The Significance of Skills Intelligence in the Development of Technical Vocational Education and Training

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TESDA

"What is Skills Intelligence and why is it important for TVET to develop?"

I. INTRODUCTION: Defining "Skills Intelligence"

Before exploring further the idea of "Skills Intelligence" and how its establishment and future development within the agency will help foster the kind of environment of constant learning for both students and teachers, we must first endeavor to define the concept of Skills Intelligence.

The word *skill* pertains to a learned ability to do something or perform a task competently, especially in an institutionalized and accredited manner (e.g., an accredited carpenter whose specialized abilities have been recognized by an educational program). Meanwhile, the word *intelligence* pertains to the process of collating and analyzing data or information surrounding a certain topic. Putting together these two definitions, the European Center for the Development of Vocational Training (CEDEFOP) puts it best: **skills intelligence** is the outcome of an **expert-driven process** of **identifying, analyzing, synthesizing and presenting** quantitative and/or qualitative skills and labor market information regarding the abilities of those within the workforce to do the jobs assigned to them (CEDEFOP Skills Panorama Team, 2019). These may be drawn from multiple sources, either by choice or circumstance. The drawing of this data will be adjusted to the needs of different users. To remain relevant, skills intelligence must be kept up-to-date and adjusted when the user needs change. This requires the expert-driven process to be continuous and iterative for a complete picture of the labor market to be crafted.

Further, there is a heightened interest in **real time labor intelligence sources of information.** We are living in an era where most of the data are being generated using smartphones, twitter and other social media accounts. People who will tap into that source of intelligence will be able to potentially extract useful insights for how the labor markets are changing and, in the process, provide policy lessons.

Data is the new oil. Overtime with increasing digitalization, people are using online forms of interaction and online forms of matchmaking in labor markets. Companies especially on the side of employers are using online sources, such as LinkedIn and JobStreet, to find job applicants. Employers often provide data such as skills they are looking for to perform a given job efficiently, as well

as general skills they believe all employees should possess in order to be considered a good worker. Meanwhile, on the part of the employees, individuals are searching and navigating the labor market on similar platforms, uploading their resumes to online professional spaces, creating their own online portfolios, and advertising themselves and their capabilities in all available social media platforms for easy access of searching employers.

As we move into the future, an increasing number of people are going to be using online sources of data for the purposes of job finding and job purposes of skills matching. According to an EU survey, 40% of young people (22-24 yrs. old) said that they were using the internet for this purpose. Looking at the very high rates of young people using online sources of data, eventually the online job vacancy market matchmaking is going to be more prevalent. Furthermore, online spaces dedicated to the education of individuals on topics such as office management, human resources management, or simply YouTube tutorials dedicated to teaching the uses of Word or Excel, are also factors that must be taken into account. In today's world, lifelong learning has been made easier as more and more opportunities for skill enhancement beyond the reach of pay walls or expensive institutions abound.

However, as much as this amount of data is welcomed and largely sought after, it is useless when there are no parameters or indexes in which to organize said data and extract from it a sound assessment that properly reflects the situation of the Labor Market.

Skills Intelligence, as mentioned before, draws its analysis from data collected across multiple sources, and thus can have different outcomes depending on the field you are attempting to assess in your final Skills Intelligence Report. This, of course, means that there is a relative amount of research design and creation in Skills Intelligence, with a framework changing and morphing according to the needs of the intelligence consumers and future policy makers.

However, several Skills Intelligence Studies and Reports have been successfully launched by CEDEFOP in their continent-wide assessment of the European Union and the United Kingdom. One such example is the European Skills Index report, known formerly as the Making Skills Work Index. It is a composite indicator aiming at measuring and monitoring through time the effectiveness of the EU Member States' skill systems, such as the Technical Vocational Education and Training (TVET) programs. This was launched at the end of 2018 with the aim of assessing and comparing how well EU skills systems perform.

