

SKILLS FOR EMPLOYMENT

POLICY BRIEF

Quality Apprenticeships: Addressing skills mismatch and youth unemployment

Governments, trade unions, employers' associations and international organizations are calling for the improvement of apprenticeship systems at the global, regional and national levels. Quality apprenticeships are cost-effective, and has the potential to lower youth unemployment rates, enhance the competitiveness of enterprises and prepare skilled workers for rapidly-changing world of work. However, many countries face challenges in scaling up and sustaining quality apprenticeships programmes and increasingly seek advice from the ILO. This policy brief presents an overview of quality apprenticeships promoted by the ILO through outlining their key characteristics, benefits and challenges, as well as examining the building blocks and policy pointers for developing a successful quality apprenticeship system.

What are quality apprenticeships?

Quality apprenticeships are a unique form of technical vocational education and training (TVET), combining on-the-job training and off-the-job learning, which enables learners from all walks of life to acquire the knowledge, skills and know-how required to carry out a specific occupation. They are regulated and financed by laws, collective agreements and policy decisions arising from social dialogue, and require a written contract that details the respective roles and responsibilities of the apprentice and the employer. They also provide the apprentice with remuneration and standard social protection coverage. Following a clearly defined and structured period of training and the successful completion of a formal assessment, apprentices obtain a recognized qualification.

Countries that are strengthening apprenticeships include the USA, the UK, France, India, Bangladesh, Tanzania, Uganda, Malawi, Zambia, Ireland, Australia, Cambodia, Burkina Faso, Jamaica, Brazil, Colombia, Costa Rica, Peru, Mexico, Chile, Bahamas, Trinidad and Tobago, China, Pakistan, Italy, Denmark, Norway, Kenya, New Zealand and the Republic of Korea. At the regional level, the Council of the European Union (EU) adopted a recommendation on a framework for quality and effective apprenticeships on 15 March 2018.

Apprenticeship programmes are organized in many different ways across countries and as such there is no single, standardized definition of apprenticeships. There is also often confusion surrounding the various terms associated with work-based learning. Consequently, when defining the term “apprenticeship”, it is also helpful to clarify the distinction between apprenticeships and other forms of work-based learning, such as informal apprenticeships, traineeships and internships.

Informal apprenticeships are found in the informal economy and allow an experienced craftsman to transmit appropriate skills to a young person, usually covering all skills of a particular trade. Informal apprenticeships do not follow a curriculum, do not lead to qualifications and are regulated by social norms and traditions rather than laws and regulations.

Internships and traineeships provide young people, who have finished their studies or are still studying, with an opportunity to learn in a workplace – usually covering specific aspects of a job or an occupation, but not all skills needed for it – while working in a particular sector of the economy or in a specific occupation. Typically these programmes do not follow a curriculum or lead to qualifications based on an assessment of skills. The differences between the two depend significantly on how the stakeholders in a particular country define them.



Table 1. Typical differences between apprenticeships and other forms of work-based learning

	APPRENTICESHIP	INFORMAL APPRENTICESHIP	INTERNSHIP	TRAINEESHIP
Tripartite governance	Yes	No	No	Maybe
Remuneration	Yes	Maybe	Maybe	Maybe
Written contract	Yes	No	Maybe	Maybe
Social security coverage	Yes	No	No	Maybe
Legal framework	Yes	No	No	Maybe
Programme of learning	Yes	No	No	Maybe
On-the-job training	Yes	Yes	Yes	Yes
Off-the-job training	Yes	No	No	Maybe
Formal assessment	Yes	No	No	Maybe
Recognized qualification	Yes	No	No	Maybe
Duration	1-4 years	Variable	Usually up to 12 months	Usually up to 12 months

As seen in Table 1, apprenticeships are clearly distinct from other forms of work-based learning and provide specific advantages, particularly in terms of working conditions, the quality of learning opportunities and qualification. In short, apprenticeships are a form of work-based learning, but not all forms of work-based learning are apprenticeships.

