ILO’s Skills Needs and Anticipation Framework and its perspectives on the 2030 Sustainable Development Agenda

Akiko Sakamoto, ILO
Why anticipate skills needs?

- **Policymakers**: Identify areas where skills are in high demand and target resources; and guide the planning of training provision to improve employability of trainees

- **Training Institutions**: Identify likely demand for training, which program to expand/cut, revise/update training content and trainers’ skills

- **Employers**: Prepare for and act on future skills shortages/gaps; identify needed investments e.g. types and volume of training; labour market trends also informs changing business environments

- **Workers**: Identify types and levels of skills upgrading that workers should invest in to be, and remain, employable, or to advance; inform average wage levels and productivity by occupation

- **Community, civil society groups**: Targeted capacity building for vulnerable groups to access labor markets

- **New entrants and returnees to LM**: career guidance
Links with SDGs

4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university

4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation….

8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
Drivers of change for Skills Demand

- Business strategy, Competition (e.g. growth of high/low Skills jobs)
- Policy/regulation Change e.g. Change in Priority sectors
- Migration
- Environmental change
- Markets
- Technology change
- Demographic change
Before undertaking any identification of skill needs, always answer the following questions:

- What are your policy objectives / needs?
- What are your research objectives? What do you want to find out?
- Who will be the primary user of the findings?
- Who will perform research / data collection / analysis?
- What are the financial resources you have for the study?
Once these questions are answered, you will know…

- at which level you need to undertake the research (macro, mezzo, micro: national economy, sector, industry, region, local community, occupation, etc.)
- what time span of skills identification is needed: projection – short/medium/long-term? trend? current need?
- what will be key target groups, clients – direct and indirect beneficiaries,
- which methods you may apply,
- and who will be your major partners.
Overview of Quantitative and Qualitative Methods

Quantitative

- Econometric Modeling
- Time-series/Trends analysis
- Job Opportunity Index
- Use of Administrative Data

Qualitative

- Sector Studies/Scenario foresights
- Enterprise Survey
- Special Studies (Tracer/Rate of Return)
- Stakeholder Driven Forums/FGD
Quantitative Approaches to SNA

**Approach**

- **Econometric Modeling**: Uses economic projections of growth of specific industries to project skills demand.
- **Enterprise Survey**: Surveys enterprises for training needs.
- **Trends time-series analysis**: Uses historical trends in time-series data to project D&S.

**Benefit**

- **Econometric Modeling**: Consistent overview and forecast.
- **Enterprise Survey**: More specific, enterprise level data.
- **Trends time-series analysis**: Simple, easy to do and update.

**Limitation**

- **Econometric Modeling**: Data dependent, costly, time consuming.
- **Enterprise Survey**: Can be subjective, difficult to get skills gap.
- **Trends time-series analysis**: Data dependent.

**Output**

- **Econometric Modeling**: Projections of demand & supply by occupation/industry.
- **Enterprise Survey**: Specific skills needs of enterprises.
- **Trends time-series analysis**: General trends in D&S demand and supply.

**Resources**

- **Econometric Modeling**: Expertise in econometrics, LFS data.
- **Enterprise Survey**: Expertise in specialized methods.
- **Trends time-series analysis**: Statistical knowledge, time series.
## Econometrics model

### Occupations with the fastest growth, Excerpt from US DOLE BLS

<table>
<thead>
<tr>
<th>Occupations</th>
<th>Percent change</th>
<th>Number of new jobs (in thousands)</th>
<th>Wages (May median)</th>
<th>Education/training category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical engineers</td>
<td>72</td>
<td>11.6</td>
<td>$77,400</td>
<td>Bachelor's degree</td>
</tr>
<tr>
<td>Network systems and data communications analysts</td>
<td>53</td>
<td>155.8</td>
<td>71,100</td>
<td>Bachelor's degree</td>
</tr>
</tbody>
</table>

**Strengths**
- Indicates structural changes, and provides representative picture of the general trends
- Comes close to provide accurate projections in given scenarios based on models incorporating economic activity, productivity, GDP growth, demographics

**Limitations**
- Requires high level of statistical and analytical capability
- Need to be complemented by qualitative methods
- Only limited occupational breakdowns available for many countries, and not specific enough for training planning

A detailed multi-sectoral macroeconomic model by analyzing inputs and outputs of each industry.
Trends analysis

Employment by occupational groups (%)

