

SLOVAKIA CATCHING-UP REGIONS

VOCATIONAL EDUCATION AND TRAINING

TOWARD AN INTEGRATED
AND HIGH-PERFORMING VET SYSTEM:
ENSURING QUALITY EDUCATION AND
SERVICE DELIVERY IN THE PREŠOV REGION



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SUMMARY REPORT
YEAR 2

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INTRODUCTION

This summary report aggregates three activities conducted in the Prešov Region of Slovak Republic under the second phase of the Catching-up Region Initiative (CuRI) joint cooperation program between the European Commission's Directorate-General for Regional and Urban Policy (DG REGIO) and the World Bank (WB). The CuRI in Slovak Republic is supported through the cooperation between four main parties, namely the European Commission (EC), the Ministry of Investment, Regional Development and Informatization of the Slovak Republic, the Prešov Self-governing Region (PSK), and the World Bank. For this particular activity within CuRI, the Ministry of Education is another key thematic partner.

In the first year of the CuRI program in the Prešov Region, a study of vocational secondary schools and employers in the region was conducted. A mismatch between the supplied and demanded qualities was observed. Several factors were identified as contributing to the mismatch: the lack of a quality assurance system to ensure relevant program offerings and outcomes; the lack of communication and coordination between the different stakeholders; the lack of essential resources at some schools; and insufficient monitoring, support, and incentives to ensure compliance and continuous improvement. All but a few of the schools did not have an internal or external quality management system, and the school networks are perceived as not optimized, based on program enrollment and efficiency. Hence, the second year focused on establishing frameworks for quality assurance and school network optimization to improve quality, efficiency, and relevance of the vocational education and training (VET) programs.

This summary report combines shortened versions of three reports that were developed in the Prešov Region during Year 2 of the CuRI: 1) a write-up of the investment package preparation workshop; 2) the Vocational Education and Training Secondary Schools Quality Assurance Framework; and 3) the Vocational Education and Training Secondary Schools School Network Optimization Framework.

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PART 1
INVESTMENT PACKAGE
PREPARATION WORKSHOP

The first year's CuRI activities in Prešov included the development of investment packages at five pilot VET schools. Different capacity building activities happened with the VET school project teams at the selected schools during the preparation of the packages. At the beginning of this year's program, the World Bank team organized a workshop for a larger group to further illustrate the investment process, and share the lessons learned in relation to the preparation of the packages. It was intended that the PSK would take over the preparation of the packages on their own in order to expand the investments at more schools in the region. This methodological workshop was conducted in January 2020 in Prešov as part of PSK capacity building. The workshop focused on the process of the preparation of the investment packages at the pilot VET schools.

Concepts like project management and change management were presented. The cycle of preparation of the integrated projects as investment packages is a combination of project management and change management. The following were the objectives of the event: a) strengthen the building of their own professional capacities at the level of the PSK, and at the level of the pilot VET schools, b) transfer of know-how between the PSK and the World Bank experts, c) contribute to increasing the success of the proposed investment packages; and d) support the creation of joint project teams in the pilot schools.

The methodological workshop was attended by twenty-five employees of the PSK from various departments who will be participating in the preparation and implementation of future investment packages at the pilot VET schools.

The methodological workshop focused on:

- Understanding the concept of an integrated project and school investment package
- Defining what a project is, and highlighting its importance and relevance for the future development of the VET schools
- Defining the problem, vision, and mission of the VET school as reflected in the project objectives and activities
- Explaining the importance of defining the challenges/problems to be tackled and the approach taken in the project
- Identifying the key actors, their interests, and the necessary resources for the implementation of the project
- Describing the negative impact of the project risks on its success
- Preparing a matrix of project risks to communicate with the professional public
- Preparing and defending the project's activities, including a communication plan

The program of the methodological workshop was based on the identification and analysis of the educational needs of the participants, and was implemented based on a detailed, developed, and agreed-upon training plan in five blocks. The program ended with a discussion.

The workshop dealt with five main teaching blocks/topics (see Table 1.1). Each topic consisted of a short presentation covering the theoretical and practical aspects. In the interaction activities with the participants, emphasis was placed on applying the skills in practice.

TABLE 1.1 Detailed Training Plan and Time Schedule

Time schedule	Topic name	Detailed description of a topic	Detailed process, method, and form	Resources, background materials
8:30 – 9:00	Introduction to Workshop	<ul style="list-style-type: none"> introduction for the preparation and organization of an educational event workshop goals, agreement on time schedule reconciliation of participants' expectations introduction of lecturers and participants, possible division into groups 	Powerpoint (PPT) presentation participants' expectations	PPT introductory presentation about CuRI VET, expectations and goals of the workshop, agenda setting participants' expectations—handout /form sheet background materials— agenda Shahram Paksima
9:00 – 9:20	Integrated Approach	<ul style="list-style-type: none"> most important questions in integrated approach terminology in area of integrated investment packages—short introduction into the area and issues future changes in the financing (EU funds), important terminology and processes 	PPT presentation	PPT presentation about integrated approaches background material— integrated project design process handout—table for Intellectual Property (IP) Andrea Hagoovská
9:20 – 10:00	Readiness of Region – External Factors	<ul style="list-style-type: none"> regional development strategy evaluation of the readiness of the region, regional needs, and its stakeholders—needs of a region labor market data trends and changes in the nature of work 	PPT presentation about results from the employer survey and analyzes of strategic documents	PPT presentation/employer survey—results summary background material— overview of strategic documents and analyzes handout—overview of key stakeholders, stakeholder matrix Štefan Chudoba
10:00 – 10:15		break		informal discussion of participants
10:15 – 11:00	Readiness of Region – Internal Factors	<ul style="list-style-type: none"> evaluation of the readiness of the region needs of the region and its stakeholders offer of secondary vocational education and training, and readiness of the VET schools 	PPT presentation about results from the school survey in the Prešov Self-governing Region	PPT presentation/school survey—results summary + evaluation process background material— overview of strategic documents and conceptions and analyzes background material— overview of secondary VET schools handout— evaluation of readiness—evaluation form Helena Virčíková
11:00 – 12:00	IP Concept Creation	<ul style="list-style-type: none"> model examples financial models and approaches IP concepts creation 	PPT presentation – case study in several steps connected with the practical illustrations using specific examples, brainstorming	PPT presentation—case study handout—planning table 'concept' handout—intervention matrix handout—checklist for the assessment of internal and external factors Helena Virčíková Štefan Chudoba
12:00 – 13:00		lunch		

13:00 – 13:40	Financial Model Development	<ul style="list-style-type: none"> • model examples • financial models and approaches • financial model 	PPT presentation – Case study in several steps connected with practical illustrations of ‘filling out’ using specific examples, brainstorming, working in groups	PPT presentation—case study VET School Kežmarok handout—planning table ‘concept’ handout—intervention matrix handout—checklist for the financial model Andrea Hagovská
13:40 – 14:00	Result – oriented IP	<ul style="list-style-type: none"> • assessment of expected impacts and results of the proposed concept 	PPT presentation – case study in several steps connected with practical illustrations of ‘filling out’ using specific examples, working in groups	PPT presentation—case study handout—planning table ‘concept’ handout—intervention matrix handout—checklist for the results planning and assessment of expected impacts Andrea Hagovská Martina Hagovská
14:00 – 14:15	break			
14:15 – 15:00	Risk Analysis	<ul style="list-style-type: none"> • assessment of limits, conditions, and risks 	PPT presentation – case study in several steps connected with practical illustrations of ‘filling out’ using specific examples, working in groups	PPT presentation—case study background material— planning table ‘concept’ background material— intervention matrix background material—checklist for the identified limits and possible risks assessment of the concept implementation Helena Virčíková Štefan Chudoba
15:00 – 16:00	Debriefing	<ul style="list-style-type: none"> • end of workshop, discussion, individual consultations 	important participants’ questions, feedback, and next steps	background material— evaluation questionnaire Shahram Paksima Stefan Chudoba

In the final part of the workshop, the participants had the opportunity to discuss the individual blocks and questions regarding the time schedule and phasing of the investment packages, the application of desegregation, deghettoization, and de-stigmatization, the so-called 3D rules, in the field of inclusion (Lomnička and Rakúsy individual projects), and the possibility of obtaining additional financial resources.

The participants of the workshop were provided with complete training materials, which included: presentations, handouts, supporting documents for the elaboration of forms, case studies, and a manual for the preparation of the investment package.

Results and conclusions:

- For the successful implementation of the investment packages of the pilot VET schools, it is necessary to create joint project teams that include founders and the VET schools as a minimum.
- Project management training needs to be incorporated and supported in the VET schools’ activities.
- The PSK could provide financial support to the VET school project teams (within the project implemented under the Operational Program [OP] Effective Public Administration, or through co-financing using its own resources).

- VET schools are responsible for building partnerships with socioeconomic partners (SEP) and communicating with the relevant actors in their area of operation and in the relevant/dominant sector.
- The clear division of tasks and responsibilities between the pilot VET schools and the PSK is a key factor in the successful implementation of the investment packages.

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PART 2
QUALITY ASSURANCE
FRAMEWORK

The objective is to establish a quality assurance framework (QAF) for the PSK based on the region's strategy for vocational education and training. Section 1 articulates the vision/mission for VET service delivery in the PSK. The strategy for quality assurance should be aligned with the vision/mission for VET service delivery at the national and EU levels. Section 2 explains the required enablers to create the proper environment for implementing the quality assurance system in the VET service delivery. Section 3 explains the guiding principles for carrying out the quality assurance system. It starts by explaining the basic modalities for quality assurance, then moves on to introduce the required actions to implement the system.

Introduction

Reviewing the Quality Assurance Strategy Brief¹

Taken from the Introduction and Vision Setting for VET from the QA Strategy Brief:

- The regional context for providing VET services.
 - Provide baseline information on quality assurance in PSK such as: 1) the current quality assurance tool used in PSK, 2) the related legislative standards and guidelines, 3) the current strategic documents based on ensuring the quality of education in the region.
- VET vision/mission at the regional level.
 - The regional vision/mission must align with the national quality assurance vision and the relevant European documents and strategies (such as the European Center for the Development of Vocational Training (Cedefop) and the European Union Quality Assurance in VET (ENQA-VET) & Quality assurance in vocational education and training: the European Training Foundation (ETF) approach).

The main task of the Slovak education system for the coming years is to support the processes of the transformation of Slovak Republic's industrial society into an information society. It is necessary to make a fundamental change to the system of current education following the program statement of the Slovak Government. The best way to improve the performance of the education system is to introduce quality into the teaching process.

At Slovak secondary VET schools, the pace of introducing approaches to quality assurance is slow, and quality models are rarely used. Some secondary schools make use of bridging different models in school quality management (European Foundation for Quality Management (EFQM), Common Assessment Framework (CAF), ISO 9001, Total Quality Management (TQM) philosophy). Unlike higher education, where quality assurance is enshrined in law and other documents, such legislation is missing for secondary education.

BOX 1 Vision for VET quality assurance in the PSK

Develop quality management systems at school and in education, in particular the quality of teachers' competencies, by ensuring the quality of education provided in the schools in the region. The national government emphasizes that structural consistency between the education system and the needs of the economy is an important factor in the economic development and improvement of the social situation of the population.

- Introducing quality management systems into secondary schools is also a task that results from the National Programme of Education (2018–2027) issued by the Ministry of Education, Science, Research and Sport of the Slovak Republic.
- In doing so, it is necessary to respect the European Quality Assurance Reference Framework (EQAVET) for vocational education and training (VET), which is a fundamental European initiative for quality assurance in the VET.

BOX 2 Slovak Republic: National programme for the development of education

Main Objective: Linking the education system with the needs of the economy and the labor market

- The national government emphasizes that structural consistency between the education system and the needs of the economy is an important factor in the economic development and improvement the social situation of the population.
- Introducing measures to address the issue of the shortage of skilled laborers
- The law on vocational education and training, which entered into force on September 1, 2018, stipulates that processes need to be optimized to introduce vocational education and training that is attractive and of a good quality.

Specific objectives for regional education are set out in the National Program

- Sufficiently funded and effectively functioning education that systemically supports quality
- A quality, socially respected, and adequately remunerated teacher
- Quality education
- Quality vocational education and training responding to the current and expected practice needs
- Education that is accessible to all
- Education that provides the basis for a healthy lifestyle for children and pupils

To achieve the above-mentioned objectives, it will be necessary to:

- review teachers' professional standards
- change the continuous education of the teaching staff
- develop a process and methodical materials to build a learning organization culture in the schools
- develop model school educational programs

The goals/objectives of the VET in the long and medium terms

- Objective 1: Creation of a 'VET School Improvement Plan'
- Objective 2: Quality monitoring at all public and private (ecclesiastical) secondary vocational schools
- Objective 3: Align the VET with quality standards and labor market needs

Guiding Principles

This section introduces the nine principles for quality assurance in the VET that was recommended by the European Commission (EC). The principles emphasize the importance of the internal and external quality measures of the VET delivery system, focusing on outputs and learning outcomes, relevance to the economy, and the improvement cycle for quality assurance.

The EC has established the European Qualifications Framework (EQF) to link different countries' qualification systems and qualification frameworks together. It is seen as a key instrument for the promotion of lifelong learning, and its eight levels cover the entire span of qualifications, from compulsory education to the higher education level.

When implementing the EQF, the following principles must be followed to ensure quality in the VET:

1. Quality assurance policies and procedures should underpin all levels of the EQF.
 2. Quality assurance should be an integral part of the internal management of the education and training institutions.
 3. Quality assurance should include regular evaluation of institutions, their programs, and their quality assurance measures, by external monitoring bodies or agencies.
 4. The external monitoring bodies or agencies carrying out quality assurance should be subject to regular review.
 5. Quality assurance should include context, input, process, and output dimensions, while emphasizing outputs and learning outcomes.
 6. Quality assurance systems should include the following elements:
 - Clear and measurable objectives and standards, guidelines for implementation
 - Stakeholder involvement
 - Appropriate resources
 - Consistent evaluation methods, associating both self-assessment and external review
 - Feedback mechanisms and procedures for improvement
 - Widely accessible evaluation results
1. Quality assurance initiatives at the international, national, and regional level should be coordinated to ensure overview, coherence, synergy, and system-wide analysis.
 2. Quality assurance should be a cooperative process across educational and training levels and systems, involving all relevant stakeholders, within the member states, and across the EC.
 3. Quality assurance orientations at the EC-level (for example, school network) may provide reference points for evaluation and peer learning.

Enabling Environment

Policy and Governance

Quality assurance policies are important to guide the regional government institutions and help officials in dealing with an issue of public interest. This includes government action/inaction, decision/non-decisions, and it implies choices between competing alternatives. Several key dimensions of the VET policy and governance are detailed in the following paragraphs (see Figure 2.1).

Setting up the policy for ensuring good quality in the VET service delivery is vital. Policies can **enforce regulations to maintain the quality of education and to enhance the autonomy of each VET institution**. Setting regulations will prevent politicizing the service delivery and provide guidelines for the schools to follow. Policies allow commitment to a strategy that can best achieve goals, giving judicial freedom for people to act responsibly and allocate resources wisely and fairly.

The policy should be developed with the **active collaboration and engagement** between employers and learners, and responsible, collaborative, influential, and proactive partners. The implementation plans should be devised in consultation with the following stakeholders: 1) the regional government; 2) school networks; 3) school-level staff; and 4) industry and employers, while harmonizing with the relevant national programs and strategies.

Another important role of policies is **setting the legislation for the quality standards that the VET schools would need to follow to maintain the intended quality**. It is necessary to not only set standards, but to also understand the current situation of each VET school. The organizing body would need to build a **monitoring system to conduct periodical oversight** and evaluation.

Furthermore, the policies should keep in mind the **developing strategies for continuous improvement** in the VET service delivery. Throughout the monitoring and evaluation of the schools, it is essential to utilize the information gained to develop an enhanced school improvement plan and implement it.

Regarding the governance of quality assurance in the VET, **compliance and accountability** would be important aspects. It is obligatory to report on the progress in goal achievement and show transparency to the stakeholders on the actions and decision-making processes. It will also be necessary to report on the efficiency and effectiveness of the VET service delivery and the respect of the law and rules.