The European Skills Index (ESI) is built on the three pillars of skills development, skills activation, and skills matching, which were used to organize and aggregate 15 individual indicators into a single summary measure. The ESI, however, is only one possible outcome in Skills Intelligence Analysis and Reporting. Furthermore, it is not constructed as a tool to provide the answers on the complexity of Skills Systems. It serves as a starting point to help understanding this complexity and delving deeper in the quest for answers.

For a look into the case of Philippine's TVET, Skills Intelligence takes a form in the TVET Labor Market Intelligence Report (LMIR), which provides both data and the analysis that can be gleaned from it– insights on current trends, issues, and challenges available in the local and international labor markets, both demand, and supply.

The TVET LMIR is used in the determination of priority skills for the Training Regulation development, for policy formulation, especially in directing and aligning TVET programs with labor market requirements. This report, much like other Skills Intelligence Reports, uses quantitative and qualitative data gathered from close coordination with other government agencies dealing with the Labor Market factors, such as employment rate, number of jobs available, number of employees entering the job market, etc. etc. However, the LMIR only answers certain questions pertaining to the number of human resources present in the market, limiting its assessment of the Labor Market as a whole to current circumstances only and leaves no room in the interpretation of the data for any predicting analysis.

This then brings up the following question: how else can the expansion and improvement of Skills Intelligence benefit the Philippines Setting, particularly, in the Technical and Vocational Education Training (TVET)?

II. SIGNIFICANCE OF SKILLS INTELLIGENCE TO THE TECHNICAL VOCATIONAL EDUCATION TRAINING (TVET)?

To borrow a metaphor by CEDEFOP, before building a house, there is planning to be done in terms of several decisions: the type of house, the right dimensions, suitable combinations and placement of materials and even colors that can make a difference. But to move from having even the best materials and designs to a solid construction that will meet one's requirements, specialists are needed to put things together. The materials to be used should accommodate one's needs, be reliable to ensure stability and sustainability of the construction and meet regulatory standards. Specialists' expertise is needed to combine materials, and it is their knowledge about how to best use tools and techniques that will lead to a solid construction.

In essence, **developing "skills intelligence" has many similarities to building a house. Quantitative and qualitative data on skills and the labor market are the necessary building blocks to facilitate the work and decisions of various 'inhabitants of the construction'** (for example policy makers, social partners, TVET providers, career counselors and learners). But these groups have different information needs and vary in terms of their understanding of key concepts or experience in using and 'translating' data so that it becomes useful in their context. It is the role of experts to identify information requirements, use appropriate data, tools and techniques, and develop tailor-made solutions to present the outcomes so that they meet the users' needs.

As said before, skills and labor market data and information are becoming increasingly available. But even if they are all reliable, are they all suitable for use? It is users' questions that drive the selection of data and information. For example, "how many people are currently employed as construction workers?", "what is the status of the unemployed at the start of the pandemic up to present?", or "are care workers paid better or worse than people employed in other occupations?", "what is the future outlook of my occupation?" Once these key questions are gathered, information needs can be defined, relevant data and information selected or collected, and then analyzed or synthesized in ways that are meaningful to the specific user group.

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Furthermore, data findings need to be presented in a way understandable to the specific users. This may involve presenting combinations of quantitative data that would not necessarily convey the intended message if presented standalone; or blending quantitative with qualitative information. While in some cases, a simple graph may be sufficient, in others more advanced visualizations could be more suitable to transmit a complex message in a user-friendly format.