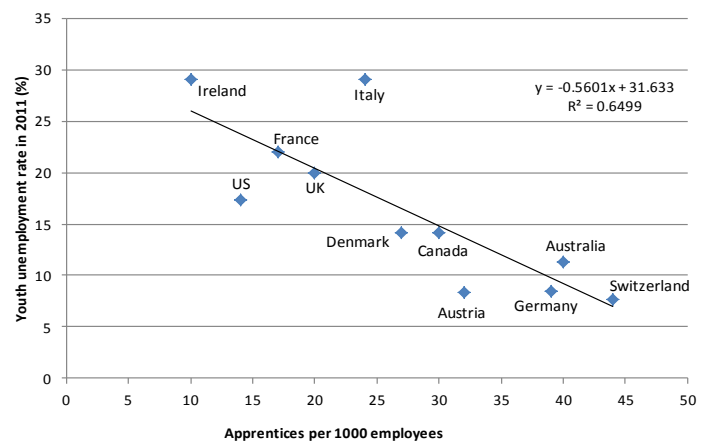
Why are quality apprenticeships an attractive policy option?

Increasingly, countries around the world, at all levels of development, are putting apprenticeships high on their policy agendas, recognizing their potential for reducing skills mismatch, meeting skills demand in rapidly-changing labour markets, providing cost-effective training, promoting private sector development and smoothing transitions to the world of work. Quality apprenticeship systems have significant advantage to address youth employment concerns, leading to calls for countries to seriously consider “improving the range and types of apprenticeships” (ILO, 2012b), take initiative “...to increase quality, quantity and diversity of apprenticeships” (G20, 2016) and “endorse action on urgent approaches to increasing apprenticeship numbers” (ITUC, 2013).

The global financial crisis of 2008 and persistently high youth unemployment rates – which remain nearly three times the adult rate on a global scale – have put the spotlight on youth. Amid the financial crisis, countries with a strong tradition of apprenticeships recorded lower youth unemployment rates, as well as a lower ratio of youth employment to overall employment rate.

As Figure 1 shows, the prevalence of apprenticeships shows a significant negative correlation with youth unemployment. In other words, countries with higher shares of formal apprentices recorded lower youth unemployment rates. The recent surge of interest in apprenticeships emerged from this context.

Figure 1. Prevalence of apprenticeships and youth unemployment



Source: ILO, 2012a and ILO KILM 8th edition, 2013. ILO calculations.

The benefits of apprenticeships are multi-fold and accrue to all stakeholders. Key benefits are discussed below:

1. Facilitate school-to-work transition

Securing a first job can present real challenges for young people. Employers are reluctant to hire young people with no proven track record. It is difficult for employers to fully assess the technical and soft skills of young jobseekers during the recruitment process. As a result, they hesitate to hire fresh graduates or rely on the reputation of education and training institutes when making hiring decisions. Apprenticeship programmes allow employers to train the workers in line with needs for their enterprises and select the best candidates at the end, while apprentices have the opportunity to demonstrate their productivity potential to employers, as well as make well-informed choices about their career and training pathways.

2. Promote coordination between education and industry and reduce skills mismatch

Quality apprenticeship programmes provide a systematic means of forging collaboration between TVET institutes and the labour market. They allow enterprises to influence the design and delivery of curricula and training modules prepared by TVET institutes, and at the same time, enable trainers from TVET institutes to better understand what knowledge, skills and competencies are required in the workplace. This mutually beneficial collaboration helps improve the quality and effectiveness of training and reduces the potential for skills mismatches.

