Governance of EU skills anticipation and matching systems: country review in Bulgaria

Cedefop seminar on “Skills anticipation methods and tools”

- Skills anticipation tools
- Skills forecasting
- Employer skills surveys
- Consensus building as a tool to develop shared views

Stakeholders’ meeting
Sofia, 13 November 2017

SKILLS ANTICIPATION TOOLS

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13 November 2017

CEDEFOP European Centre for the Development of Vocational Training

Panteia Research in Progress

cambridge econometrics clarity from complexity

ECONOMIX Research & Consulting

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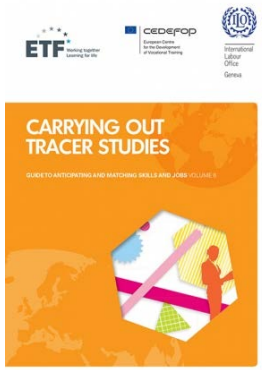
Introduction

- The presentation will provide a *tour d'horizon* of the various tools available in the undertaking skill anticipation exercises
- A variety of different approaches are available that offer something distinct but complementary
- There are also a range of materials that can be drawn upon, including the recent series of guides produced by Cedefop / ETF / Cedefop
- The EU Skills Panorama also provides a variety of useful information – especially in relation to skills anticipation

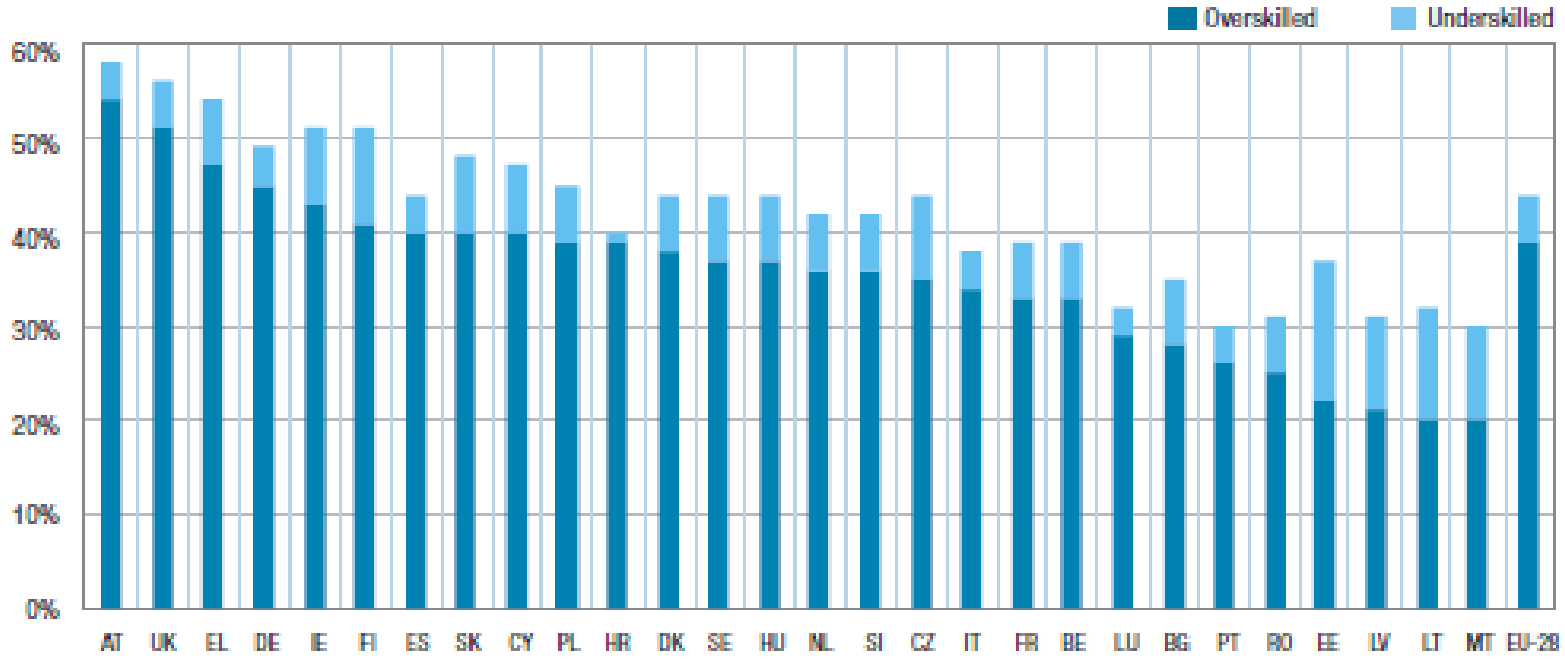


What are we trying to find out?

- Skill mismatches appear widespread across Europe
- Ideally a means to understanding this is required to discover how skills supply can better meet skills demand, both now and in the future (both over the short, medium, and long-term
  - In large measure, this is dependent upon labour market signals more clearly indicating the skills that are in demand…
  - … and the skills supply systems which are able to interpret these signals
- Hence the importance of skill anticipation tools and how the information they provide is embedded within the overall system of skills governance within a country
- But there is no 'one size fits all' approach to skills anticipation…
- … there is a need to obtain data from a number of sources and piece it together to solve the complex problem: how to anticipate and respond to skill demand?

The extent of skills mismatch across Europe: evidence from the European Skills and Job Survey

Figure 13. **Incidence of skill mismatch, adult employees, 2014, EU-28**



Source: Figure 13, p.38 Cedefop (2015) *Skills Qualifications and Jobs in the EU: the making of a perfect match? Evidence from Cedefop's European Skills and Jobs Survey*. http://www.cedefop.europa.eu/en/publications-and-resources/publications/3072

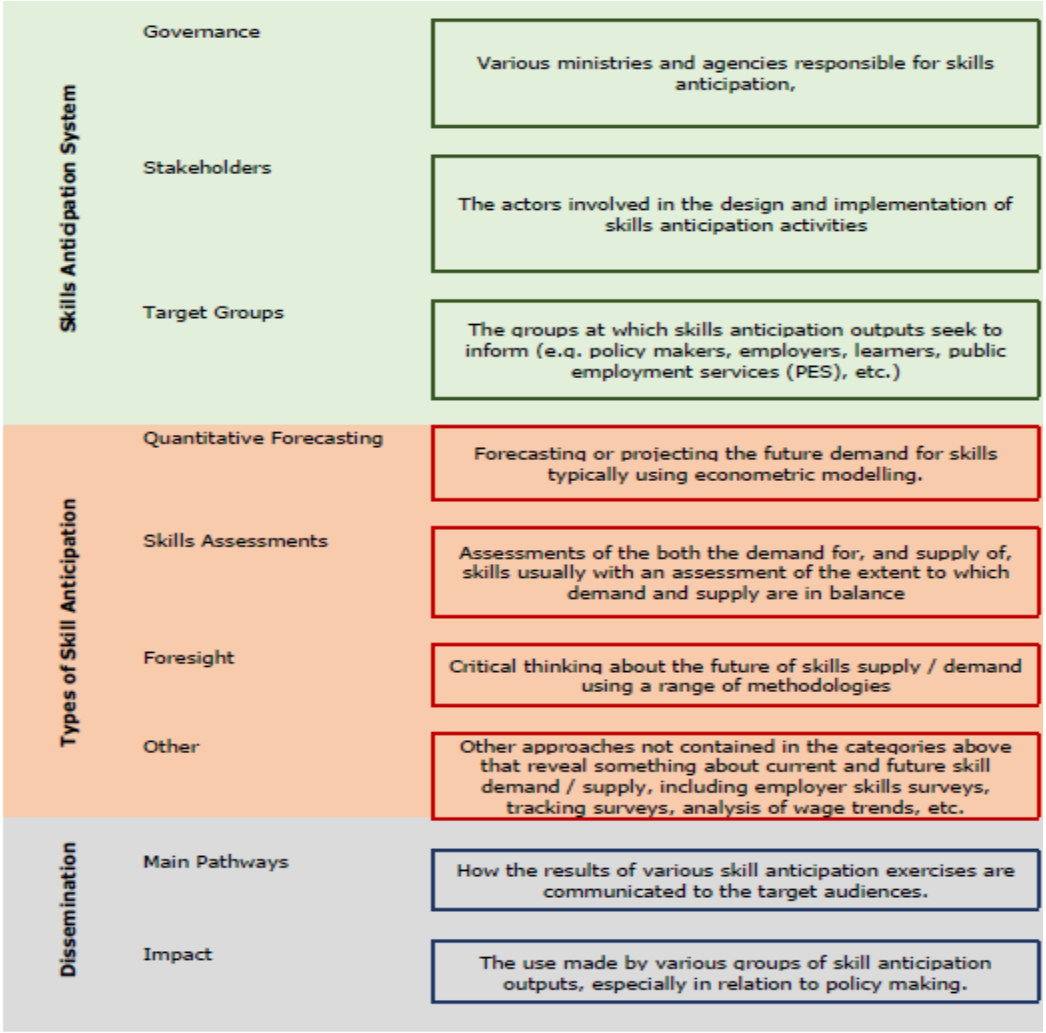
Selected key indicators

Dimension of skill system	Example of indicators
Skill demand	
Occupational employment	Number of people employed in an occupation (or with a given level of qualification or both)
Expansion demand	Additional jobs created in future
Replacement demand	The number of people who will need to be replaced because of retirements, etc.
Net requirement	Expansion demand plus replacement demand
Skills supply	
New entrants	Number of people exiting the formal education and training sector
Employee training	Number of employees trained in last four weeks (formal, non-formal)
Skill mismatches	
Skill shortage vacancies	Number of vacancies proving hard-to-fill because applicants lack skills, qualifications, experience sought
Horizontal skill mismatches	People have right level of qualification but in wrong subject
Vertical skill mismatches	People have wrong level of qualification but in right subject
Skill gaps	Extent to which existing workforce are proficient at their current job
Latent skill gaps	Skill gaps that would emerge if employers were to raise their level of performance to at least that of average employer

