

▶ ILO/Cinterfor Notes

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▶ Digitalization, productivity and employment: elements to think about vocational training in Latin America

Introduction

Various documents from academic and institutional sources point out that the countries of the region are lagging significantly behind the developed world in terms of productivity, and that unless measures aimed at sustained improvement are implemented, it will be difficult for the region to achieve a lasting expansion in the quality of life of its population.

At the same time, different analyses warn that the difficulties experienced by several Latin American countries in generating and equitably distributing greater productivity could translate not only into situations of economic backwardness, but also into recurrent episodes of political and social instability, with very negative consequences for their populations and the economy itself.

It is in this context that a narrative has been developing that postulates that the process of digitalisation (first with ICTs and more recently with robotics and artificial intelligence) could propel the region to make the necessary productive leap.

However, the available evidence suggests that a more complex approach is required to understand what is happening in the region, and to enable the formulation of policy responses that are capable of overcoming the real bottlenecks behind the lag.

In particular, it points out that the productivity-enhancing potential associated with new digital technologies can only be realised if complementary labour skills and management practices are developed.

The digitalization-productivity link and its impact on employment: organisational complementarity

This phenomenon can be conceptualised as “organisational complementarity” and serves as a framework for analysing the link between digitalization and productivity and its impact on the sphere of work.

Simply put, a group of organisational practices can be said to be complementary if, as the use of a certain practice is intensified, the benefit of the others increases. In other words, when a group of organisational practices are complementary, changes that increase the effectiveness of one practice will encourage the adoption and improvement of others whose linkage is not necessarily obvious.

This approach helps to better understand the barriers to productivity improvements. In the presence of ‘complementarities’, adopting one practice in isolation may generate very modest productivity gains, or have negative effects compared to that which would result from implementing a set of complementary practices.

For example, the introduction of new digital technologies would only have the expected effects if the workforce is adequately trained or if there are concomitant changes in work organisation. Difficulties in coordination, synchronisation, alignment of incentives and misalignment in the implementation of certain practices, among others, can conspire against organisational change and performance improvements.

To the extent that changes in labour skill endowments (via job training or job recomposition) and organisational changes take time, the notion of organisational complementarity also explains why the effects of ICT on productivity may be far from what is expected, deepen

This note presents an overview of the report entitled Digitalization, Productivity and Employment: Elements for thinking about vocational training in Latin America, prepared by Gabriel Burdín for ILO/Cinterfor.

lags and be highly heterogeneous across firms in the same industry.

In fact, in some cases where improvements in firm productivity are detected, this improvement is observable years after the technology investment. This suggests that the other complementary factors (skills and processes) are addressed later and take longer to develop than technology purchases.

The most recent literature provides evidence generated for developed countries that would confirm the existence of strong complementarities between new digital technologies, job skills and other organisational and management practices.

In this sense, and with this in mind, improvements in digital infrastructure are a necessary, though not sufficient, condition for harnessing the potential of new technologies. It is important to note that Latin American labour markets are not only affected by the domestic adoption of new technologies.

Another aspect to note is that recent studies suggest that the lower cost of new automation technologies reduces the incentives for companies in developed countries to relocate production processes to developing countries and may stimulate the return of certain activities to developed countries (“reshoring”), creating conditions for premature deindustrialisation in emerging countries.

Even if digitization has no effect on aggregate employment, it is expected that we will continue to observe strong processes of corporate restructuring and changes in the structure of employment that will have implications in terms of labour transitions and well-being for many workers in the region, which will require public policy attention. Although there is no conclusive evidence to suggest greater labour polarisation in the region, the new technological scenario tends to favour those with higher qualifications and expose those with lower qualifications to greater vulnerability.

Digitalization and workforce skills: the role of Vocational Training Institutions (VTIs) in the new landscape

As has been developed, the impacts of technology adoption are mediated by organisational complementarities: the return obtained by new technologies depends heavily on co-investments in labour training and other intangible assets, including organisational and management practices.

Moreover, the mere availability of new technologies does not necessarily induce substantial productivity gains and may end up reinforcing pre-existing productive heterogeneities, placing those with lower-middle skill levels in a position of vulnerability, although this may depend on the type of technology analysed.

All of the above highlights the importance of *labour skills training* as a component of a strategy to harness the productive potential of digitalisation.

A better trained workforce has a direct impact on productivity, but also an indirect impact by facilitating the adoption of technologies and optimising their use.

Improving the education and skills of the labour supply is also crucial to decompress the pressures that the new technological scenario generates on inequality, given the bias of labour demand towards skilled labour.