3. Apprenticeships increase productivity and innovation

Enterprises invest in quality apprenticeships because it makes good business sense. Quality apprenticeship programmes provide a stable and reliable pipeline of qualified workers, increase productivity, lower the cost of recruitment and enhance employee retention. Apprenticeships also have a positive impact on an enterprise's ability to innovate. Well-trained workers are more likely to understand the complexities of an enterprise's processes and are therefore more likely to identify and implement technological improvements (ILO, 2017). Apprenticeships also improve staff retention and loyalty. Over time, the benefits that accrue to businesses on the basis of a skilled workforce far outweigh the initial investment in new apprentices.

4. Cost-effective delivery of vocational training

School-based vocational training is relatively very expensive as TVET institutes need to be equipped with the latest facilities, equipment and tools. This is not a one-time investment as labour market demand can change rapidly. By contrast, enterprises have the latest facilities, which can be utilized to train apprentices. If public authorities – or any other organization – are able to broker a partnership between the world of education and the world of work, TVET institutions and enterprises can tap into each other's resources (e.g. equipment and facilities, accumulated know-how and experience) to offer cost-effective vocational training.

Box 1. Did you know?

- In the UK, economic return on public investment in apprenticeships is considerable. The present net value of one pound of government investment in apprenticeships is estimated to be between GBP £16 and £21.¹
- A study by the Centre for Economics and Business Research in the UK estimated that workers who have completed apprenticeships increase productivity by GBP £214 per week on average.²
- A study of Indian SMEs revealed that the benefits of offering apprenticeship training surpass the costs if apprentices are retained.³
- In the USA, return on investment for apprenticeships is USD \$27.7 for every dollar invested by government.⁴
- In the Netherlands, wages for entry-level jobs for apprentice graduates are 30% higher than those for graduates from school-based TVET.⁵
- In Canada, the average benefit of apprenticeships to employers was 1.38 times the average cost.⁶

Sources:

¹ National Audit Office. 2012. *Adult apprenticeships: Estimating economic benefits from apprenticeships*, technical paper (London, NAO Communications)

² Centre for Economics and Business Research. 2013. *Productivity Matters: The impact of Quality Apprenticeships on the UK economy* (London, Cebr)

³ ILO. 2014. *Using benefit cost calculations to assess returns from apprenticeship investment in India: Selected SME case studies* (Geneva)

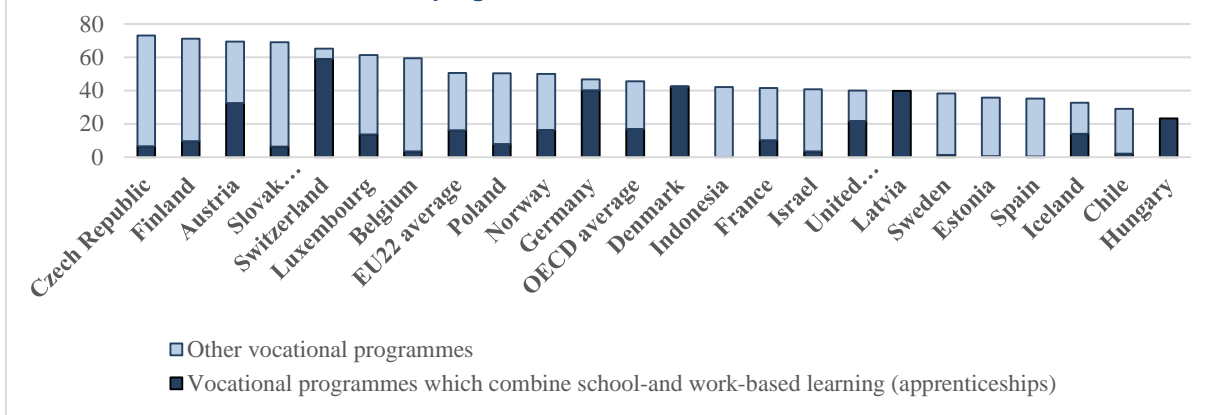
⁴ Reed, D.; Yung-Hsu Liu, A.; Kleinmann, R.; Mastro, A.; Reed, D.; Sattar, S.; Ziegler, J. 2012. *An effectiveness assessment and cost-benefit analysis of registered apprenticeship in 10 States*, in Mathematica Policy Research (Oakland, CA)

⁵ Government of the Netherlands. 2014. *Key figures 2009-2013* Ministry of Education, Culture and Science (The Hague), pp. 76

⁶ Canadian Apprenticeship Forum. 2006. *Apprenticeship – Building a skilled workforce for a strong bottom line*.



