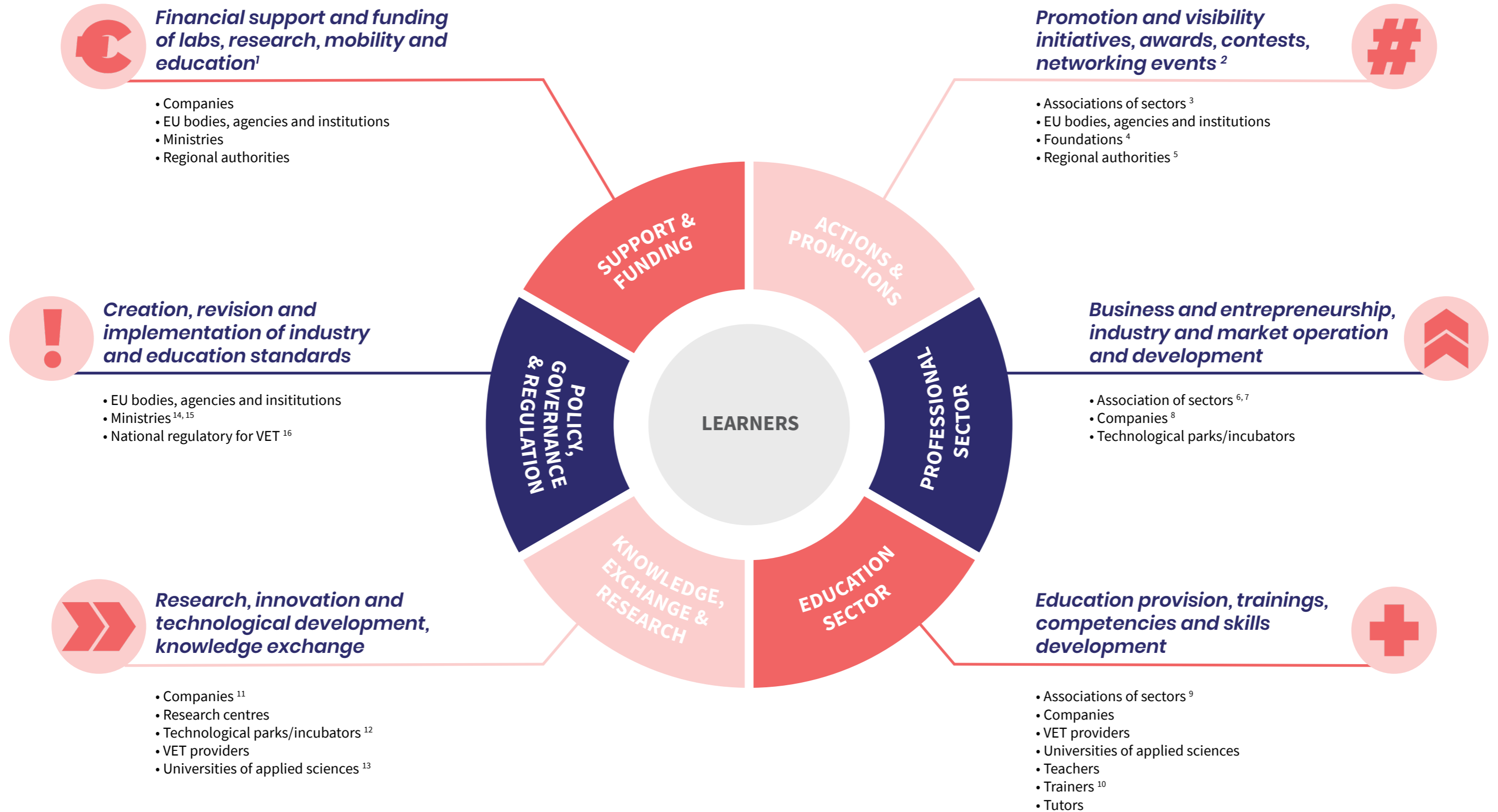
39. There aren't enough potential students

40. Potentials/opportunities: attractive curricula, demos (career opportunities) by companies, using media and PR for promoting VET (e.g.: address social media which is used by learners and potential learners)

# Ecosystem map *Finland*

In order to create the Finland ecosystem map, interviews with 8 stakeholders were conducted, as well as a workshop with the participation of partners from the VET system. Some aspects that can be observed is the regional scope of most stakeholders (including VET providers and universities) - they act and have a higher impact/visibility on a regional level; the presence of trade unions and foundations as relevant stakeholders; and the decision to differentiate between teachers (at schools), trainers (at companies) and tutors (student to student).

# Ecosystem enablers



# Ecosystem stakeholders

The list below showcases some examples for each stakeholder category; therefore, there can be institutions/organisations involved in the ecosystem which are not listed.

## **Associations** <sup>18</sup>

- Associations for specific fields (e.g: electronics)
- Association of SME's
- Chamber of Commerce

## **Companies**

- Large and multinational organisations
- Micro enterprises
- SMEs
- Start-ups

## **EU bodies, agencies and institutions**

- Education, Audiovisual and Culture Executive Agency (EACEA)
- European Centre for the Development of Vocational Training (Cedefop)
- European Quality Assurance in Vocational Education and Training (EQAVET)
- DG EMP & EAC

## **Family and friends**

- Parents
- Partner / Spouse

## **Foundations**

- Satakunta High Technology Foundation
- Ulla Tuominen Foundation SR

## **Learners**

- Young learners VET
- Adult learners

## **Ministries**

- Ministry of Culture and Education
- Ministry of Economical Affairs and Employment

## **National regulatory body for VET**

- Finnish Agency for Education

## **Regional authorities**

- Centre for Economic Development, Transport and the Environment
- Municipalities
- Regional Council of Satakunta <sup>19</sup>

## **Research centres**

- Prizztech

## **Trade unions**

- Trade unions (e.g.: EUproVET; EFVET; AMKE; SAK)

## **Technological parks / incubators**

- Business Finland
- Prizztech

## **Teachers**

- In VET institutions

## **Trainers**

- In companies

## **Tutors**

- Student to student

## **Universities of applied sciences**

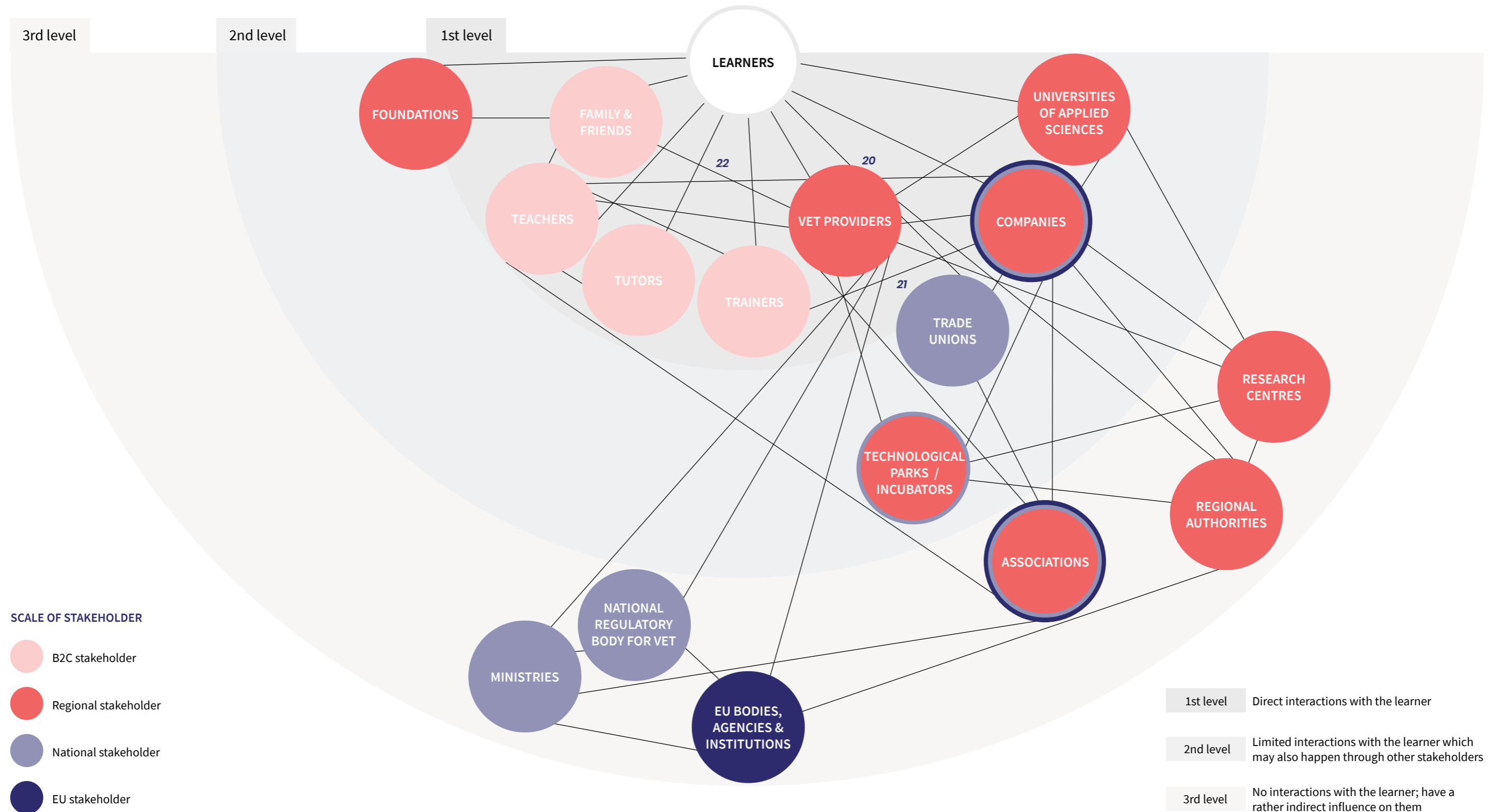
- Satakunta UAS

## **VET providers**

- Sataedu
- WinNova

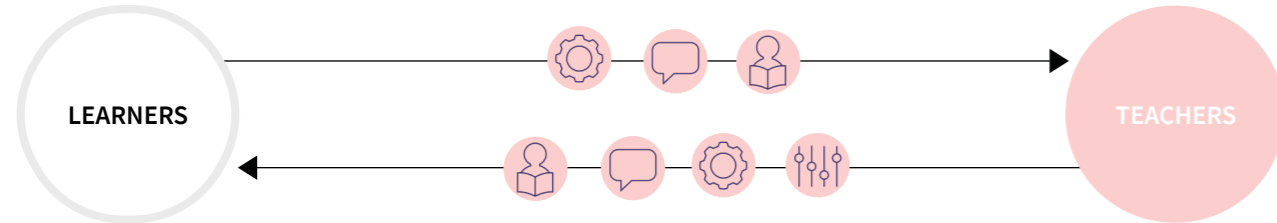
# Ecosystem relationships

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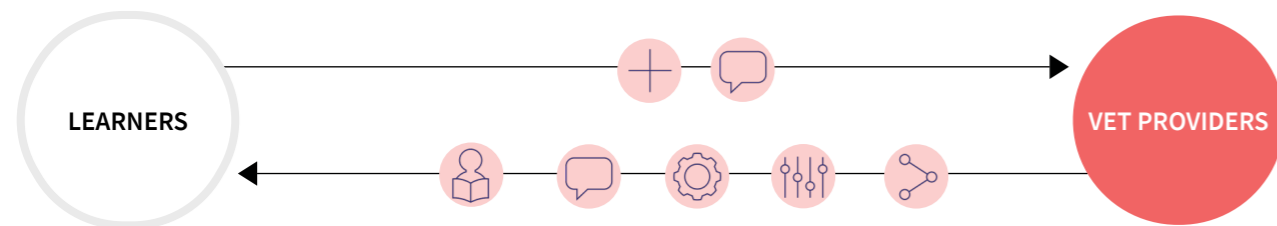