Institutionalization of the QA Processes

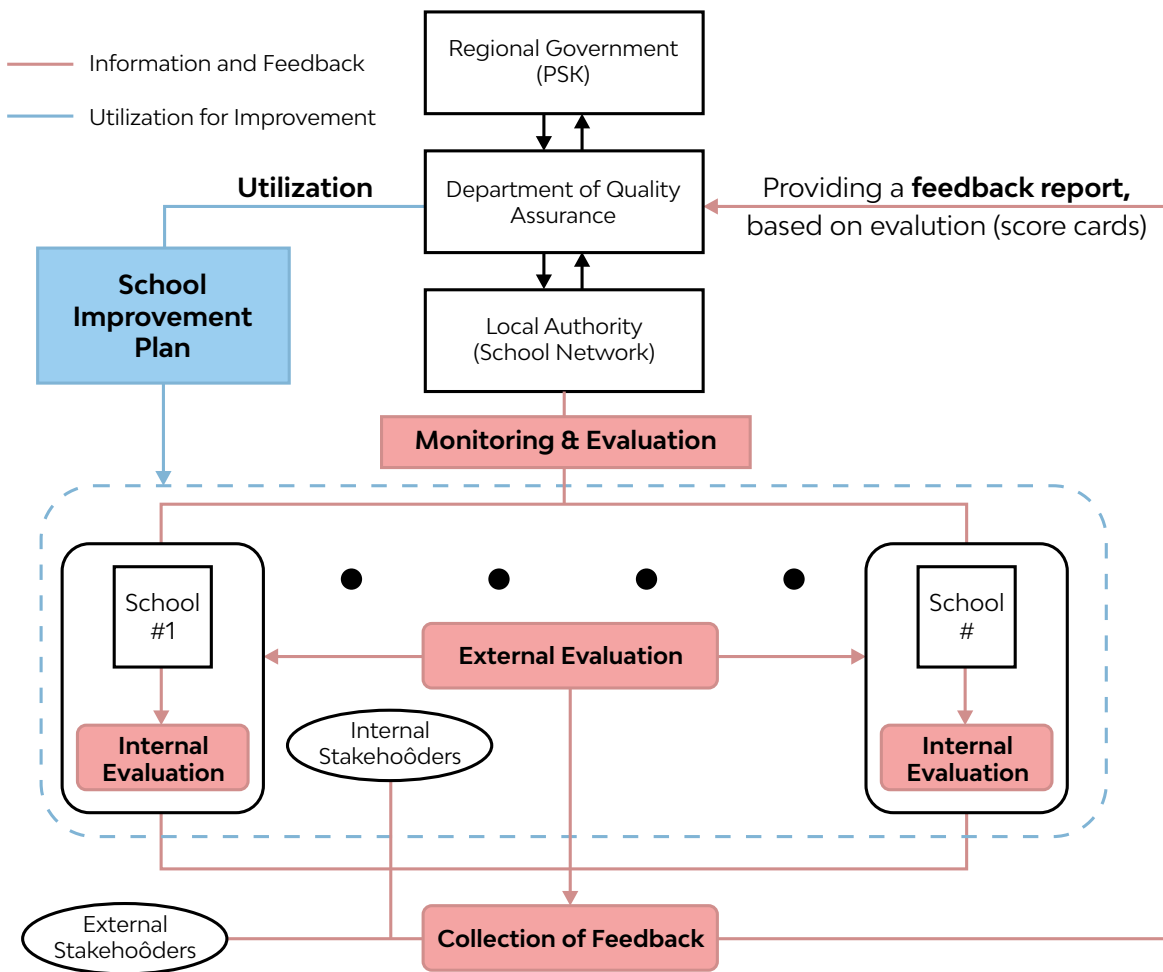
This section shows an overview of the whole quality assurance framework. Figure 2.2 represents the important elements to be considered in a quality assurance framework.

FIGURE 2.1 VET Policy and Governance Dimensions



Source: Authors

FIGURE 2.2 Flow Chart in the VET Quality Assurance System



Source: Authors, based on CAF (2013) and Cedefop (2015).

The red line represents the flow of how and what kind of information is collected through the monitoring and evaluation system. The blue line represents the stream of the utilization process based on the gathered information (external evaluation, internal evaluation, and collection of feedback from external stakeholders).

This diagram briefly shows a **plan-do-check-action (PDCA) cycle, circulating within the whole quality assurance framework in the VET service delivery**. In the planning process, the government would need to set indicators, so that it can be utilized in assessing the data. Afterward, monitoring and evaluation will be conducted while the VET policy is implemented, through **internal evaluation** (includes evaluation of management and organization infrastructure, personnel, resources, curriculum, and programs) and **external evaluation** (includes inspection, audits, site visits, and so on) at the VET school level. Furthermore, feedback from internal stakeholders (principles, teachers, students, and others) and external stakeholders (employers of graduate, companies, and so on) would be collected as well. The data gathered through monitoring and evaluation is brought to the department of quality assurance and utilized for making improvements in the system.

Regarding the VET school-level improvement, each VET school would need to develop a school improvement plan (SIP), based on their self-assessment. The SIP developed by each VET school should also be provided to the regional government, so that the department of quality assurance can monitor and evaluate each school's plan and provide feedback, if necessary. It is important to understand that there is a PDCA process both at the regional (system) level and at the school level.

Furthermore, the following external stakeholders in the vocational education service delivery have a critical role in contributing to the quality of the VET institutions: 1) employers; 2) social partners; 3) employment services; 4) graduates; 5) local or regional decision-makers; and 6) accreditation bodies. Employers provide valuable opinions and needs that reflect the labor market needs. Since the graduates of the VET schools eventually are hired by those companies, the VET schools need to provide relevant, effective, and efficient programs to increase the employability of the students. Employers also contribute to the provision of programs by providing work places and internship programs for the students to achieve practical experience. Therefore, the collaboration between the employers and the VET institutions is a key partnership in assuring the quality of the vocational education service delivery. Communicating with local or regional decision-makers is another way to enhance the quality of VET education, since they can support and promote the visibility of the VET institutions to the public, and improve the reputation and attractiveness of the VET programs. In conclusion, external partners can contribute comprehensively to the system and support the efforts of the VET institutions to achieve better quality.

Funding the QA Operation

The QA processes require consistent funding to support the continuity of the QA operation. Having a budget line designated to QA is a good practice. **Some of the budget items** needed to cover the quality assurance processes are listed below. Indicators from both the qualitative and quantitative perspectives are specified below as well. Funding for VET quality assurance would mainly be done by the government. VET quality assurance spending can cover various activities, including the following:

- Consistent development of standards and programs
- Consistent development of competency assessment tools
- Development and accreditation of assessors
- Training of assessment center managers and processing officers
- Capacity building of lead assessors
- Accreditation of assessment centers, including review and inspection of its facilities, equipment, and requirements
- Compliance audits
- Maintenance of registers of the graduates and their qualifications

There needs to be sufficient budget allocation to fulfill the quality assurance activities and policy goals, so that they can meet the objectives of VET policy. Funding sources could also be generated outside the government, for example, through companies and businesses.

TABLE 2.1 Indicators for the Funding for VET Quality Assurance (QA)

Qualitative	Quantitative
<ul style="list-style-type: none"> • Annual plans for budget allocations are documented and disclosed to the public • Budget allocation support is aligned with the QA of VET policy goals and activities 	<ul style="list-style-type: none"> • Level of investment in assessment resources, services, and facilities • Level of assessment in assessor capacity, including professional development • Level of investment in QA staff capacity • Level of investment in monitoring, review, and improvement throughout the QA framework

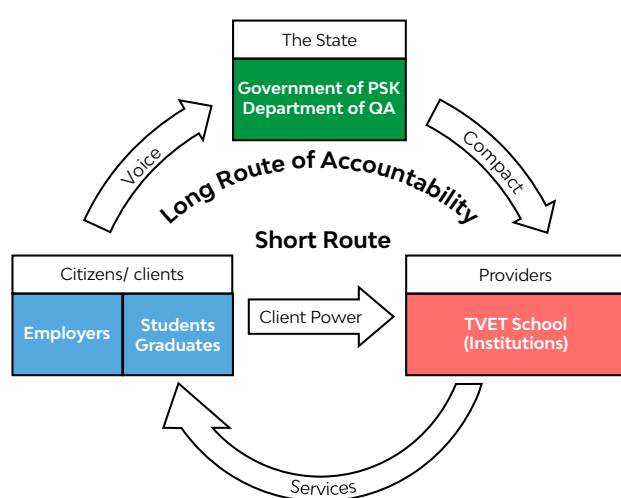
Source: Authors

Accountability and Compliance

This section explains the framework that represents the relationship between the stakeholders in the VET service delivery. Establishing a clear long route and short route of accountability will enhance the collaboration and contribute to the quality assurance in VET service delivery.

The government is primarily responsible for the VET service delivery. Based on the World Development Report 2004, there are three groups of actors engaged with regard to the accountability of service delivery—namely, citizens and clients, politicians and policymakers, and organizational/frontline providers. In the context of VET service delivery, the citizens and clients are the students (and their parents), graduates, and the employers that hire the VET graduates. The providers are the VET institutions which provide the actual learning, such as teachers and staff at the school level. Figure 2.3 shows the accountability relationship between these actors.

FIGURE 2.3 Accountability Relationship Between Stakeholders



Source: Authors, based on the World Bank (2004).

Based on the diagram, the government should provide information to the pupils, parents, and employers, such as the performance of the VET schools, while they, in turn, can raise their voices toward the government to obtain the needed information. This relationship represents the **long route of accountability**. For example, employers can express their opinions about the lack of skillful workers, which also represents the labor market needs in the economy.

‘Compact’, which represents the relationship between the government and the VET schools, is like a contract that enforces the VET schools to provide quality education to the students. The VET schools must comply with the quality standards that the government has proposed. Furthermore, the government will need to disclose information about the performance of each VET school, and if they do not perform well, the government has the right to penalize

them. For instance, if the VET school has not reached the minimum quality standards, they can either close the VET school or decrease the amount of financial support given to it.

Regarding the relationship between the pupils/employers and the VET schools, they can provide feedback and demand the services they should be receiving. For instance, pupils can give an assessment on teachers to provide feedback about how they are teaching in the classes. This would be considered as a **short route of accountability**. Since the government cannot specify all the actions of the providers, it is another important avenue for maintaining the quality of the VET schools.

Overall, the government needs to ensure that accountability is maintained throughout the whole VET service delivery system and allow the short route and long route of accountability to take place. One method of enhancing the transparency and accountability within the system is to provide VET school report cards, balance scorecards, and so on. The reports could include data and information about each VET institution to be provided to the public, such as parents, students, local communities, and the government officials, who are the decision-makers at the policy level (specific information about disseminating data to the public is presented in Section Feedback for School Improvement).

From Design to Implementation

Modalities for QA in the VET

This section will introduce the modalities to implement the quality assurance system in VET. There are many ways of implementing quality management. However, this section will introduce the modalities based on Common Assessment Framework (CAF) 2013, International Organization for Standardization (ISO) 9001, European Foundation for Quality Management (EFQM) model, and Quality Assurance in Vocational Education and Training (EQAVET).

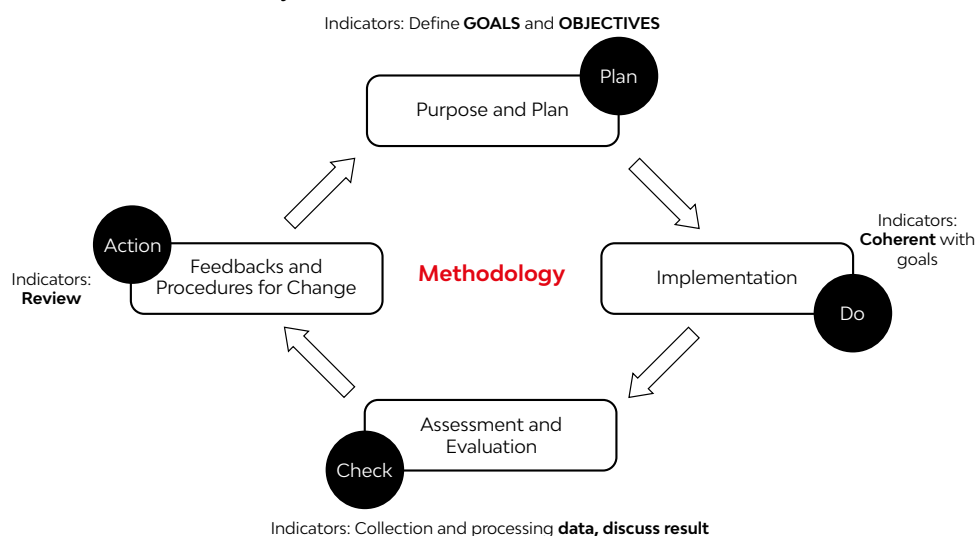
The core modality of quality assurance in the VET policy is to use the PDCA cycle (see Figure 2.4). The PDCA cycle is comprised of four stages to go through for the realization of continuous improvement. The four stages are, namely, **plan (project phase)**, **do (execution phase)**, **check (control phase)**, and **act (action, adaption, and correction phase)** (see Table 2.2).

TABLE 2.2 Explanation of the PDCA Cycle

Plan	Establishing the objectives of the system and its processes, and the resources needed to deliver results following the customers' requirements and the organization's policies. It would also be necessary to identify/address risks and opportunities.
Do	Implementing what was planned
Check	Monitoring and measuring processes and the resulting products and services against policies, objectives, requirements, and planned activities. Reporting the results will be necessary as well.
Action	Taking actions to improve performance

Source: Author

FIGURE 2.4 The PDCA Cycle



Source: Author

It is desirable to introduce quality management and clearly define quality indicators in the management of the educational institutions and teaching. The basis should be the EFQM excellence model, but also other modern quality management methods. As a tool of comprehensive quality management, the CAF model endorses the principles of excellence originally defined by EFQM.

The choice of the appropriate quality instrument depends on many factors (complexity of the instrument, goal of self-assessment, effectiveness, the composition of the teaching staff, level of school development, and so on). Therefore, it is not generally possible to say which of the tools is most suitable for the schools. Generally, applicable procedures can be formulated based on total quality management (TQM) principles.

Table 2.3 presents the main principles for quality management in the VET service delivery. These principles are based on the quality management principles written in the CAF 2013, ISO 9001, and EFQM model.

TABLE 2.3 Quality Management Principles

Principle	Explanation
Results orientation	The organization focuses on results, and these results satisfy the stakeholders' interests.
Citizen/customer focus	The organization focuses on the needs of customers. In the VET service delivery system, these would be students, employers, and others.
Leadership and constancy of purpose	A clear vision and objectives are established by the leaders. They also are involved in maintaining an environment where people can become fully engaged in realizing the proposed goals.
People development and engagement	All levels of the stakeholders in the VET service delivery should be engaged and maximizing their abilities for the organization's benefit.
Continuous learning, innovation, and improvement	Continuous learning for innovation and improvement should be one of the objectives of the organization.
Management by processes and facts (evidence-based decisions)	Activities are managed, based on the analysis of data and information. This would be necessary to efficiently achieve the desired result.
Mutually beneficial partnerships	Developing partnerships with the private sector, industries, and the employers of the graduates from the VET schools will be essential to create mutual values and achieve the proposed goals.
Process approach	Enabling the organization to control the interrelationships among the processes of the system to enhance overall performance of the organization
Social responsibility	Actors engaged in the VET service delivery should take into account their social responsibility and try to meet the major expectations of the local community.
Risk-based thinking	<p>Identify the risks of introducing quality management at school:</p> <ul style="list-style-type: none"> • unwillingness of the school management to abandon their authoritative management style • seeking immediate results, focusing on short-term goals • egoism and individualism of the people and school departments • insufficient knowledge of quality management theory • a conservative approach, the rigidity of teacher thinking, the inertia and resistance of the school staff to changes in school evaluation and teaching <p>Including the risk management in school management increases the likelihood that the goals of the organization will be realized, the consistency of outcomes will be achieved, and that the different partners will be more confident that they will receive the expected service.</p> <p>Risk-based thinking creates a valuable knowledge base, introduces a proactive culture of improvement, ensures the sustainability of service quality, and enhances trust and partner satisfaction.</p>

Source: Author

Based on the quality management principles listed above, Figure 2.5 represents a total quality management system for VET service delivery. This model is mainly developed from the CAF 2013, which is based on the premise that excellent results are achieved through key enablers, specifically leadership driving strategy and planning, people, partnerships, resources, and processes.

There are mainly nine elements that are divided into two dimensions, namely “ENABLERS” and “RESULTS”. The ENABLERS deal with the managerial practices of an organization. These determine what the organization does and how it approaches its tasks to achieve the desired results. In the RESULTS section, results achieved in the fields of citizens/customers, people, social responsibility, and key performance are measured by perception and performance measurements. From the results, feedback loops are developed that provide continuous learning for innovation and improvement.

“ENABLERS”

Leadership

Setting the direction, such as purpose, vision, and strategy, is essential. As leaders, they should create clarity and a unity of purpose for the organization. As managers, they should establish an environment in which the organization and its people can excel and ensure the functioning of an appropriate steering mechanism. As facilitators, they should support the people in their organization and ensure effective relationships with all the stakeholders.

Strategy and Planning

Setting strategic objectives includes making choices, setting priorities based on the public policies, objectives, and the needs of the other stakeholders. It is also necessary to consider the available resources. **Engaging stakeholders from various fields**, such as school-level actors and industries, is essential for planning.

People/Cadre

The organization manages, develops, and **releases the competencies and full potential of its people** at the individual and organization-wide levels, to support its strategy, planning, and the effective operation of its processes.

Partnerships and Resources

Partners stimulate the **external focus of the organization and bring in the necessary expertise**. In this way, key partnerships, (for example, private providers of services or other public organizations, and also citizens/ customers), are important resources for the proper functioning of the organization and need to be built up carefully.

Processes

Processes can be divided into three components: 1) **core processes**, for realizing the mission and strategy of the organization; 2) **management processes**, for steering the organization; and 3) **support processes** for delivering the necessary resources.

“RESULTS”

Citizen/customer-oriented results

The service provider must be focused on the satisfaction of its citizen/customers with the products or services it provides. Their perceptions would be important for evaluating the results.

People Results

The results of the organization are expressed by the competence, motivation, satisfaction, perception, and performance of its people.