Skill is a derived demand

- The demand for skill will derive from, amongst other things:
  - The overall aggregate demand for labour
  - Firms' product market strategies
- And tackling skill mismatches typically requires a concerted response
  - At a policy level
  - With respect to data gathering and collation of of labour market intelligence
  - Dissemination of labour market information

The wider context



Source: CEDEFOP Skills Panorama – see: http://skillspanorama.cedefop.europa.eu/en/analytical-highlights?f[0]=field_collection%3A765 for detailed information on how countries undertake skills anticipation in practice

Differing approaches

Understanding the current state of affairs

- Understanding the returns of different types of education and training currently, and the way the existing stock of skill is utilised
- Important approaches here include:
  - Employer surveys (to be discussed later)
  - Survey of employees (and the economically active population)
  - Tracer studies
  - Skill assessments at occupational, sectoral, regional / local levels

Capturing a view about the future

- Ideally the aim is to influence future decisions, so some view of what is likely to happen over the medium-term is required.
- Important here are:
  - Projections of future skill demand using econometric models (Rachel Beaven will present on this later)
    - providing an assessment of what the future will look like if current trends continue
  - More qualitative assessments including foresight and horizon scanning (Paul Vroonhof will present on this later)
    - This provides the opportunity to assess the way in which future trends might be disrupted in some way

Approaches I

	Time span	Advantages	Disadvantages	Other comments
Qualitative investigations				
Employer Case Studies	Variable	Provide detailed information	Not necessarily representative	Sometimes difficult to persuade atypical respondents to participate
Focus groups / group interviews	Variable	Provide detailed information	Not necessarily representative	
Questionnaire Surveys				
Employers	Usually short-term	Allows specific questions to be asked	Difficulties of obtaining good response rates	Costly
Individuals / workers				
Tracking studies				
e.g. of recent graduates	Short=term	Detailed evidence of graduate destinations	Sample attrition	

Approaches II

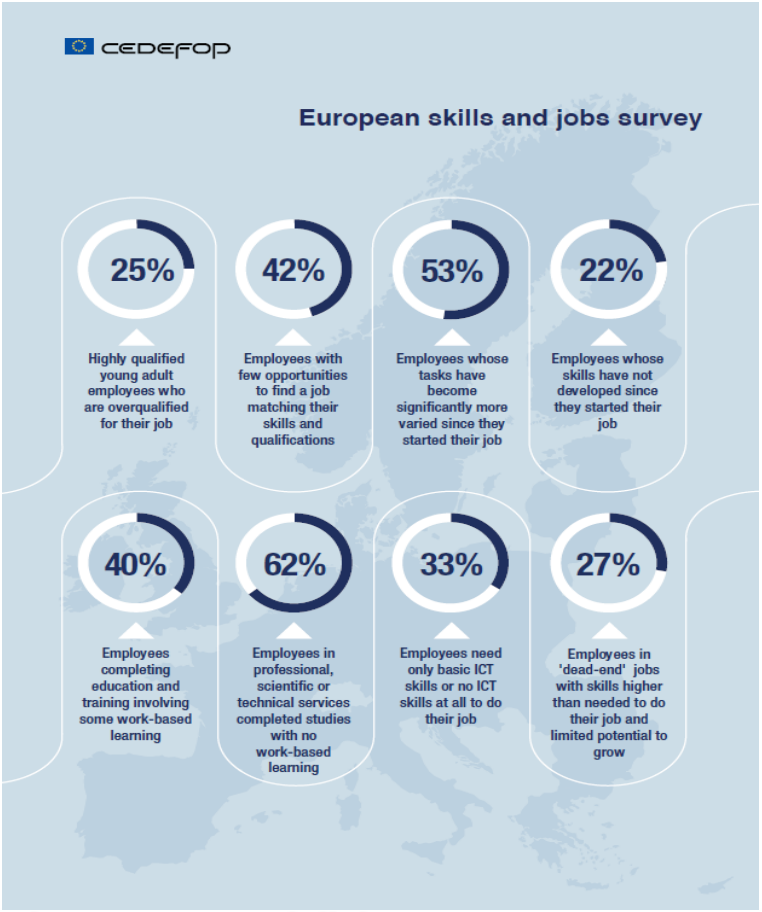
	Time span	Advantages	Disadvantages	Other comments
Quantitative analysis				
e.g. analyses of wage returns	Usually short-term	Provides an indication of shortages	Requires data to be available	Relatively inexpensive
Analysis of administrative databases	Usually short-term	Provides detailed analysis	Measures of skill seldom available	
Future				
Skill Projections	Medium-term	Robust determination of likely future trends	Projection of past trends	Costly, require data in time series
Foresight	Medium to long term	Long-term view, inclusion of disruptive events	Can be speculative	
Horizon scanning	Long-term	Long-term view, inclusion of disruptive events	Speculative	
Mixed methods				
e.g. sector skill assessments	Short, medium and long-term	Synthesis of existing evidence / wide range of perspectives	Requires existing evidence	Makes the most of the evidence available

No one approach offers all the answers

- Each approach has its advantages and disadvantages
  - **Studies based on historical data**
    - **Advantages** – are based on solid evidence
    - **Disadvantages** – the returns obtained in the past may not accrue in the future given changes in the external environment
  - **Future oriented studies**
    - **Advantages** – provide a systematic view of what is likely to occur in the future assuming a continuation of past trends
    - **Disadvantages** – not always able to take into account disruptive events (e.g. the impact of Industry 4.0) or if they do, it is speculative
- Hence the need for an integrated approach

An example

Evidence from Cedefop's European Skills and Jobs Survey



Questions prompted by the results

- Which employees are most affected by mismatch?
- Why have the skills mismatches occurred?
- What is the role of the employer in the observed findings?
- Why have employees not been able to access training?
- What are the implications of these skills mismatches for the future?
- Are future trends likely to exacerbate, or will they ameliorate the current situation?

Today's presentations

- The presentations that follow cover:
  - Skills forecasting
  - Qualitative approaches to viewing future skill needs
  - Employer Skill Surveys
  - Although there are other approaches to skills anticipation, the aim of today's presentations is very much that of demonstrating what each approach can offer but…
    - … at the same time, also to reveal how combining other approaches can provide a more holistic understanding of the current state of skills demand…
      - … and reveal much about the extent, causes, and implications of any skill mismatches, both now and in the future
- The presenters are also available to offer support and advice following today's event

Thank you

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APPROACHES TO FORECASTING SKILLS SUPPLY AND DEMAND

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13 November 2017

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Introduction

- The rationale for making quantified projections of employment and skills
- Using macroeconomic models
- The strengths and limitations of this approach
- Example: Cedefop's skills supply and demand forecasts
- The outputs and how they can be used
- The requirements of this approach