# Ecosystem value network

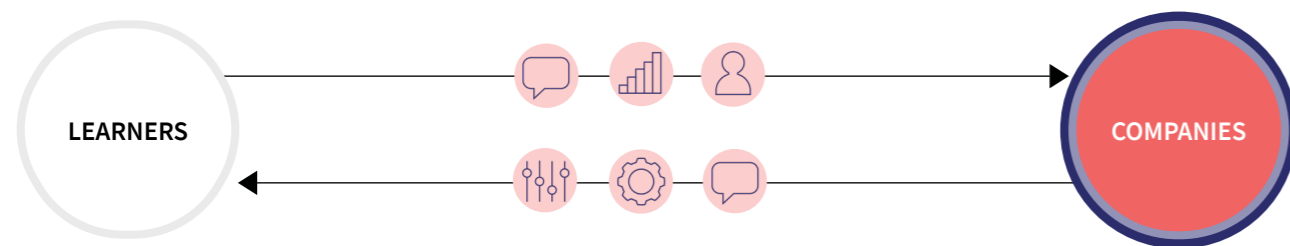
The following visuals don't attempt to show all of the value exchanges in the ecosystem or in each relationship, but rather the most relevant ones for Talentjourney.



Learners can provide new and 'out-of-the-box' ideas. Teachers provide knowledge, practical know-how and working-life skills. Ideally, the teacher can help provide a career path for the learner.



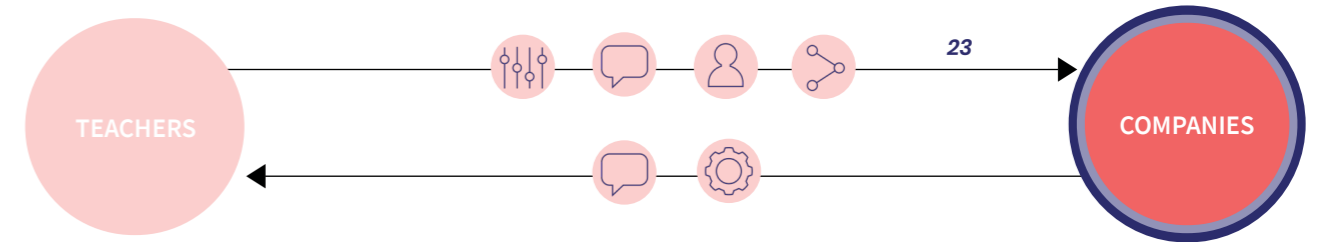
Learners provide feedback regarding the education; learner's outcomes are a part of funding for VET providers. VET providers in return, provide them knowledge, skills and competence.



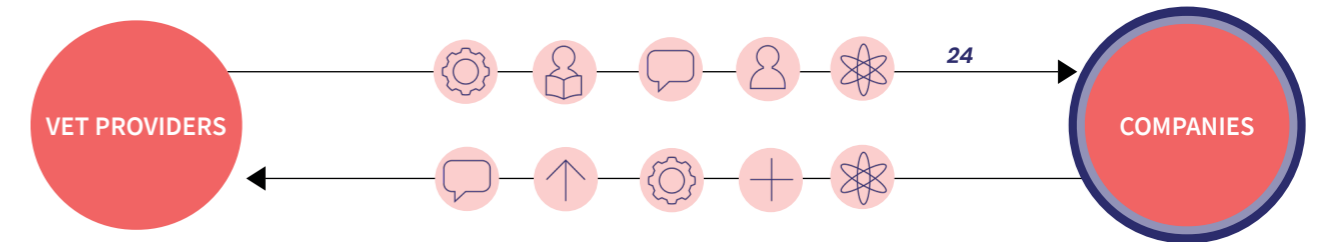
Learners may provide insights regarding VET education to companies, as well as bring a fresh perspective on current practices. Companies, on the other hand, may provide learners social skills, working-life rules and skills, as well as practical know-how.

## CATEGORIES OF VALUE EXCHANGE

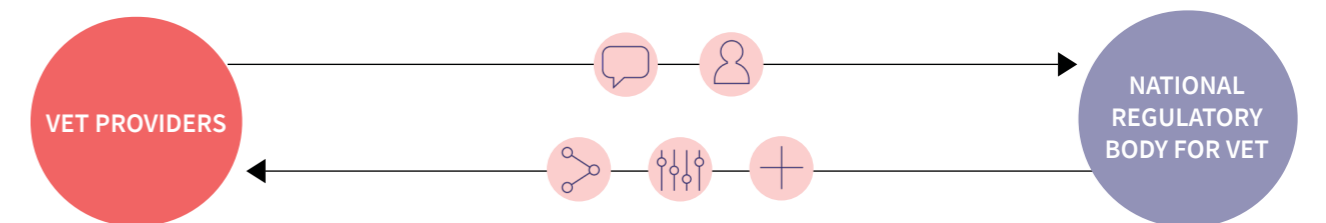
- |                      |                      |                            |                           |                          |
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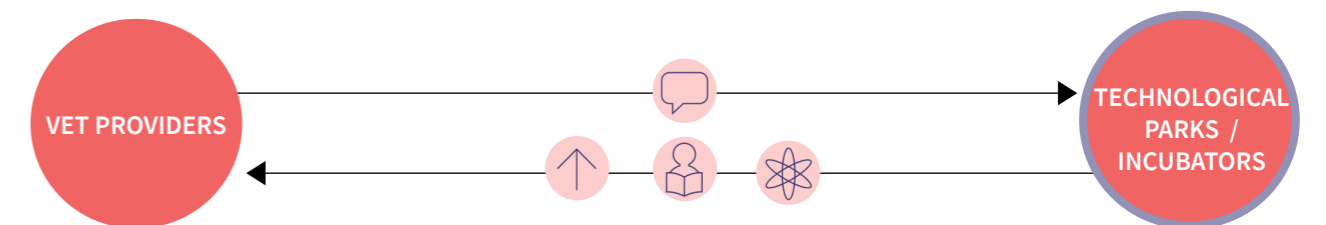
Teachers provide companies the latest information related to laws, student assessment skills, recruiting, and local needs of trainings.



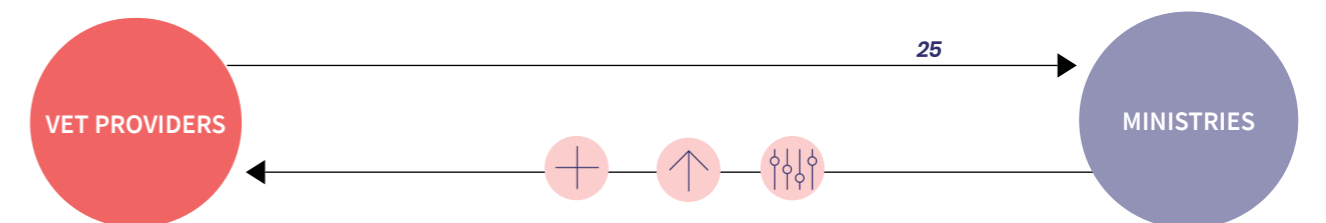
VET providers may provide work force, job placements, as well as knowledge of cutting edge tech. There is bilateral training and research and development.



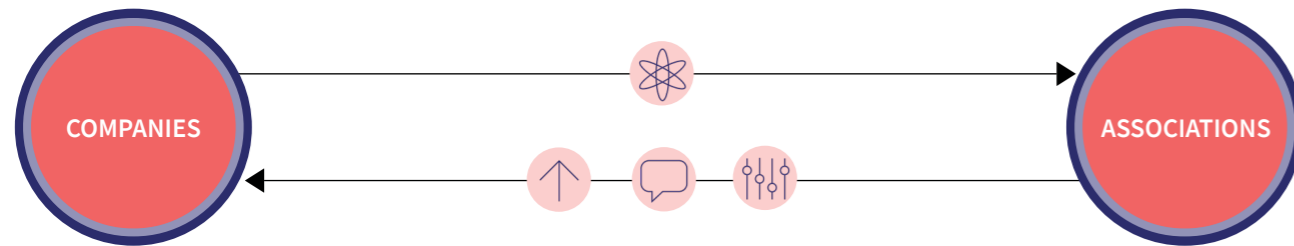
National regulatory body for VET provides core of curricula, criteria of assessment, latest information of VET field, and project fundings.



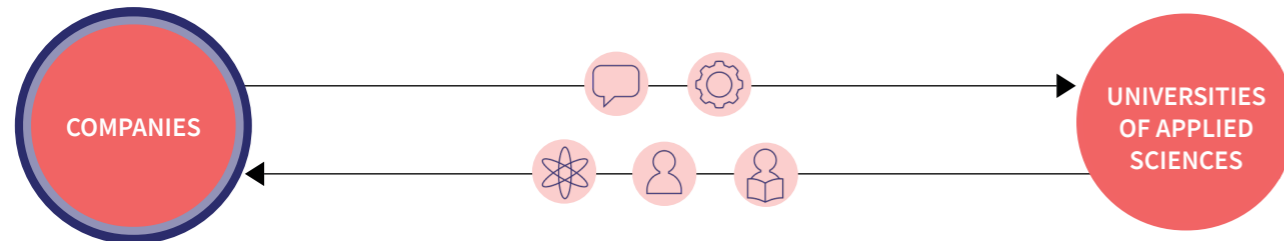
Technological parks/incubators may support VET providers with the development projects and enable them to 'export education'.