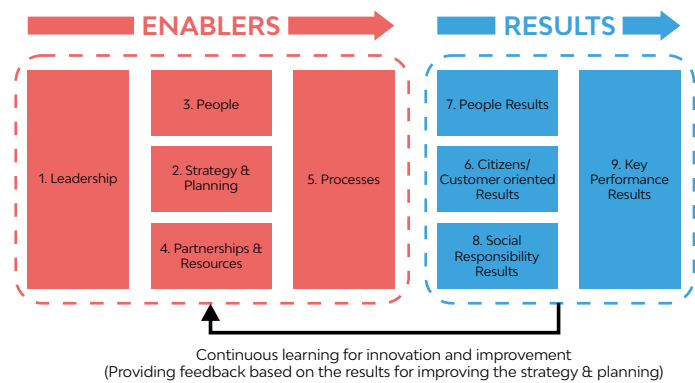
Social Responsibility Results

Beyond its main mission, a public organization should adopt responsible behavior that contributes to sustainable development in its economic, social, and environmental components.

Key Performance Results

The performance results relate to whatever the organization has determined as the essential, measurable achievements for the success of the organization in the short and longer term. It is important to measure both the strategic and operational sides of the organization.

FIGURE 2.5 Total Quality Management (TQM) Tool



Source: Adapted by author from CAF 2013

EQAVET Indicators

In the context of Europe, the European Quality Assurance in Vocational Education and Training (EQAVET) proposes a quality assurance framework. The adoption of the Bruges Communiqué in December 2010 outlined a series of actions to increase the quality of the VET in Europe, to make it more accessible and relevant to the labor market. The Bruges Communiqué is the latest update to the Copenhagen Process for European cooperation on VET, and EQAVET is a result of this process. One of the first steps in this initiative was to design a quality management cycle and build the following elements for this cycle:

1. Planning: setting measurable goals, processes, approaches, and resources
2. Implementation: introduction of processes and communication strategy
3. Evaluation: creation and application of monitoring and evaluation mechanisms to achieve the objectives
4. Review: obtaining feedback and analysis of the successes/failures in achieving the objectives and defining new goals

*Given the generality of this cycle, the EQAVET has developed the EQAVET 'building blocks' that bring the concept closer to the users of this framework (see **Table 2.4**).*

TABLE 2.4 The 10 Buildings Blocks for EQAVET Framework

1. Set clear rules for deciding who offers VET provision	Member states manage the supply of high-quality training by having clear systems to decide which organizations can offer courses and/or qualifications.
2. Recognize and build on existing internal arrangements	The European Quality Assurance Reference (EQARF) recommendation can be supported through the use of existing provider-based systems and VET quality assurance arrangements.
3. Set clear roles and responsibilities for the different parts of the VET system	At both the provider- and system-level (either nationally or regionally) it is important to be clear about what each organization is expected to do.
4. Identify what information and data should be collected and used in the VET system	There is extensive data on vocational education and training. The challenge is to identify and use a relevant core set of data consistently—with a focus on providers, inspectors, evaluators, and the government using the same definitions of the indicators and measures.
5. Define and implement a communications strategy	While mainly relevant at the system level, there are clear needs for up-to-date, consistent, and accurate information on the quality assurance process to be shared and understood.
6. Pilot initiatives and value success	Quality assurance can be achieved by recognizing effective practice. Staged approaches, which include a pilot program, awards, and funding, can all play a part in recognizing successful quality assurance systems.
7. Use feedback to improve VET	VET needs to meet the employers' and learners' needs. Key to any quality assurance system is the way feedback is used to improve the national or regional system. Training providers systematically collect and use the experiences and feedback from learners and employers to modify and improve their provision.
8. Provide clarity over funding	Public and private sector funds are not limitless. The link between high-quality provision and funding provides both an incentive as well as an accountability measure for the quality assurance arrangements.
9. Ensure quality assurance covers all aspects of VET provision	Quality assurance covers both the content of training and the administrative and staff arrangements which support teaching and learning. The EQARF should be seen as all-encompassing.
10. Ensure the VET is founded on a strong involvement of the external and internal partners and the relevant stakeholders	VET is based on effective partnerships. These exist between government, social partners, and national stakeholders; employers and training providers; and learners and society. They create the foundation stone of the VET system which gives it strength, relevance, and acceptability.

Source: EQAVET, 2020.

Furthermore, the ten building blocks in Table 2.4 are based on the analysis of early lessons and experiences in developing quality assurance in European member states. The ten building blocks support and complement each other and build on the European Quality Assurance Reference Framework for VET indicators as set out in the EQAVET recommendation (see Figure 2.6).

Planning and Institutionalization

This section explains the importance of setting clear, proportionate, and measurable objectives and outputs in terms of policies, procedures, tasks, and human resources. It also provides some examples of the indicators that provide a brief view of the planning process.

It is important to develop a strategic vision common to the relevant stakeholders that contains explicit objectives/outputs, actions, and indicators. Ensuring a common understanding and mutual support under the joint responsibility of all the relevant VET quality assurance partners is necessary. The main factors that need to be considered in the process of planning at the VET-system level are:

- The achievements that should be made in quality assurance:
 - The goals/objectives of the VET should be described in both medium and long terms that are linked to the European and national goals.
 - The main objectives need to be broken down into a hierarchy of appropriate subobjectives.
- The specific activities to accomplish the sub and main objectives
- The resources (human, infrastructure, work environment, and so on) needed for achieving the above goals
- The specific indicators for the goals and their targets:
 - Setting the indicators concerning processes and results
 - Setting specific, measurable, achievable, relevant and time-bound (SMART) goals to achieve
- Setting the standards and guidelines for the recognition, validation, and certification of competencies that have been defined (specific examples are listed below).
- Engaging all relevant stakeholders to participate in the setting of the VET goals and objectives
- Designing the quality assurance system based on the PDCA cycle:
 - Setting the milestones for regular monitoring
 - Setting the appropriate indicators for monitoring the process and the results
 - Developing the tools for monitoring and evaluation.
 - Developing a feedback system for the improvement of the VET service delivery

FIGURE 2.6 Ten Building Blocks and Their Relationship to the Quality Assurance Framework

	Plan	Implement	Evaluate & Assess	Revise & Review
Set clear rules for deciding who offers VET provision	✓			
Recognize and build on existing internal arrangements		✓		
Set clear roles and responsibilities for different parts of the VET system	✓			
Identify what information and data should be collected and used in VET system	✓		✓	✓
Define and implement a communications strategy	✓	✓	✓	✓
Pilot initiatives and value success		✓	✓	✓
Use feedback to improve VET			✓	✓
Provide clarity over funding	✓			
Ensure quality assurance covers all aspects of VET provision	✓	✓	✓	✓
Ensure VET is founded on a strong involvement of external and internal partners and relevant stakeholders	✓	✓	✓	✓

Source: EQAVET, 2020

Also, planning and institutionalization at the VET-provider level should be considered, which involve the following components:

- Reflecting the European, national, and regional VET policy goals/objectives to the VET provider level
- Setting explicit goals and targets that are monitored, and programs that are designed to meet them
- Ongoing consultation with the social partners and other relevant stakeholders, and engaging them in the planning process
- Clarifying the VET providers' responsibilities in the quality management processes:
 - Explicitly describe each role and make them transparent. The government shall manage the interfaces between the different stakeholders involved in the planning process.
 - Setting the milestones and deadlines
- Creating an explicit and transparent quality assurance system.

As explained above, setting clear roles and responsibilities for each stakeholder engaged in the process of planning, on both the system and the VET provider-level, is essential for an effective quality management system. Table 2.5 provides an example of the roles and responsibilities for each stakeholder.

TABLE 2.5 QA Roles and Responsibilities for Stakeholders, Illustrative Example

Government Level	<ul style="list-style-type: none"> • Setting the vision and objectives for the VET • Establishing a quality assurance framework with standards and an enabling environment • Setting an enabling environment for QA in the VET service delivery (Policies/logistics, funding system, and accountability/transparency) • Setting the standards for VET quality assurance • Developing an execution plan, by involving a variety of stakeholders (convening power to provide quality learning in the VET) • Supervise the monitoring and evaluation throughout the VET system • Acknowledge the school improvement plan • Improving the VET service delivery plan based on information/data collected internally, while taking into consideration the external conditions, such as the labor market needs • Disclosing data and information about the learning in the VET • Organizing and collecting data throughout the monitoring and evaluation • Supervising a school improvement plan
Local School Network	<ul style="list-style-type: none"> • Facilitate and support the QA process between the schools and the government
School Level	Administrators/Managers
	<ul style="list-style-type: none"> • Monitoring and evaluating the school level • Collecting teacher/pupils feedback based on internal and external evaluation • Assessing teacher performance • Assessing pupils performance • Provide data to the department of quality assurance/local government • Adapting immediate measures to improve the service in the VET schools • Developing a school improvement plan
	Teachers/Trainers
<ul style="list-style-type: none"> • Teacher’s self-reflection on assessment • Providing feedback about school learning • Providing professional feedback to one another 	Pupils
<ul style="list-style-type: none"> • Pupil’s self-reflection on assessment • Providing feedback on the assessment of the teachers • Graduates providing feedback • Pupils’ parents providing feedback 	External Stakeholders (Employers)
<ul style="list-style-type: none"> • Support the planning for VET service delivery, including understanding and communicating employer needs in the job market • Providing the VET pupils with work experience, such as on-the-job training (OJT) • Providing inputs for quality assurance, such as feedback for standards 	

Source: Authors, 2020

Implementation of Quality Management in the VET Schools

This section introduces the factors to keep in mind during the implementation process to ensure quality in the VET service delivery. It introduces the measures at both the VET-system level and the VET-provider level, and provides examples from other European countries based on the EQAVET report.

Devising plans in consultation with the stakeholders

In the implementation process of quality assurance in the VET service delivery, it is important to note that the plans are devised in consultation with the stakeholders and include explicit principles. Regarding the consultations with the stakeholders, the implementation plan needs to be established in cooperation with the social partners, VET providers, and other relevant stakeholders at different levels. In the case of Estonia, the VET schools are governed by councils where the majority of places are occupied by the employers. To review the school's performance, the council receives an annual report from the school principal. The councils meet four times a year and approve the plans for the VET school, authorize the student applications, approve new programs, and agree on the annual budgets and financial reports.

Throughout the development of the implementation plan, guidelines and standards must be devised for implementation at the different levels. All stakeholders, including representatives of the partner organizations, should be involved in the planning for implementation. As an example of involving social partners at the regional level, Norway provides a good example. The County Vocational Training Boards in Norway are advisory bodies with the responsibility for monitoring that VET provision responds to the labor market needs. The boards' work covers both the school-based study and the company-based parts of an apprenticeship program, and focuses on the quality of the education and training, on the adequacy of the supply of VET provision in the region, and on guiding students. The boards also advise the authorities on the annual decisions about which courses should be offered, and provide feedback on the development of vocational training and the effectiveness of the collaboration between the schools and the training facilities.

Provide adequate support for quality assurance

Another important factor to consider is the resources required, the capacity of the users, and the tools and guidelines needed for support. In Germany, the rehabilitation of potential workers is an essential part of the vocational qualification system. The centers for vocational rehabilitation provide opportunities for individuals who have been injured at work to improve their employability throughout the programs. In the rehabilitation process, assessments are conducted by experts that identify the participants' vocational abilities. Based on the results, the centers finance the individuals' rehabilitation and decide which qualification offers the best vocational training. The participants' efforts are also supported by a specialist careers service within each vocational rehabilitation center.

Providing financial incentives could be another way to increase the quality of VET provision. For example, Finland has a system for giving a funding premium towards schools of a higher quality. This helps influence the national system as well as the activities in individual training providers. This system encourages the implementation of self-evaluation combined with external evaluation in which the VET stakeholders are obliged to engage.

Support for the teachers and trainers

Furthermore, it is important to include specific support for the training of teachers and trainers at the VET-provider level. Therefore, the governance and administration of quality within a VET institution are necessary. An effective internal relationship between the senior management, heads of departments, the quality manager, and other members of staff is crucial to ensure the purposeful and timely implementation of the planned activities. On the one hand, there must be a certain

level of freedom and flexibility in implementing activities and enhancing the sense of ownership among all staff members. This is because the quality objectives will be better achieved when the staff members at all hierarchical levels take ownership of the process, develop their targets, and act on their own initiative to achieve them. For instance, Austria has developed a system for training the staff to implement quality assurance at all institutional levels. This support involves training the staff to acquire the wide range of specific skills and qualifications needed to run the quality assurance cycle, manage the institutional-level objectives, develop the human resources, and collect, process, analyze, and interpret data. This training allows the teachers to consolidate the competencies needed to conduct quality assurance strategies at the school level. On the other hand, the senior management at the VET-provider level has the responsibility to ensure a coherent development of quality within the organization. Therefore, it is essential to establish clear rules and transparency in the decision-making process.

Strong motivation and high-level capabilities of the staff, such as teachers and trainers in the VET institutions, are crucial factors in the success of the quality improvement activities. Therefore, the VET organizations need a strategy for the professional development of their staff that will be in line with the organization's quality objectives. To enhance the capabilities of the staff, a VET school should put in place appropriate programs for their further training, and adopt measures that will acknowledge the efforts of the staff.

Staff appraisals are an essential tool to align the development needs of organizations and individuals. This allows for mutual feedback between the staff and senior management at the VET institution. Staff appraisals may include the following actions:

- Feedback from the staff members interviewed by the managers
- Feedback from the managers to the staff
- Discussion of ideas to improve quality within the institution
- Discussion of demands for the further training of the staff members
- Recording mutually agreed objectives, activities, and deadlines

Defining the early warning system in the VET

Unlike the assessment and evaluation, which is a phase specifically explained in the next section, **monitoring is part of a process of direct and systematic observation to develop immediate improvement.** Therefore, the main function of monitoring is to provide evidence for immediate intervention, if the process deviates from the original intention.

Collecting data is required for monitoring the quality of teaching and learning, in order to be able to conduct **immediate interventions.** The main function of monitoring is to provide evidence of the course of a process for immediate intervention if the process deviates from the original intention.

The following are proposed measures for monitoring the quality of teaching and learning:

1. Self-reflection and self-assessment by the teachers and principals
2. Questionnaire for feedback from the students to the teachers
3. Students' self-reflection
4. Students' feedback on the school and academic year
5. Learner engagement meetings

Real-time data collection would be useful to achieve the objectives. The collection of monitoring data offers an opportunity for immediate response whenever the results of the activities are low or below expectations. Self-directed monitoring, such as developing tools to help the teachers reflect systematically on the quality of their classes, can be collected through student questionnaires that provide immediate feedback. These questionnaires can also be distributed to the pupils for self-reflection on their learning behavior. Also, teachers can attend the classes of other teachers to monitor their teaching and learning processes, and thus provide peer-to-peer feedback for each other. However, an agreement on quality criteria and assessment would need to be set up to ensure common trust and cooperation between the teachers.

The final goal for immediate interventions at the VET institutions is to reduce the number of dropouts and increase graduation rates, which are European-wide policy objectives. Monitoring can help achieve these goals. Unexcused student absences should be considered an early warning sign of dropout, and therefore, need to be closely monitored.

Clear guidelines and quality standards at the VET-provider level to promote continuous improvement

Managers and training providers at the VET-school level should have a clear view about what is expected from them and know where to get guidance on how to ensure continuous improvement. Especially in a decentralized system, the authority and capacity for quality assurance management in each VET school is an important factor in implementing effective measures. In Hesse, Germany, the VET schools are given greater responsibility for quality assurance. The following are the key components of a quality management system:

- The VET school identifies its quality model and sets its standards
- All the teachers and trainers ask for frequent feedback about their teaching
- The VET school regularly monitors the quality of its work—in terms of individual priorities and overall quality
- The VET school management team conducts internal quality management
- At the request of the principal, an external evaluation team visits each school to investigate the quality of the management system and to provide feedback.

Since promoting continuous improvement within the VET institutions involves measures, such as external and internal monitoring and evaluation, this section will not provide any more specific information about how to conduct those methods.

Information (Data) and Assessment (Evaluation)

This section includes the evaluation strategies of VET provision and assessment of the outcomes at the system and individual levels. These strategies normally include three components: 1) collection and processing of data; 2) reporting and communicating data; and 3) discussion, evaluation/assessment, and actions based on this data. Evaluation of the outcomes and processes is regularly carried out based on evidence and concrete measurement.

To improve the quality of vocational education and training, evaluation of the implementation of quality assurance in the schools is essential. Evaluation is a process of conducting a systematic and objective assessment of an ongoing VET project, program, or policy. The aim is to determine the relevance and fulfillment of the objectives, and to develop efficiency, effectiveness, impact, and sustainability. The evaluation should provide information that is credible that enables the

incorporation of lessons learned into the decision-making process of the policymakers and VET providers (World Bank, 2004). The following three components need to be considered in the assessment and evaluation of outputs and processes:

1. Involving relevant partners in the monitoring and evaluation process

- 1.1 External evaluation at the VET school

- 1.2 Internal evaluation (self-assessment) at the VET school

- 1.3 Peer review

Methodologies for both internal and external evaluation need to be created that will involve the relevant stakeholders in the process. In the next section, we will provide in-depth information for each component listed above, as well as some tools for implementing the evaluation at the school and system levels.