The rationale for making quantified projections of employment and skills

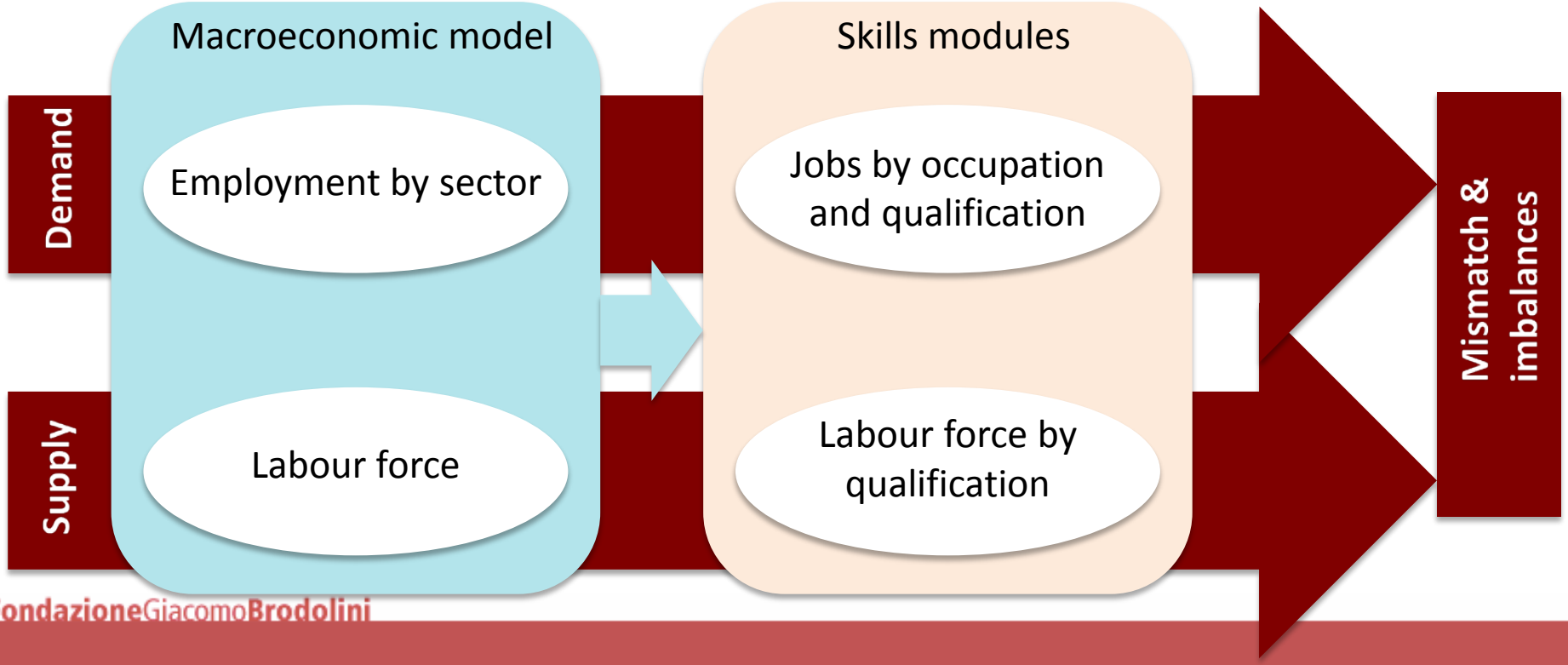
- To fill existing information deficits and reduce future labour market imbalances
- To inform various actors on future labour market needs, as an aid to their choices and decision-making
- To support policy-making in employment and social protection, lifelong learning, guidance and counselling and migration
- To answer questions
  - in which sectors and occupations will employment be growing?
  - for which qualifications will demand increase or decrease?
  - what about replacement needs?
  - how will this compare with supply?

Getting started – key questions?

When?	• What is the timeframe over which the forecast will be performed and for how long?
By whom?	• Who is the funding body? • Who will produce and update the forecast?
For whom?	• What is the target group or the goal of the skills forecast?
How?	• Which approach and/or methodology will be used to produce and present the forecast?

Using macroeconomic models

- Best practice involves the production of quantified national-level projections using
  - a detailed multi-sectoral macroeconomic model
  - modules to translate the results into implications for skills demand and supply



The strengths and limitations of this approach

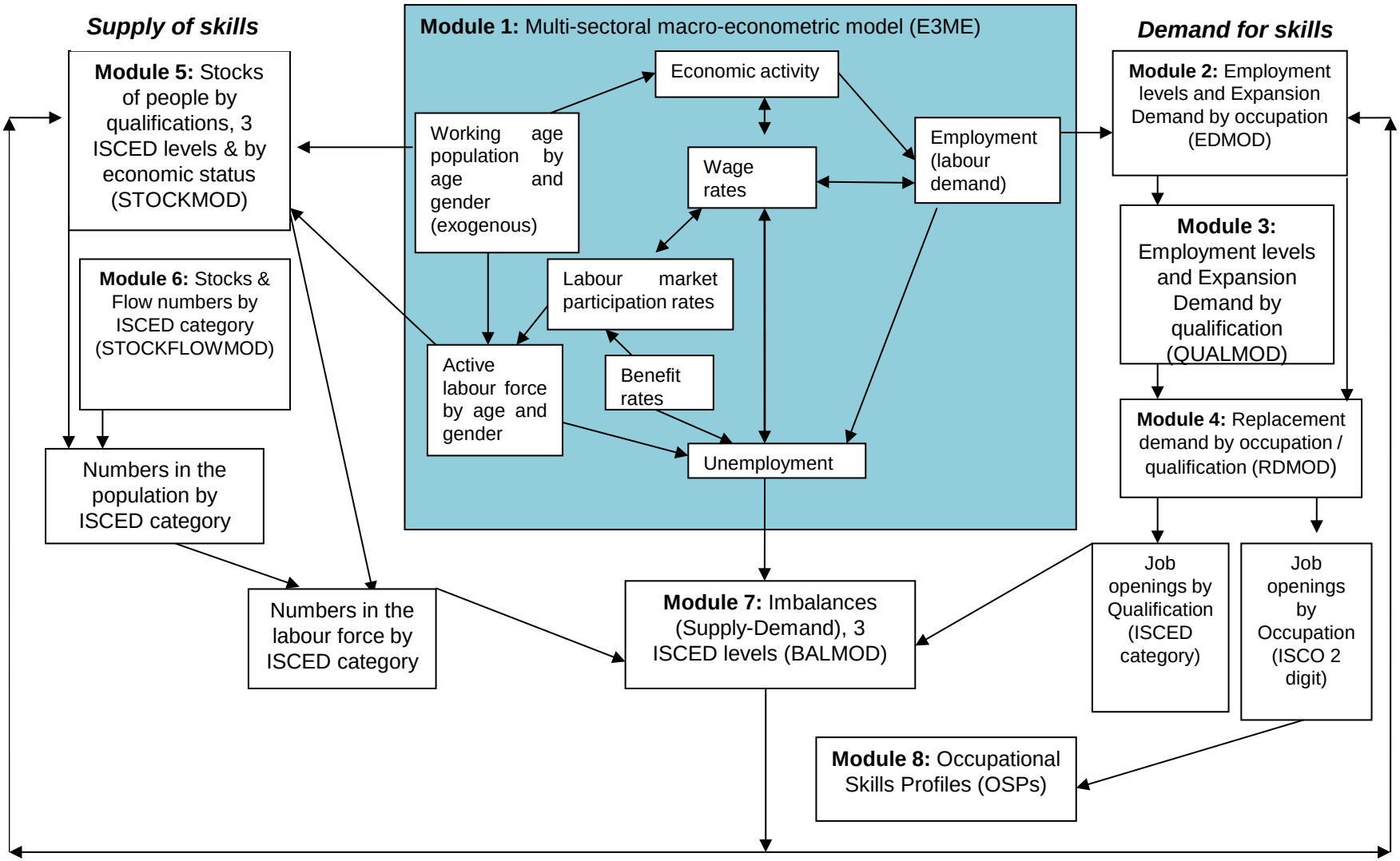
- Comprehensive
- Transparent
- Consistent
- Quantified

- Data-hungry
- Costly
- Not everything can be measured
- May give a misleading impression of precision

Example: Cedefop's skills supply and demand forecasts

When?	• Medium to long-term projections, updated every 1-2 years
By whom?	• Funded by Cedefop • Developed, maintained and updated by an international consortium of experts
For whom?	• Policymakers, education and training providers, employers, careers advisors, individuals • A common and consistent economy-wide overview of skill needs, allowing detailed comparisons across countries and sectors
How?	• A quantitative modelling framework, including a macroeconomic model • Supplemented by qualitative judgement through validation by *Skillsnet* experts

Quantitative modelling framework



The E3ME macro-econometric model

- Computer-based model of the world's economic, energy and the environment system
- Based on an accounting framework and designed for projections for business and policy analysis
- Collection of stochastic econometric behavioural equations and accounting identities
- Macro-econometric model based on a post-Keynesian framework
  - institutional behaviour (e.g. of an industry) is specific to a region over a time period
  - demand-led: consumer demand made effective by income
  - optimisation not assumed, no general equilibrium

E3ME - the treatment of the labour market

- Labour markets
  - disaggregated by industry and region with interactions across industries and regions in wage equations
- Labour demand
  - derived from demand for goods and services
  - determined by output, costs of labour relative to value of output produced, unemployment and benefit rates
- Labour supply
  - derived from working age population and participation rates by gender (in turn affected by regional unemployment)
- Wage rates
  - set in an employer-union bargaining model adapted to industry-region labour markets

Modelling the supply of and demand for skills

- Use of the Labour Force Survey to measure skills (occupations and qualifications)
- Separate supply, demand and imbalances modules
- Demand – occupational and qualification patterns within industries
- Supply – stock flow models of qualification attainments
- Imbalances and mismatches – reconciling demand with available supply

The information produced

Skills demand	Skills supply	Mismatch and imbalances
• Sector /industry (41 NACE Rev 2 industries) • Occupation (one and two-digit level ISCO08 occupational groups) • Qualifications (3 broad ISCED qualification/ education levels) • “Expansion” demands • “Replacement” demands • “Total Net Requirements”	• Age group (5-year age bands starting from 15-19 until 65+) • Gender • Qualifications (3 broad ISCED qualification/ education levels)	• Unemployment by country and qualification level • Imbalance indicators (indicators focussing on the reconciliation of the demand and supply measures by highest qualification level)

