The Changing Nature of Skills Anticipation: The contribution of data science techniques to anticipate future skill needs

Terence Hogarth

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What is the purpose of the exercise? What is we want to know?

- Require an indication of future skill needs that provides information about skills not occupations or qualifications
- Future element important – need to provide information in a timely manner so that policy makers / stakeholders have time to act
- Need something which can be recurrently undertaken (at modest expense) because we live in uncertain times (vis-à-vis pace of digitalisation)…
- … and which makes the most of available data
- Series of studies undertaken by ETF with FGB and Erre Quadro provide a means of realising this goal

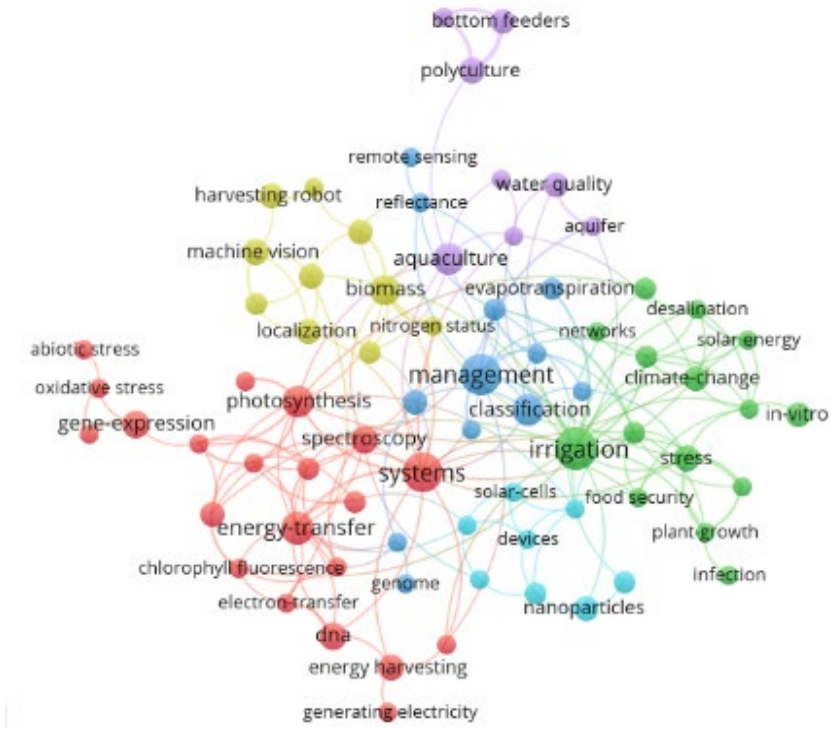
Method and Evidence

1. Background Analysis: Review of existing reports and analyses on the sector
2. Analysis of employment / skills statistics in a sector
3. Big data analyses which uses text mining techniques to capture data on (future) technological change and associated skill needs from a variety of sources
4. Matching technologies extracted from text mining to jobs and skills
5. Focus group / bilateral discussions with key stakeholders (validation)

	Country	Sector
1	Israel	Agri-tech
2.	Morocco	Agri-food
3.	Tunisia	Energy
4.	Albania	Energy
5.	Egypt	Energy
6.	Turkey	Automotive
7.	Armenia	Construction
8.	Ukraine	Health care