### Vietnam

- **2000**
  - Leaders, managers and administrators: 2.4%
  - Professionals: 8.3%
  - Technicians, Associate professionals: 7.1%
  - Clerks: 9.6%
  - Skilled agriculture, forestry, fisheries workers: 3.1%
  - Craft and related workers: 63.9%
- **2014**
  - Leaders, managers and administrators: 6.0%
  - Professionals: 15.9%
  - Technicians, Associate professionals: 12.4%
  - Clerks: 12.3%
  - Skilled agriculture, forestry, fisheries workers: 7.5%
  - Craft and related workers: 40.2%

### Philippines

- **2001**
  - Managers, executives, supervisors and government officials: 10.0%
  - Professionals: 4.5%
  - Technicians, Associate professionals: 8.0%
  - Clerks: 21.8%
  - Skilled agriculture, forestry, fisheries workers and fishermen: 10.5%
  - Craft and related workers: 28.9%
- **2015**
  - Managers, executives, supervisors and government officials: 15.7%
  - Professionals: 5.2%
  - Technicians, Associate professionals: 12.9%
  - Clerks: 13.5%
  - Skilled agriculture, forestry, fisheries workers and fishermen: 6.6%
  - Craft and related workers: 31.5%
## Enterprise survey

Enable in-depth look at enterprise/sector levels

Provide better insights in terms of types, volume and levels of skills gaps/shortages (incl. non-occupation specific skills)

Indicate the emergence of new occupations, or new skills requirements for existing occupations

### Strengths

<table>
<thead>
<tr>
<th>SIC Sector</th>
<th>Unweighted base</th>
<th>% of employers with any skills gaps</th>
<th>Number of staff not fully proficient (i.e. number of skills gaps)</th>
<th>% of staff reported as having skills gaps</th>
<th>Share of employment</th>
<th>Share of all skills gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>79,152</td>
<td>19</td>
<td>1,702,500</td>
<td>7</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Agriculture</td>
<td>2,350</td>
<td>13</td>
<td>18,400</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mining and Quarrying</td>
<td>120</td>
<td>16</td>
<td>1,500</td>
<td>6</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

### Limitations

- Challenging to gain a representative picture, can be subjective
- Challenging to administer
- It may be difficult to maintain a comprehensive and updated list of enterprises
Quantitative Approaches to SNA

Approach: Collection of newspaper/internet job postings as indicator of demand

Benefit: Gives insight into changing demand

Limitation: Limited coverage, resource intensive

Output: List of skills demand based on vacancies

Resources: Newspaper accounts

---

Job Opportunity Index

Use of Administrative Data: Collation/collection/analysis of data collected by admin agencies

Little cost, readily available data

Limited to available data

# of enterprises, employed, unemployed

Man hours for collation, admin data

---

Simplest

Most Complex
### Qualitative Approaches to Labor Market Information

<table>
<thead>
<tr>
<th>Approach</th>
<th>Benefit</th>
<th>Limitation</th>
<th>Output</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Studies</td>
<td>More specific information</td>
<td>Partial view, costly</td>
<td>Subject specific/qualitative</td>
<td>Expertise in specialized studies</td>
</tr>
<tr>
<td>(Tracer/Rate of Return)</td>
<td>vis D&amp;S factors</td>
<td></td>
<td>D&amp;S factors</td>
<td></td>
</tr>
<tr>
<td>Sector Studies/Scenarios/foresight</td>
<td>Comprehensive vis sector D&amp;S</td>
<td>Limited scope, partial view</td>
<td>Sector specific data on demand</td>
<td>Expertise in quantitative/</td>
</tr>
<tr>
<td></td>
<td>factors</td>
<td>view, costly if for all sectors</td>
<td>and supply</td>
<td>qualitative analysis</td>
</tr>
<tr>
<td>Stakeholder Driven Forums/FGD</td>
<td>Participatory Forum for discussion</td>
<td>Individuals might dominate</td>
<td>D&amp;S data with context/qualitative</td>
<td>Regular forum discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>factors</td>
<td></td>
</tr>
</tbody>
</table>

---

**Level of Complexity**

- **Simplest**
  - Special Studies (Tracer/Rate of Return)
  - Sector Studies/Scenarios/foresight
  - Stakeholder Driven Forums/FGD