Figure 2: Proportion of students enrolled in upper secondary apprenticeships and other VET programmes



Source: Adapted from OECD. 2017. *Education at a Glance 2017: OECD Indicators*. (OECD Publishing, Paris).

Responsive to fast changes in the labour market and the future of work

Fast-paced technological progress is leading to accelerated changes in skills demand, and traditional school-based vocational education and training systems lack the flexibility and responsiveness to match it. Often, by the time TVET institutes assess skills demand, update curricula, upgrade facilities and upskill teachers and trainers, the demand will have evolved further, making the adaptations obsolete again. Whereas in the case of apprenticeships, enterprises have the latest facilities, qualified trainers and the best knowledge about the current and future skills demand. Thus, apprenticeships can provide training utilizing the latest technology and require substantially less time to adjust training programmes to changing needs.

Challenges and myths about apprenticeships

Despite wide recognition of the benefits of apprenticeships, few countries have a well-established apprenticeship systems. Figure 2 shows the proportion of students enrolled in upper secondary vocational programmes, including those who combine school- and work-based learning (usually referred to as apprenticeships). There are large differences between countries in the proportion of apprenticeships compared to the total number of students enrolled in upper secondary education. It is only in a few countries where the majority of students undertake apprenticeships. Many factors can influence the success of apprenticeships: the size of the informal economy, the number of small and medium-sized enterprises (SMEs), the involvement of social partners, the capacity of enterprises to offer quality training, the image of and alternatives to apprenticeships, and integration with general and higher education. A key limitation of the chart is the lack of comparable data across countries, as in some countries, apprenticeships also take place at the post-secondary level.

Countries can overcome the challenges by using customized, innovative approach suitable to their context, rather than borrowing models from other countries. Some myths about apprenticeships are mentioned in box 2.

Box 2. Myths about apprenticeships

Myth 1: Apprenticeships are only for advanced economies

Germany, Switzerland, Australia, Austria, Denmark and some other European countries are known for well-established apprenticeship traditions. This might create an impression that only advanced economies can implement apprenticeship schemes. However, some developing countries (e.g. India, South Africa, Tanzania, Bangladesh, and Dominican Republic) also have good examples of apprenticeship programmes, but they are not well publicized.

Myth 2: Quality apprenticeships cannot operate in the informal economy

Informal apprenticeships serve as an important training mechanism in the informal economy. Based mostly on an oral training agreement, a young person acquires the skills of a trade or craft from an experienced craftsman while working in a micro or small enterprise. Such arrangements have many shortcomings but remain a valuable source of training. The ILO has produced a resource guide for upgrading informal apprenticeships systems (ILO, 2011).

Myth 3: Apprenticeships are only for men

Many people associate apprenticeships with traditionally male-dominated trades (e.g. welding, vehicle repair, carpentry and plumbing). In reality, apprenticeships are offered in many countries in a wide range of fields, such as information technology, agriculture, manufacturing, finance, business administration, law, media and healthcare. Statistics show that about half of apprentices in the UK are female. The share of female apprentices is over 40% in Germany, Switzerland, Denmark, Italy and Jamaica (ILO, 2017). The ILO Toolkit for Quality Apprenticeships recommends strategies to promote women's participation in apprenticeships (ILO, 2017).