A common and consistent economy-wide overview of skill needs, allowing detailed comparisons across countries and sectors

Communicating the findings

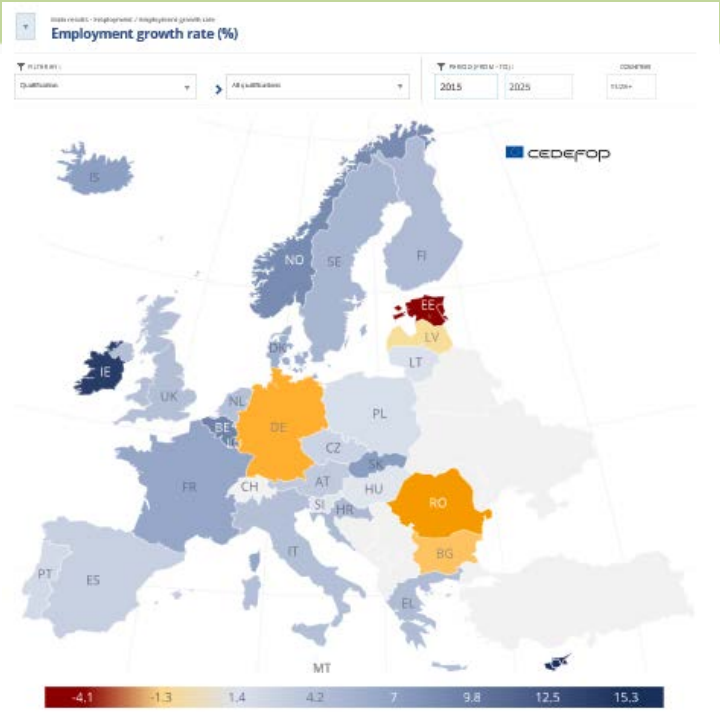
- Making this information accessible for a range of different users is also a complex task
- *Conventional reports* distributed as hard copies and online
  - "headline" briefing documents
  - detailed technical reports
- *Analytical datasets* for researchers
- *Web-based platforms*
  - Cedefop's website
  - Skills Panorama

Communicating the findings: Cedefop

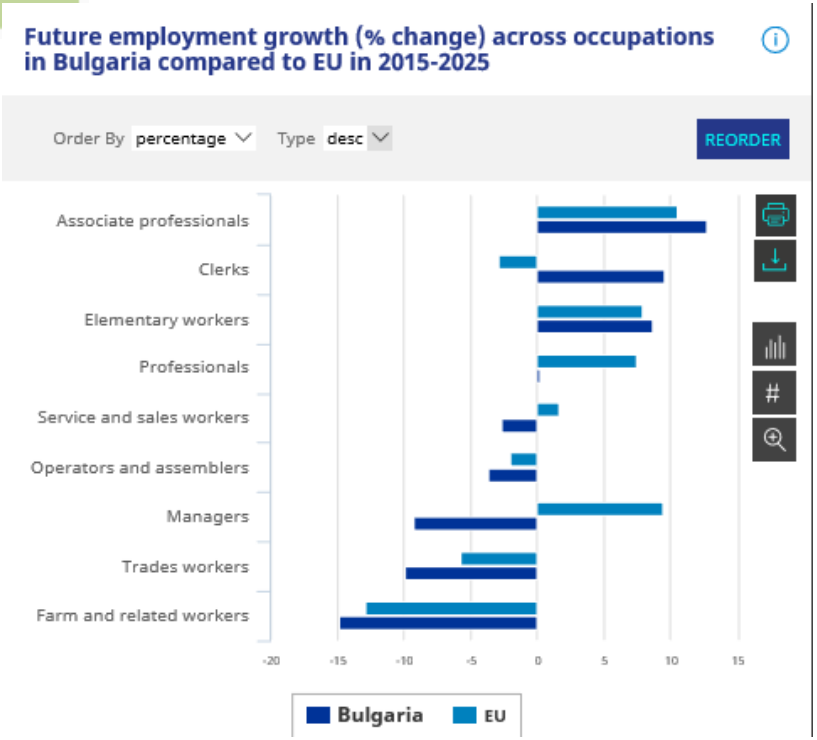
Bulgaria: Forecast highlights up to 2025

Between now and 2025:

- Employment is forecast to remain below its 2008 pre-crisis level.
- Most employment growth will be in business services.
- Most job opportunities, around 21% for elementary occupations.
- Around 38% of the labour force will have high-level qualifications compared to 31% in 2013.



http://www.cedefop.europa.eu/en/events-and-projects/projects/forecasting-skill-demand-and-supply/data-visualisations



http://skillspanorama.cedefop.europa.eu/en/countries/bulgaria

Communicating the findings: UK examples

Why use Working Futures?

The main purpose of Working Futures is to provide a rich source of information that can inform choice and facilitate evidence based rather than anecdotal decision making.

For employers, it gives an indication of future requirements for skilled labour, including by industry sector and occupation.

For individuals, it gives a sense of where the future jobs may be – and whether they're in growth industries, or meeting a need to replace retiring workers.

For education and training providers it gives an insight into the skills that are likely to be in the greatest demand in future.

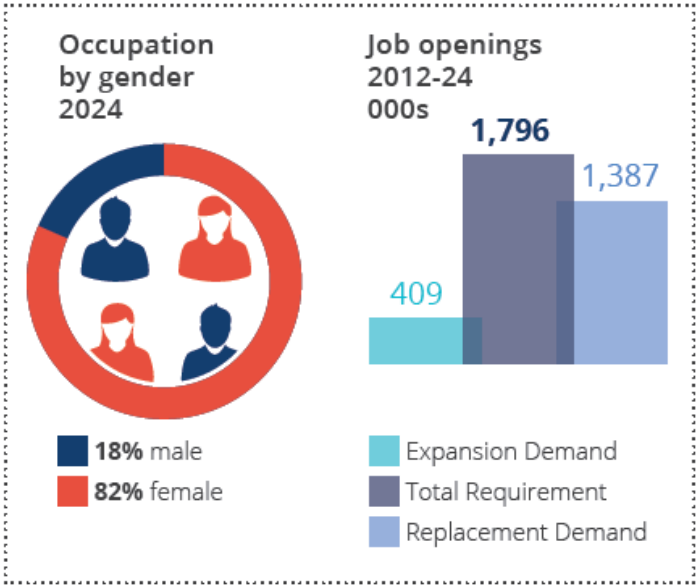
And for policymakers, it allows us to think about whether we're going to have the right people in the right jobs in the future.

https://www.gov.uk/government/publications/uk-labour-market-projections-2014-to-2024

Communicating the findings: UK examples

Managers, directors and senior officials	Professional occupations	Associate, professional and technical	Administrative and secretarial	Skilled trades occupations	**Caring, leisure and other services**	Sales and customer service	Elementary occupations

11%
share of 2024 employment



3%
net employment change 2014–2024

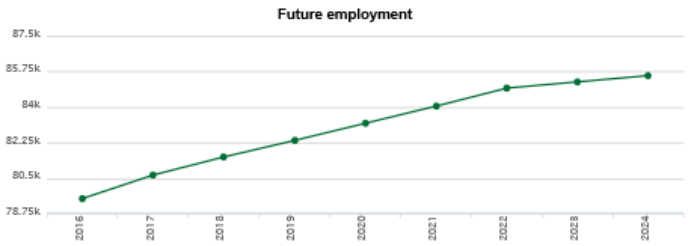
https://www.gov.uk/government/publications/uk-labour-market-projections-2014-to-2024

Communicating the findings: UK examples

£42,640
average salary

39
average weekly hours

4% female 96% male



Description
Design and development engineers conceive engineering designs from product ideas or requirements in mechanical, electrical and electronic engineering.

Qualifications
Design and development engineers usually possess an accredited university degree or equivalent qualification. All routes are followed by periods of appropriate training and relevant experience in order to qualify for membership of a chartered engineering institution. Incorporated engineers possess an accredited university degree, BTEC/SQA award or an apprenticeship leading to an NVQ/SVQ at Level 4.

Tasks

- Assesses product requirements, including costs, manufacturing feasibility and market requirements;
- Prepares working designs for steam, aero, turbine, marine and electrical engines, mechanical instruments, aircraft and missile structures, vehicle and ship structures, plant and machinery equipment, domestic electrical appliances, building systems and services, and electronic computing and telecommunications equipment;
- Arranges construction and testing of model or prototype and modifies design if necessary;
- Produces final design information for use in preparation of layouts, parts lists, etc.;
- Prepares specifications for materials and other components.