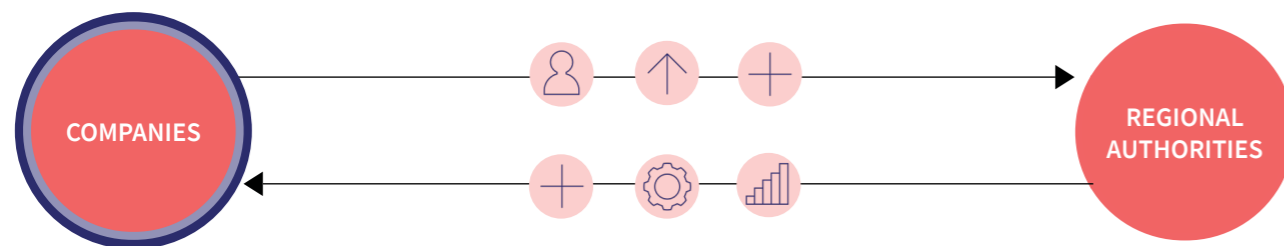
Ministries provide funding, legislation and business opportunities to VET providers.



Associations can provide companies lobbying/promotion of interests, sector-specific contract negotiation, and also industry development.



Universities provide companies research and development and are also responsible for upskilling the labour force for the industry.



Regional authorities provide tailored labor market trainings; they are also responsible for common promotion of regional interests, corporate taxes, and 'vitality' (increasing sub contractors, more skilled workforce and practical know-how). Overall regional well-being helps to increase visibility.

## Notes

The points listed below were highlighted during discussion. Please note that they could be linked to the findings presented in the first WP5 deliverable: WP5 interviews consolidation - key insights.

1. There is high competition for funding.
2. There are a lot of activities - how to make VET education visible and interesting?
3. Mostly national associations.
4. Money usually comes from the ministry of education. They promote skills competitions on a regional and a national level; prepare field-specific fairs (such as EVSW and national fairs).
5. Mostly regional development bodies.
6. Mostly association of SMEs and national associations
7. Majority of new jobs are provided by SMEs; they seem to be well represented in national bodies .
8. Considering business Finland and start-ups.
9. Mostly field specific associations, mainly on a national level.
10. Employees who are teaching the new workforce.
11. R&D
12. Regional players on the field.
13. Universities of applied sciences conduct an advanced level of research.
14. Mostly the ministry of culture and ministry of education.
15. Political decisions can be 'too forced' upon VET providers and other stakeholders.
16. National regulatory body for VET is under the ministry of education.
18. National association with regional members.
19. Independent body to develop the region; under the ministry of economic affairs.
20. VET providers connections show how many different stakeholders they need and have; each of them have an impact and benefit on the learner.
21. Role of trade union is changing all the time (seems that the impact is not as big as before).
22. The connection between education providers and families can be very close (as an example, in the beginning, Sataedu teachers would visit students' home in the autumn to discuss first year learners'



education with their families; it would then be easier to understand if the students have some difficulties. The use of Wilma web interface for communication between families-learners (up to 18 years-old)-teachers happen on a national level in some areas, although it's not so common anymore. Students councils/students services are a high priority (specific for Sataedu).

23. Education providers and companies could pay the teacher's salary in half, in this way teacher would be an asset for both, being able to teach the student alongside real work at the company.

24. VET cannot provide workforce for the companies due to decreasing numbers of learners (one of the reasons can be the decreasing rate of birth).

25. Rapidly changing politics in education sector and lack of long-term sustainability of funding models can be a challenge.

26. XX

27. EU bodies, agencies and institutions provide general policies for financing.

28. Mostly the Ministry of Education, Ministry of Economics and Communication)

29. Ministries: Several policies but unclear national industrial policy (policies are more advanced in general horizontal levels; IT strategies are usually better defined)

30. The national regulatory body for VET is part of the ministry of education

31. They promote education as a resource for members.

32. Usually don't affect at all, just hear from them from a higher level.

33. Municipalities own some schools and provide some funding eg. for company tutors.

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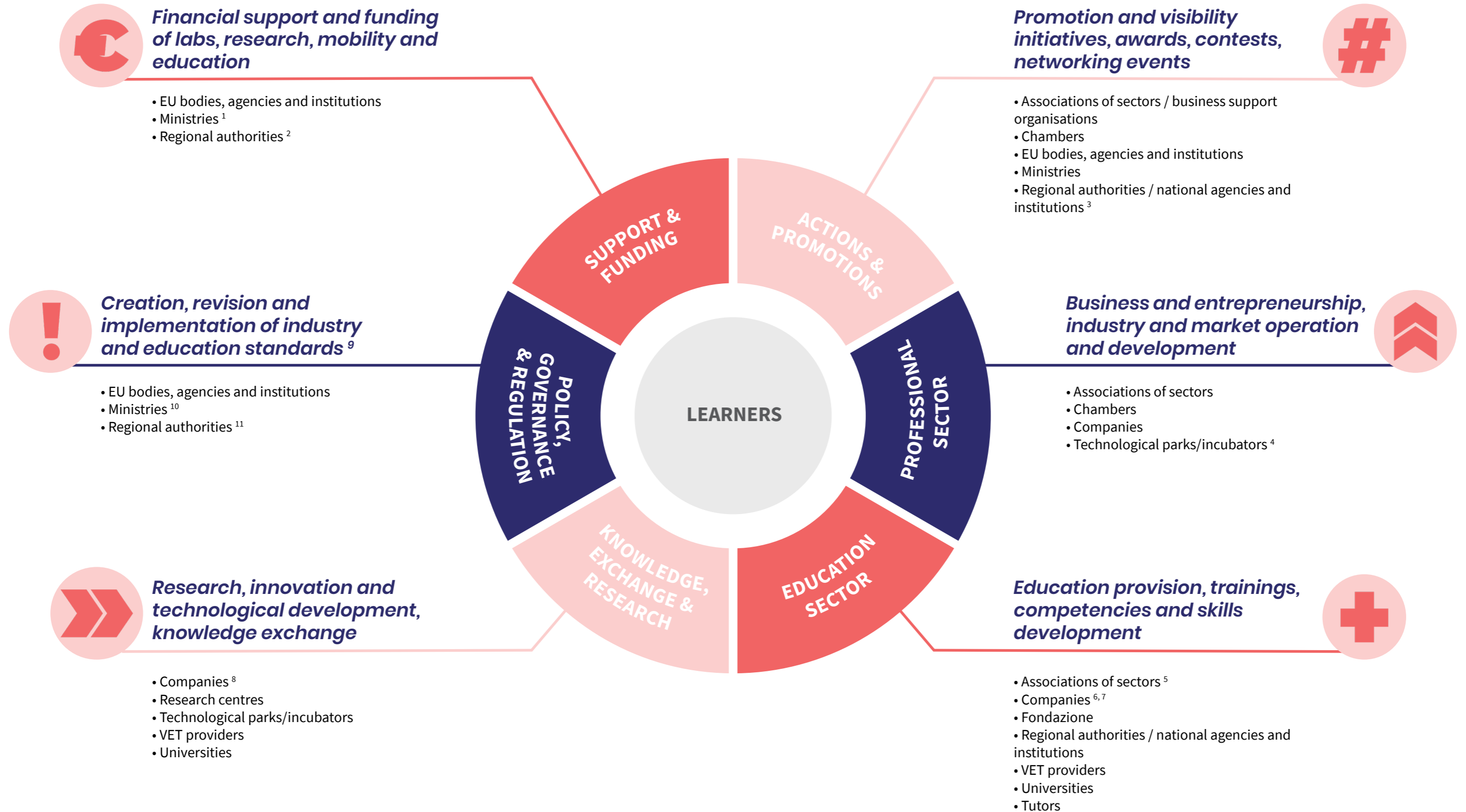
36. Formal cooperation between VET and universities could be better (works on a personal level but on a formal level can be improved). Universities have a different approach, focus more on scientific research).

# Ecosystem map

## Italy

In order to create the Italian ecosystem map, interviews with 8 stakeholders were conducted, as well as a workshop with the participation of partners from the VET system, tutors and sector representatives. Some aspects that can be observed is the regional scope of most stakeholders (including chambers, which is unique to the Italian ecosystem); the presence of *Fondazione ITS* as education providers; the consideration of business support organisations together with associations; the inclusion of influencers within family and friends; the lack of a national regulatory body for VET due to a multi-government system in which many decisions are made regionally; and the inclusion of teachers (at school), company mentors and peers (student to student) within tutors.

# Ecosystem enablers



# Ecosystem stakeholders

The list below showcases some examples for each stakeholder category; therefore, there can be institutions/organisations involved in the ecosystem which are not listed.

## *Associations of sectors / business support organisations* <sup>12</sup>

- CNA Veneto (National Confederation of Crafts and SMEs, Veneto branch) + provincial CNAs
- Competence centers <sup>13</sup>
- Confagricoltura
- Confartigianato
- Confcommercio
- CONFAPI UDINE
- CONFINDUSTRIA UDINE <sup>14</sup>
- DITEDI
- Feletto Umberto
- Irecoop Veneto
- Tavagnacco

## *Companies*

- Large and multinational organisations
- Micro enterprises
- SMEs
- Start-ups

## *Chambers*

- Camera di Commercio Pordenone-Udine
- Unioncamere del Veneto

## *EU bodies, agencies and institutions*

- Education, Audiovisual and Culture Executive Agency (EACEA)
- European Centre for the Development of Vocational Training (Cedefop)
- European Quality Assurance in Vocational Education and Training (EQAVET)

## *Family, friends and influencers*

- Career counsellors
- Influencers
- Parents
- Partner / Spouse

## *Fondazione*

- UniSMART (UNIPD Foundation) <sup>15</sup>

## *Fondazione ITS*

- Technical institutes (EQF5) <sup>16</sup>

## *Learners*

- Young learners (VET or I.T.S.)
- Adult learners (VET or I.T.S.)