Myth 4: Only large companies can offer formal apprenticeships

Large companies commonly have a higher capacity (e.g. more staff who can mentor apprentices, bigger budgets for training, more modern equipment) to offer apprenticeship positions. Therefore, it is important to enhance the capacity of by creating a favourable policy environment. See building block #6 below and the ILO Toolkit (ILO, 2017) for strategies to support SMEs to offer apprenticeship positions.

What are the building blocks and policy pointers of a quality apprenticeship system?

The ILO approach to successful quality apprenticeship systems is based on the following six key building blocks:

Building Block 1: Meaningful social dialogue

- Social dialogue is the engine of any apprenticeship systems, as the collaboration between stakeholders is an essential factor for success. “When you look at apprenticeship systems around the world, the most important success factor is practically always social dialogue. Apprenticeships work because they link classroom and workplace training and because they tap the knowledge of both employers and workers on what training is needed and how to deliver it.” (ILO Director-General Guy Ryder)
- Having an appropriate institutional framework at the national, the sectoral and local levels, which promotes social dialogue in apprenticeship training is crucial, as it allows employers and trade unions to formulate, implement and monitor apprenticeship training policies and programmes. It is also important to have an overall coordinating and decision-making body.
- Social partners should have the adequate technical capacity to participate in social dialogue on apprenticeship training.

The Board of the Federal Institute for Vocational Education and Training (BIBB) is the German government's statutory advisory body in fundamental matters regarding vocational education and training. Representatives of employers, trade unions, Germany's federal states and the federal government work together on the Board and on the development of vocational training regulations, with each group having an equal share of votes. They make decisions that determine apprenticeship policy.

Source: <http://www.bibb.de/en>

Building Block 2: Robust regulatory framework

Quality apprenticeships require a robust regulatory framework that establishes the overall conditions for the design, implementation, monitoring and evaluation of quality apprenticeship systems, as well as decent working conditions at the workplace. The main functions of a regulatory framework are to:

- Clearly define apprenticeships;
- Specify the status of “apprentice” (employee or trainee), as well as the terms and conditions for apprentices, including working conditions, remuneration, social protection and grievance mechanisms;

- Set out the institutional mechanisms for governing and managing apprenticeships and the role played by social dialogue;
- Clarify the rights, roles and responsibilities of all relevant stakeholders including the nature of agreements between the employer, apprentice and other institutions;
- Specify the trades and qualifications covered under apprenticeships;
- Clearly state the duration of the apprenticeship, the proportion of on-the-job and off-the-job training involved, the use of any other type of learning places and methods (e.g. simulations, labs or workshops in a training centre), the role of intermediary organizations, the processes for assessment and certification of learning, and the qualification or license to be issued at the end of the apprenticeship;
- Outline mechanisms for ensuring the quality and relevance of apprenticeship training including eligibility requirements for training institutes and enterprises;
- Inform sustainable and equitable funding arrangements for apprenticeships including cost sharing between the government, employers and apprentices;
- Recommend measures for promoting social inclusion and gender equality; and
- Specify monitoring and evaluation arrangements for apprenticeships.

Regulatory frameworks for quality apprenticeships can be seen to operate at three different levels. The first level primarily involves laws enacted at the national or state/regional level and enforced throughout the jurisdiction concerned, by means of acts, decrees and regulations (see examples of types of legislation in box 3).

Box 3. Types of legislation for apprenticeships

Specific law on apprenticeships

- Apprenticeship Act, Algeria, 1981
- Apprentices Act, India, 1961 (last amended in 2014)
- National Apprenticeship Act, United State, 1937
- Industrial Training and Apprenticeship Act, New Zealand, 1992 (last amended in 2014)

Apprenticeships within a law with a broader scope

- Vocational Training Act, Germany, 2005
- Vocational and Professional Education and Training Ordinance, Switzerland, 2003
- Vocational Training Act, Tunisia, 2008



The second level mainly consists of decisions that have been made by sectoral bodies and agreements achieved through collective bargaining. The third level is made up mostly of the contractual arrangements agreed between the employer and the apprentice (and/or their representatives).