Top 10 industries for this job	
Architectural & related	18668
Machinery, etc	6120
Specialised construction	5617
Other trans. equipment	4852
Motor vehicles, etc	4479
Construction	3186
Computers, etc	3164
Electrical equipment	2978
Scientific research	2526
Metal products	2481

- Integrated with other LMI: https://icould.com/videos/allan-h/

Summary of the quantitative approach to forecasting

- Multi-sectoral macroeconometric model
  - output and employment by industry, etc
- Quantitative, econometric models, moderated by qualitative evidence for occupations & qualifications, often using simpler extrapolative methods where data are weaker
- Judgement
  - all forecasts are based on assumptions – it is important they are *explicit* & *transparent*

Requirements of a quantitative approach

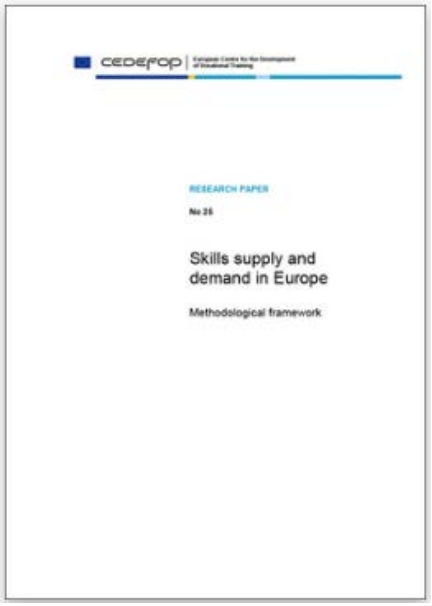
- Approach used is determined by
  - available data
  - labour market context (user requirements)
- Data requirements for quantitative modelling
  - National accounts (macro/sectoral models) and input-output table
  - Time series on employment by sectors
  - Information on occupational and qualification structure within sectors
  - Structure of the population (past and future)
- Long-term commitment to modelling infrastructure

Summary

- The rationale and methods for making quantified projections of employment and skills are now well established
- The projections provide evidence to help improve the match between labour market needs and skills supply
- Ongoing developments are required
  - to better meet the needs of users, for example: measuring jobs and skills; communicating the results and their value
  - to adapt to and measure the changing nature of the labour market

Further Reading

- ETF, ILO and Cedefop (2016), *Developing skills foresights, scenarios and forecasts - Guide to anticipating and matching skills and jobs VOLUME 2*, http://www.cedefop.europa.eu/en/publications-and-resources/publications/2216
- Cedefop (2012), *Research Paper No. 25: Skills supply and demand in Europe - Methodological framework*, http://www.cedefop.europa.eu/en/publications-and-resources/publications/5525



Thank you

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EMPLOYER SKILL SURVEYS

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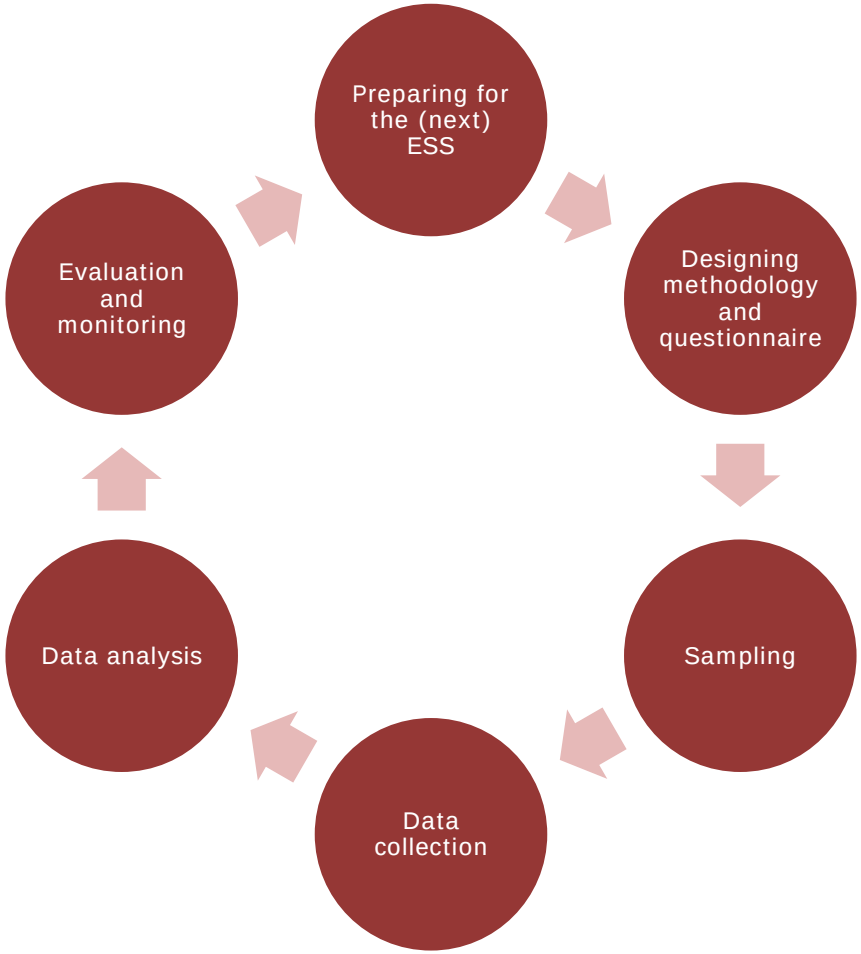
Introduction

- The presentation will cover:
  - Purpose
  - Design
  - Implementation
  - Analysis
- In doing so, it will draw from the CEDEFOP / ETF / ILO guide – Developing and Running an Establishment Skills Survey (2017)

The process of conducting an Employer Skill Survey (ESS)



Preparation

Is an ESS required?

- What information is required and for what purpose?
- What will be the policy impact of knowing that information?
- To what extent are other (proxy) data already available?
- Are there other less expensive ways the data could be collected?
- Is there a sampling frame? (If not, then this may prove to be a prior issue to be resolved)

If so, what needs to be collected and by whom?

- What indicators are required (think about the end output)?
- How much detail is required (e.g. levels of disaggregation by occupation, industry, region, etc.)
- What should the unit of analysis be – enterprise or workplace (establishment)?
- Is there a size cut-off point (e.g. only workplaces with five or more employees)?
- Which departments / agencies / stakeholders need to be involved?

Coverage

- National, sectoral, regional, or local?
- Surveys do not need to be national in coverage…
  - They can, and do, perform an important role of the level of the sector or the local / regional economy
- Regardless of the level of coverage the methodological issues to be addressed are the same…
  - … though the type of stakeholder involved may differ (as will costs)

Methodology

What do you want to know?

- A range of issues can be addressed
- What you want to know may shape the approach taken
- Typical content:
  - Skill demand
  - Skill supply
    - How much training is provided / funded by workplace to employees
  - Skill mismatch
    - in external labour market
    - within the workplace
- Engagement with external VET institutions

Approaches

- Often an issue of how ‘skill’ is to be conceptualised. For example, skill can be captured by:
  - occupation
  - qualification
  - job (task) requirements
- Mismatches tend to be defined with reference to:
  - vacancies
  - relative wages

Methodology

Occupation based approach

- Starts by asking questions about the occupational structure of the workplace – at either one or two-digit level using national / international classifications
- Then asks, amongst other things, questions about:
  - Employment change
  - Typical qualification level
  - Receipt of training
  - Internal and external skill problems
- Examples include Employers Skill Survey in the UK or Manpower Talent Surveys

Job / Task Requirements Approach

- Questions about specific jobs in the workplace
- Then takes a sample of those jobs (e.g. based on their importance to the sector or workplace) and asks questions about:
  - Specific generic skills
  - Their importance to the job
  - Changes in the importance of the job
- Examples include the Cedefop Employer Pilot Survey, plus some surveys that feed into O*NET also incorporate aspects of this approach

Principal Skill Measures

Occupation (ISCO)

1. Managers
2. Professionals
3. Technicians and Associate Professionals
4. Clerical Support Workers
5. Services and Sales Workers
6. Skilled Agricultural, Forestry and Fishery Workers
7. Craft and Related Trades Workers
8. Plant and Machine Operators and Assemblers
9. Elementary Occupations
0. Armed Forces Occupations