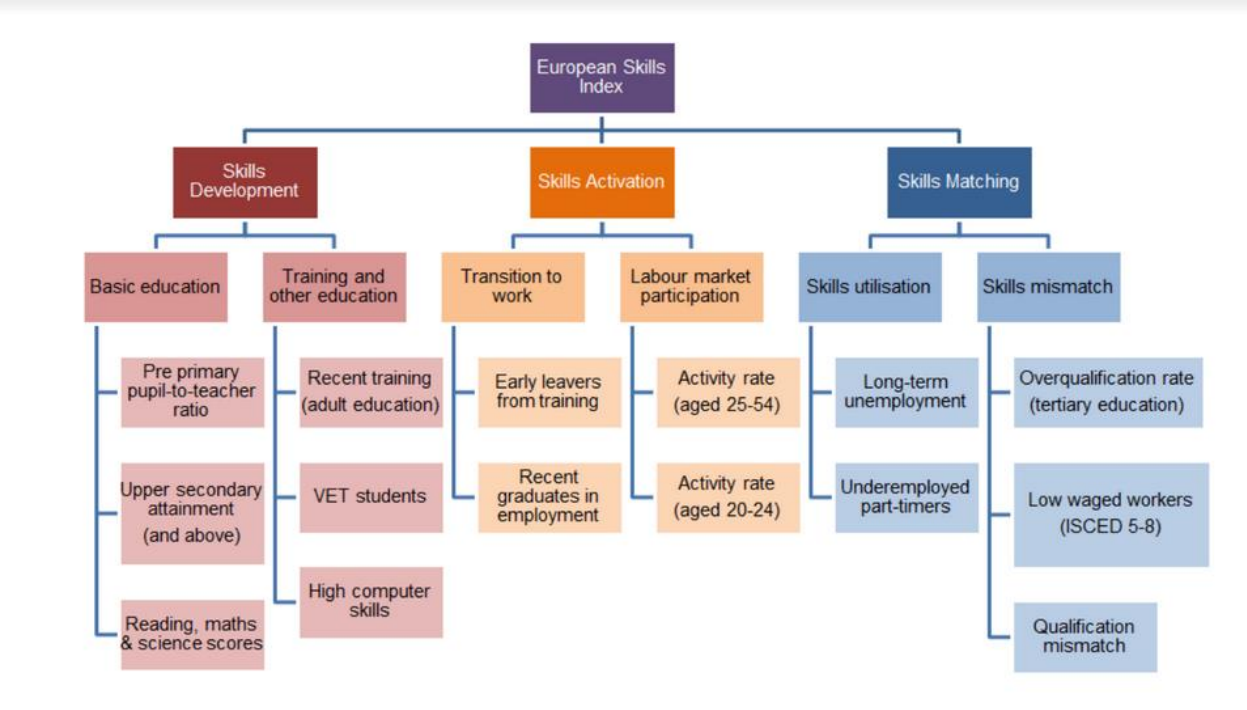
As with the construction of a house, expertise is needed to ensure that all the above steps are followed, and all requirements are met. Experts in skills and labor market issues like statisticians, data scientists, and web development specialists (if the goal is to offer skills intelligence online) are needed. It is the experts who will identify users' information needs; match these with available and reliable data and information; decide on which particular types of information and/or indicators to select; on how to blend them; and on what is the most appropriate way to disseminate/display them for the particular target group. Developing skills intelligence is a process of interlinked steps performed by experts, which transforms fragmented data and information to comprehensive 'story-telling', with policy or practical relevance (CEDEFOP Skills Panorama Team, 2019).

In Europe, the CEDEFOP **provides better and more synthetic evidence on current and future skills and labor market trends**. They use narrative-driven visualizations to help policy makers and other users understand what is trending in occupations, sectors, countries, and skills. As mentioned before, Skills Intelligence is a broad topic that encompasses many fields and therefore has many kinds of angles to consider when creating a report. One such report, also mentioned in the section prior, is the European Skills Index.

The ESI aims to create a succinct understanding of the effectiveness of the European Union's Skills System. Traditionally, Skills Systems are thought of as the means of delivering skills. One such example is the TVET that has roots in many countries, including the Philippines. Their primary role is to ensure a smooth transition from education to work and appropriate skills match at the workplace (CEDEFOP European Skills Index Team, 2020).

Skills Systems are crucial for countries' competitiveness and growth, as well as for individuals' development and wellbeing. Many policies have been passed to ensure the quality of the EU Skills System remains on a steady incline. The indicators chosen to be evaluated by the ESI are policy-relevant and linked to policy issues. Within the ESI framework, a higher performance can primarily be achieved through accomplishing a well-balanced skills system. In other words, there is a need to achieve a degree of balance across development, activation, and matching. Concentrating on one area over another may improve certain aspects but may penalize the overall performance of a skills system (CEDEFOP European Skills Index Team, 2020).