## *Ministries*

- ANPAL Agency (National Agency for Active Labour Policies)
- Ministry of Education
- Ministry of Labour and Social Policy

## *Regional authorities*

- Regione Autonoma Friuli Venezia Giulia
- Regione del Veneto
- Regional development agencies

## *Research centres*

- Lean Experience Factory 4.0, San Vito al Tagliamento

## *Technological parks / incubators*

- Area Science Park, Trieste
- FabLab Castelfranco Veneto
- Friuli Innovazione, Udine
- Galileo Technological Park
- IP4FVG Industry Platform for FVG
- Veneto Innovazione

## *Tutors*

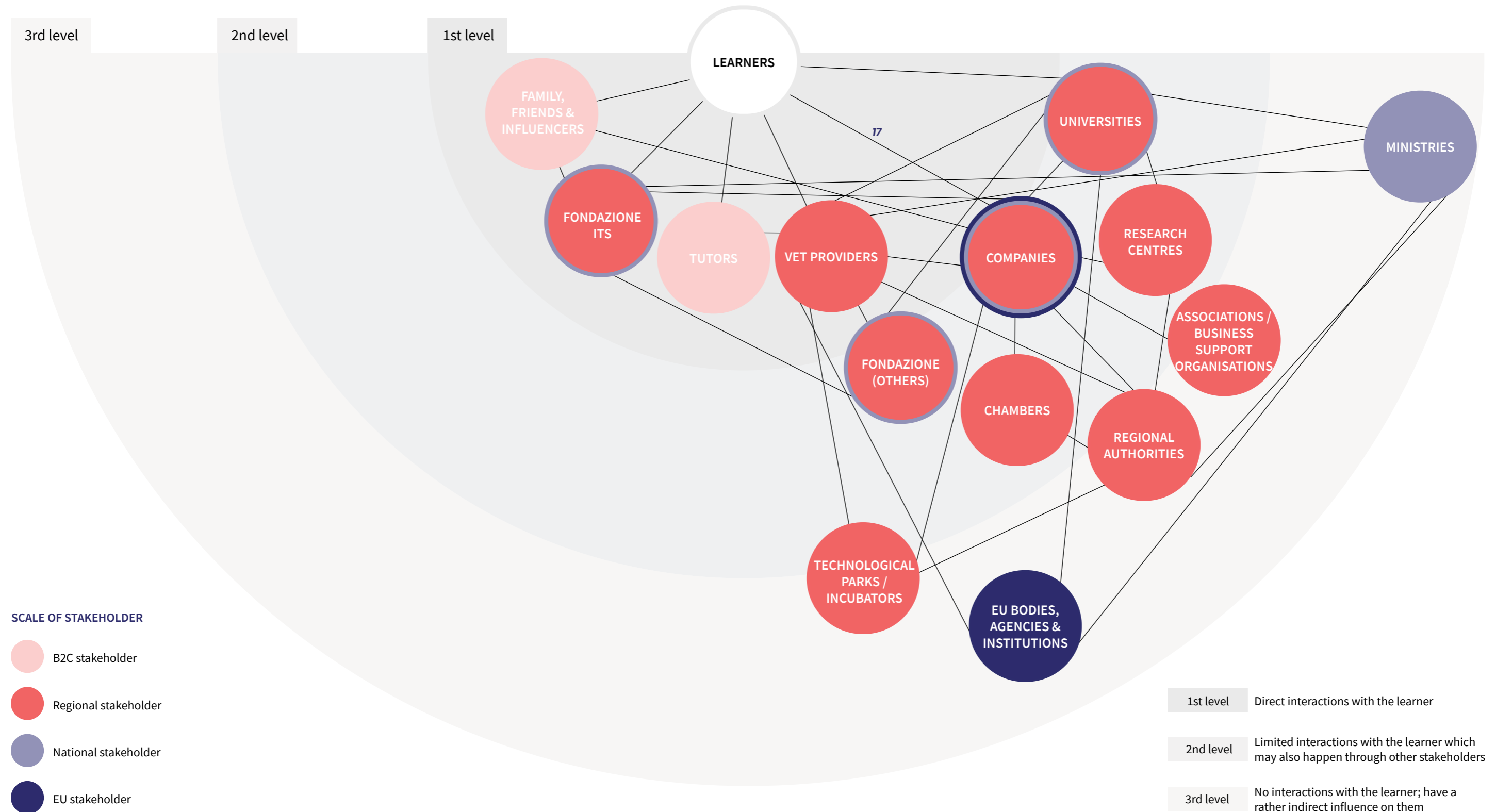
- Teachers
- Company mentors
- Peers (student to student)

## *Universities*

- Università di Udine
- UNIPD (University of Padua)
- UNITS (University of Trieste)
- UNIVE (Ca' Foscari University - Venice)

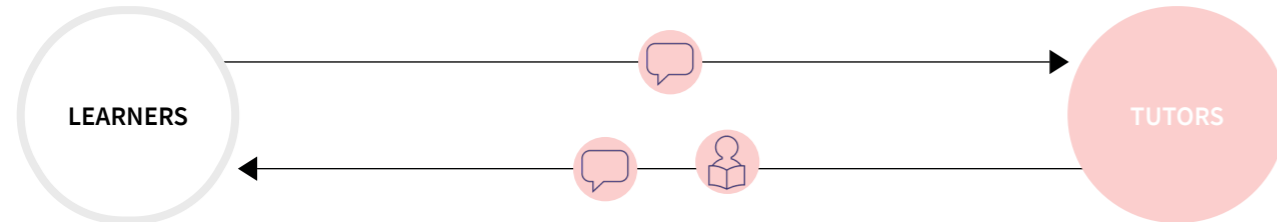
# Ecosystem relationships

The visual below doesn't attempt to show all of the relationships in the ecosystem, but rather the most relevant ones for Talentjourney.

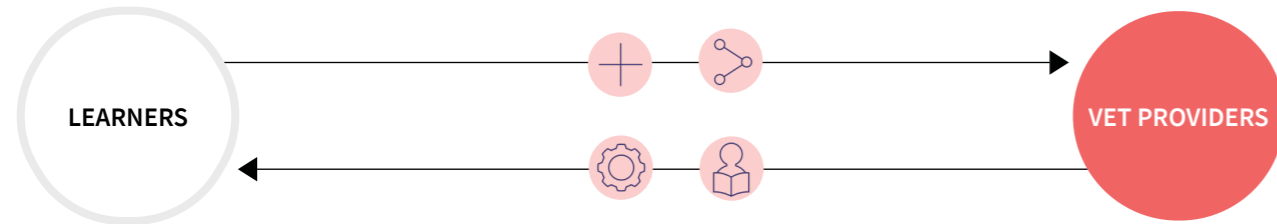


# Ecosystem value network

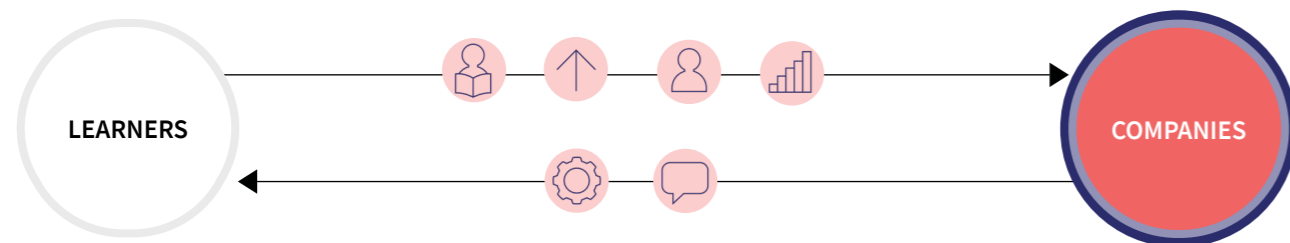
The following visuals don't attempt to show all of the value exchanges in the ecosystem or in each relationship, but rather the most relevant ones for Talentjourney.



The tutor has great potential to influence, guide and inspire the learner for the future. They also provide theoretical knowledge. Tutors can improve learners' attitude towards learning (and continuous learning) and school, as well as their study habits and their self-esteem and confidence; they can encourage also self-paced and self-directed learning (independence and responsibility). The learner also has the ability to influence the tutor on their teaching approach and on the content they deliver, besides helping them to further expand their learnings.



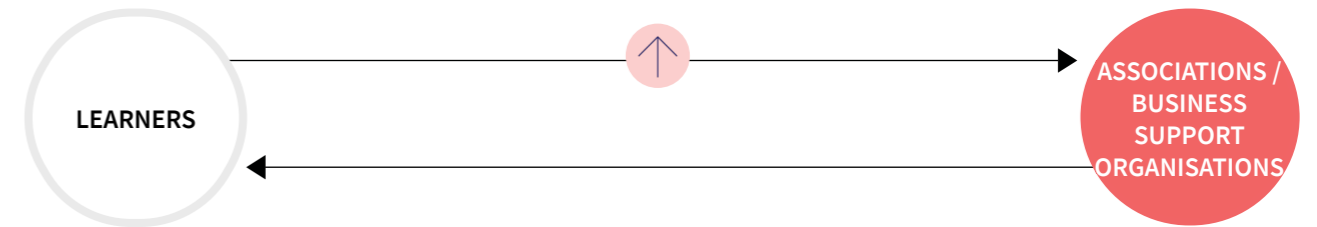
The success of a VET provider can be measured also by the professional performances of learners when they become part of (and fit) the labourforce; and the "appeal" of the professional profile for the labour market. If the professional profile of a learner fit the market demand, the VET providers will be recognised as a successful supplier both by learners and market actors. This success will influence the interest of students in the curricula proposed by the VET providers and their choice to enroll in a specific course (and VET school).



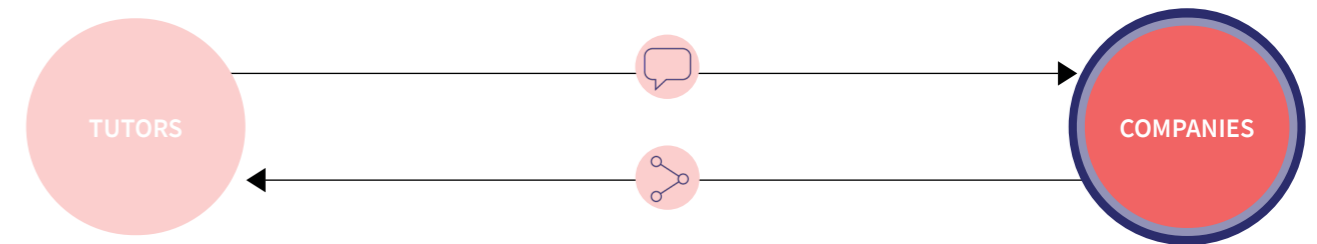
While learners can provide new skills and receive professional growth, companies can provide apprenticeships, experiences and expertise and receive new knowledge, skills and competencies.