1. Involving relevant partners in the monitoring and evaluation process

Evaluating vocational education and training involves many actors from both the internal and external perspectives. Internal partners include the teachers, trainers and staff at the VET institutions, as well as the pupils, parents of pupils, and graduates from the VET schools. External partners involve industries/companies, its employers, trade unions, and professional organizations. In the process of evaluating quality assurance, it is necessary to involve these stakeholders and provide a comprehensive analysis of the VET service delivery system. Therefore, implementing both external and internal evaluations can provide in-depth data and information that can further enhance the effectiveness and efficiency of the system. External evaluation can be conducted by inspection, audits, and site visits, while internal evaluation includes the evaluation of the management, organizational infrastructure (working environment), personnel, resources, curriculum, and programs. Peer reviews are another way to involve various actors in the evaluation of the VET system that build trust, transparency, and understanding between partners.

1.1. External evaluation of VET schools

Based on the report from the European Commission (2015)², the process for external evaluation across Europe consists of three basic steps: 1) analysis, 2) visit, and 3) reporting. Also, a broad variety of instruments is at the disposal of evaluators in most education systems, providing opportunities for diversifying the sources of information, increasing communication with the relevant stakeholders, and reaching transparent and evidence-based conclusions.

External evaluation of the schools is conducted by evaluators who are not staff members of the school concerned and who report to the authorities responsible for education. External school evaluation deals with the activities implemented within the school, without seeking to assign responsibility to individual staff members. Evaluation of this kind aims to monitor or improve school quality and student results.

External evaluation is usually conducted from a central/top-level body, often named 'inspectorate', which is responsible for carrying it out. In the case of Montenegro, three institutions oversee the quality of vocational education and training: The Bureau for Educational Services, the Examination Center and the VET Center. The VET Center through its Evaluation Department conducts the external evaluation of vocational schools. The VET Center advisors assess each school's achievement of the standards in the key areas, and prepare a report describing the situation in the school, and then provide recommendations. On this basis, the school prepares a four-year quality improvement plan³.

As explained above, the practical process of implementing an external evaluation is divided into three phases:

1. The first phase involves collecting and analyzing data on the individual schools and then performing an initial risk analysis.
2. The second phase consists of visits to the school to observe practices, inspect the documents, and consult in-school actors, as well as other stakeholders.
3. The third phase involves preparing the evaluation report.

In the preliminary phase of collecting data, evaluators collect a variety of information from different sources. Information includes data such as:

- Statistical data on performance and other quantitative indicators: these may include students' attainment and employment rates.
- Reports and other qualitative documents: the school development plan and school policy documents are some examples.
- Administrative documents: timetables, annual school calendar, minutes of board meetings, and so on, are analyzed.
- Collecting information from various stakeholders: this information includes opinions from teachers, parents, pupils, employers, and others.

Table 2.6 represents some specific examples of indicators when conducting an external evaluation of schools and school facilities.

TABLE 2.6 External Evaluation Indicators

Area of Evaluation	Evaluation Criteria	Example of Indicators
School Management	School educational program	The strategic goals are set. The defined profile of the graduate is aimed at preparing pupils for further education/better employment in the labor market.
	Pedagogical management	The school's leading pedagogical staff supports the professional growth of the pedagogical staff.
	Internal control and evaluation system	The leading pedagogical staff consistently proceed in control activities following internal systems of control and evaluation of the pupils and pedagogical staff.
	School self-evaluation processes	The majority of the pedagogical and professional staff participate in systematic self-evaluation processes, which aim to improve the quality of education.
	Climate and school culture	The school involves pupils in the school and extracurricular activities that significantly affect their personal development and self-knowledge.
	School services	The school has a functional system of educational, psychological, and career counseling.
Conditions of Education	Staff conditions	The school principal and other pedagogical leaders meet the qualification requirements and the requirements for the performance of a managerial function.
	Spatial conditions	The school has a barrier-free environment.
	Material and technical conditions	The school is equipped with textbooks/library.
Course and Results of Education	Conditions for ensuring safety and health protection	The school regulations regulate the basic rules of the internal regime of the school.
	Pupil learning	Developing competencies for lifelong learning
	Teaching by teachers	Setting the educational goals of teaching

Source: Authors, 2020

Visits to the school are meant to provide evaluators with first-hand evidence of school performance. Data are collected by conducting interviews with staff, observing classrooms, and inspecting the school activities, premises, and internal documents. In the end, the data and information obtained throughout the first and second phases are compiled into an evaluation report. The compiling of an evaluation report is a dialogic process between the evaluators and the school management.

1.2. Internal evaluation (self-assessment) of the VET schools

The goal of self-assessment with regard to the quality management of the VET service delivery is to enable the setup of a system of self-regulation on the school level that will increase the quality of education provided. Therefore, school self-assessment is one of the main tools for school-level autonomy. Conducting self-evaluation can provide benefits toward the VET institution from these four main perspectives:

1. **Knowing the VET institution's strength and weaknesses**—this will allow the school to set specific and achievable goals and motivate the pedagogical staff.
2. **Understanding the internal mechanisms of the processes that take place at VET school**—strengthening the internal dialogue between the VET school management, employees, pupils, and teachers to set goals for VET school development
3. **Self-assessment increases VET school prestige**—the fact that a VET school publishes information and data based on quality management would increase the reliability and accountability of the school.
4. **Obtaining data for external evaluation of the VET school**—the results of the VET school's self-evaluation can be an interesting and useful source of information for founders, parents, and social organizations.

There is also a need to create an environment for conducting school-level self-assessment. One of the important conditions for self-evaluation is to set clear and specific goals for the school, based on the mutual dialogue between the stakeholders of the VET service delivery. Self-assessment cannot be successful without clearly defined objectives. It is not appropriate to set many areas and objectives for evaluation; instead, they would need to be assessed in no more than three to four main areas. These goals need to be set by the school itself, based on the conceptual plan for school development, which is conceived as part of the national and regional educational program. Also, the indicators must be realistically set, clearly and concisely formulated, specified, and measurable. Through the process of self-evaluation, it should provide clear answers to the following and other relevant questions:

- What are our goals?
- Do our goals correspond to the trends of the times?
- Do our trends correspond to the local requirements and the founder of the school?
- How do we know the contributing factors to what is happening?
- What are we going to do with the findings from the self-evaluation?

Regarding the specific indicators for conducting self-evaluation, this framework will provide some examples of the parameters (See Table 2.7). However, we should keep in mind that each VET institution should set original criteria since they have their development plans.

TABLE 2.7 Internal Evaluation Indicators

Domain	Area	Examples
Output	Results of educational outcomes	<ul style="list-style-type: none"> • Achievement by pupils • Assessing the pupils' progress • Comparing the achievement between good and poor performing pupils • Did pupils gain the intended competencies?
	Personal and social development	<ul style="list-style-type: none"> • Development of the pupils' personality • Did the pupils' teamwork and problem-solving skills improve? • Motivation of the pupils
	The objective of the pupils and the school	<ul style="list-style-type: none"> • Are monitoring and evaluation properly conducted? • Do the objectives meet the pupils' focus? • Do the objectives meet the school's focus?
Class-level Processes	Time and resources for learning	<ul style="list-style-type: none"> • How much time do teachers spend preparing the studies? • Do pupils use the time to learn effectively?
	Quality of learning and teaching	<ul style="list-style-type: none"> • Does the school define indicators for teaching quality? • Does the school have its evaluation criteria? • Does the school management support the teachers in conducting appropriate methods of assessment?
	Support for learning problems	<ul style="list-style-type: none"> • Does the school pay attention to the psychological and pedagogical competencies of the teachers, which helps to reveal the pupils' learning problems? • Is the school preparing the teachers to work with pupils with special education needs?
School-level Processes	School as a place to learn	<ul style="list-style-type: none"> • Does the school management create a favorable school environment? • Does the school management create forms for the lessons and conduct motivation management of the teachers?
	School as a social place	<ul style="list-style-type: none"> • Is there a positive environment between the pupils at school? (No bullying?) • What is the relationship between the pupils and the teaching staff?
	School as a professional place	<ul style="list-style-type: none"> • How does the school react to changes in its surroundings? • Can the school determine the methods of implementation of evaluation? • Does the school have a system in place to promote and evaluate the changes in the school?
Relations with the Environment	School and home	<ul style="list-style-type: none"> • Is there an open line of communication between the school and the parents? • Is information provided to the parents?
	School and community	<ul style="list-style-type: none"> • Do the community's living conditions affect ethics and the school environment? • What does the school provide to the community?
	School and student orientation	<ul style="list-style-type: none"> • Does the school education provide all the pupils with the same opportunities to develop their abilities and their own opinions so they can develop moral and social responsibility?

*Note that specific indicators for self-evaluation are written in the *Manual*. Source: Authors, 2020.

The process of self-evaluation consists of five steps. First is the motivation phase. When realizing the need for self-evaluation, it should be initiated by the school principal, who then builds a network of various stakeholders and gains allies for self-assessment. Second is the preparatory phase. In this phase, the goals for self-assessment are thought out. Rules are set and self-evaluation is specified. Third is the implementation phase. The procedures of self-evaluation are determined and implemented, and are constantly updated and revised. Fourth is the evaluation phase. The obtained data and information are evaluated and a final self-evaluation report is prepared. The last phase is the corrective phase which completes the whole self-evaluation process. The necessary measures are implemented to improve the current work of the school.

There are a variety of activities and methods for conducting VET school self-evaluation. To collect in-depth and precise data and information, many tools can be utilized: 1) interviews (structured, semi-structured, triangulation); 2) questionnaires (multiple-choice, open-ended questions); 3) observation; 4) document analysis; 5) focus group discussions, and so on.

1.3. Evaluation through peer review

Conducting peer review for mutual evaluation among various stakeholders is also a useful way to improve quality assurance, and build trust, transparency, and understanding between the partners. The advantage of introducing peer review in the QA evaluation process is that it provides an independent view of vocational education and offer proposals for recommendations to improve the evaluated areas. The phases for peer review consist of three parts:

1. **The preparatory phase** consists of the organizational preparation of the evaluation visit. The VET provider writes a self-assessment report and formulates the issues that the institution would like to analyze and prepares for the evaluator's visit. At the same time, evaluators prepare for the peer review by reading the self-assessment report, communicating with the VET provider, and so on.
2. **The evaluation visit** is a key activity of the mutual evaluation. The visit is carried out directly at the VET institution and interviews are conducted with various stakeholder groups. At the end of the visit, the evaluators will provide the institution with preliminary feedback.
3. Following the visit, the evaluator will draw up a report. The VET provider can provide comments to the report, and after a common consensus, the **final report will be developed**.
4. The last phase of the peer review is the **implementation of the recommendations** from the mutual evaluation in the form of action plans, while the results of the evaluation are transferred to specific activities to improve the quality of the VET service delivery.

Peer review has been conducted at the national level in Slovak Republic by collaborating with an Italian organization, Forma.Azione, which has expertise in the field of peer view. In the process of peer review, actors such as the Ministry of Education, Science, Research and Sport of the SR, State Vocational Education Institute, State School Inspectorate, National Institute of Education, Association of Secondary VET Schools, VET providers, and so on, have been engaged (Allulli, 2019). The findings from this study concluded that: (1) peer review is an appropriate methodology for improving quality assurance at the school level; (2) peer review should be used regularly to strengthen the quality of the educational offering; and (3) peer review of the VET providers is an opportunity for transnational cooperation.

Feedback for Improvement

This section focuses on how to convert the assessment and evaluation results into change and improvement activities for the organization.

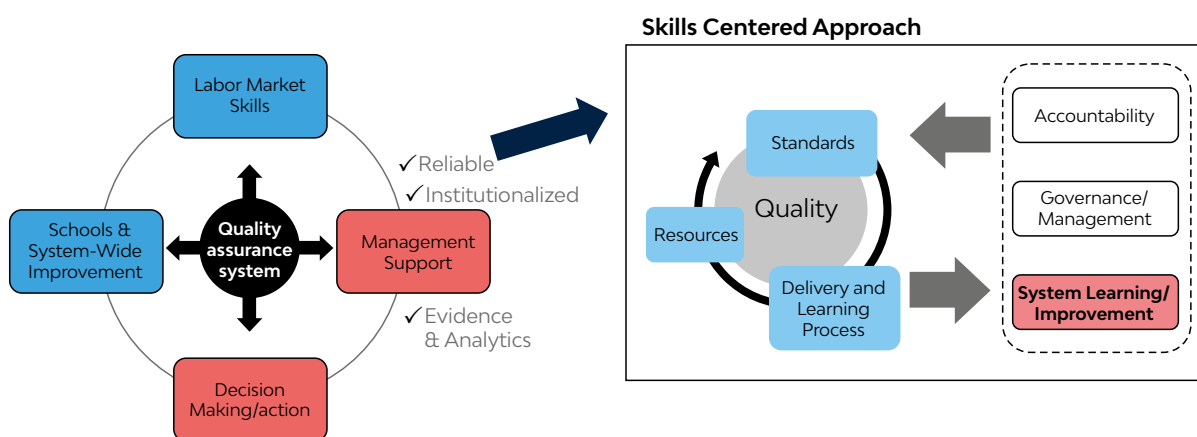
Data collected throughout the evaluation process can be utilized for mainly two actions, which are, developing school improvement plans and increasing school accountability. External school evaluation can lead to recommendations or instructions on specific aspects for individual schools to improve their programs, while also sharing best practices throughout the school system. On the other hand, self-evaluation results can provide feedback to the school improvement plan and professional development activities.

Regarding school accountability, external and internal school evaluation results of individual VET schools can be published, and these results may lead to possible rewards, or sanctions, or the strengthening of external supervision. The information can also be reported to the school community to give an account of the schools' status and progress toward the school goals, as well as become a valuable resource for the students and parents to decide in which vocational school to enroll. In the next sections, specific information related to the process of developing school improvement plans and increasing school accountability will be provided.

Quality assurance is at the center of the improvement process

The quality assurance system needs to be at the center of the improvement process (see Figure 2.7). The quality assurance system should contribute to the policy decisions in the VET service delivery and support the management of the system. Also, it would be used to implement schools and system-wide improvement measures based on the data collected from external/ internal stakeholders, as well as take into account the skill demands of the labor market. The quality assurance system can only function on the premise of having a reliable and institutionalized system that provides evidence from dependable analysis.

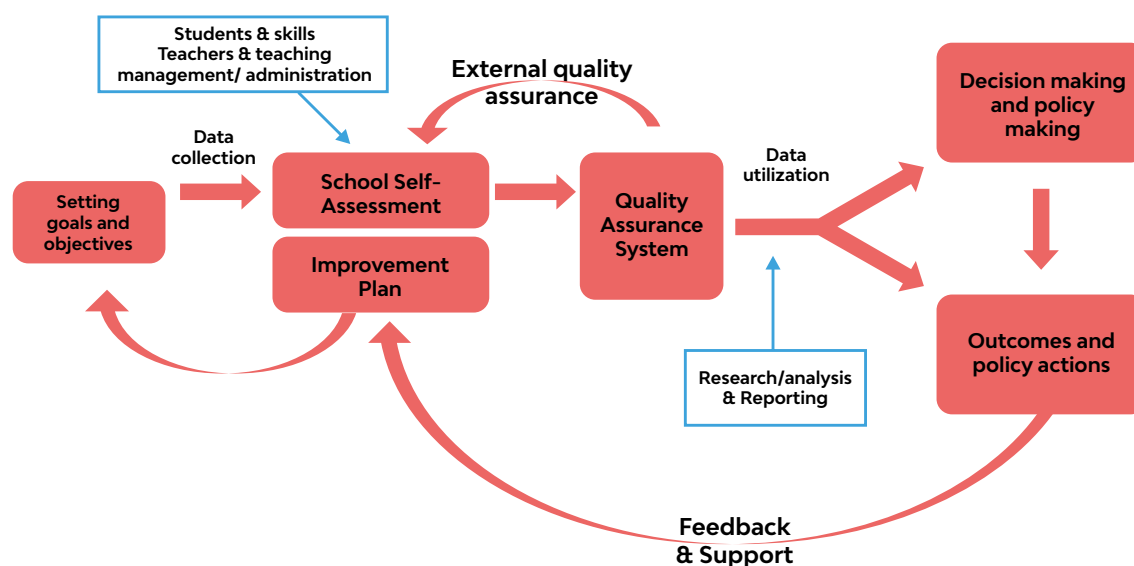
FIGURE 2.7 Quality Assurance at the Center of the Improvement Process



Source: Authors, 2020

Furthermore, the skills-centered approach can be built up through the quality assurance system. Quality is at the heart of the standards, of the learning process in the VET service delivery, and of the necessary resources for implementing the quality assurance measures. During this approach, the necessary environment to implement quality assurance, such as accountability and governance/management, should be kept in mind, to ensure that the end result will be the development of the appropriate improvement measures. Quality assurance is a continuous process that does not end with an evaluation report or one-off measures after the evaluation. The system itself is learning and the lessons learned should be implemented on the regional level.

FIGURE 2.8 A Feedback Framework for Improvement



Source: Authors, 2020

It is also important to understand how the improvement process is implemented at the government level and school level. Figure 2.8 represents a feedback loop of how the collected data is utilized for the improvement of the VET service delivery. Based on the goals and objectives that have been developed in the planning process, the government will need to obtain data about the progress made in achieving these goals. These data would be collected through self-assessment and also feedback from external stakeholders. The data would be assessed in the quality assurance system and become utilized for decision-making and implementing new policy actions to improve the whole VET service delivery. The period for the regular revision of the improvement plan—one- or two-year basis—needs to be decided. The following section will provide more instructions about the issues to be considered in developing an improvement plan.