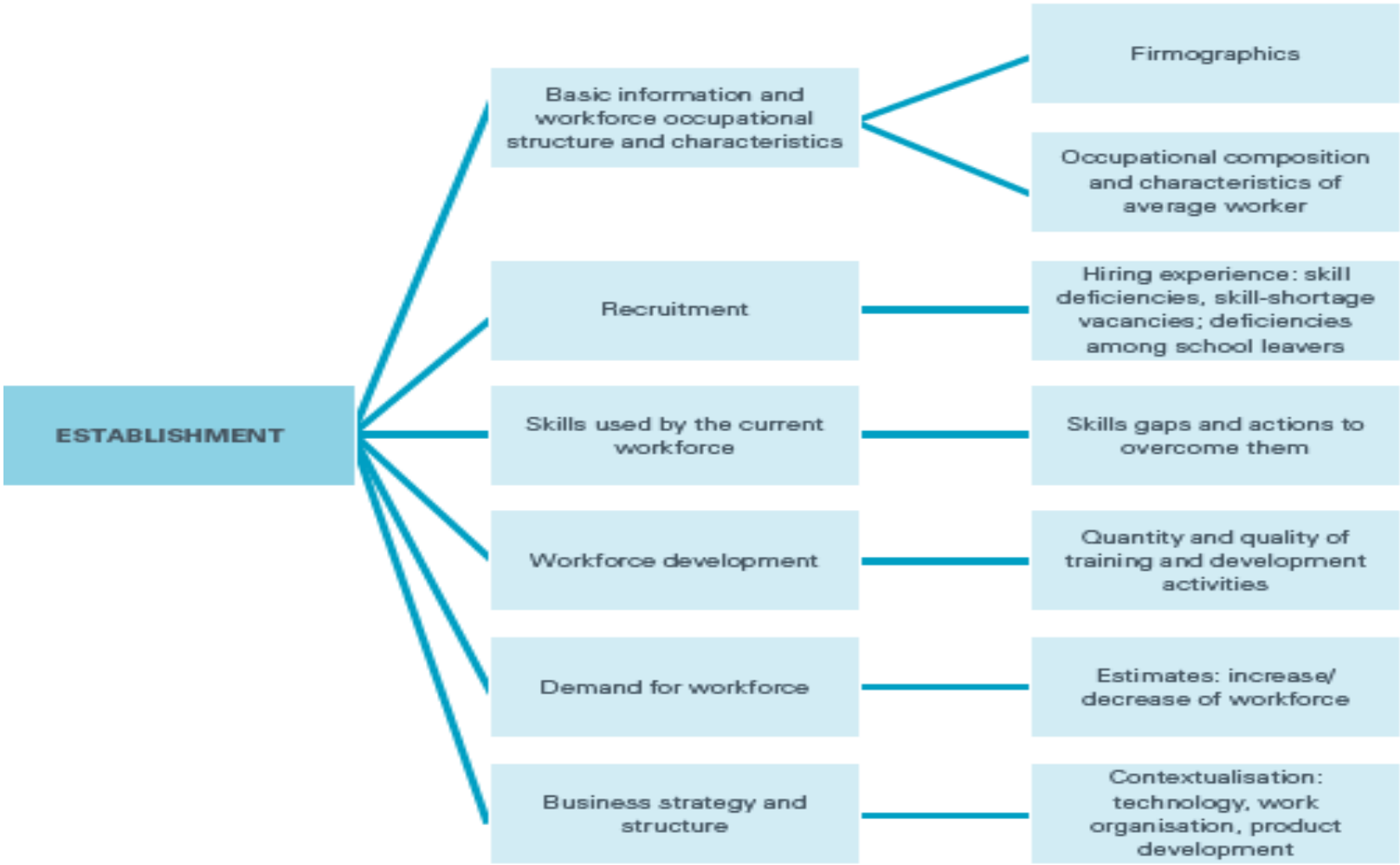
Source: http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm

Educational attainment (ISCED)

0 Less than primary education
1 Primary education
2 Lower secondary education
3 Upper secondary education
4 Post-secondary non-tertiary education
5 Short-cycle tertiary education
6 Bachelor's or equivalent level
7 Masters or equivalent level
8 Doctoral or equivalent level

Source: http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf

Questionnaire design



Source: Main and Corbella (2017)

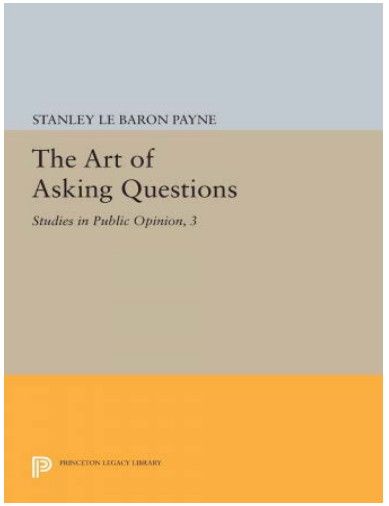
The art of asking questions

Key points

- Keep questions short
- Keep them simple
- Make sure they can be answered by respondent
- Never ask for more than one piece of information in a single question
- Example questionnaires
  - UK Employers Skill Survey
  - CEDEFOP pilot survey
  - CEDEFOP key questions

Useful resources

- For example Eurostat guidelines
- Classic book first published in 1951 – *The Art of Asking Questions* by Stanley le Baron Payne



Sampling

Sampling frame

- Need to have information on the population being sampled / the survey needs to be representative of a population of employers (at the level of the economy, sector, region…)
- The unit of analysis needs to be decided:
    - establishments; versus
    - enterprises
- Tends to be limited to formal economy
- If no sampling frame available - may need to construct one

Choices

- Degree of accuracy required – may require large sample sizes
    - begs the question – how much funding is available?
- Controlling for employer size, sector, region, occupation structure, etc…
- Improving the quality of the sampling frame
- Extent of post-survey weighting (to ensure that sample matches known population characteristics)
- How will the sample be drawn?
- Longitudinal element?

Sample Design

Simple random sampling: each item in the population is equally likely to be selected. The technique can be used in more complex methods.

Systematic random sampling: identify the population size *N* and the sample size *n*; $K = N/n$; randomly select a starting point within the K interval; then select every *K*th item thereafter. Be careful as the order can be related to a characteristic of the population (for instance, the establishments of an enterprise can be together).

Stratified sampling: samples are selected independently within strata. Strata are non-overlapping subgroups of the survey population; for instance, sector can be used to stratify. Simple random sampling can be used within strata. This method requires a census in which individuals are correctly classified according to strata and sampling weights (see below). Quota sampling is like stratified sampling but without random selection within strata; it should not be used to do statistical inference.

Cluster sampling: clusters, which are groups of heterogeneous establishments, are selected. A population is split into non-overlapping parts; each part is a primary sampling unit (PSU). All the elements of the selected PSU enter the final sample. PSUs can be sampled by simple random sampling. This technique is often used when other methods are unfeasible, impractical or expensive. It may be chosen because there is no sampling frame. For instance, geographic areas (e.g. villages) can be defined as basic units to be randomly sampled. All the establishments in the selected area will be taken for analysis.

Multistage sampling: within the randomly selected initial sampling units or first-stage sample (PSU), subsamples are randomly selected to create a second-stage sample. By repeating this operation, you can select a higher-stage sample.

Source: Main and Corbella (2017) p.46 (CEDEFOP/ETF/ILO)

Data collection

How to collect the data

- Face-to-face (expensive, but good when using several open-ended questions that have prompts attached to them)
- Telephone surveys – efficient, but rely upon most questions being closed with an interview duration of around 20 minutes. Response rates tend to be reasonable
- Online – good when you have some control over respondents, otherwise response rates can be low
- Mixed methods – can be useful when dealing with diverse population

Data collection

- Use professional survey organisation?
- Duration of data collection (if over a long-period, how to deal with seasonality)
- Training / briefing of interviewers
- Importance of piloting
- How to deal with non-response (e.g. how many call backs, etc.)

Data cleaning / preparation

Data cleaning

- Logic checks – check that people who are routed to ask a question, are asked a question (and vice versa)
- Check coding – all valid ranges to questions are included
- Check frequency distributions of all questions

Data preparation and pre-analysis checks

- Post-survey weighting
  - This can be as much an art as a science, if weights are large then need to consider whether they should be used
  - Generally – tend to over-sample small groups (e.g. large employers) and then amend via post-survey weighting
- Calculation of response rates
- Analysis of non-response

Data analysis

Pre-analysis

- Produce standard set of tabulations
- Establish key variables (size of employer, sector, etc.) and cross-tabulate every question by these key cross-break variables. It will reveal much about the quality of the data and the responses of employers

Data analysis

- Depends upon the purpose of the analyses: descriptive / analytical
- Expectation that the purpose of the survey will have driven the design which would have expected analyses in mind
- When looking at results, need to ask question: compared with what?
  - Comparisons over time
  - Comparisons with other countries
  - Base for results: % of establishments or % of employees who work in establishments
- Making data generally available to researchers for analysis

Types of information produced – employer base

% of all establishments	
Vacancies	
No vacancies	51%
Any vacancies	49%
Any HtF vacancies	17%
Vacancies but none HtF	32%
No HtF vacancies	83%
SSVs	13%
All HTFVs are SSVs	12%
HtF vacancies not skills shortage	4%
No SSVs	87%
Skills gaps	
Have any skills gaps	32%
Do not have any skills gaps	68%

Funded / arranged training	
Any training	88%
Both on-the-job and off-the-job training	65%
On-the-job only	15%
Off-the-job only	8%
Any Off-the-job	74%
None	12%

Source: UK Employer Skills Survey 2015

HtF = hard-to-fill vacancies
SSV = skill shortage vacancies

Types of information produced – employee base

	Total	% of employment
Total employment	27,755,204	
Number of vacancies	927,201	3.3
Number of HtF vacancies	303,238	1.1
Number of SSVs	209,485	0.8
Number of staff with skills gaps	1,380,237	5.0
Number trained in last 12 months	17,405,355	62.7