## CATEGORIES OF VALUE EXCHANGE

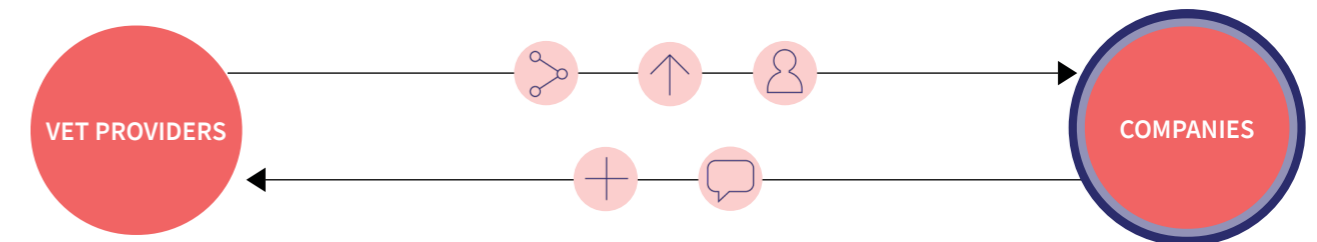
- Business development
- Fill of resource gap
- Influence / insight
- Regulations and practices
- Research and development
- Curricula structure
- Funding / financing
- Infrastructure improvement
- Practical know-how
- Theoretical knowledge



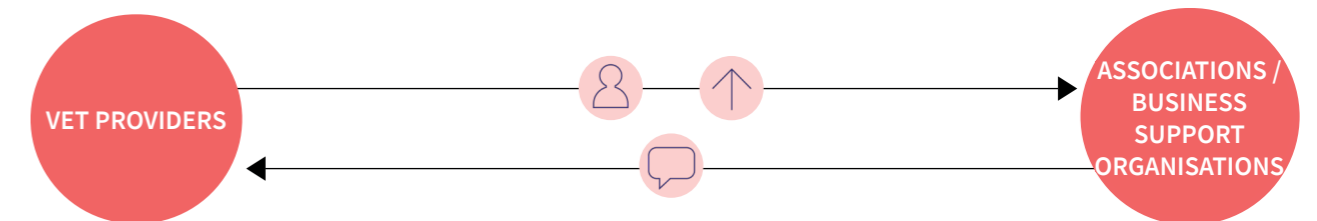
Learners and associations / business support organisations don't have a direct, strong and fruitful relationship. When learners are entrepreneurs or employees, the association of sector acts as a spokesperson for skill, knowledge and competencies improvements, able to communicate then the expectations to VET providers or tutors.



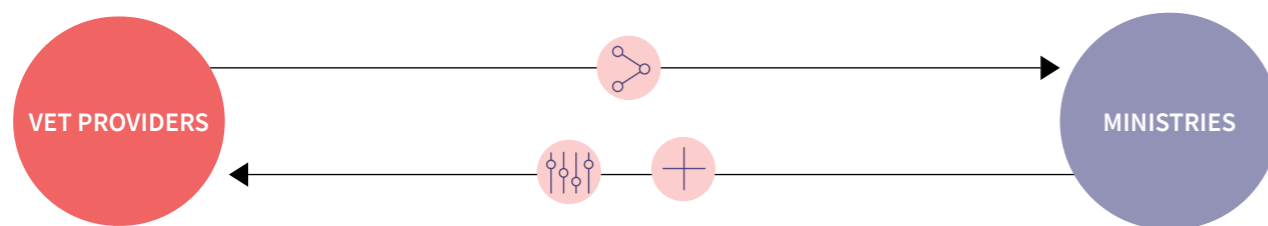
Tutors can be seen as the crucial actors who can influence the design of curricula, since they have direct contact with learners, teachers and companies; they also have the main elements to contribute drawing a suitable vocational educational track. Companies can be considered as a VIP customer, since training courses for learners need to match their demand. Tutors are a privileged speaker for a company, more than a teacher, since they are used to deal both with the market context and the VET context; companies can then have a direct communication channel with VET providers.



Companies can provide VET providers with input about the market needs and the skills gaps - this may tune skills and competencies with the competencies demand. VET providers can provide companies with the right professionals able to fill in the existing skills and competencies gaps, since they can design curricula and training courses suitable for the market demand.



Like the tutors, the BSOs and association of sectors can be considered as the "spokesperson" of the company expectations; therefore they can support VET providers in designing the right curricula for the right professional profiles. VET providers, from their side, can support BSOs and associations in designing curricula that fit their needs and bring new and updated knowledge in their sector.



There is no balanced exchange between ministries and VET providers; there is a long average response time for the designing of new curricula or to change of part of it. The procedure is quicker with reference to the EQF5 level of Fondazioni ITS, which can manage the decisional process at regional level.

## Notes

The points listed below were highlighted during discussion. Please note that they could be linked to the findings presented in the first WP5 deliverable: WP5 interviews consolidation - key insights.

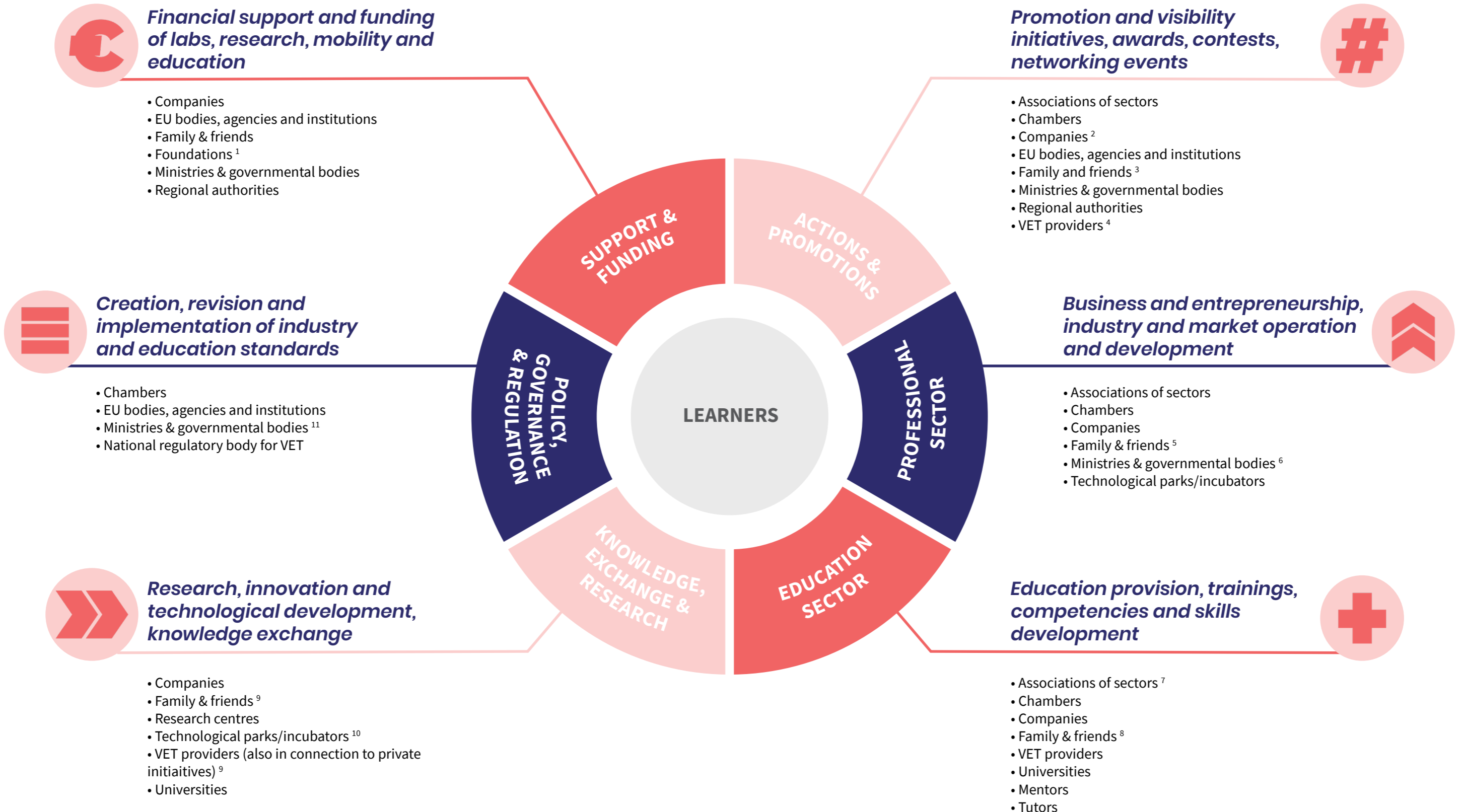
1. The ministry are one of the main funding providers; it's also up to the VET providers' own ability to get funding.
2. In general, regional authorities don't provide much help.
3. Mostly regional development agencies.
4. Technological parks have a bigger role in business and market technology in Veneto.
5. Including certifying bodies).
6. Companies' academies; SMEs; companies that provide VET education online, such as Coursera.
7. SMEs also plan skill development activities/trainings.
8. Companies' academies and online platforms; it is important to note the presence of online platforms/sites where exchange of knowledge takes place (e.g.: Cisco academy). These are not restricted to Italy-based platforms.
9. Italy has a multi-government system for VET; many decisions are taken at a regional level rather than a national level (multi-layer responsibility). Also, although there is no national regulatory body in a narrow sense, there is a national regulation (QNF - National Qualification Framework), applied and integrated regionally.
10. Mostly the Ministry of Labour (ISFOL).
11. Local regional authorities.
12. Regional branches of national networks.
13. Competence centers are quite new (since 2 to 3 years ago). Universities, research centres and tech parks associate/collaborate with each other in different regions of Italy; in this way, companies can find a provider with all the competencies they are looking for (it is aimed at large and mid-sized companies). They are co-funded by the national government., as they aim to enhance the competitiveness of the ecosystem.
14. Digital innovation hub.
15. Fondazione Unismart is an University Foundation which enhances cooperation and networking between companies and the University of Padova; it also promotes the University education offer
16. Born in order to provide technical profiles to the market
17. Usually companies are not directly connected with learners; relationship is mediated by VET

# Ecosystem map

## *Slovenia*

In order to create the Slovenian ecosystem map, interviews with 11 stakeholders were conducted, as well as a workshop with the participation of partners from the VET system and industry. Some aspects that can be observed is the regional scope of VET providers and universities - they mostly act and have a higher impact/visibility on a regional level. On the other hand, technological parks/incubators have a rather extensive presence, varying from regional to EU level, while research centres act mostly on a national level. In the ecosystem it was considered the presence of foundations; a decision was made to separate tutors (teachers at the school) from mentors (trainers at the company); and an overall understanding of how family and friends are important for building networks and further promoting education.