Steps of Feedback for Improvement

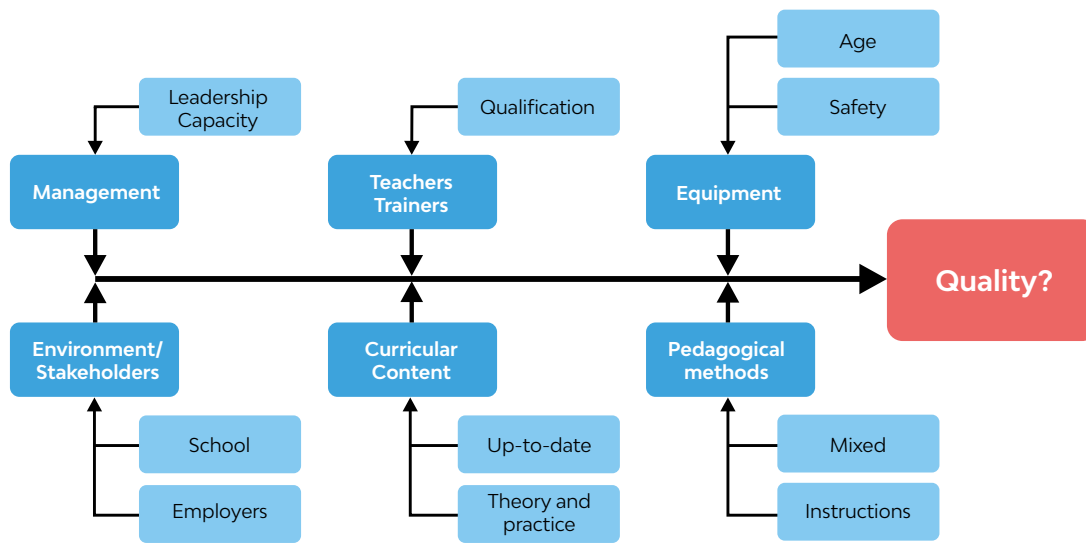
There are mainly four steps for developing an improvement plan in the VET service delivery:

1. Analyzing the factors that contribute to the improvement of quality
2. Preparing for change
3. Developing a school improvement plan
4. Establishing a new and coherent development strategy

1. Analyzing the factors that contribute to the improvement of quality

To improve the quality of VET service delivery, it is important to analyze the causes of positive and negative effects. One way to analyze cause and effect is to use the **Ishikawa diagram** (see Figure 2.9). The diagram can be applied to many areas to analyze if, and how, certain factors have contributed to quality. It is a tool that illustrates cause and effect, where the intended effect is placed at the right end of an arrow, while the main causes are noted on either side of the center line, with subcauses linked to the main factors.

FIGURE 2.9 Example of Ishikawa Diagram



Source: Authors, 2020

2. Preparing for change

Once the causal analysis has progressed, the next step is to set the priorities for change and improvement. Since it is impossible to simultaneously improve quality on all levels of a given VET service delivery, choices must be made to select and determine a focus for action. As soon as the preferred areas for change and improvement are identified, options must be discussed and agreed upon. Certain key questions about the means available to the VET for achieving its intended objectives should be asked: **Are the means sufficient to accomplish the desired results? Which partners are available to help achieve the intended objectives? Which stakeholders can provide support?**

3. Developing a VET school improvement plan

Once the issues are discussed with the main stakeholders and the most important areas for change are agreed on, the improvement plan compiles all this information and elaborates two different proposals for change:

1. **Corrective actions**, to overcome detected failures and deficits, as an immediate response to major complaints from the pupils and other stakeholders
2. **Adaptive actions**, to make structural improvements and adaptations in the VET institution and programs, taking into consideration underperformance or new demands

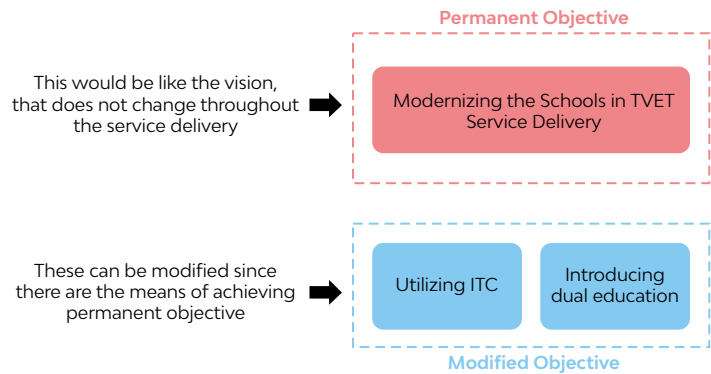
After approval by the management of the VET school/institution, the improvement plan should be disseminated widely and communicated to the broadest possible range of stakeholders.

Internally, the organization of change needs an additional step: **the VET school improvement plan must be put into practice**. The purpose of making an action plan is to ensure that the improvement happens and that the envisaged process is monitored and evaluated—to check if the intended effects have been achieved. The action plan should address the following issues:

1. What kind of actions need to be undertaken?
2. Which individuals are responsible for implementation?
3. What resources and tools are needed to implement the planned actions?
4. Setting the deadline by which actions will be completed
5. Setting indicators to measure if the intended effects are achieved
6. Assessment and evaluation of the progress

It is also important to consider if the staff in the VET schools are ready for change and motivated enough to put the improvement and action plans into practice. Some challenges and obstacles may occur in the pursuit of different quality objectives. There are two types of quality objectives, namely **permanent and modified objectives**. For instance, permanent objectives could be the vision of the VET service delivery. These objectives tend to become tiresome in people's minds, since they do not change for years. A modified objective is an adjustable step on the journey toward realizing the permanent objective. People might find it difficult to modify objectives, since change is frightening for people; therefore, they respond by showing resistance. Figure 2.10 shows an example of the relationship between permanent and modified objectives.

FIGURE 2.10 Examples of Permanent and Modified Objectives



Source: Authors, 2020

To overcome this difficulty, there needs to be **communication and consultation with people**, as well as the provision of information about the new action plan. Special attention should be given to those who are especially affected by the change. **Providing opportunities for participation** in all stages of quality development would be an effective way to encourage actors to achieve better quality in the VET service delivery.

4. Establishing a new and coherent development strategy

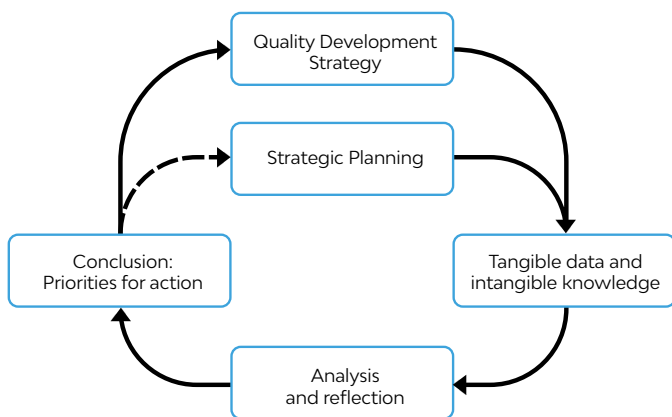
It is also essential to establish a **new and coherent development strategy for the VET institution that aims for the continuous improvement of quality**. The intent of this plan is to **restructure the whole strategy for VET service delivery**; in this document we call it "Planning Version 2.0". The difference between Planning Version 2.0 and the school improvement plan explained previously, is that this new plan applies to restructuring at the regional level, while the school improvement plan applies to improvement at the school level. Specific examples of restructuring conducted by the region are the following:

- Changing the objective in planning and strategy
 - Integrating the improvement plan into the strategic planning process
- Optimization of VET service delivery
 - Closing the VET schools if they are not performing well
 - Merging VET schools depending on the needs of the labor market and the pupils
- Changing the study programs in the VET schools
- Changing the qualifications for becoming a VET teacher

To develop Planning Version 2.0, it is crucial to be aware of the **external conditions that might influence the VET service delivery**, since the previous sections (assessment and evaluation) focused on the internal conditions in the system. To understand the external conditions that affect the VET service delivery, the strengths, weaknesses, opportunities, and threats (SWOT) analysis can provide an overall framework for **identifying strengths and weaknesses in the VET school and understanding the factors that influence the organization**. While the previous analysis concentrates on internal achievements, the SWOT analysis focuses on the investigation of the external conditions for further development. It identifies the opportunities and threats that the organization might encounter in the future.

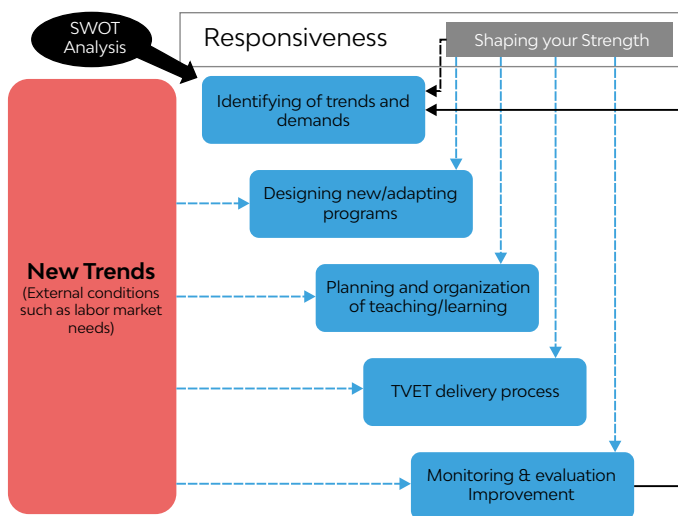
The SWOT analysis and subsequent strategy building should be carried out through a consultation process **with the internal and external stakeholders**. Including a broad variety of perspectives will allow the organization of this process as a multiphase circle, similar to the PDCA cycle, with the individual stages considering the data and knowledge of the participants, then drawing appropriate measures for further action—thus continuously shaping the development strategy (see Figure 2.11). The use of the cycle should help build an explicit view of the empirical situation and identify the future trends, thereby optimizing the renewed development strategy. The VET service delivery should adapt continuously to the demands of the labor market and ensure that they are supplying skilled workers to the economy.

FIGURE 2.11 Shaping a Development Strategy



Source: Authors, based on Cedefop, 2015

FIGURE 2.12 Four Steps for Adapting and Developing a “Planning Version 2.0”



Source: Authors, 2020

Identifying the external trends and the labor market demands is a difficult challenge. However, not every direction will fit in with each school’s strengths. It is important to analyze the significance of the external conditions for the school’s strategy and undertake adaptive measures to implement it. Figure 2.12 represents the four steps for developing a “Planning Version 2.0”. The first step is to design a new version and/or adapt existing VET programs. The second step is to plan the teaching and learning process that would be necessary, such as recruiting new staff and preparing equipment and materials. Formulating an adapted program to be delivered is the third step. The last step is to ensure that a system is in place to measure the results and analyze them for further improvements. The strengths of each VET school should be identified and reflected in each step in the development of a better strategy.

5. An example of developing a school improvement plan: Hungary’s case

The Ferenc Hansági Vocational School in Szeged, Hungary—which provides qualifications for the catering and tourism sectors—has been monitoring the requirements of its partners and measuring the effectiveness of training since 2000⁴. They explain in their school annual plan how to regularly collect views from the stakeholders, such as the school employees, the students and their parents, the foundation that owns the school, and the organizations that provide apprenticeship opportunities.

Stakeholders are asked about how well the school is performing in its efforts to improve and achieve the school's goal of continuous pedagogical and professional development.

The school uses a standardized approach to select the respondents, sets targets to measure the outcomes, and ensures that the results are reliable and accurate. This process is monitored by the school's quality management team which provides an analysis of identified trends, compares the results to the school's target, and presents the results from each stakeholder. Based on these results, the quality management team identifies strengths and suggests areas for improvement. The team and teaching staff are involved in preparing and implementing new action plans, and in the monitoring and evaluation of the results. The information collected is disseminated to the stakeholders at the end of the process.

The frequent and regular use of action plans that are based on the employers' and other partners' impression of the VET provision has improved the effectiveness of the school. For instance, the individual development plans that improve personal care for students have become an important element for revising the pedagogic programs. A tangible result of the improvements is that the school partners now have a more favorable opinion of the institution.

Furthermore, the frequent measurement of the partners' satisfaction has become an incentive for the school to communicate more with those partners. This has enabled the school to devise school programs that meet the demands of the employers, thereby creating an effective and efficient system.

Defining the performance indicators and disseminating information

Data collected from the assessment and evaluation is used for the improvement of the VET system. In the assessment and evaluation process, the **balanced scorecard (BSC)** is a useful tool to make quantitative measurements. The BSC provides explicit information about whether the VET service providers are succeeding in the realization of the planned mission and objectives. Also, the BSC can be useful as a tool for management to communicate with the people in the organization and the stakeholders involved in the service delivery.

In Estonia, they set mandatory indicators which are monitored at both the provider and system levels. Providers can design and use other indicators to support the data systems (EQAVET, 2020). Several key indicators are identified below:

- The support pupils with special educational needs
- The percentage of pupils who chose to take the optional examination that is associated with the qualification
- The dropout rate of pupils
- The percentage of graduates who are employed six months after graduation
- The percentage of pupils who continue training at the next education level
- The percentage of the lecturing staff who have qualifications
- The average number of hours of further training provided by the training staff
- The age profile of the lecturing working force
- The percentage of the lecturing staff who leave employment each year

Disseminating the collected data to the public

This part explains how to report the collected data through the monitoring and evaluation process. When reporting about the quality of each VET institution, quality needs to be considered from three dimensions: inputs, processes, and outcomes. Below are some indicators based on the European Quality Assurance Reference Framework for VET. As an image, these indicators may be used as components for a **dashboard**, when developing a reporting system for the VET institution. Such information should be published for the public.

- 1. The relevance of quality assurance systems for the VET providers**
 - a) Share of providers applying internal quality assurance systems defined by law
 - b) Share of accredited VET providers

- 2. Investment in the training of teachers and trainers**
 - a) Share of teachers and trainers participating in further training
 - b) Amount of funds invested

- 3. Participation rate in VET programs**
 - a) The number of participants in VET programs, according to the type of program and the individual criteria

- 4. Completion rate in VET programs**
 - a) The number of completed/abandoned VET programs, according to the type of program and the individual criteria

- 5. Placement rate in VET programs**
 - a) Destination of the VET learners at a designated point in time after the completion of training, according to the type of program and the individual criteria
 - b) Share of employed learners at a designated point in time after the completion of training, according to the type of program and the individual criteria

- 6. Utilization of acquired skills at the workplace**
 - a) Information on the occupations obtained by individuals after the completion of training, according to the type of training and individual criteria
 - b) The satisfaction rate of the individuals and employers with acquired skills/competencies

- 7. Unemployment rate**
 - a) Percentage of labor force that is without work but available for and seeking employment

- 8. Prevalence of vulnerable groups**
 - a) Percentage of participants in VET classified as disadvantaged groups (in a defined region or catchment area) according to age and gender
 - b) The success rate of disadvantaged groups according to age and gender

- 9. Mechanisms to identify training needs in the labor market**
 - a) Information on the mechanisms set up to identify changing demands at different levels
 - b) Evidence of their effectiveness

- 10. Schemes used to promote better access to VET**
 - a) Information on existing schemes at different levels
 - b) Evidence of their effectiveness

In Serbia for instance, they have a school report card which is a checklist of information gathered by the school (EC, 2018). It includes indicators that relate to the following information:

- General information about the VET school
- Statistical data on pupils (numbers by different categories)
- Statistical data on teachers/trainers (working experience, level of in-service training)
- Resources (revenues and material investments)
- Learning environment (programs, extra-curricular activities, and professional development)
- Pupil educational achievements (general academic test results, qualification exam results, and other external examinations)
- Evaluation of institutional operation
- Communication (resources and manner of communication with the environment)

The school report card serves as a tool for monitoring pupil achievement in schools to inform the public on the main characteristics of the school and its progress in certain areas of development. It provides decision-makers with the necessary information for the improvement of individual schools. The report card aims to encourage the education process to become results-oriented, increase accountability of all stakeholders in the educational process, involve the public in providing information to parents, pupils, local community and government, and develop a measurement to conduct comparisons between schools.

The background of the entire page is a repeating pattern of teal-colored triangles. The triangles are arranged in a grid-like fashion, with some pointing up and some pointing down, creating a complex, textured effect. The color is a consistent shade of teal throughout.

PART 3
SCHOOL NETWORK
OPTIMIZATION FRAMEWORK

The School Network Optimization Framework for the PSK aims to guide the efforts toward an effective, efficient, and more relevant VET system.

Introduction

European and National Vision of VET Optimization

Before developing a regional optimization framework in the context of the PSK, it is essential to consider the objectives that are proclaimed on the European and national levels. In other words, **the regional vision should align with the national optimization vision and the relevant European documents and strategies** proposed by organizations, such as the European Commission (EC) and the European Center for the Development of Vocational Training (Cedefop).