Source: UK Employer Skills Survey 2015

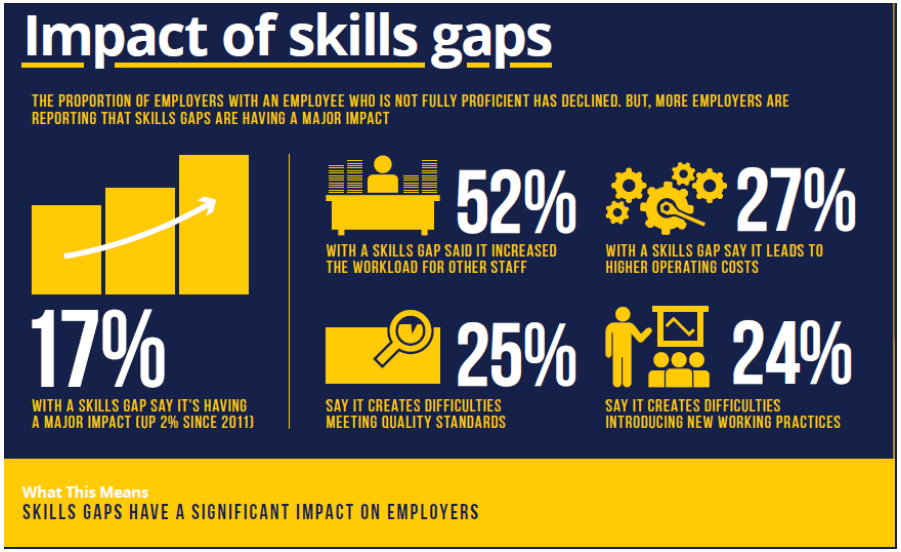
HtF - Hard to fill vacancy

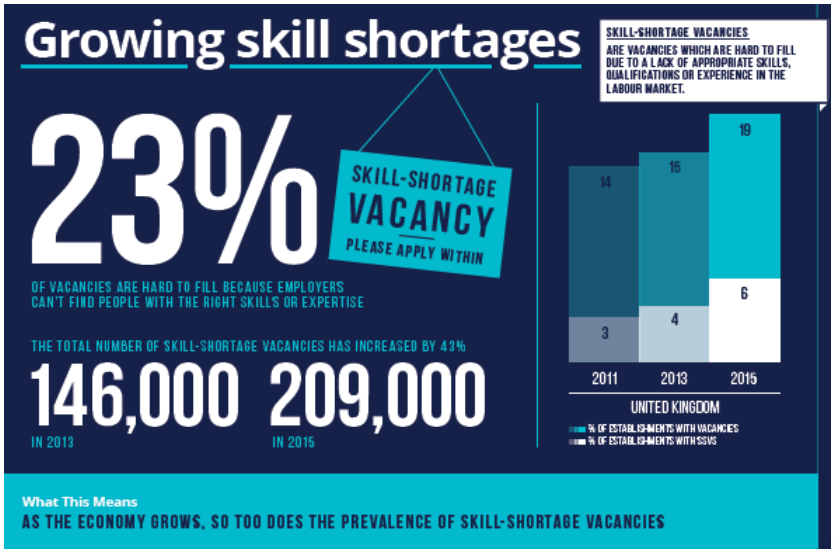
SSV - skill shortage vacancy

Communicating the findings of data analysis

- A need to tailor results to the relevant audiences
- Often there is a need to engage with a range of stakeholders in order for an ESS to be implemented as efficiently as possible and to ensure it meets policy needs
- Outputs need to be targeted at the key stakeholders – this may well necessitate a range of outputs:
  - reports
  - infographics
  - information portals with downloadable data, etc.
- An ESS needs to be seen to contributing to the key policy debates that initially gave rise to the need for an ESS
- There is also a need to integrate the results of an ESS within wider skill anticipation exercises
  - in other words, in an ideal world it is not seen as a stand-alone exercise

Examples of Infographics



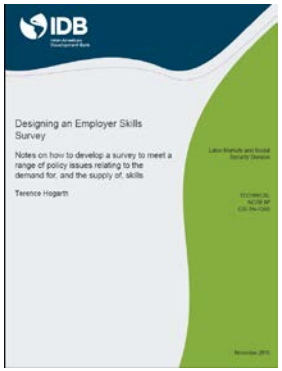


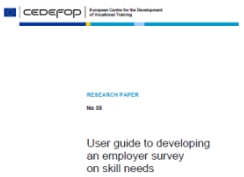
Evaluation and Monitoring

- As an ESS time-series develops, the results become increasingly embedded in policy making and planning. Thereby the need for an ESS every few years is reinforced
- Obtaining the policy community's buy-in requires, an assessment of whether the survey is meeting their needs and / or the outputs are being delivered in a way that is useful to them
- This all points to the need for an assessment to be made of the value an ESS provides and how it might be adapted to increasingly meet stakeholders needs and, importantly, address new, emerging policy issues
  - An effective means needs to be found for efficiently assessing the utility of an ESS
- In this way, the development of an ESS will be attuned to capturing developments taking place in the labour market

Further Reading

- CEDEFOP / ILO / ETF (2017) Developing and running an establishment skills survey (Guide to anticipating and matching skills and jobs VOLUME 5) (http://www.cedefop.europa.eu/en/publications-and-resources/publications/2219)
- CEDEFOP (2013) User guide to developing an employer survey on skill needs. CEDEFOP Research Paper Nº·35. www.cedefop.europa.eu/files/5535_en.pdf
- Hogarth, T. (2016) Designing an Employer Skills Survey Notes on how to develop a survey to meet a range of policy issues relating to the demand for, and the supply of, skills (https://publications.iadb.org/bitstream/handle/11319/7985/Designing-an-Employer-Skills-Survey-Notes-on-How-to-Develop-a-Survey-to-Meet-a-Range-of-Policy-Issues-Relating-to-the-Demand-for-and-the-Supply-of-Skills.pdf?sequence=1)





Thank you

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Consensus building as a tool to develop shared views

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13 November 2017

CEDEFOP European Centre for the Development of Vocational Training

Panteia Research in Progress

cambridge econometrics clarity from complexity

ECONOMIX Research & Consulting

Fondazione GiacomoBrodolini

Introduction

- The presentation will cover:
  - Purpose
  - Delphi-style methods
  - Design
  - Implementation
  - Analysis
  - Two examples
- In doing so, it will draw from the CEDEFOP / ETF / ILO guide – Developing skills foresights, scenarios and forecasts (2016)

Rationale of using consensus building as a skills anticipation tool

- Incorporating judgmental and subjective factors into forecasts
- Disruption of future trends:
  - Quantitative parameters to be used in models etc.
  - Identification and elaboration of scenarios
- Policy development and agenda setting through ranking options

A variety of qualitative methods…

- **Delphi-method**
- Horizon scanning
- Literature review
- Expert panel
- Jury of executive opinion
- Focus group
- etc

Introducing the Delphi method

- Developed by Olaf Helmer and Norman Dalkey of the Rand Corporation in the early 1950's
- The Delphi Method seeks to achieve a consensus among group members through a series of questionnaires .
- Results of each round are collected, collated and analyzed, and form the input for the next round.
- Generally provides convergence of opinions, but may provide the basis for disagreement.

Standard recipe Delphi method

- Develop the basis for a Delphi
- Design Questionnaire #1
- Solicit responses for questionnaire #1
- Analyse questionnaire #1
- Design questionnaire #2
- Solicit responses for questionnaire #2
- Analyse questionnaire #2
- Design questionnaire #3
- Solicit responses for questionnaire #3
- Analyse questionnaire #3
- …….
- Closure

From analysis to next round questionnaire

- Consensus ->
  - Aspect on hold and/or
  - Communicate to participants
- Opinions converging -> Continue process
- Strongly diverging opinions ->
  - Direct communication to seek explanation, identify underlying assumptions, etc.
  - Define scenarios, alternatives, etc. and include in questionnaire

Pros and cons of Delphi analysis

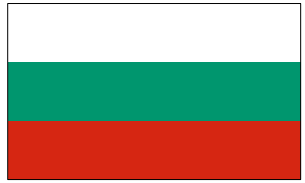
Advantages

- Avoids large group gatherings
- Anonimity
- Single or multiple questions
- Large number of experts and opinions
- Equal say experts, free of social/political pressure
- Possibility to reflect (time), reconsider or explain
- Acceptance results

Disadvantages

- Time-consuming process
- Labour intensive
- Participant expertise may reduce results
- Team leaders can bias the results:
  - By accident (difficult task)
  - By choice (manipulation)
- Bandwagon effect of a majority opinion
- Ambiguity regarding panel size and consensus levels required

Example 1: BG country review



Consensus building exercise – **development of national policy agenda** to make skills governance stronger in Bulgaria.