# Ecosystem enablers





# Ecosystem stakeholders

The list below showcases some examples for each stakeholder category; therefore, there can be institutions/organisations involved in the ecosystem which are not listed.

## Associations of sectors

- Associations inside smart specialisation chains (e.g.: e-mobility)
- Centers of excellence (e.g.: Namaste)<sup>12</sup>
- Centers of vocational excellence<sup>13</sup>
- European Association of VET Providers (EUPROVET)

## Companies

- Entrepreneurs & experts
- Large and multinational organisations
- Micro enterprises
- SMEs
- Start-ups

## Chambers

- Chamber of Commerce and Industry of Slovenia (GZS)
- Chamber of Craft and Small Business of Slovenia (OZS)
- International Chambers of Commerce (e.g.: Germany Chamber in Slovenia)

## EU bodies, agencies and institutions

- Education, Audiovisual and Culture Executive Agency (EACEA)
- European Centre for the Development of Vocational Training (Cedefop)
- European Quality Assurance in Vocational Education and Training (EQAVET)
- Joint Research Centre (JRC)
- European Training Foundation (ETF)
- European Institute for Innovation and Technology (EIT)
- International Labor Organisation (ILO)

## Family and friends

- Parents
- Partner / Spouse

## Foundations

- Business angels (rich entrepreneurs)
- Entrepreneurial foundations (funding of start-ups and companies)
- Platforms for crowdfunding (e.g.: Kickstarter)

- Public Scholarship, Development, Disability and Maintenance Fund of the Republic of Slovenia
- Posoški razvojni center (PRC)
- Rottary; Lions
- Slovene Enterprise Fund<sup>14</sup>

## Learners

- Young learners
- Adult learners
- International students (e.g.: exchange students)
- Alumni (e.g.: in alumni clubs; networking events)

## Mentors

- Professional sector (industry-specific; differs from tutors who are VET specific)

## Ministries and governmental bodies

- Ministry of Education, Science and Sport
- Ministry of Economic Development and Technology
- Ministry of Labour, Family, Social Affairs and Equal Opportunities
- Government Office for Development and European Cohesion Policy

## National regulatory for VET

- CPI

## Regional authorities

- Administrative units<sup>15</sup>
- Municipalities
- Regional development agencies

## Research centres

- Centre for Information Technologies and Applied Mathematics
- Hidria research centre
- Institut "Jožef Stefan"
- Mahle research centre
- National Institute for Chemistry
- Welding Institute

## Technological parks / incubators

- ABC accelerator
- Fab lab network Slovenia
- High performance and cloud computing cross-border competence Consortium (digital innovation hub)
- Kovačnica (coworking)
- Pristop Šoštanj (coworking)

- Startup Nova Gorica Primorska technology park
- SAŠA Inkubator

### ***Tutors***

- Education sector (also known as teachers) <sup>16</sup>
- Student to student

### ***Universities***

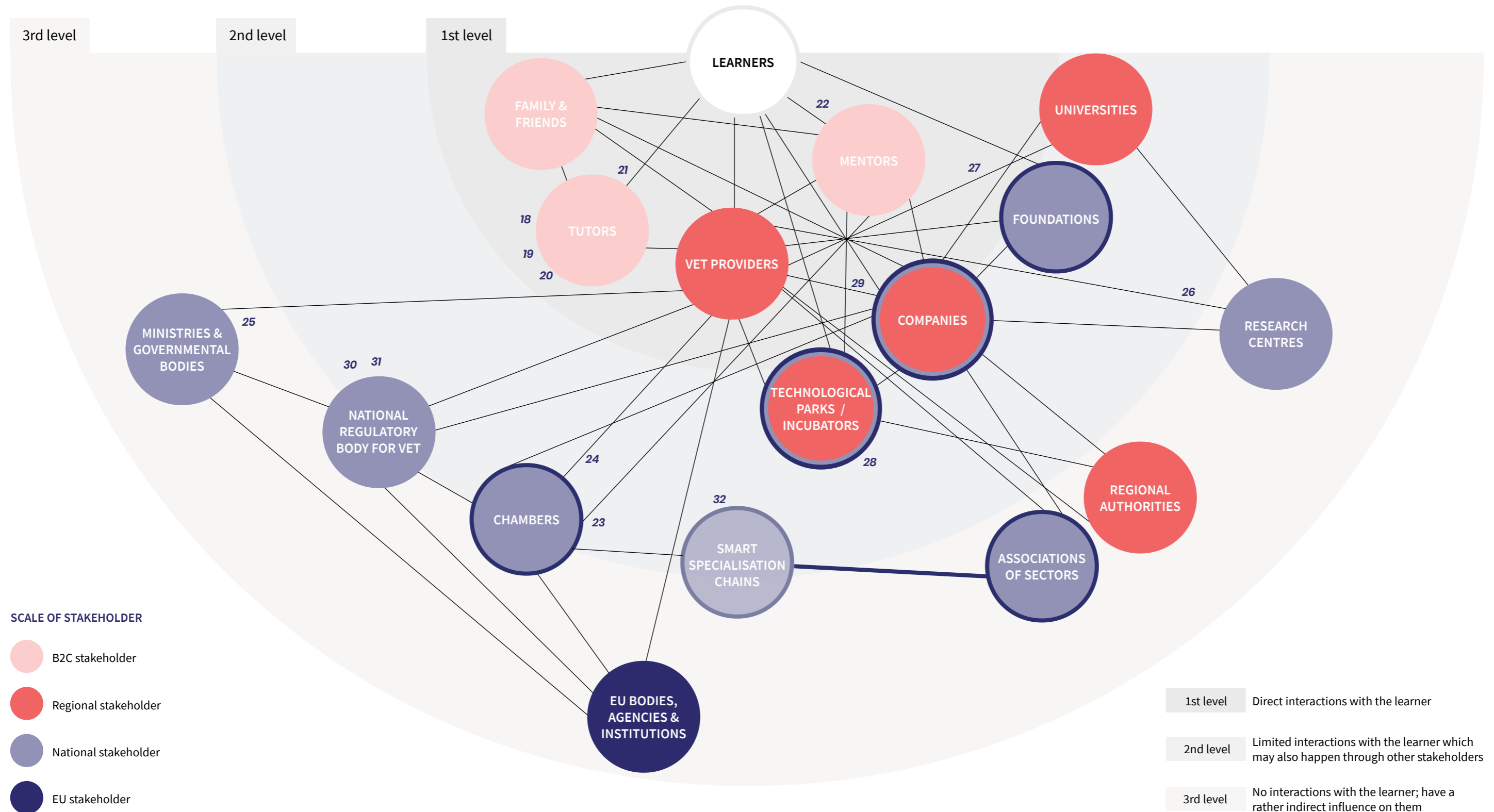
- Alma Mater Europaea
- Euro-Mediterranean university (EMUNI)
- University of Ljubljana
- University of Maribor
- University of Nova Gorica
- University of Novo Mesto
- University in the Primorska region

### ***VET providers***

- Consortium of school centres <sup>17</sup>
- Šolski Center Kranj
- Šolski Center Nova Gorica
- Šolski Center Velenje

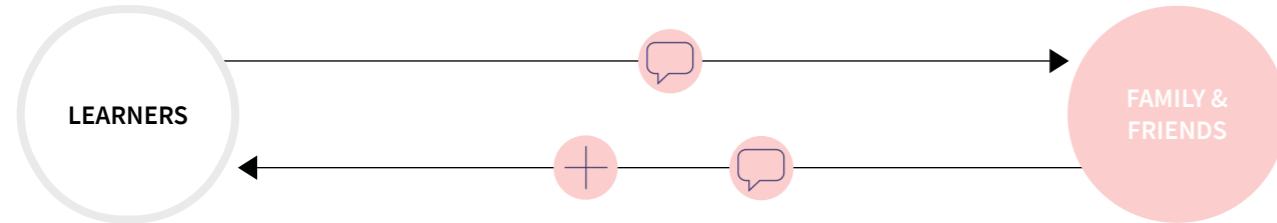
# Ecosystem relationships

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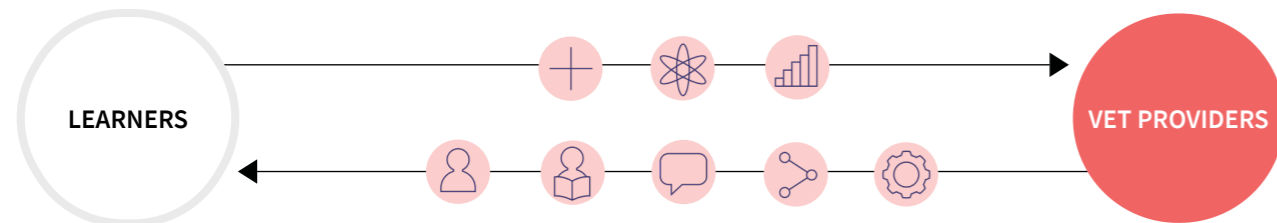


# Ecosystem value network

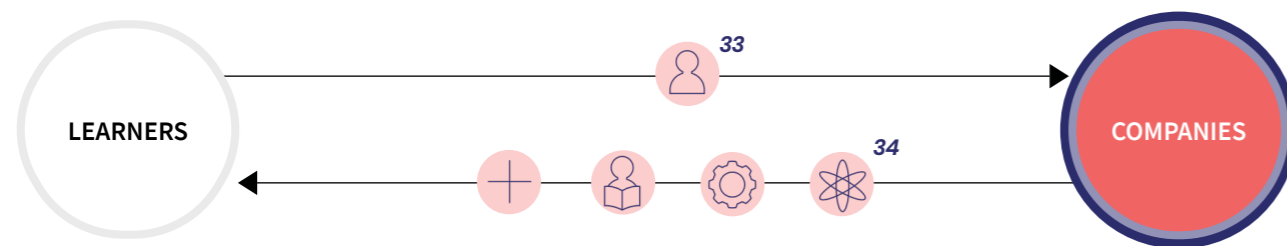
The following visuals don't attempt to show all of the value exchanges in the ecosystem or in each relationship, but rather the most relevant ones for Talentjourney.