Figure 1. European Skills Index Indicators

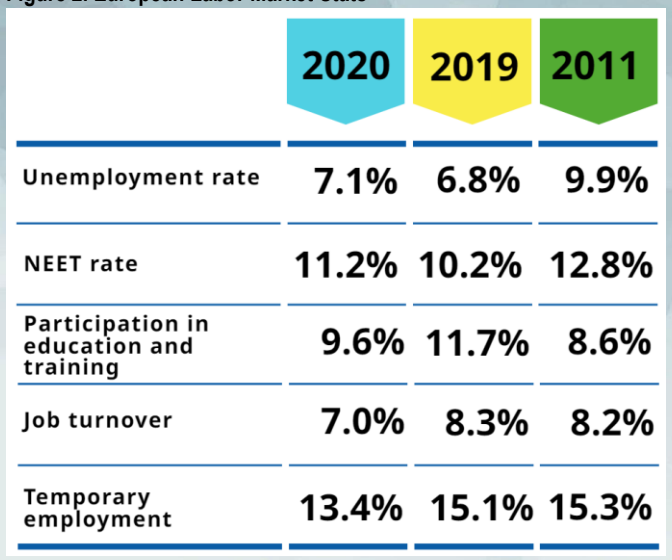


Source: European Skills Index (2020), CEDEFOP

As mentioned prior, the ESI builds on three pillars, each of which captures a different stage of a skills system: **development, activation, and matching.** The pillars represent different aspects of the skills system, and they organize our understanding of the system and the indicators that will be used to measure it. In this framework developed by CEDEFOP, the pillars can be interpreted as a process: the development of an individual's skills influences their activation in the labor market and consequently their matching to employment. However, as in other composite indices, there are also inter-relationships that run in the opposite direction: for example, an individual's decision to invest in training may be influenced by the likelihood of training improving their employment opportunities (matching). Though many more indicators were considered for constructing the ESI (and were suitable for the theoretical framework), the final structure was confirmed through statistical processes (i.e., 2020 European Skills Index, CEDEFOP). With these analyses and assessments combined, policy makers could now construct their own "home" (i.e., systemic, and institutionalized policies that affect many lives and livelihoods) on a sound foundation of data.

That being said, as compared to the Philippine Setting, the Skills Intelligence systems put in place by the CEDEFOP is far more superior in terms of collection, organization, and analysis of big data, especially when considering the sheer number of their sample size (i.e. all countries belonging to the European Union and the United Kingdom). However, this is not to say that they are far above producing articles that take on a smaller sample size with smaller results. Much like the TVET Brief that aims to publish labor market trends, or the TVET LMIR, CEDEFOP is also in the habit of publishing articles that follow various labor market trends in the EU that help provide more insight into factors such as quantitative data on COVID19's impact on employment and skills demand in Europe, as illustrated:

Figure 2. European Labor Market Stats



	2020	2019	2011
Unemployment rate	7.1%	6.8%	9.9%
NEET rate	11.2%	10.2%	12.8%
Participation in education and training	9.6%	11.7%	8.6%
Job turnover	7.0%	8.3%	8.2%
Temporary employment	13.4%	15.1%	15.3%

Source: Skills Intelligence Indicators based on the EU Labor Survey data

This, of course, can be compared with the TVET Brief Issue No. 5, published in the series of 2020, titled “Traversing the “New Normal” Innovation in Philippine TVET,” which encompassed data on potential consumer spending going forward into the pandemic, COVID-19’s impact on global education, and above all, the ways forward Philippine TVET may take, all of which were conclusions put together after the collection of qualitative data from various open sources such as the Department of Health, Asian Development Bank, and several academic papers published in response to the pandemic.