- **Most Complex**
  - Generic Discussions by key stakeholders vis. trends/factors
  - Expertise in specialized studies
  - Expertise in quantitative/qualitative analysis

---

**Notes:**
- **Level of Complexity** indicates the complexity of the approach.
- **Benefit** describes the advantages of each approach.
- **Limitation** highlights potential downsides or challenges.
- **Output** refers to the type of information generated.
- **Resource** indicates the expertise required for each approach.
Sector studies, Scenarios, Foresights

- Sector selection
- Sector characterization
- Business environment
- Envisioning the Future/ Foresights
- Gaps in business capabilities
- Skill needs (quality & quantity)
- Skill gaps / shortages
- Recommendations

Strengths
- Projection of skills demands in light of current and future scenarios of the sector growth
- Enable to reflect more sensibly technological, product, market and other changes in projecting skills demands
- Facilitate skills dev. - sector growth coordination

Limitations
- Requires sector representative structures (such as SSCs) for periodic and consistent studies
- Achieve the representative picture of the sector is challenge
- Require strong capacity in the sector

- Trade
- Technology
- Business strategy
- Govt' policies
Sectoral example – the ILO STED

STED – Skills for Trade and Economic Diversification

ILO’s Sector-based methodology to provide strategic guidance on integrating skills development into policies to strengthen traded sectors

Designed to use skills to:

- Improve competitiveness
- Improve position in international trade
- Drive growth in output and sales
- Create more decent employment

Essentially, combination of strategic analysis & social dialogue

- Substantial skills sector studies for traded sectors,
- With strong social partner and stakeholder involvement, and engagement
SNA: Quantitative and Qualitative Approaches

Level of Accuracy

Complexity and Resource Requirement

- Combined approach
  - no single method is perfect
  - Fit for purpose
  - Consider sustainability

- Job Opportunity Index
- Use of Administrative Data
- Trends/time-series analysis
- Special Studies (Tracer/Rate of Return)
- Enterprise Survey
- Stakeholder Driven Forums
- Sector Studies
- Use of Administrative Data
- Stakeholder Driven Forums
- Combined approach
  - no single method is perfect
  - Fit for purpose
  - Consider sustainability

Econometric Modeling

- Combined approach
  - no single method is perfect
  - Fit for purpose
  - Consider sustainability
National institutional arrangements conducive to anticipating and meeting skill needs

- Councils/ Commissions (Employment and Skills, HRD, TVET) – tripartite, multistakeholder – and their secretariats
- Interministerial committees, working groups, coordination bodies (e.g. Technical and Vocational Education Commission, Sri Lanka).

- National employment and training / HRD authorities / boards (e.g. TESDA, Philippines).
- Expert groups (on future skill needs)
- Sector Skills Councils
A good system for skills anticipation and better matching

Could be centralised or decentralised

Combine different elements and perspectives

Always shared by a number of institutions

Holistic and coordinated

Sustainable

Based on social dialogue
- How do we translate findings into effective action?
Enterprise/Sector
- HRD plan
- Recruitment

Policy making

Adjusting number and contents of training programs
- Reflecting on ToT
- Upgrading equipment
- PPP arrangements

LM Bulletin
On-line Info

Skills needs

Training providers

PES
- Career Counselling

Qualifications, Assessment & Certification system
- Introduction/adjustment of new standards and curriculum
- Development of new qualifications
- Reflecting on assessor training
Translating of SNA into actions: Challenges

- Time lag between producing findings and their incorporation into skills policies and standards (e.g. qualification standards, curricula, training delivery)
- Information and data available but under-utilized or not used for analysis, planning and decision making
- Ad hoc surveys – not embedded in the system
- Weak responsiveness of education and training systems
- Intermediary institutions (e.g. PES, guidance systems) underdeveloped or under-utilized
- Partnership in skills development still to be enhanced (e.g. education – business cooperation)
- Insufficient funding, …. other examples?

Common knowledge and action base
Evidence based policy making
Improve capacities
Further guidelines

Guide to anticipating and matching skills and jobs, Cedefop, ETF, ILO 2015-17.

Volume 1: Using labour market information
Volume 2: Developing skills foresights, scenarios and forecasts
Volume 3: Working at sectoral level
Volume 4: Role of employment services provided
Volume 5: Developing and running an establishment skills survey
Volume 6: Carrying out tracer studies

Anticipating skill needs for green jobs: A practical guide, ILO, 2015
THANK YOU