Family and friends often recommend fields of study, schools and career paths to learners. Learners also have the power to influence their family and change their opinion regarding their study choices.



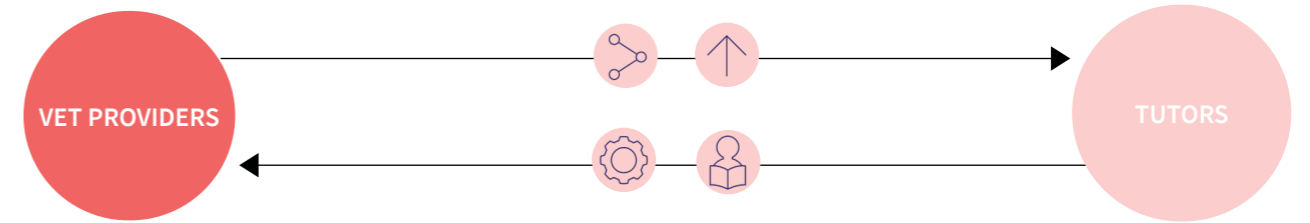
Learners may provide funding to VET providers, improving their infrastructure and position (influence) in local environment. They are also part of research and development of projects. On the other hand, VET providers offer theoretical and practical knowledge to learners. They are also responsible for curricula structure and influence the life and professional path of learners.



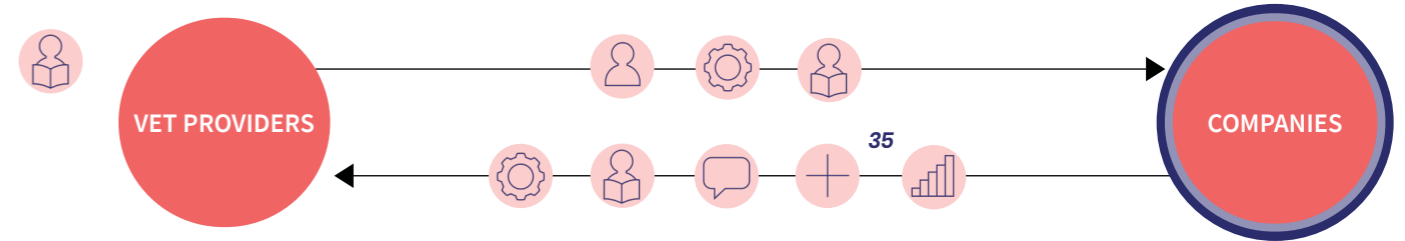
Companies provide knowledge and know-how to learners; in some cases, they also provide scholarships. Learners are potential new employees for companies

## CATEGORIES OF VALUE EXCHANGE

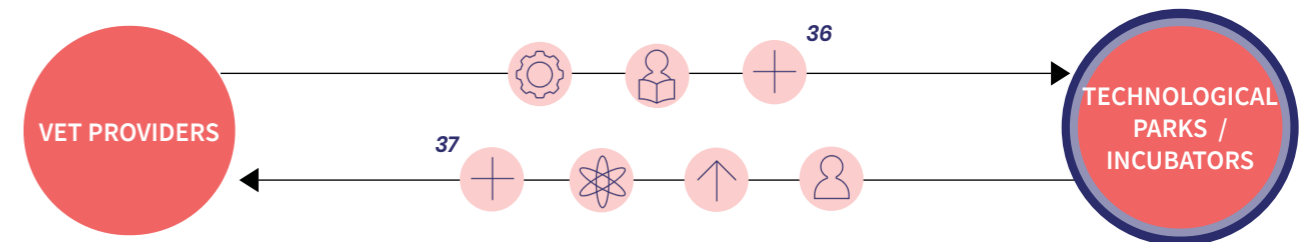
- |                      |                      |                            |                           |                          |
|----------------------|----------------------|----------------------------|---------------------------|--------------------------|
| Business development | Fill of resource gap | Influence / insight        | Regulations and practices | Research and development |
| Curricula structure  | Funding / financing  | Infrastructure improvement | Practical know-how        | Theoretical knowledge    |



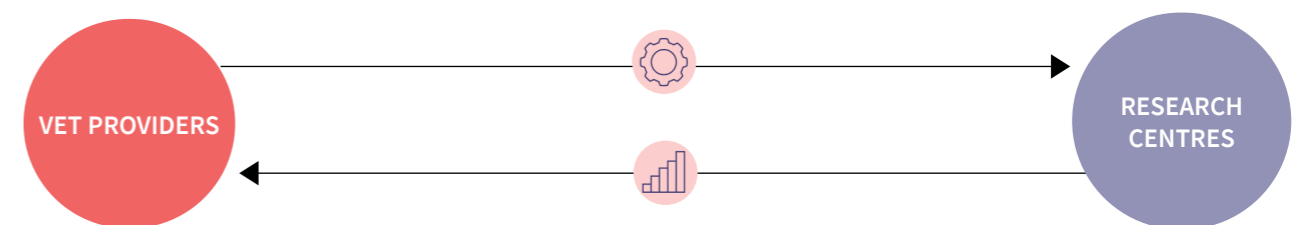
VET providers deliver tutors a framework for work and professional growth, while tutors contribute with their knowledge.



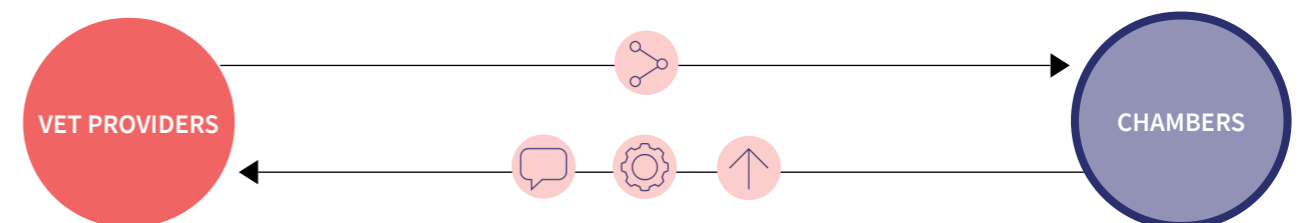
VET providers support companies with human resources (trained and skilled learners who are potential employees). Companies provide input to improve education and propose to providers what type of knowledge, capabilities and skills are needed.



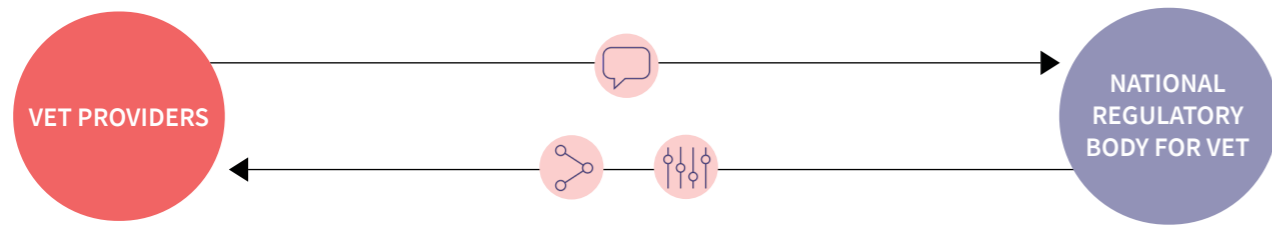
Ideally, technological parks/incubators would invite VET providers to funded projects or share tutors/experts free of charge to support learners in developing their entrepreneurial ideas



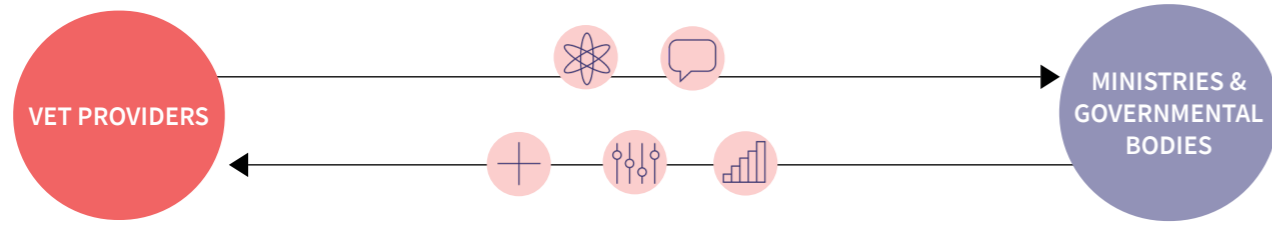
While VET providers can direct learners to research centres (to a limited extent), research centres can help provide infrastructure to VET providers.



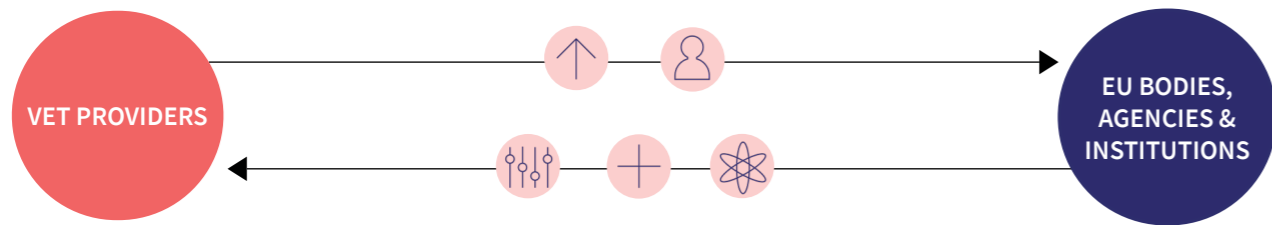
Chambers support business development of VET, while VET providers may deliver curricula structure for the programs chambers offer.