European vision for VET optimization (2030)

The European vision for VET optimization by 2030, highlights the importance of implementing effective and efficient vocational education by optimizing the system. It aims to deliver excellent and inclusive education and training that offer opportunities for both economic and social cohesion, support competitiveness, growth, and smart, inclusive, and sustainable development, as well as foster democratic citizenship and European values. It will thus help every individual to develop their full potential in a lifelong learning continuum (EC, 2018). The following three core elements define the ideal VET system:

1. Fostering the acquisition of skills, competencies, and qualifications, which ensure employability, adaptability, personal development, and the active citizenship of individuals
2. Provide accessible, attractive, valued, and innovative quality-assured provision for all
3. Integrated, responsive, diversified, and quality-assured systems that are underpinned by governance, funding, and guidance which foster excellence, inclusion, effectiveness, and shared responsibility

1. Skills, competencies, and qualifications for employability, adaptability, personal development, and active citizenship

This component emphasizes the importance of providing the core and flexible skills that are in demand in the labor market and society. These will empower the pupils to lead a professional life. In parallel, it is important to foster the employability and productivity of learners by further enhancing the labor market relevance of the VET curricula, including on-the-job training.

2. Accessible, attractive, valued, and innovative quality-assured provision for all

VET provision should be delivered by highly qualified teachers who are supported through professional development. It also needs to be learner-centered by providing flexible and modular opportunities for learning that aim to achieve maximum completion rates. Furthermore, it is necessary to promote the VET as an attractive and high-quality pathway for jobs and for life, through campaigns involving all the VET stakeholders.

3. Integrated, responsive, diversified, and quality-assured systems with governance, funding, and guidance which foster excellence, inclusion, and effectiveness

The VET systems need to be linked with the employment and social policies at the local, regional, national, and European level, while being integrated with innovation strategies and systems. It would also need to be based on strong quality assurance mechanisms with effective feedback loops that enable the adaptation of curricula to reflect the labor market needs. Furthermore, VET systems need to be based on effective governance at all levels which involves all the relevant stakeholders.

National vision for VET optimization in Slovak Republic (2018–2027)

According to the National Program for the Development of Education (NPDE) 2018–2027, the main objective for the optimization of the VET system is to provide quality vocational education and training that responds to current and expected practical needs (MINEDU, 2018). The following measures and actions are explicitly focused on linking education with the labor market by optimizing the VET system:

1. Improving the quality of the dual education system, which combines VET classroom learning with on-the-job experience like internships, through the funding of professional and employer organizations that are engaged in dual VET
2. Increasing the VET attractiveness by reducing the administrative burden for participating small and medium enterprises (SMEs)
3. Supporting the linkage between secondary education and practice by carrying out a demand-driven European Structural and Investment Funds (ESIF)-funded project
4. Implementation of effective career education by introducing counsellors at the district and regional levels
5. Promoting in-company internships for VET teachers/trainers as a form of initial and in-service training
6. Expanding the possibility of the employers entering the labor market, and providing further professional training by promoting their placement on internships in companies

These six components all relate to the optimization of the VET system and emphasize the importance of linking the education system with the needs of the economy and the labor market. In terms of optimization, establishing structural consistency between the VET system and the needs of the economy/labor market is an important factor in developing the economy and improving the social situation of the population. **These six components should also be the guiding foundational principles for developing optimization strategies at the regional level.**

In addition, the NPDE especially emphasizes that practical teaching should take place in workshop and at the employer's workplace, in order to respond to economic needs. Practical training that is carried out directly at the employers enables the students to understand the real environment of industries/workplaces, thereby facilitating their successful placement in the labor market after graduation.

Another important dimension in the process of optimization is the consideration of **the place of minorities and vulnerable populations in the education system.** The NPDE 2018–2027 also pronounces support for the VET schools that need to teach in the local language of national minorities, including vocational education and training in the dual system. It also commits to strengthening the material and technical support of schools, by creating textbooks and other educational resources at schools using the language of national minorities. Additional strategies being prepared for 2021 will also support these efforts, such as the Inclusive Education Strategy and the National Roma Integration Strategy.

Regional Vision of VET Optimization in the PSK

The overall/long-term vision in the Prešov Region

In the Prešov Region, the overall/long-term vision of vocational education is mainly described in the *Strategy of Education in Prešov for Years 2017–2022*, and the *Regional Strategy of Education in Secondary Schools Within the Territorial Scope of the PSK for the Years 2019–2020*. **The main goal is to reduce the number of secondary grammar schools (gymnasium) pupils to 29%, or even less, and to increase the number of students in the VET schools.**

The Prešov Region has set four specific targets for the VET schools:

1. Increasing the number of pupils in the three-year course of study, such as the craft and vocational study programs, where there is a labor shortage in the market
2. Increasing the number of pupils in the four-year technical, electrical, construction, and ICT graduation study programs, where there is a shortage of workers in the labor market
3. Supporting the dual and practical education system, by including measures such as modifying the state educational programs, school educational programs, and supporting the employers' involvement in practical education and training
4. Supporting the increasing number of pupils in the field of elderly care, where there is a shortage of labor force in such fields as medicine, nursing, and social care

The vision for optimizing the VET system at the regional level

Establishing a vision for optimization in the VET service delivery is the first step toward developing an optimization framework and strategies for the implementation of an effective and efficient VET system. The overall long-term vision is described in the *Strategy of Education in Prešov for Years 2017–2022* and the *Regional Strategy of Education in Secondary Schools Within the Territorial Scope of the PSK for the Years 2019–2020*. According to both documents, the main objective for the secondary vocational education in the PSK is to prepare pupils of secondary vocational schools for successful employment in the labor market and for tertiary education, as well as to increase the interest of pupils and the general public in vocational education. To achieve this goal, the PSK determined six objectives to be met in order to implement an effective and efficient education system.

The six objectives for optimization

Objective 1: Optimizing and stabilizing the school network

This component indicates the need to optimize and stabilize the school network. The activities proposed under this objective are mainly concerned with the creation of an optimal VET structure **that reflects the needs of the labor market, teachers, and students**. This includes the optimization of the regional transport structure and accommodation facilities of secondary vocational schools, such as eliminating schools that have overlapping programs and are geographically close. It also proposes to maintain the availability of educational offerings for the effectiveness of vocational education that stabilize a school network in a way that the schools can operate without the founder's funding. In terms of enhancing the strong linkage between the labor market and the VET schools, the strategy proposes such measures as promoting a three-year apprenticeship system (as requested by the employers), and determining the number of pupils for admission in the first year according to the demands of the labor market (as stipulated by law).

Objective 2: Modernization of the material and technical condition of the secondary technical schools

This objective addresses the need to modernize the material and technical condition of the secondary technical schools. This includes the modernization of the classrooms, laboratories, school libraries, and the improvement of the material and technical provision for studying at school and the amelioration of energy efficiency in the buildings.

Objective 3: Developing vocational training for the labor market

This part emphasizes the importance of cooperation between the VET providers to develop a vocational training program for the labor market. This would be facilitated by active communication with the employers and unions, and the involvement of company representatives in the recruitment of primary school pupils for secondary-level vocational education.

Objective 4: Cooperation with the employers without dual training

This component concentrates on the cooperation between the VET schools (which do not provide dual training programs), and the employers in the VET schools for practical training. It emphasizes creating a basis for practical training by organizing excursions to businesses that enable pupils to participate in company activities, and by promoting the participation of companies in the recruitment of primary school pupils in secondary vocational education, and other such activities.

Objective 5: Development of vocational education and training centers

This objective focuses on the need to develop VET centers. The main role for these centers is to control the quality of VET schools and become a bridge for cooperation with the employers. These centers search for companies that can cooperate within the region, improve the material and technical equipment of existing VET schools, offer retraining courses based on the employers' requirements, and even build additional schools to respond to changing labor market needs.

Objective 6: Promotion of vocational training and technical fields

This component explains the activities for promoting the VET. These measures include encouraging schools to actively promote their activities on social networks, participating in public presentations, and providing practical workshops for primary school pupils to increase their interest in technical and polytechnic education.

The PSK also has measures for considering the minorities and vulnerable populations in the education system. For instance, they support the integration and education of students from the Ukraine at schools in the Prešov Region (secondary and higher education). Currently there are several thousand Ukrainian secondary pupils and university students studying in the region, who are replacing the decreasing numbers of Slovak students at the schools. They occupy the vacant job market positions after secondary and university education. In addition, support for the education of Roma students and their integration into society is also being implemented. The PSK supports the two-year follow-up programs ('F' study programs) and the three-year higher professional study programs ('H' study programs), especially the study programs in the technical, construction, gastronomic, and services (for example, salesman, shop assistant, storekeeper, waiter, cook) sectors.

In conclusion, **the vision of the PSK incorporates the main elements for optimizing the VET system, such as providing quality vocational education, linking the VET schools with labor market needs, offering practical teaching, and considering the place of the minorities in the education system.** It is also aligned with the European and national vision for optimization in VET systems, which ultimately, is important for developing effective strategies. The strategies implemented in the future should be based on the objectives regarding the optimization of the VET service delivery to achieve the vision of preparing students from secondary vocational schools for successful employment in the labor market and for higher level studies, as well as to increase the interest of pupils and the general public in vocational education.

Optimization Concepts and Practices (Modalities and Options)

The main objective for optimizing VET service delivery is to ensure the availability and quality of the relevant vocational training to prepare qualified graduates and meet the needs of the economy in an optimized way by:

- Balancing the supply and demand of specialists at the regional and national levels
- Optimizing the school network based on the demand of the labor market and societal needs
- Optimizing the programs and offerings on a territorial basis
- Improving the provision of support to VET schools
- Involving key stakeholders
- Ensuring the quality of VET service delivery.

A Conceptual Framework for VET Optimization

This section provides an overview of what should be considered when attempting to maximize the effectiveness and efficiency of the VET service delivery. There are three main dimensions that deeply engage with the optimization of the VET system.

First, there is the demand side (red diagram). The demand side in vocational education and training largely relies on the condition of the economy. In other words, the needs will continuously change, depending on the economic situation of a country. The main actors that interact with these changes are the employers in industries/companies, since they are the ones who hire the graduates from the VET schools. There are five main factors that impact the demand side:

1. *Shifts in job market*—shifts occur depending on the economic growth or transitions in industries, or other sectors.
2. *Opportunities*—the number of available opportunities in the labor market is an important factor that influences the employability of the VET school graduates.
3. *Satisfaction*—employers will want to hire graduates that have the appropriate skills for working in their company. The VET schools need to produce graduates that meet the needs of the economy.
4. *Capacity*—adequate ability of VET school graduates to perform work-related tasks is essential, since it is a major factor that decides the employability of graduates.
5. *Innovation*—technological and no-technological innovations can cause shifts in the needs of the labor market, such as increasing the demand for a labor force with IT skills.

Second, the supply side diagram (blue diagram) represents the pupils in VET education and training that are the drivers in providing the workforce for the economy. The blue part of the diagram represents the flow of how a child moves on to become part of the workforce in the economy. The blue squares on the right side indicate the fundamental factors that influence the children, such as mobility, socioeconomic status (SES), motivation/interest, and demographics. Children need to attend general education until lower-secondary school to develop the basic skills, such as arithmetic and literacy. After lower-secondary education, students have the option to move on

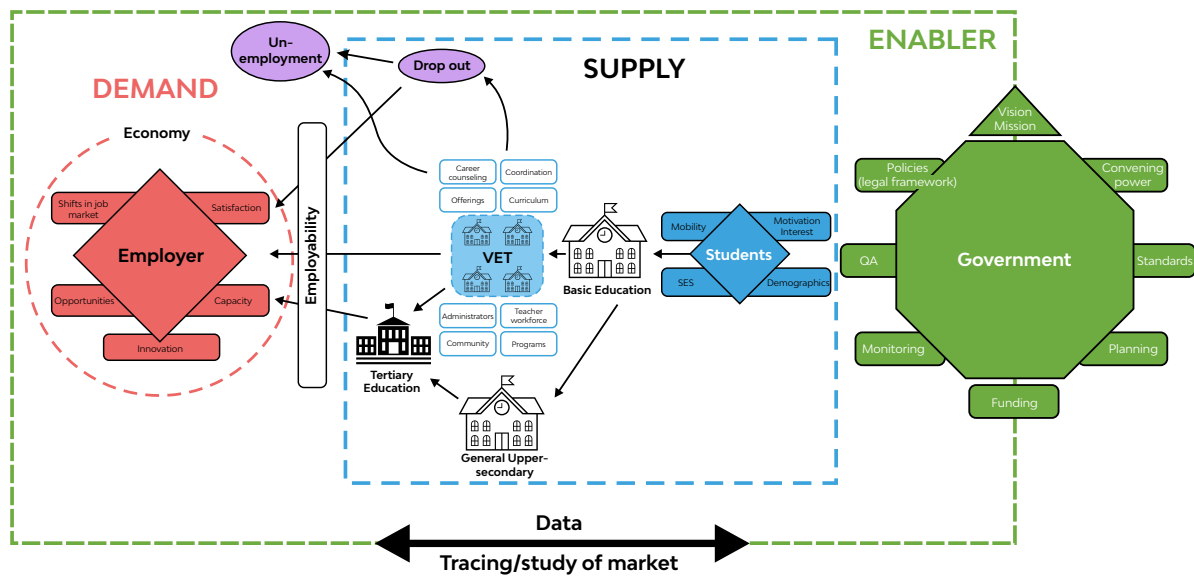
to general upper-secondary school, VET schools, dual schools, and so on. Graduates from upper-secondary VET schools can either continue learning at the tertiary level or start working. However, some pupils may drop out of school for a variety of reasons and try to obtain a job. In some cases, they may not have the necessary skills to obtain a job. This would have a negative influence on the economy since it increases the unemployment rate.

Another problematic situation is when graduates from upper-secondary VET schools cannot obtain a job in the labor market. Sometimes, these problems occur because the VET schools have not provided programs that are relevant to the needs of the labor market. Gaps between the provision of vocational education and labor market needs, decrease the employability of the graduates. In other words, it is essential for the VET schools to provide curriculums/programs that meet the requirements of the employers. The following elements are vital to ensuring the quality of vocational education: 1) setting high-standards of teacher qualifications; 2) providing career counseling for students; 3) coordinating with industries; 4) providing labor market-oriented offerings, curriculum, and programs; 5) communicating and collaborating with the communities and; 6) developing the capacity of the administrators to meet the requirements of their positions.

Lastly, the government has a major role in developing an environment that enables a strong linkage between supply and demand in the labor market. The vision that the government develops is the foundation of the policies (legal framework) and funding measures that are implemented. Another important role of the government is to establish a quality assurance framework⁵ that facilitates monitoring, planning, and developing standards. Furthermore, the government needs to collect data from the labor market that traces the career paths of the graduates (and even dropouts) from the VET schools, in order to implement new measures that will adjust the gaps between the supply and demand side. In conclusion, **the government is the main actor that brings together the powers of the stakeholders related to the whole process.**

Based on the conceptual framework, the next section explains more specifically about the dimensions of optimization in VET service delivery.

FIGURE 3.1 Conceptual Framework of Optimization



Source: Authors, 2020

Dimensions of Optimization in the VET Service Delivery

This section explains the dimensions that need to be considered when attempting to optimize the VET service delivery. To maximize the effectiveness and efficiency of the vocational education system, there are two ways of implementing it, which are the rationalization and optimization of the VET service delivery. However, rationalization and optimization have different meanings. For instance, when we talk about rationalization in the VET school networks, its one goal is to maximize efficiency from the economic (financial) standpoint. Consolidation of schools and programs that are small would be one method for rationalization to achieve low operating costs and high benefits.

Optimization also considers the social dimension. Closing or merging schools has its risks, particularly for children in rural areas and from marginalized groups, such as the Roma. For example, if a small VET school that serves children from vulnerable backgrounds is closed, it will lower the options for these children to attain further vocational education. In such a case, appropriate measures should be put in place for pupils that are teenagers—such as a bussing system, mentorship, and so on. If the authorities take steps to provide the pupils with access to a new school without barriers, commuting (within reason) need not be a major obstacle to the pursuit of quality education. Therefore, optimization emphasizes the importance of providing maximum educational quality and relevance for all children, irrespective of their gender or their geographical, social, ethnical, and cultural background, while, at the same time, meeting sound economical rationalization that provides the maximum economic benefits to the region.

Furthermore, optimization can be viewed from two perspectives: economic/pedagogical and social. Economic and pedagogic rationales entail three lenses, namely relevance, efficiency, and quality. Relevance emphasizes the importance of matching the supply and demand in the labor market, while efficiency considers the inputs and outcomes needed for the VET service delivery to ensure benefit to cost investments, and internal and external efficiencies. In addition, quality is another important factor in optimization, as it is a driver for the relevance and efficiency of the VET services. For instance, curriculum should be discussed with employers to ensure high relevance and quality for the labor market. Furthermore, social rationale for optimization aims to establish a VET system that will maximize the quality of education and ensure that representation from various backgrounds (geographical, social, ethnical, cultural, and gender) will enroll in the VET schools. Table 3.1 summarizes the two dimensions for optimizing VET educational systems and lists some indicators for each component.