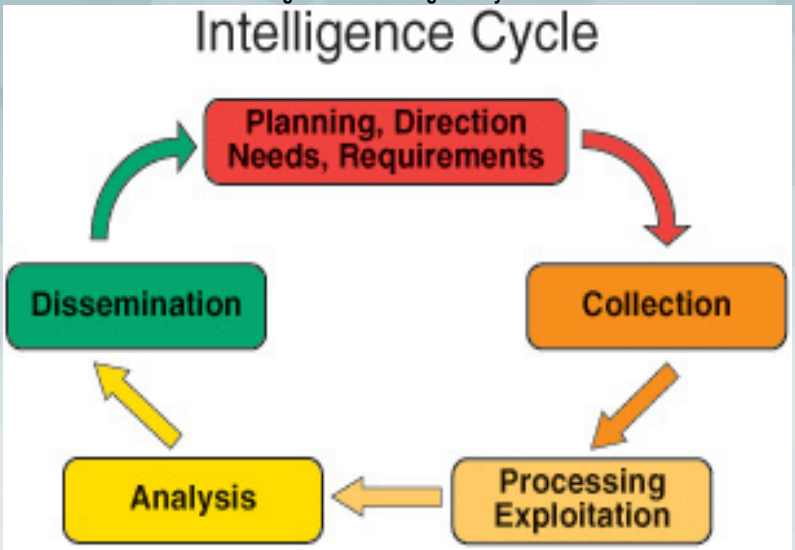
Both reports, though using different forms of data to form two different analyses and assessments, are very significant in the dissemination of information to the labor market, especially in the face of something as tumultuous as a global pandemic. A house’s outer shell may fall apart in the face of great disaster, such as earthquakes or hurricanes, but as long as the foundation of it was built strong and steadfast, on information that has been tried and tested to be true, then rebuilding will be easier and faster on the long run.

III. WHAT IS TESDA’S ROLE IN RELATION TO SKILLS INTELLIGENCE?

The basic **framework used in Skills Intelligence, like all kinds of Intelligence gathering, can be narrowed down to the ideal conceptual model called the Intelligence Cycle,** a closed path developed in military intelligence agencies during the early 20th century and further developed in the 1940s during World War II. Though created primarily for military intelligence agencies, the basic structure of the model lends itself to our purposes.

The Intelligence Cycle, if followed correctly, will result in whole, finished intelligence that in the beginning, has clear intention, and in the end has answered all questions.

Figure 3. The Intelligence Cycle



Source: Understanding the Intelligence Cycle, Mark Phythian

1. PLANNING, DIRECTION, NEEDS, REQUIREMENTS

The very beginning stage of this cycle must be instigated by those we call intelligence "consumers" who, in our case, are the TESDA policy makers who need the intelligence/data of the labor market to help further facilitate their activities. Just as mentioned before, these requirements are then sorted and prioritized by the data collectors, until the requirement has been satisfied. Identifying requirements means defining those questions to which intelligence is expected to contribute. Requirements also means specifying the collection of certain types of intelligence. This is so priorities may be set.

For our purposes, TESDA must acknowledge that many kinds of data make up the bulk of skills intelligence (e.g. jobs available, most sought after job skills, number of employees, number of unemployed, etc.) and that there are an infinite number of ways to interpret the data to yield different results and possible analyses (i.e. through indicators found in skills supply, skills demand, skill mismatch, skill needs, etc., standardized according to the needs of the study).

Look no further than the TVET Brief Serieses for an example. As mentioned before, TVET often publishes articles that vary from month to month, depending on the most urgent labor market condition or trend affecting the day-to-day economy of the country. For the past couple of years, the trend has been focused solely on the effect of the COVID-19 pandemic on our working conditions, environment, jobs skills, and employees.

2. COLLECTION

Once requirements and priorities have been established, the intelligence enters into the collection phase. Some requirements have a specific type of collection; some may require several types of collection. Making these decisions is a key issue and the question of how much can or should be collected to meet each requirement.