Box 4. Stakeholders who sign the apprenticeship contract

- In Australia, the legal framework underpinning an apprenticeship consists of two documents: a training contract and a training plan. The former is signed by the apprentice and the employer and the latter by the apprentice and the TVET institute.
- In Fiji, a contract is signed by the apprentice, the employer and the Director of the National Training and Productivity Centre.
- In Morocco, the apprentice and the employer sign the contract.

The most significant example of regulation at the enterprise level is the contract signed by an apprentice and an employer (and in some countries, by a regulatory institution), establishing the terms and conditions under which training takes place.

Countries should avoid 'policy borrowing' in developing the regulatory framework. Rather stakeholders should develop it based on their country's specific context, lessons learned from the implementation of pilot programmes, and policy learning from other countries.

Quality apprenticeships also require a robust quality assurance mechanism. This may take the form of standard setting, monitoring the implementation of apprenticeships, assessing and certifying competencies acquired by apprentices, and evaluating the labour market relevance of training.

Building Block 3: Clear roles and responsibilities

Many stakeholders (see box 5) are directly or indirectly involved in the design and implementation of apprenticeship policy, systems and programmes. A clear understanding of their roles and responsibilities, and sustained collaboration between them is essential to ensure the success of apprenticeships. See the ILO Toolkit for details (ILO, 2017).

Designing a mechanism through which stakeholders can collaborate effectively is challenging, but crucial to ensure that the system gains their support. Quality apprenticeships require effective partnership and between public and private sector stakeholders, especially employers and education and training providers. Enterprises must be in the driving seat to ensure the quality and labour market relevance of apprenticeships, while the support of other stakeholders contribute to overall success.

Box 5. Key stakeholders involved in apprenticeships

- Young people, apprentices and parents
- Enterprises and employers
- Workers' representatives in enterprises
- In-company trainers, supervisors and mentors
- TVET institutes offering quality apprenticeship courses
- TVET teachers and trainers
- Local and sectoral coordination support services
- Employers' associations
- Trade unions
- Communities
- Ministries and public administrations in charge of education and employment
- Intermediary organizations

Intermediary bodies can play an important role in promoting quality apprenticeships in SMEs. They can manage the recruitment process, produce education and training plans and organize assessment, activities on behalf of the enterprises. Inter-company training centres and the rotation of apprentices between various enterprises can be an effective mechanism to cover parts of training that SMEs may not have the facilities to provide.

Box 6. Examples of intermediary organizations

Group Training Organizations (GTOs) in Australia, Economic Chambers of the different provinces in Austria, the Public Employment Services or Chambers of Commerce and Industry in Germany, and the Cantonal Offices for Vocational Training and Career Guidance in Switzerland all play the role of intermediary organizations. GTOs even employ apprentices and manage their training through various enterprises.

Building Block 4: Equitable funding arrangements

Quality apprenticeships generate costs and benefits for public authorities, employers and apprentices. There must be a clear overall understanding that the costs are shared in an equitable manner, to ensure that all stakeholders are willing to participate on a sustainable basis.

Various studies on the cost-benefit of apprenticeships demonstrate they can result in positive returns to apprentices, employers and government. Some employers have positive returns within the apprenticeship period, while others only see their investment pay off after accounting for reduced turnover, recruitment and initial training costs. The type and duration of the programme, as well as the quality of training, delivered affect the returns that accrue.