CEDEFOP European Centre for the Development of Vocational Training

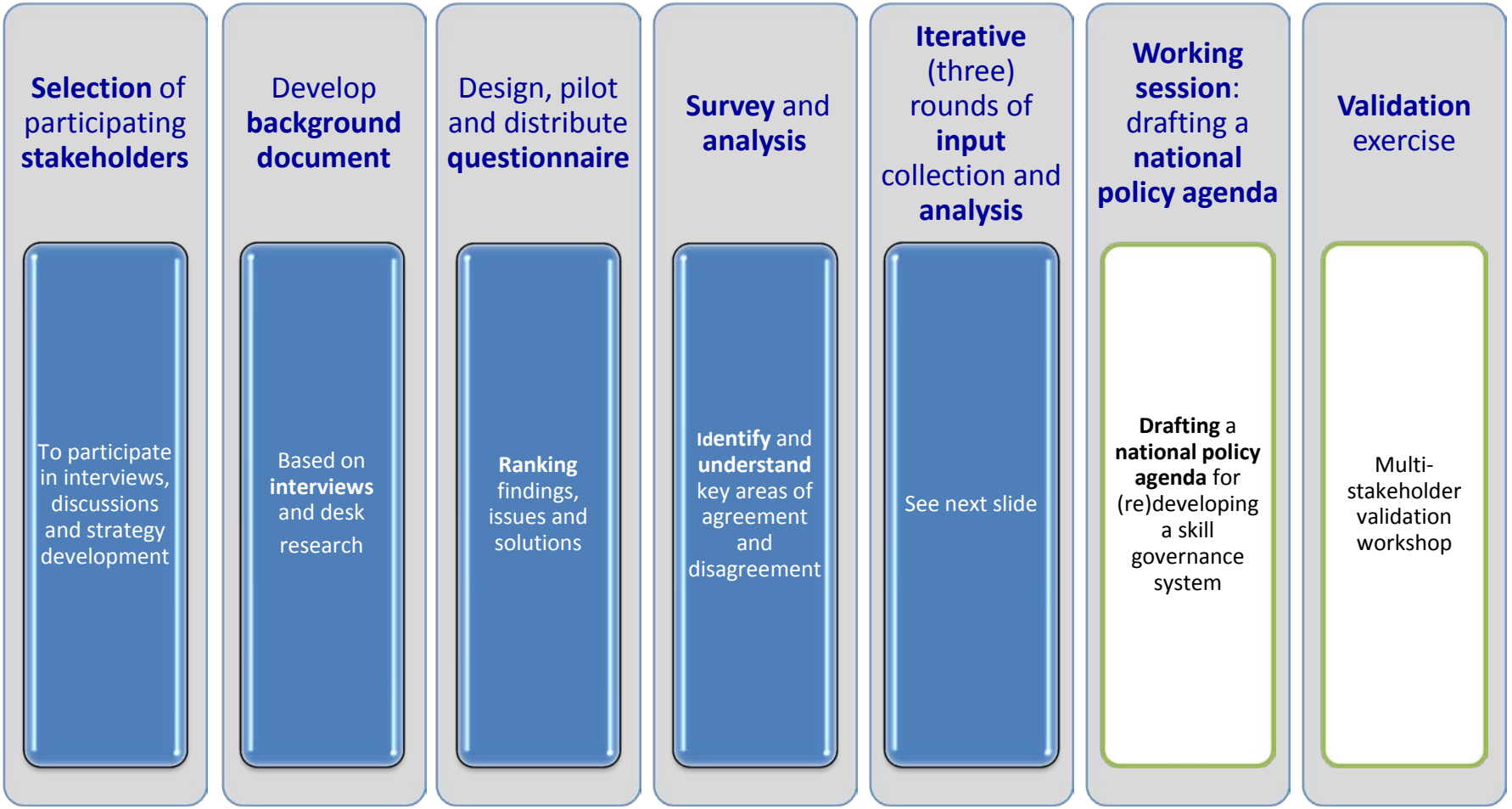
Aims:

1. To diagnose the principal **strengths and weaknesses** in skills governance and
2. To develop a **shared understanding** of how the **weaknesses** might be **overcome** and the **strengths** can be further **built** upon.

Tool: Iterative, **Delphi**-like method: stakeholders discuss **strategies** (elements, steps) and **policy changes**.

Main feature: to **filter out** information that **distracts** from main points and **focus** on points on which progression is **realistic**.

Consensus building: how do we do it?



Iterative delphi-like method

Basis: survey and **analysis,** to **understand** key areas of **(dis)agreement**.

Iterative (three) **rounds** of data collection and analysis:

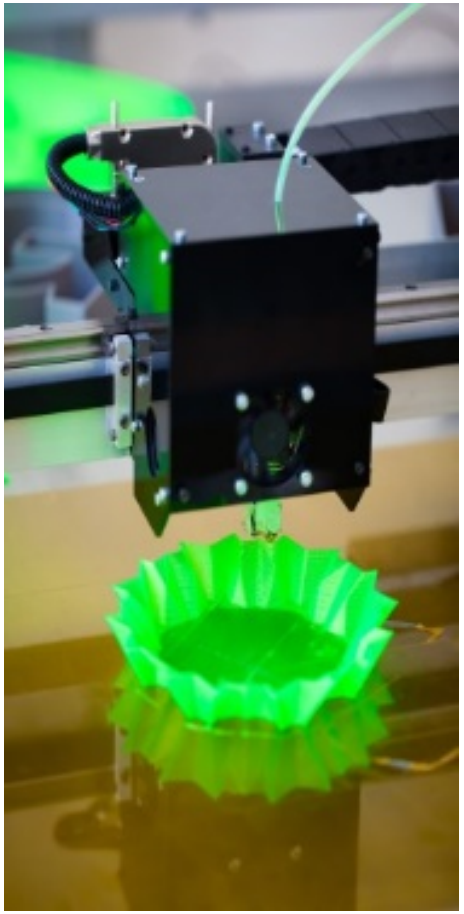
- To **expose** underlying **assumptions** of respondents and
- To **re-evaluate** respondents' earlier held **beliefs**.
- **Adapted** basis **document**

This process **helps** the **participating stakeholders**:

- To diagnose the principal **strengths and weaknesses** in skills governance and
- To develop a **shared understanding** of how the **weaknesses** might be **overcome** and the **strengths** can be further **built upon**.

Example 2: disruptive trend

- (Sudden) strong increase 3d printing
- Trends disrupted – forecasting models do not work
- Expert estimates of model parameters required for:
  - Direction of impact (by ISCED, etc)
  - Changes to model parameters



Example 2: develop basis

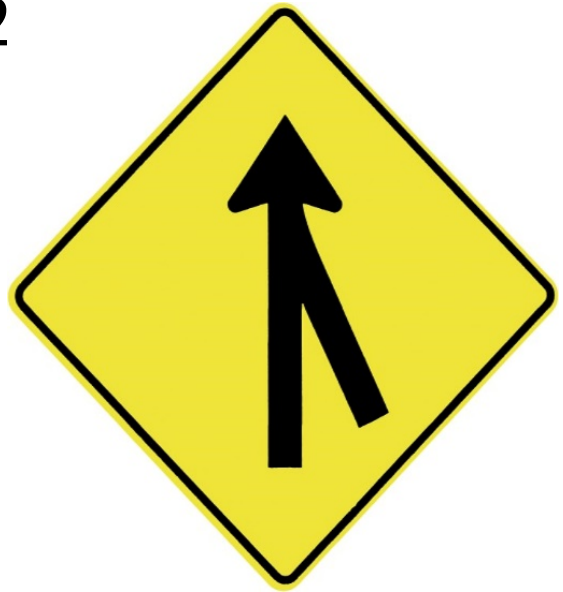
- Desk-research – list possible impacts
- Determine requirements forecasting model
- Identify and approach relevant experts and stakeholders
- Develop questionnaire Round 1:
  - View on predetermined impacts
  - Additional impacts
  - Likelyhood/ranking impacts

Example 2: Round 1

- Solicit responses for questionnaire #1
- Analyse questionnaire #1:
  - Full list and ranking of impacts
  - Determine need to use scenarios
  - Identify impacts/rankings for which expert views differ substantially
- Design questionnaire #2:
  - Further steps on impacts/rankings that differ substantially, e.g.
    - Unearth underlying assumptions
    - Proposal for compromise

Example 2: Round 2, 3, …

- Solicit responses for questionnaire #2
- Assumption: consensus
- Analyse questionnaire #1:
  - Final list and ranking of impacts
- Design questionnaire #2:
  - Seek agreement to consensus
  - Translate findings into questions on model parameters
- Continue process Round 3, 4 when required



Further Reading

- CEDEFOP / ILO / ETF (2016) Developing skills foresights, scenarios and forecasts (http://www.cedefop.europa.eu/en/publications-and-resources/publications/2216)
- Hsu, C.C. and Sandford, B. (2007), The Delphi technique: making sense of consensus, Practical assessment, research and evaluation 12:10, pp 1-8.
- JRC-IPTS, For-Learn online foresight guide: methodology: main methods: Delphi survey (http://forlearn.jrc.ec.europa.eu/guide/2_scoping/meth_delphi.htm)
- Okoli, C. and S.D. Pawlowski (2004), The Delphi Method as a research tool: An example, design considerations and applications, Information & Management, 42:1, pp 15-29.

Thank you

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