In this sense, job training and skills training policies for young people and adults, particularly in low- and middle-income sectors, are a central pillar of any strategy that seeks to achieve high levels of economic prosperity with equity and social inclusion.

The scenario of digitalization, crossed by strong complementarities between labour qualifications and new technologies, and the existence of market failures in the production of labour skills evidenced in the various skills gaps, provide a renewed justification for public interventions in the area of vocational training. This demands action on vocational training systems and their component institutions and challenges their actions in several dimensions. These challenges have to do with:

a. Ability to anticipate future demand for skills:

- Develop capacities for analysing the future demand for labour skills and adequate analytical capacities to understand how technology will impact on the structure of labour skills in different occupations. To this end, it will be essential to understand the processes of technological diffusion in LAC and to differentiate the current very high demand for skills for the IT sector from those digital skills that only form part of the labour competences of any sector.
- The traditional statistical systems (generally based on household surveys produced by state statistical systems) on which labour market analysis is based, often do not provide the necessary information for prospective analysis of skills demand. Moreover, these statistics often lack the necessary disaggregation or frequency. To overcome these limitations, it is necessary to exploit non-conventional sources of information (high-frequency administrative micro-data, vacancy analysis, etc.) and to rely on the joint work of data analysts, labour economists and vocational education and training specialists and qualitative analysis at sectoral level to generate the necessary information.
- In addition, it is important to consider a set of transversal skills that are complementary to the new technologies, for example, critical thinking, social and communication skills. There is evidence indicating that the inclusion of a transversal skills training component in a technical training programme for work would improve people’s labour market insertion in the long term.

b. Impact assessment capacities :

- Bearing in mind the highly dynamic nature of the multi-faceted digitalisation process and the continuing impact this has on the demand for skills, it is clear that vocational training systems need to assess the impact and cost-effectiveness of their activities, to revise, scale up or discontinue training offers. Otherwise, there is a high risk of a growing mismatch between what they offer and what the productive sectors demand.

c. Sectoral training programmes and collective bargaining:

- Recent evidence suggests that sector-based training programmes offer promising results in terms of improving the sustainability of the employment trajectories of more disadvantaged workers.
- To the extent that certain job skills are demanded by many firms in the same sector, these skills become a sectoral public good that no firm will have an incentive to provide individually. In this context, the private benefit of training is less than the social benefit, since the person could change firms and the investment would end up being appropriated by competing firms. Sectoral programmes can help to identify niches of high employment demand and mitigate such coordination failures and collective action problems among firms. These programmes usually combine training and other support and follow-up services.

d. Training in business management practices:

- Evidence on the link between digitisation and productivity highlights the existence of synergies between technologies, workforce skills and the quality of business management practices. Moreover, the productive impact of digitisation in Latin America depends on its widespread adoption by a large segment of low-productivity small firms.
- The digitalization-productivity link of micro and small enterprises depends on the development of internal capacities, including the provision of digital skills and the appropriate orientation of their management practices.

e. Ability to anticipate future skills demand:

- Digitalization impacts on the very functioning of the institutions that make up vocational training systems and generates opportunities to renew formats and pedagogical proposals. This is expressed, for example, in the growth of distance vocational training modalities, e-learning and hybrid and flexible curricular designs.
- Recent studies highlight the importance of integrating the new knowledge generated by the educational sciences in the field of online education into vocational training. Many of the more serious

training proposals supported by digital technologies that were not possible to develop a short time ago are becoming more and more feasible to implement.

- In a context of dual labour markets such as those that characterise many Latin American countries, the gaps in on-the-job training opportunities between the formal and informal sectors are an important dimension to consider. In particular, because of the potential of new technologies to develop job training programmes that address social inclusion.
- Furthermore, it is relevant to determine the potential of digitisation in the institutions themselves in terms of governance, internal organisation and human resources. The same notion of complementarity used to analyse the link between new technologies and productivity at the level of the economy in general can be applied to the case of training institutions. In this sense, it is of interest to design digital transformation strategies that take advantage of lessons learned and avoid the risk of internal digitisation or of their offer being centred on the acquisition and use of technology.
- In addition to analysing the internal barriers that hinder the full use of new technologies, it is important to investigate how the heterogeneous development of national digital infrastructures in Latin America, in terms of cost, penetration and quality, has conditioned the digitisation trajectories of PPIs.

These are some of the highlights of a report that aims to deepen this debate and that we hope will be an input for thinking and reflecting on the contribution and role of each institution in this link between digitisation, productivity and training policies for inclusive, sustained and fair growth in our region.

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