Box 7. Cost and benefits of apprenticeships

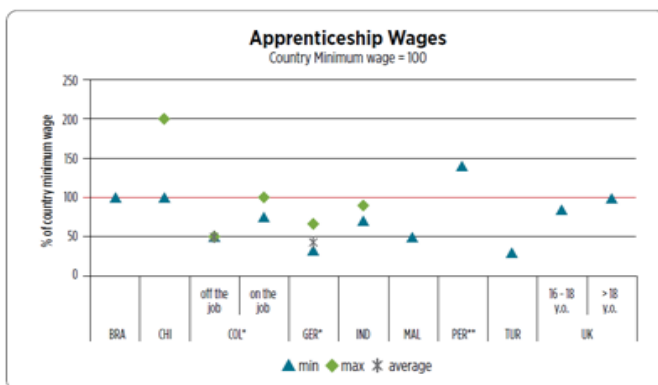
On average, Swiss enterprises achieve net positive benefits while German ones incur net costs in implementing apprenticeships. This difference can be explained by three considerations: the relative pay of apprentices, which is higher in Germany than in Switzerland; the differences in the on-the-job tasks, as Swiss apprentices do more productive work (83% compared to 57% for German apprentices); and the amount of time apprentices spend on-the-job, which is higher in Switzerland than in Germany (Wolter and Ryan, 2011). Over a period of three years, Swiss apprentices are at work for an average of 468 days compared to 415 in the case of German apprentices, and they spend only 13-21% of their time yielding no direct value to the company, compared with 31-57% for German apprentices (Lerman, 2014).

Cost distribution arrangements vary, but the most commonly observed pattern is the following:

- Employers bear the costs of on-the-job training, wages or allowances and social security contributions
- Apprentices receive remuneration, usually lower than that received by skilled workers
- Governments finance off-the-job training in TVET institutes, the administration of the scheme and incentives for employers if relevant.

Linked to the matter of funding arrangements is the issue of incentives for employers and apprentices. Depending on the socio-economic context surrounding skills development and desired policy outcomes, governments may provide incentives (financial and non-financial) to promote the participation of employers, particularly SMEs, young women, disadvantaged groups and adult workers in quality apprenticeship programmes. The financial incentives include tax exemptions, subsidies or grants.

Figure 3. Apprenticeship wages as a percent of countries' minimum wage



Source: Fazio et al., 2016.

Building Block 5: Strong labour market relevance

Quality apprenticeships prepare young people for the labour market. This implies that employers and apprentices should know which occupations and skills are in demand, and how these skills can be developed and recognized. This involves processes such as: skill needs assessments; the development of occupational profiles, qualifications, curricula and training plans; career guidance; capacity development of teachers, trainers and other staff; delivery of training; assessment and certification of learning outcomes; and monitoring and evaluation of training.

The evaluation of apprenticeship programmes, including the tracking of employment and career progression of the apprentices, provides information about their relevance to labour market demand, which policy-makers and programme developers can use to improve the system and programmes.

A quality apprenticeship system should provide useful information about career choices and employment prospects, as well as provide counselling and mentoring before, during and after the apprenticeship, and ensure appropriate matching of apprentice and enterprise and occupation.

Apprenticeship programmes should be developed in a broad range of sectors including services and information, communication and technology (ICT), as well as at higher education level.

The programme should equip an apprentice with broad qualifications and not only with narrow job-related technical skills. Curricula should encourage the development of entrepreneurship, ICT and core employability skills, in addition to technical skills. Even if standards are developed nationally, there should be flexibility to adjust to local labour market needs.

Building Block 6: Inclusiveness

Quality apprenticeships are for all social groups. Enhancing the inclusiveness of apprenticeships can provide employers with new sources of skilled workers and create a positive image of the organization among staff and clients.

Apprenticeship systems should ensure the inclusiveness of women, persons with disabilities (PWD) and other vulnerable groups, and take targeted measures to address the particular disadvantages they face. These measures may include raising awareness, sensitizing stakeholders, setting targets or quotas, providing specific facilities, tailored and flexible approaches for training delivery, expanding occupational options, addressing affordability (incentives, wages) and improving reporting and accountability.

Through recognition of prior learning (RPL) and providing pathways to higher levels of learning, quality apprenticeship systems can also facilitate the inclusion of experienced workers and informal apprentices. Furthermore, pre-apprenticeship programmes can also be promoted to help potential apprentices, particularly disadvantaged youth, to develop the minimum standards of academic knowledge and skills in preparation for an apprenticeship training.