TABLE 3.1 Summary of the Dimensions for Optimization in VET Education

Rationale	Summary	Components and Indicators		
1. Economic and Pedagogic Rationales	Maximum efficiency from the economic (financial) point of view, for example, based on analysis of costs and economic benefits/returns.	<p><i>Relevance</i></p> <ul style="list-style-type: none"> • Economic situation of the country/region • Labor market needs <ul style="list-style-type: none"> • Relevancy of educational programs • Feedback from employers • Demands and needs from pupils <p><i>Efficiency</i></p> <ul style="list-style-type: none"> • Cost-benefit analysis • Internal efficiency <ul style="list-style-type: none"> • Repetition rate • Dropout rate • Survival rate • Completion/graduation/attainment rate • Employment rate • Transition rate to tertiary education • Organization of schools (school network, merging/closing of schools) <p><i>Quality of Education</i></p> <ul style="list-style-type: none"> • Curriculum • Career counseling • Teacher qualification • Pupils -teacher ratio • Learning environment • Internships and apprenticeship programs • Pass rate for credentials 		
		2. Social Rationale	Establishing a VET system that will maximize the educational quality and let all pupils from various backgrounds (geographical, social, ethnical, cultural, gender) go to school	<ul style="list-style-type: none"> • VET access for all • Education equity for Roma and marginalized students • Providing education to the poor • Filling in gender gaps • Reducing disparities between rural and urban area VET schools

Source: Authors, 2020

Strategies for VET School Optimization

This section will look at some strategies that could be implemented to realize an effective and efficient VET service delivery. The strategies written below are based on the dimensions of optimization, such as the economic/pedagogical dimension and the social dimension. They will provide in-depth information about specific measures for each component.

Optimizing the VET system may require major improvements, such as restructuring the whole system. Even though it takes time to implement the whole procedure, it is essential to consider the criteria for optimizing the VET system listed below:

1. Overarching school network optimization strategies
2. Deciding the provision and labor market needs
3. Delivering quality education (Internship, apprenticeship programs, and so on)
4. Utilizing learning outcomes
5. Supporting conditions for VET service delivery
6. Access to vocational education (equity)
7. Maximizing the efficiency from the economic point of view
8. Considering the external factors (for example, demographic change)

1. Overarching VET School Network Optimizing Strategy

School network optimization strategies must respond to needs and/or overcome structural challenges. In finding optimal solutions in the VET sector, the following conceptual questions should be discussed:

- What are the options for solving the problems in the short, medium, and long term?
- What is the systematic approach to solving the problem at the different levels in the region? How can you collaborate with them?
- How can the strategy be implemented while utilizing and integrating the available relevant parameters needed to make decisions regarding the school network, such as demographics, economic indicators, and educational aspects?

The following approaches should be considered in school network optimization for the VET:

1.1 Harmonization

Harmonizing of the network of schools with demographic, economic, social, cultural, and educational reality

1.2 Horizontal coordination

This consists of: 1) overcoming sectorial disclosure and the isolation of education; and 2) overcoming barriers and creating interconnection at both the program and sector levels of the economy (for example, services, technology, agriculture, and others).

1.3 Vertical coordination

Vertical coordination is about harmonizing and meshing the education system's hierarchical levels. Decentralization is one measure to conduct vertical coordination. However, care is necessary when implementing decentralization policies, since rural area schools have a higher risk of closing which results in disparity within the region. Hence, the regional government needs to provide support to these areas, to ensure access to the closest schools.

1.4 Modernization

Changes in the education modality in the areas of instruction, practical experience, simulations, professional teacher development, school management, and others, bring modernization to schools.

In conclusion, the best results of the optimization process are attained through a balanced combination of the above strategies. The main goal of these strategies is to find the solution that is adapted to the state of the education system, as well as the characteristics of the local area and region.

Reorganization of the VET provider network and the redefinition of the profiles and offerings of several VET institutions could be an opportunity to intervene in several important areas. This could take place on different levels that could achieve a **deep restructuring in terms of governance, the institutional network of providers, funding, and personnel.**

BOX 3 Restructuring in Governance, Network of Providers, Funding, and Personnel Through Optimization—the Case of Serbia

As an example of network optimization of schools, *The Optimization of the Network of Schools in Serbia Project* was conducted by the Education Forum from October 2001 to November 2002. The project was implemented at the behest of the Ministry of Education and Sports of the Republic of Serbia and with the support of the Belgrade Office of UNICEF. The aim of this project was to determine possible strategies that could be implemented by the Serbian government in order to make the country's network of schools function more efficiently and prepare a principal arena for the conducting of a long-term process of comprehensive educational reform.

The optimization of the school network in Serbia was considered as one of the first steps in conducting a comprehensive reform of the education system in the country. The principal problem of the school network was the lack of efficiency from both the economic and pedagogic perspectives.

To overcome this issue, the project first needed to re-examine the existing network. The first step in this direction was to construct an information system dealing with the monitoring of the state of schools, economic needs, demographics, and trends. The second step was to offer an optimization strategy for the network of schools using the indicators collected by the educational information system and to then outline the strategies for the improvement of education quality and efficiency, in the part of the network of schools that deals with small rural schools. The third step was for the government to consult with regional-, municipal-, and local-level authorities and make concrete political and economic choices between these strategies; in particular, to re-examine the system from the perspective of economy, access to primary education for children from small village communities, quality of the learning environment, and so on.

Based on the information collected, the data were analyzed and utilized to define optimization strategies. The following are some of the project's results:

1. Creating a web-based education information system and the integration of that database into a geographical information system (GIS) environment
2. Developing a methodology for future data collection
3. Creating a list of relevant parameters for making decisions regarding the functioning of the network of schools
4. Other findings and discussions:
 - 4.1. Findings
 - 4.1.1. Poor state of schools, which arises out of the difficult economic situation
 - 4.1.2. Lack of pedagogic efficiency
 - 4.1.3. The necessity to find all possible resources to increase economic efficiency in order to prevent the school networks from collapsing
 - 4.2. Recommendations
 - 4.2.1. Setting updated standards that are relevant to the functioning of the network of schools
 - 4.2.2. Creating a special program for the training of the Ministry of Education staff, as well as the representatives of the municipal governments on how to gather and analyze data and use the information systems
 - 4.2.3. Conducting precise calculations of the cost of education in all parts of the network of schools, including rural and urban area schools
 - 4.2.4. Only considering the economic and financial rationalization of the school network optimization would have a negative impact in the long run, such as a new impulse for the migration of the rural population.
 - 4.2.5. Realizing economic and financial savings through the closing of a number of smaller schools and territorial linking of schools to enhance better use of space and resources, as well as accrue savings in transportation costs for the teachers and students

Source: Authors, 2020.

2. Deciding the provision and reflecting the market needs

- 2.1. Ensuring that the VET system corresponds to the current needs of the labor market
- 2.2. Ensuring that adequate academic skills, particularly literacy and numeracy, are strategically built into the programs
- 2.3. Offering post-secondary vocational education for graduates that allows them to obtain higher-level technical expertise and social skills, such as communication, management, and entrepreneurship

It is essential for the VET service delivery to provide programs, curriculums, and teacher qualifications that meet the current labor market needs. This section will look at how the mix of provision in VET programs is determined, such as how many pupils are trained in the different fields, and what mix of specific and general skills should be taught. Young students in education must make choices whether they will enroll in VET schools or not. It will depend on the constraints that the pupils have and on the needs of both the pupils and the employers. Employers expect the VET to provide them with the best employees with the necessary requirements. On the other hand, the policymakers for the VET must decide how to give students the programs they prefer, while also providing the programs that correspond to the employers' needs. Furthermore, the governments can only provide VET programs based on their capacity. Overall, there are three main factors that determine the mix of provision: 1) pupil preference, 2) employer needs, and 3) limitations of the existing capacity. It is also important to provide the VET pupils with the ability to adapt to the fast-changing economy and the consequent workplace requirements.

First, the preferences of the individual pupils need to hold the primary place of importance since they are the main drivers for deciding their course of study. Their present motivation and interests reflect what they will want to study in the future. They know more about what they most enjoy doing. Even if the labor market outcomes are weaker, they will be compensated by their sense of well-being. Sending pupils to courses that they are not interested in may lead to lower motivation of a pupil and result in misconceived career choices (Blue diamond in Figure 3.1).

Second, the provision of vocational education must reflect the employers' demand. Therefore, there needs to be a systematic assessment of the employers' needs, now and in the future. However, there are some risks in relying only on the employers' views and interests. This is because the employers' point of view is not always the same as either the pupils or the interests of society. For example, employers may want very narrow skills in occupational niches, or skills that are part of declining industries. Another example would be that skills' shortages, as perceived by employers, might be low-wage or unpleasant job areas that do not draw interest from potential workers from the VET schools. These employer demands need to be balanced by the interests of society at large, especially the long-term interests of the pupils (Red diamond in Figure 3.1). To this end, the study of market demand—similar to the activity undertaken in the first year of the CuRI initiative—needs to be conducted regularly, in order to provide feedback to the schools and the regional authorities.

Third, supply constraints influence the mix of the VET service delivery. It is difficult for schools to immediately respond to the rapidly changing demand, since schools cannot easily change their costly equipment, nor can teachers and trainers be changed or retrained in a short period of time. Even in the long run, cost considerations may constrain provision, because some types of equipment are just too expensive for the VET schools. To overcome these issues, it is important for the VET schools to have sufficient resources, such as financial incentives. For instance, the government may provide the VET school a competitive grant to improve the flexibility and responsiveness of the VET schools.

Understanding that the benefits of the VET are realized by both pupils and employers, an effective VET system needs to reflect both employer demand and pupils preferences (see Figure 3.1). The optimal balance depends on the following factors:

- *Who pays for the vocational education?* The low socioeconomic status (SES) and the background of the VET pupil may constrain the career preference that they will choose.
- *Pupil age:* In the case of secondary-level vocational education, it is difficult for the pupils to make long-term career decisions. Therefore, the pupils' preference for certain vocational programs should be balanced by attention to the labor market outcomes, particularly where provision is free of charge.
- *Breadth and orientation of the program:* Programs with a large component of general skills, often designed to prepare pupils for the next level of education as well as direct labor market entry, need not to be constrained by employer demands. By contrast, for programs that are designed for direct labor market entry, which contain occupation-specific content and that rarely lead to further studies, employability should be a major factor determining provision. In other words, how much weight is given to the needs of the labor market depends on the content of the program.
- *Predictability:* In some sectors, like education and health care, labor force requirements are more predictable than other sectors. In these areas, it might be better to match provision more closely to the expected requirements.

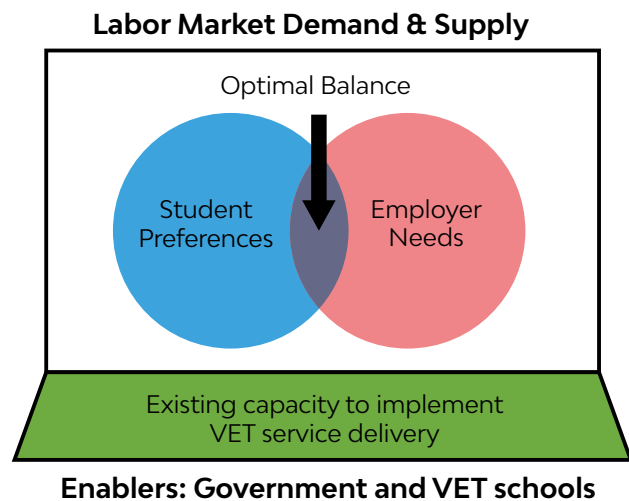
Some mechanisms exist for realizing the right balance between pupil preferences and employer needs, while limiting supply constraint. There are three main approaches: 1) provision can be regulated through the availability of workplace training⁶, 2) VET authorities can initiate an assessment of the skills needed, which then informs the VET provision strategy, 3) career guidance can be used to inform pupils about changing labor market requirements, aligning student preferences more closely with employer needs.

However, one general problem is that vocational programs often take several years to complete, so there is a time lag between the decision on VET service delivery and the entry of the VET graduates into the workforce. This makes it hard for the employers to predict the requirements their future recruits, while the pupils find it difficult to know which kind of jobs will be in demand in the future.

In addition, providing general skills, such as numeracy and literacy, is important, regardless of the type of VET program. Prior studies have shown that strong literacy and numeracy skills are associated with better performance that enhances the mobility of the pupils to obtain jobs in the labor market⁷. Even though basic literacy and numeracy skill issues are rooted in the basic education level, evidence shows that later interventions can still help tackle these issues⁸.

Furthermore, providing higher-level vocational qualifications for graduates from upper-secondary level education is another important dimension of meeting the needs. Higher-level vocational qualifications can offer management and entrepreneurial skills and deepen the technical competence. Obtaining higher-level skills throughout post-secondary VET could enhance the attractiveness of the upper-secondary VET track, and thus increase the employability of graduates in the future.

FIGURE 3.2 Optimal Balance of Student Preferences and Employer Needs



Source: Adapted by Authors, 2020

3. Delivering quality education

- 3.1. Providing high-quality apprenticeship approaches in the programs
- 3.2. Significant work-based learning is integrated into all vocational programs
- 3.3. Providing a teaching workforce that offers a balance of teaching and lifelong learning skills, as well as up-to-date industry knowledge and experience

Work-based learning, such as apprenticeship programs, are successful in developing skills and facilitating a smooth transition to the labor market. Work-based learning creates a learning environment for learning both 'hard' skills on modern equipment and 'soft' skills through working with people in a real-world context. It also has the potential to improve the transition from school to work by allowing employers and future employees to get to know each other. When employers offer workplace training, it provides an important signal to the pupils about the skills for which the employer is looking.

Not only do the VET school pupils benefit from work-based learning, so do their employers. Apprentices and trainees who undertake useful work generate a productive benefit for the employer, especially in long-term programs such as apprenticeships. The longer the working period, the more the experience and skills of the trainees increase. It also has the possibility of compensating the labor shortages, for the pupils both contribute during their apprenticeship and also become a future labor force for the company. However, to maximize the effectiveness of work-based learning, it needs to be actively supported in partnership with the industry/ companies backed by quality assurance. Work-based learning has such profound benefits both as a learning environment and as a means of fostering partnership with employees. It should be integrated into all vocational programs and form a condition of public funding. In addition, it should be systematic, quality assured, assessed, and credit-bearing. Implementing formal arrangements, such as apprenticeships and internships, requires careful attention to quality standards and the provision of sufficient incentives for the employers to offer training places to the VET school pupils.

It is critical to have a high quality of teaching and training in vocational programs. It is necessary to introduce measures that will encourage the recruitment of teachers and trainers, while ensuring that they have the relevant and up-to-date skills which the industry needs. However, there are concerns whether the recruited teachers will be able to keep up with the rapidly changing economic environment. To solve these concerns, measures should be adopted that would facilitate the recruitment of practitioners from companies into vocational teaching, and even encourage part-time working with trainers who need to spend time working at their original place of employment. In addition, strengthening the link between the VET schools and industry is another useful measure for improving the quality of VET. The interchange and partnership between the VET institutions and industry should be emphasized. This would allow the vocational teachers and trainers to spend time in industry to update their knowledge. It can also provide opportunities for trainers to enhance their pedagogical skills, and thus provide up-to-date curriculum and programs to the students too. (See Section 4.3 for specific country experiences).

4. Utilizing the learning outcomes

- 4.1. Developing qualifications in collaboration with labor market stakeholders
- 4.2. Qualifications reflecting the labor market need in the offerings of flexible VET programs
- 4.3. Qualification frameworks that keep qualification numbers manageable
- 4.4. High-quality assessments of vocational skills are built into the qualifications

The effectiveness of the VET systems depends on how well they are linked with the labor market. There are two types of supporting arrangements to achieve this goal. First, it is necessary to develop tools that will engage the stakeholders with the VET, so that employers can explain the skills that they need and negotiate the provision of these skills with other stakeholders, to ensure that the content of the VET programs are relevant to labor market needs. The involvement of the employers is crucial if the VET systems are to meet labor market needs. Employers are able to see if the content of curricula and qualifications meet current labor market needs, and they can become a guide for emerging requirements. However, there are limitations to the employers' role in articulating the skills needs of the labor market. There is a possibility that the employers do not have that much interest in equipping young people with more transferable skills, as such skills could increase wages and job turnover. Therefore, the employers' voice needs to be balanced by the interests of both pupils and the wider society. Trade unions have the potential to represent the voice of employers and balance their opinions. Therefore, the government needs to overview the interests of multiple stakeholders. Introducing the qualification framework can also help the process of optimization. It has the potential to facilitate pathways of progression within the VET system by clarifying how the qualifications at different levels relate to each other. It can also create a forum for cooperation between the different stakeholders involved in the VET system. This framework should be developed together with the labor market actors to meet the needs of industry.

Second, it is important to provide qualifications that are flexible and can be applied to the national and local level. Consistent qualifications that are set at the national level can support labor market mobility, but a locally negotiated proportion of the curriculum allows the provision to respond more easily to the needs of the local employers. This is an important perspective for the PSK government, since local governments would need to consider the regional voice and provide labor market-oriented programs for the VET school pupils.

Third, involving employers and trade unions in the active management of the optimal numbers of qualifications is another important perspective. The lack of expertise among staff about quality assurance, standard setting, and assessment can lead to an excessive focus on bureaucratic procedures rather than the quality of learning. Regardless of the existence of a national qualification framework, proliferation of qualifications remains a risk. Although the qualifications should cover a wide range of labor market needs, the number of qualifications should be limited, since the value of each of them would be reduced if there are too many. Therefore, consultation with employers over the elaboration and updating of qualifications is crucial to ensure that the qualifications are recognized in the labor market.