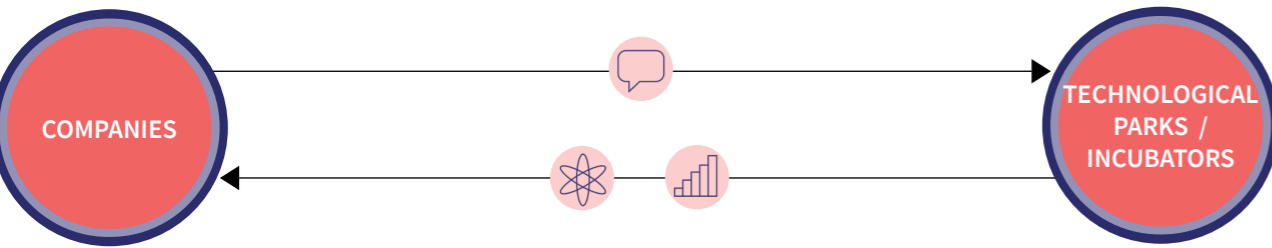
The national regulatory body for VET (CPI) is in charge of educational programs and solutions for VET, also taking care of regulations (all subject to the ministry of education). In return, VET providers provide feedback and insight.



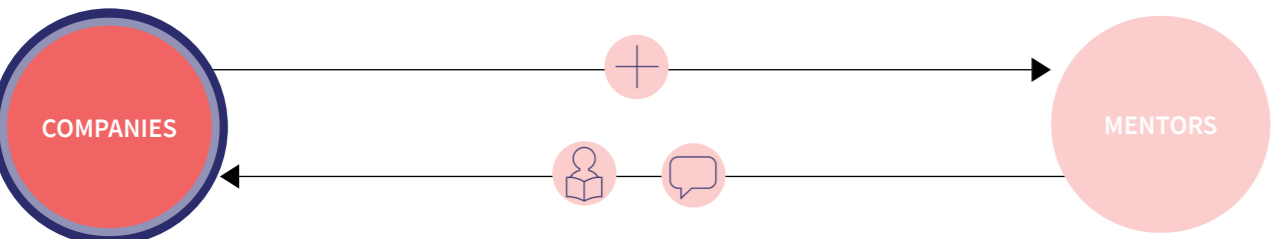
Ministries & governmental bodies are in charge of overall policy, regulations and funding for VET and employment services. VET providers do development at grassroot level alongside their stakeholders and need to communicate it with ministries to initiate necessary changes.



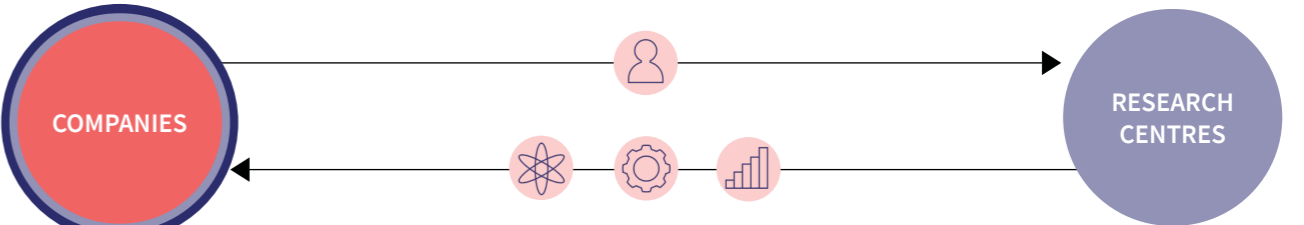
EU bodies aim to improve business development, while VET providers fill in the gap with the funding provided. The main aim is to foster a prosperous Europe.



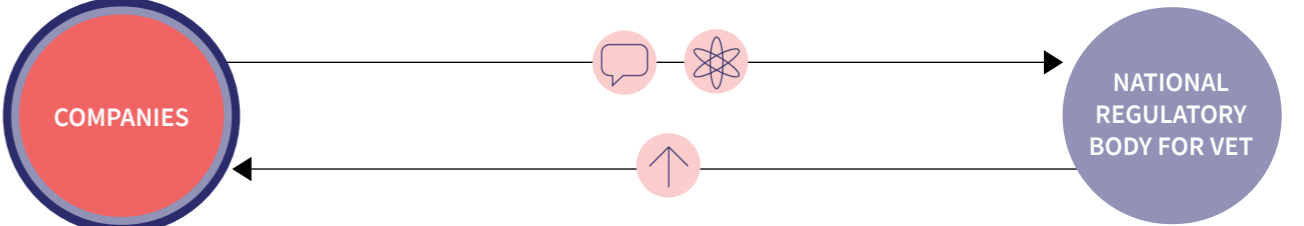
Companies can provide insight and new directions in technologies; while technological parks provide to companies specific knowledge and infrastructure.



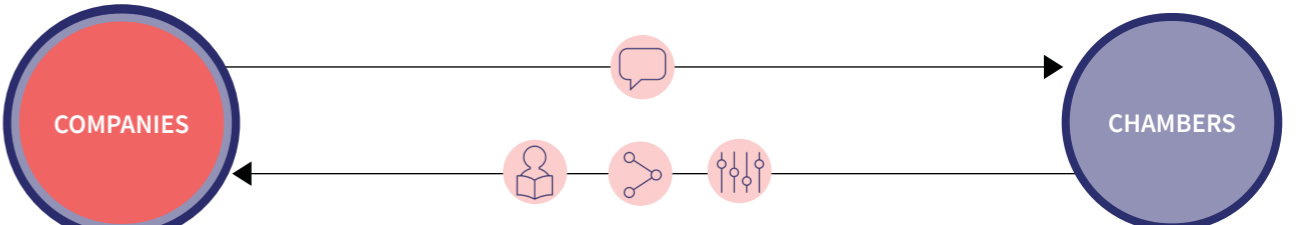
Companies provide funding to mentors, as well as awards. Through their experience with learners, mentors provide companies knowledge and insights.



To a limited extent, companies can direct human resources to research centres. Research centres, on the other hand can help provide infrastructure and further innovation to companies.



Companies provide insights regarding their needs, they also support initiatives to develop/upgrade educational programs. Knowledge and productivity are improved on the basis of improved programs.



While companies provide industry insight to chambers, chambers assist companies with mediation and licences, permits and other essential documents. They also organise workshops, networking events, trainings, meetings with government officials, and seminars.

# Notes

The points listed below were highlighted during discussion. Please note that they could be linked to the findings presented in the first WP5 deliverable: WP5 interviews consolidation - key insights.

1. Co-financing of scholarships, and funding for initiatives, some with a strong focus on smart specialisation.
2. Activity usually happens in local and informal networks.
3. Provide recommendation.
4. VET providers are strongly involved in the activities related to the promotion of VET. Some initiatives are done at regional level; the events are usually organized by one VET provider with a regional focus (mostly regarding promotion towards prospective learners)
5. Job allocation through recommendation (it can also happen that companies offer a financial reward when an employee provides a successful recommendation).
6. Mostly the ministry of labour, with employment services and labour provision.
7. Important to note the participation of new associations inside smart specialisation chains, which are funded by EU funds and receive the contribution of companies.
8. Family and friends facilitate networking and help to establish collaboration (both for the education sector and knowledge, exchange and research).
9. Consider fablabs and the connection with international fablabs.
10. Consider private initiatives.
11. More in charge of overall policy.
12. Financed by European funds; have higher participation from universities.
13. Still a new initiative.
14. Focus on start-ups and young companies.
15. Although they belong to the state, they act locally.
16. Includes guest tutors, tutors in an international exchange, and tutors teaching online.
17. The network is much bigger due to collaboration (e.g.: in recent projects on national level the schools from consortium cooperate with more than 80 secondary schools, school centers and vocational colleges).
18. Connection between tutors and companies only happen with 'enthusiastics' or in specific projects.

19. Mentors and tutors don't really connect with each other (only in specific conferences).
20. Weak connection of VET tutors with universities, research centres, companies - needs to be established in the system.
21. The relationship between tutors and companies could work better. Mostly only coordinators for work-based learning are communicating with companies. Other ways of cooperation between tutors and companies are rare and not on a system level. A relationship in which tutors follow learner to companies could also be potentially established.
22. Mentors have a close connection to learners during on-the-job training.
23. Mentors and chambers may connect on how to teach/pedagogical view.
24. Collaboration between VET providers and chambers could be better; they could cooperate more in the field of promotion of VET and vocations. Although they have some projects together (e.g.: education of mentors in the companies), the cooperation is usually technical, not on the level of development.
25. Collaboration between VET and employment services (offered by ministries and governmental bodies is usually stronger when there is economic crises and unemployment increases. • VET providers need to further give insights to ministries and governmental bodies regarding what is happening at grass root level, as well as give suggestions for changes. In that way they can influence policies and decisions.
26. Connection between VET providers and research centres is still rather weak. Research happens at a national level. VET providers and companies have to move to big hubs (Ljubljana/Maribor) to find human resources and gather potential employees.
27. Opportunity for VET providers and universities to collaborate to further promote field of study.
28. Relationships with technological parks/incubators depend on how they are funded.
29. Companies could provide more specific information to VET providers regarding their needs - this could also be done in a more agile way.
30. In the past tutors study groups were active and CPI was involved in reform of VET programs, but now the relationship between CPI and tutors is practically non-existing.
31. Ideally, CPI would be in the 2nd level of relationships with learners.
32. Although they are within association of sectors, smart specialisation chains have a close relationship with chambers and companies, providing courses for the new era industry (such as in digital and green transformation). As they are having an increasingly relevant role, they are a pulling horse for the new era industry and will probably replace the National Chamber of Commerce in the future.
33. It doesn't always happen that learners fill resource gaps of companies.
34. In some cases students help in development projects; when preparing final tasks for matura (secondary school) or diploma (vocational college) some of them do tasks in cooperation with companies.
35. In some cases, companies give money or equipment donations.

36/37. Usually not funding is not provided as money, but rather in the form of different free education activities.

## Final considerations

The document presented is a translation of the conducted workshops; it does not have the intention to present a concrete and detailed overview of the ecosystem, nor to impose criticism/draw conclusions from it. Rather, as it was built with the perspective of Talentourney partners, it should serve as input for further discussion, reflection and alignment in the project.

It is important to note that this document does not have the ambition to suggest changes in the ecosystem. Its goal is rather to increase understanding of it, in order to find pathways for the Talentjourney platform to deliver the best value to the regions and stakeholders involved.

The overall recommendation is to review and consult the document multiple times, paying attention to the different dynamics exposed in each region, how stakeholders were named and categorised, how they interact, and at what level they act (regional, national, etc.). Although those seem to be quite simple aspects, they reveal the nature of the ecosystem. A correlation between this document, the other WP5 deliverables and the activities conducted in other WPs should be constantly made to guarantee alignment and excellence throughout the development of Talentjourney.