How ILO supports countries

The ILO works with its constituents – governments, employers' and workers' organizations – to improve the employability of workers and job seekers, the productivity and competitiveness of enterprises, and the development prospects of economies and societies. Concerning apprenticeships, the ILO carries out research and evaluation of apprenticeship systems and programmes; generates new knowledge, tools and methods to address challenges faced by countries; provides evidence-based policy advice; facilitates knowledge-sharing; disseminates good practices; and develops the capacity of constituents and other stakeholders.

To assist countries in improving the design and implementation of quality apprenticeships, the ILO is producing a Toolkit for Quality Apprenticeships comprising of two volumes. The Guide for Policy Makers (Volume I), and the Guide for Practitioners (Volume II). The Toolkit provides a comprehensive but concise set of guidance, tools and good practices from various countries for policy-makers and practitioners engaged in designing and implementing quality apprenticeships policy, systems and programmes. The ILO also demonstrates the effectiveness of its tools, methods and advice through development cooperation projects.

Key ILO Resources

International Labour Office (ILO).

- Forthcoming. *ILO Toolkit for Quality Apprenticeships: Volume II – Guide for practitioners to design and implement apprenticeship programmes*. (Geneva).
- 2018. *ILO Survey Report on the National Initiatives to Promote Quality Apprenticeships in G20 Countries*. (Geneva).
- 2017. *ILO Toolkit for Quality Apprenticeships: Volume I – Guide for policy makers*. (Geneva).
- 2014. *Using benefit cost calculations to assess returns from apprenticeship investment in India: Selected SME case studies* (Geneva)
- 2012a. *Overview of Apprenticeship Systems and Issues: ILO contribution to the G20 Task Force on Employment*. (Geneva).
- 2012b. *The youth employment crisis: A call for action, Resolution and conclusions, International Labour Conference, 101st Session*. (Geneva).
- 2012c. *Upgrading informal apprenticeship: A resource guide for Africa*. (Geneva).
- 2011. *Upgrading Informal Apprenticeship Systems. Skills for Employment Policy Brief*. (Geneva).

Other References

- Fazio, M.V.; Fernández-Coto, R.; Ripani, L. 2016. *Apprenticeships for the XXI century: a model for Latin America and the Caribbean?* (Inter-American Development Bank).
- Group of Twenty (G20). 2012. *Key elements of quality apprenticeships*, paper prepared by ILO and OECD for the G20 Taskforce on Employment.
- 2016. *Innovation and Inclusive Growth: Decent work, enhanced employability and adequate job opportunities*, Annex 3, G20 Initiative to Promote Quality Apprenticeships, Labour and Employment Ministers Meeting Declaration, Beijing, China. (University of Toronto, 2016).
- International Trade Union Confederation (ITUC). 2013. *Key elements of quality apprenticeships – A joint understanding of the B20 and L20*.
- ILO and World Bank. 2013. *Towards a model apprenticeship framework: a comparative analysis of national apprenticeship systems*. (New Delhi).
- OECD and ILO. 2017. *Engaging Employers in Apprenticeship Opportunities: Making it happen locally*. (Paris).
- Wolter, S. ; Ryan, P. 2011. "Apprenticeship" in E. Hanushek, S. Machin and L. Woessman: *Economics of Education - Volume 3* (North Holland, Elsevier B.V., 2011), pp. 543-544.
- Lerman, R. 2014. *Do firms benefit from Quality Apprenticeship investments?* (Washington DC, American University and Bonn, IZA World of Labour and Urban Institute).

For additional resources, please visit the *Global Public-Private Knowledge Sharing Platform on Skills for Employment*: <http://www.skillsforemployment.org/KSP/en/Issues/Apprenticeships/index.htm>

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