Finally, information tools are required to understand how well the VET programs are performing. These tools include qualification frameworks, systems of assessment, and data research. Assessments are necessary for revealing the quality of both the learners and teachers. They can be an additional source of information on the quality of the VET and can ensure that the pupils are achieving the required skills through the classes, apprenticeship, and other vocational programs. Furthermore, data are valuable, since labor market outcomes are a fundamental measure of understanding which VET programs are meeting the labor market needs. They can help VET schools adjust their provision to labor market needs based on the results.

5. Supporting conditions for an effective VET system in the PSK

- 5.1. Vocational programs that are developed in partnership with the government, employers, and communities
- 5.2. Effective, accessible, independent, and proactive career guidance backed by a solid career and tracking information system to acquire data on vocational programs offerings, enrolments, graduation, and employment
- 5.3. Consistent funding arrangements so that choices are not distorted because of unavailability of funds

As explained in Figure 3.1, the government needs to become the enabler for the whole process of VET optimization. One of their main roles is to become the convening power coordinating the provision, engaging all stakeholders, and addressing issues of coherence and coordination.

Career guidance is an important tool in guiding the decision of young pupils in the situation of growing opportunities after graduation from upper-secondary level VET. The typical issue for upper-secondary level VET is the fact of fragmented and under-resourced career guidance. Career guidance serves the following roles for pupils in VET: 1) introduces them to the full range of available opportunities; 2) covers career pathways within the sector rather than being restricted to entry-level jobs; and 3) covers the needs of pupils who are interested in changing their career direction. There should also be a special focus on students who come from disadvantaged environments and may need extra mentoring and guidance. To maximize the effectiveness of career guidance, the relevant labor market information needs to be available and the data of the employment of graduates from the VET schools should be tracked. Career guidance helps to decrease dropout rates, since it can reduce the possibility of making wrong career choices, and even act to motivate the students through counseling.

Supporting the funding for some pupils may be necessary, depending on their socioeconomic backgrounds. Therefore, the government and other stakeholders should take a proactive role in supporting vulnerable pupils by reducing their financial burden and thus allowing them to go to the VET schools.

6. Access to vocational education (equity)

The opportunity to realize the pupil's potential through vocational education should be as independent as possible from the individual's social background and family wealth. This is especially so, in the context of the PSK, where Roma pupils make up the majority of the youth population in the region. Another important dimension to optimizing the VET system is to deal with the non-enrollment issues of the upper-secondary pupils, and minimize the dropout rate after they enter VET schools. It is necessary to closely monitor the system through measures such as career counseling, data management, and so on. Gender equity is another perspective in terms of providing vocational education for all. By allowing women to enroll in VET schools, vocational education can help build their skills and enhance their labor force participation. In addition, it is important to consider the regional disparities between the rural and urban areas, because rural areas have less job opportunities than urban areas. It is necessary to ensure that common funding principles underpin the level of subsidy granted to VET in order to enhance equity in the VET system. Financial constraints may lead to a higher dropout rate for pupils from vulnerable communities; therefore, the government needs to provide support for these pupils.

7. Maximizing efficiency from the economic point of view

To maximize the efficiency of the VET system, it is important to analyze the system from the economic perspective. Undertaking a cost-benefit analysis is one way to pursue this objective. To maximize economic efficiency, it will be necessary to both cut and save through direct financial savings (closing of certain VET schools, selling of school buildings, and finding more efficient economic solutions for solving the issues of children from rural areas), as well as through enhancing

the effects of education (increased educational outcomes, increased relevancy of the acquired skills, and increased contribution by VET schools to the region's economy). However, even if a certain VET school has a high per student cost to maintain the program, it is not always appropriate to close the school. Although closing the school may be effective in the short term, it may also have negative effects in the medium and long term, since labor market demands could change in the future. Caution is required when making policy decisions regarding these matters.

8. Considering the external factors (for example, demographic change)

When optimizing the provision of the VET system, it is important to also consider the external factors. In the above sections, we have discussed the internal factors that influence the VET system. However, external factors, such as demographic change, also have a major effect on school network optimization. For instance, if a region has a shrinking youth population, it will be necessary to consider such measures as closing VET schools and merging schools that are close to each other within a given area. Demographic change can also create competition between general and vocational education, thereby affecting the popularity of the VET programs. In the context of the PSK, according to current data and forecasts, the region has an increasing large population of Roma youth as pupils. In this situation, the VET school network would need to apply measures that would enable the Roma pupils to efficiently enroll in the VET schools that provide a good quality of education.

Choosing Between Options

In the previous sections, we have reviewed the typical eight strategies for optimization in the VET system. The next step is to develop an optimization strategy in the context of the PSK. There are two main questions to be addressed:

- What are the relevant practices for the PSK?
- What issues might be faced in the implementation of such efforts in the PSK?

Effective strategies and successful cases from other countries cannot necessarily be applied to the PSK. Some strategies may fit in the context of the PSK, and others may generate negative influences. Therefore, it is important to first understand which practices can be successfully applied to the PSK, and then further modify these strategies to maximize their effectiveness in the region. Nonetheless, when implementing those measures new issues may arise, which must then be addressed and overcome by new strategies. The next section will provide specific information about how to make policy decisions regarding school network optimization in the VET system.

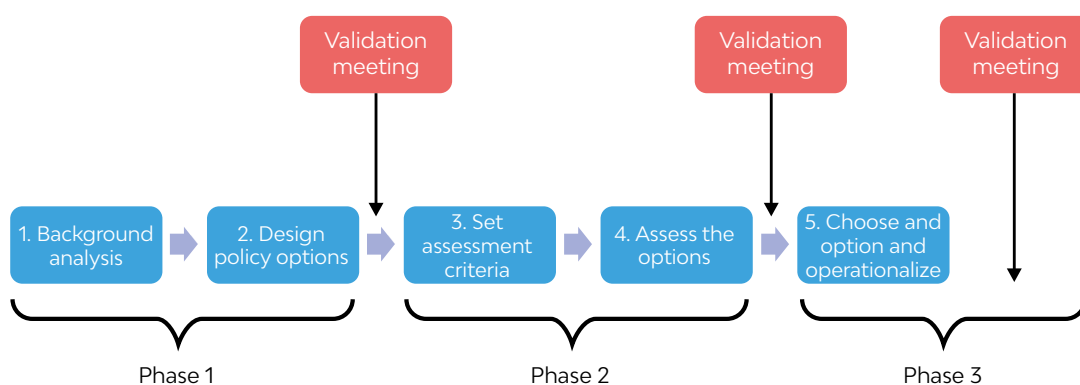
Approach to the optimization process

Optimization needs to follow a structured process. In general, it starts with a background analysis to understand the current situation. Once the analysis is shared and discussed, the next step is to identify the issues. Then different policy responses and options/solutions need to be investigated and identified in consultation with all the stakeholders. These options will then be strategically assessed based on optimization analysis and well-thought out assessment and analysis criteria. Finally, an educated and evidence-based policy direction will be selected in alignment with regional and national government regulations, and in close consultation with the VET schools and the employers. At the end of the process, the region will strategize how to operationalize the selected solution for proper implementation.

This section will introduce the Projecting Reform Impact in VET (PRIME) methodology which could help identify options for policy action that can maximize the opportunities presented by the legislation, while minimizing the inevitable trade-offs. The first aim for PRIME is to assist authorities and stakeholders in finding the optimal course of action to achieve a strategic goal. The

second aim is to increase the capacity for informed reflection and coordinated decision-making for all participants in the process. The strategies for VET school network optimization should be carried out with both vertical (central and regional education authorities) and horizontal (VET school heads, employers) collaboration. This collaboration is necessary to prevent the design of fragmented solutions that serve one stakeholder group at the expense of another. There are three main steps in the PRIME methodology to achieve specific strategies for school network optimization in the VET (see Figure 3.3).

FIGURE 3.3 An Overview of the Optimization Process



Source: Authors, 2020

Phase 1 (Background and Design)

Phase 1 of the PRIME methodology commences with a detailed background analysis of the school network. The analysis culminates in the identification of issues to be addressed through policy action or, where the issues are known, in their confirmation and the design of options for action. In the case of the PSK, more information needs to be developed from section 2.1 in this document, and further studies need to be conducted to identify and categorize the problems. The design of the options for action is called scenario building in PRIME methodology. Scenario building is used to highlight key elements of a possible optimization strategy for the VET institutions and to draw the attention of all stakeholders to the main factors that will be the driver for future development. Scenario building entails two steps: 1) defining the categories of issues that must be taken into consideration, and 2) building a scenario that responds to the issues that have been defined. The policy actions developed in the scenario building process will be assessed in Phase 2.

Phase 2 (Assessment)

The options for policy action are assessed for impact. The process includes the definition of the assessment criteria, and the assessment itself. The assessment is conducted to develop a proper understanding of the context of the stakeholders and institutions concerned with the problems and with the necessary actions to achieve their solution. Phase 2 produces impact results for each policy option. The assessment criteria focus on aspects, such as the effectiveness of policy actions in achieving the strategic goal, possible side-effects, and the anticipated monetary and other costs related to the implementation.

There are two main questions for the assessment of the anticipated impact of the proposed scenario building: 1) **Are the actions purposeful?** and 2) **Are the actions feasible?**

Regarding question 1, 'effectiveness' is the keyword. Of course, the scenario building process in Phase 1 considers the effectiveness of the action. However, there may be issues regarding the planned scenario that the VET providers at the local level have different opinions about, and therefore, good communication between all those involved in the VET service delivery is necessary. This links to the issue of the feasibility of the planned scenario since support from all the stakeholders is required

to implement the actions. The following components provide an example of impact assessment criteria based on the two questions:

1. **Effectiveness:** Considering if the proposed policy can achieve the goals
2. **Political acceptance:** Mutual understanding between the regional and district authorities within the PSK
3. **Social Acceptance:** Understanding if the actions can be accepted by the society. For instance, considering the Roma population is an important perspective from the dimension of social equity.

Phase 3 (Operationalization)

Phase 3 (operationalization) of the optimization process emphasizes the operational analysis of one option for action with a view to prepare a roadmap for implementation. Its main role is to add the dimension of considering the cost and financial management impact to the above three criteria (effectiveness, political acceptance, and social acceptance) proposed in Phase 2. The roadmap might include multiple operational dimensions, such as the timeline, distribution of implementation, responsibilities, and the sequencing of implementation steps.

Validation Event

The end of each phase will be marked by a validation event, which closes the preceding phase and opens the next one. For instance, the validation event for Phase 1 confirms the background analysis and the options to be assessed, and then opens the discussion about the assessment criteria. The validation event at the end of Phase 2 confirms the assessment of options and the selection of one of them, and then launches the work on operationalizing the chosen option. The final meeting of the school network optimization process summarizes the results and facilitates a discussion on the follow up of the whole process.

The consultative approach is emphasized throughout the whole process, which means to engage with the contextual knowledge and professional expertise of the PRIME participants. PRIME participants include a wide variety of stakeholders, such as administrators, teachers and trainers, students, parents, and researchers. Enhancing the participation of heterogeneous groups of VET professions and beneficiaries will become a valuable source of potential solutions. However, this expertise is likely to be fragmented. The validation meetings are therefore a valuable opportunity for each stakeholder to provide their opinion during the process. The application of consultative analysis to assess the impact of actions according to predefined criteria is called **consultative multi-criteria analysis (CMCA)** and is the core of the PRIME methodology. The benefit of introducing CMCA in the PRIME methodology is that it builds the capacity of the participating stakeholders for holistic *ex-ante* impact assessments, and, in the long term, contributes to more efficient and effective public policymaking.

Methodologies of data utilization for VET school network optimization

An important aspect of planning strategies for VET school network optimization is to understand how, and what kind of, data can be utilized for implementing the strategy. The types of data can be categorized into three main components: 1) balancing the VET school network in relation to education and demographic/geographical indicators; 2) economic data for balancing supply and demand in the labor market; and 3) social/cultural characteristics. The next section will provide in-depth information for each component and provide case studies from other countries for each topic.

1. Balancing the VET school network in relation to education and demographic/geographical indicators

Education indicators that are related to VET school network optimization include data such as basic information about VET schools, pupil enrollment, information on the provision of programs, information regarding teachers and other staff, information on the VET school space and the efficiency and output/outcome of VET school service. These are important indicators that will become the foundation for understanding the efficiency of VET schools and providing ideas for the implementation of VET school network reforms.

Education indicators are closely related to the geographic and demographic parameters of the school network. One important objective in optimizing the school network is to reduce the financial costs. For instance, schools that have fewer students result in higher costs per pupil, and thus measures such as consolidating or closing schools may be necessary. In other words, to make decisions about merging or closing schools, it is necessary to understand the demographic data on how many pupils are currently enrolled (or potential pupils that may enroll in the future) and the geographic data on the location of VET schools. For example, Austria had issues of a high density of VET schools, with VET schools that were, on average, very small. This problem particularly appeared in primary education, especially in rural and mountainous areas. On average, a primary school in Austria had 107 pupils, but this ranges from 58 students in pupils to 248 pupils in Vienna⁹. Challenges emerged, such as higher costs for smaller schools to maintain and invest in the infrastructure, because of the inefficiency in the school network system. In the end, the government decided to consolidate the schools.

It is also necessary to look at geographical indicators, such as the location of all schools and the distances between them, the density of education facilities, and the state of the road infrastructure and its categorization. Regarding the location of schools, consideration must be given to whether the children are going to school on foot, or by personal means of transport, or by using the existing passenger services. Therefore, **education indicators and the demographic and geographic data should be considered in tandem to implement an effective school network reform.**

To visualize spatial and nonspatial data, the geographical information system (GIS) is a useful tool to develop a VET school network optimization plan. The benefit of using the GIS is that it helps to make the presentation of data more attractive than traditional static maps, which enhances public utility and appeal. When conducting school network reforms, one is accountable to community members. The GIS can provide support for obtaining the community's consent. In addition, projecting tabular data onto maps helps in recognizing unanticipated situations which, when noticed, call for closer examination. The GIS has the dynamic ability to facilitate 'what if' analysis, exploratory inquiry, and the creation of planning and management scenarios¹⁰. Overall, the GIS provides for a more accurate grasp of the situation as it really is.

2. Economic data for balancing supply and demand in the labor market

The overarching perspective, such as economic data within the region, is another crucial dimension for optimizing the VET school network. Indicators on basic economic information include the level of economic development of an area, given as the average per capita GDP of that district/municipality, the number of employed, level of unemployment, and the level of budgetary spending that goes for education.

Data on supply and demand in the labor market is essential for implementing VET school network optimization. Greater challenges emerge for vocational education than general education, because the former is looking to train pupils in skills that can be put to use in the labor market immediately, while at the same time, providing skills that can be used for many years after finishing vocational education and training. Therefore, **the school network of vocational education and training needs to adapt quickly to the change of economic structure and prepare graduates that meet the labor market demands.**

Regarding the demand side of the labor market, information on economic change in the country/region should be taken into consideration. For instance, the emergence of new industries indicates a different demand of employees that specialize in that field. VET institutions should offer optimal programs that will provide the pupils with the relevant skills.

3. Social/cultural characteristics

VET school network optimization should be analyzed in the light of the outlook for reducing regional disparities in the matter of schooling or disparities between social categories. The social perspectives of reducing disparities between regions and ethnic backgrounds need to occur in tandem with the analysis of education and demographic/geographic indicators and economic data. For instance, closing schools that have a smaller size is not necessarily a solution for school network optimization, since the school may be in an area that serves the minorities in the population. In the previous section, “1. Balancing the VET school network in relation to education and demographic/geographical indicators”, we have introduced demographic indicators, such as how many pupils enroll at school and the population density within the area. When considering the social and cultural characteristics, these indicators should also **focus on the enrollment of minorities or vulnerable populations, while at the same time, shedding light on the population density of minorities within the whole region.**

Political issues in implementing VET school network optimization

However, there are some difficulties in implementing school network optimization because of social restrictions and political conflicts. To overcome these issues, clear national documentation with data, models, and analytics are essential to support VET school network reform. These are key resources in negotiating politically difficult times in different areas, and in defending the needs of the district- and municipal-level school network reform plans. In the case of Lithuania, reliable and sufficient data were critical to inform public consultation and communicate the key principles of the school network reform¹¹. It is also important to bring the community, teachers, parents, local politicians, and employers on board in such a conversation. It is necessary to have a common vision of quality education to persuade others of the need for change, instead of a narrow focus on cost savings. School consolidation must go hand-in-hand with visible improvements, by providing explicit data regarding the quality of the students' school, in order to make consolidation attractive to the students and employers.

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NOTES

- 1 The strategy brief is an internal document that was developed by the education unit highlighting their vision for the VET secondary schools. A section was focused on their intent to establish a quality management system.
- 2 European Commission/EACEA/Eurydice. (2015). *Assuring Quality in Education: Policies and Approaches to School Evaluation in Europe. Eurydice Report*. Luxembourg: Publications Office of the European Union.
- 3 ETF, 2012.
- 4 EQAVET, 2017.
- 5 Specific information about how to develop a quality assurance system within VET education systems are written in the *Quality Assurance Framework for VET in PSK*.
- 6 In systems where the offer of apprentice programs is tied to the availability of workplace training places, employers can influence the number and mix of places in the VET through their willingness to offer such workplace training. Students would have a choice between a range of programs, but it would be limited to those programs in which workplace training is available.
- 7 Kézdi, 2006.
- 8 Basic Skills Agency, 1997.
- 9 Nusche et al., 2016.
- 10 UNESCO IIEP, 2011.
- 11 Shewbridge et al., 2016.