Data generation

Drivers of change

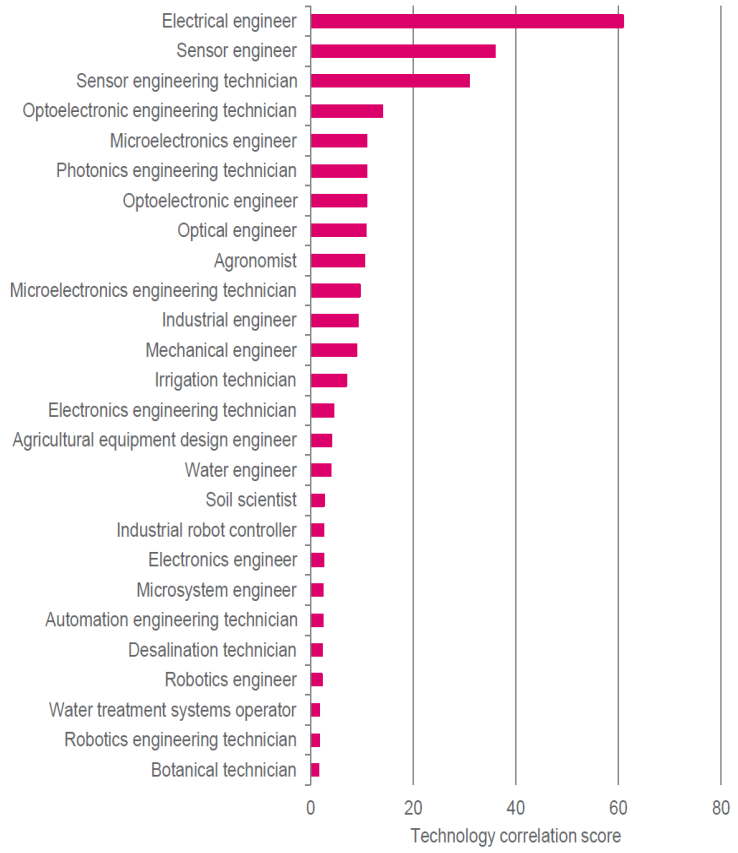


Technology / patents

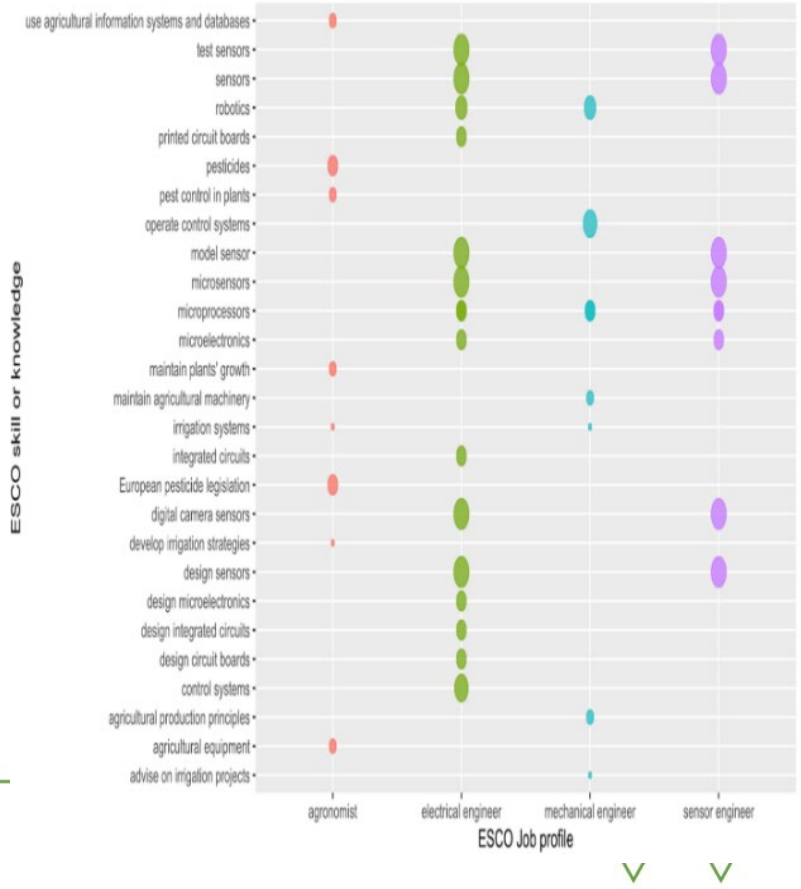
- Data acquisition and analysis
- Solar thermal devices (solar collector, heating devices, heat carrier medium)
- Chemical separation techniques (Flash and Column Chromatography)
- Telemetry for reducing energy consumption
- Harvesting machines for precision farming
- Image acquisition
- Wireless technologies
- Pumps for irrigation systems
- Drive mechanisms
- Hydraulics systems
- Information systems development
- Genetics, biochemistry, biotechnologies

From technologies to skills

Jobs



Skills within jobs



Value added

- Not a substitute, but complement to existing approaches to skills anticipation
- Provides a future oriented perspective on skills demand (rather than occupational demand)
- Provides data at a useful level of disaggregation for a range of stakeholders (i.e. it focuses on specific skills)
- But needs stakeholder engagement to make sense of the findings for policy purposes

Emerging Skill Needs

- Much information already available on generic skills (cognitive and non-cognitive) from other research and the validation workshops
- Where we need to know more is about the technical skills required in jobs (especially those which traverse groups of jobs). This is where the methodology adds value
- Within jobs, it is possible to see how technical skill needs will change (e.g. how technologies will affect particular jobs and skill needs over the short- to medium-term)
- This provides the basis for identifying the education and training which will provide individuals with the resilience to withstand future change in the labour market
- This potentially provides a substantial resource for those responsible for developing the skills of the future workforce

Thank you

Name: Terence Hogarth
Email: t.Hogarth@warwick.ac.uk

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