For the case of Skills Intelligence, as mentioned before, the collection of data comes from many different sources and fields (e.g., quantitative, and qualitative research methods) by several other government agencies outside of TESDA, such as the DOLE, PESO, and/or JobStreet. Furthermore, TESDA also has various external stakeholders, such as manufacturers of different products and companies that offer different services, who could provide valuable market information through data collection methods such as surveys, questionnaires, or focus group discussions conducted by leads of the TESDA research team. The collection of data can also be done internally, from databases such as TESDA Training Management Information System (T2MIS), which is a back-office application that shall monitor the agency's performance in training, assessment, and certification. This is linked with the recently introduced Online Scholarship Application System as identified in the TESDA 17-Point Reform Agenda. It is TESDA's prerogative, at this stage of the cycle, to consolidate the data in such a way that it communicates clearly the trends for future analysis.

3. PROCESSING EXPLOITATION

Once Collection concludes, then it undergoes processing, exploitation, and validation before it can be regarded as intelligence and given to analysts. Conversion includes translations, decryption, and interpretation.

This step is largely done by the research team leading the project. As mentioned in the step above, TESDA has their own database, such as the T2MIS, which is an enhanced version of the original Manual-based/Reporting System created for the usage of the regional offices. In the processing exploitation stage, verification of data may consist of clarifying interviews with stakeholders, or historical cross-referencing data from already existing processed and analyzed data from years past, or even data in a wholly different environment and context, such as from a region-to-region basis. All of which will help in creating a more holistic understanding of the situation at hand, enough to give the research the proper context.

4. ANALYSIS AND PRODUCTION

Then, the Analysis and Production stage starts. Analysis and production include the process of integration, evaluation, and analysis of all available data, and the preparation of intelligence products by TESDA for the consumption of the TESDA policy makers, who will use the data and its findings to properly evaluate and revise existing or not yet existing policies that will make the TVET programs focusing on education and labor market reports easier to implement.

5. DISSEMINATION

Once the data is completed and ready, the findings are then disseminated for consumption by all concerned stakeholders of the project. The dissemination of these findings will make it easier, as well to archive for future reference, especially when we enter the Feedback phase, when the intelligence consumers and producers should find that certain parts of the intelligence do not meet the initial requirements and thus, adjustments must be made. Feedback assesses the degree to which the finished intelligence addresses the needs of the intelligence consumer and will determine if further collection and analysis is required.

TESDA does this step through its various internet spaces, from examples such as the TVET Brief and the LMIR made available through the TESDA website and physical publications distributed amongst stakeholders, to places such as social media helping in the dissemination of information to wide audiences that are not necessarily connected to the agency or its stakeholders but will otherwise benefit from the information.

IV. WAYS FORWARD, CONCLUSION AND RECOMMENDATION

As explained, skills intelligence would direct skills activation, development of training programs and even the analysis of mismatch. It is therefore worth considering the use or adoption of the intelligence cycle in the current process in the identification and development of relevant programs. Based on the intelligence cycle the following are the identified gaps and recommended actions:

1. On Planning, Direction Needs, Requirements— it will be critical that the National TESD Plan will provide a clear basis on the directions for the development and conduct of TVET training programs. This includes specific strategies on the identification of the requirements, development of programs and curriculum, among others. Further, there should be specific variables to be determined as part of the monitoring and evaluation of the Plan, which will be achieved once a good scanning results of the market and the potential clients will be undertaken.

2. On the data collection, it can be considered to use administrative data from various sources to avoid duplication of efforts among government agencies and adopt various methodologies to ensure the validity and reliability of the data. However, the current monitoring system of various government agencies seems to have gaps in terms of identifying the indicators, standard definition, and interlinking of the output of one agency, as input to another government agency; which resulted in a long process for the data collection.

3. On Processing, the competency of those who are in-charge, appropriate formula and the tools to be used, are the infrastructure needed to effectively and efficiently use the available data.

4. On the analysis and product, the data should be interpreted vis-a-vis its implications to the existing policies that need to be reviewed or amended, future policies for development and its translation into operationalization of programs. Currently, it can be observed that there is a gap in the application of the results of evidence-based initiatives into policy and program.

5. On the dissemination of results of collected and processed data, TESDA must explore use and subscriptions of applications, which will allow the published documents more popular and easy to digest.

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