SGSSS – SDS Collaborative PhD programme topic descriptions

This document outlines the four topics identified by SDS for the 2020/21 calling round.

1. **Proposed title:** Virtual models of working and the implications for Careers Information, Advice and Guidance.

**Background**
Remote working has risen dramatically as a result of the Covid-19 pandemic and is unlikely to fall back to previous levels. The move towards distributed and virtual models of working is therefore likely to accelerate. A PhD at this time would therefore capture the impact of a rapidly evolving landscape.

**Aims and objectives**
The overall aim for this PhD is to examine the implications for CIAG on the role of Industry 4.0 in moving industry and business models towards distributed and virtual models of working. Specific objectives:

- To understand the anticipated trajectory for distributed and virtual models of working.
- To identify what industries, sectors or occupations are most likely to shift towards these models of working, and what type of employers are adopting this approach.
- To understand if these models of working will change the way businesses recruit.
- To identify what type of skills people will require in order to be able to work effectively in these environments.
- To understand the impact of these changes on the support individuals will require when searching and applying for jobs.
- To identify any groups that may be disadvantaged by this model of working.

**Research methods**
We are open to suggestions on the methodological approach. It is anticipated it would require a mixed methods approach combining primary and secondary research.

**Benefits and outcomes for SDS**
It is anticipated that the PhD will:

- Inform SDS CIAG approach on how best to support individuals prepare for remote recruitment cycle.
- Ensures SDS is able to prepare school pupils for different models of working when they enter the labour market.
• Help understand the impact these models will have on the delivery of work-based learning.

2. **Proposed title:** Harnessing big data to identify viable and desirable job transition pathways for disrupted workers.

**Background**
Industry 4.0 is expected to increase disruption and result in more people traversing across industries and occupations. We therefore need to understand what is important in order to enable people to do that successfully.

**Aims and objectives**
The aim of this PhD is to examine how the accelerating pace of technological disruption is changing the skills that employers need and shortening the shelf-life of employees' existing skill sets in the process. Specific objectives:
- To understand and identify what steps it takes to enable someone to transition into different occupations (e.g. low-skilled to medium-skilled occupation, or into different sectors).
- To examine how data can be used to identify skills that are in demand.
- To examine how data can be used to map an individual’s existing skills and identify routes into new occupations or industries.
- To identify the viability of transition pathways through understanding cost and effort.

**Research methods**
We are open to suggestions on the methodological approach. It is anticipated it would require a mixed methods approach combining primary and secondary research.

**Benefits and outcomes for SDS**
- Enables SDS to identify the most appropriate form of support to help individuals back into work based on their existing skills
- Help SDS to signpost disrupted workers towards new occupations or industries and relevant training support.
- Enable SDS to develop appropriate training interventions where gaps exist.

3. **Proposed title:** Social and cultural factors affecting gender imbalance in apprenticeships.

**Background**
SDS is committed to ensuring that individuals from a diverse range of backgrounds can access work-based learning opportunities. However, addressing the gender imbalance in apprenticeships remains a challenge. Significant economic, cultural and societal factors contribute to gender imbalance in the overall uptake of apprenticeships, and participation in specific apprenticeship frameworks. Of particular interest is the role of early years education.
Aims and objectives
The main aim of this PhD would seek to identify and understand those social and cultural factors that contribute to gender disparities in apprenticeships. Key objectives:

- To understand those social and cultural factors that influence the gendered career choices of girls and boys as they move through the education system from early years to labour market transitions. A key focus would be on attitudes and perceptions of apprenticeships.
- To explain and understand patterns of occupational segregation across apprenticeship frameworks for both women and men. To understand why girls / women are less likely to take work-based learning routes.
- To investigate and learn from international experiences of gender and apprenticeship in other countries. For example, is occupational segregation an issue in apprenticeships in other countries and how is it addressed.

Research methods
We are open to suggestions on methodological approaches, but anticipate it would include some of the following elements:

- Literature review and policy analysis of national and international evidence in relation to gender imbalance in apprenticeships.
- Quantitative analysis of SDS data, and external labour market and education statistics.

Qualitative analysis of primary data collected from young people, key influencers and policy makers. Benefits and outcomes for SDS

- SDS better has a better understanding of the social and cultural factors underpinning gender segregation in apprenticeships and what we can do to address it.
- SDS has a greater appreciation of the scale and effect of social and cultural factors affecting gender segregation in apprenticeships and how these are best tackled.
- SDS would be provided with insights on potential practical policy focused solutions to address gender disparities in apprenticeships. This could include international examples.

4. Proposed title: How machine learning and Artificial Intelligence (AI) can enhance Labour Market Intelligence (LMI)

Background
Fast-paced developments in AI and big data raise questions in relation to developing and maintaining robust LMI. For LMI to be effective it needs to be accessible and effective in underpinning all aspects of skills planning including influencing investment in skills and delivery of programmes and services e.g. CIAG, work-based learning and college and university provision. The enhanced use of AI and big data present significant opportunities for the ways in which LMI is developed, maintained and accessed in future.
A PhD in this area will address theoretical and practical questions on LMI and its utilisation in the area of AI and big data.

**Aims and objectives**
The main aim of this PhD would be to understand how AI and big data can enhance LMI. Key objectives:
- To understand how the advances in AI and big data can impact on LMI.
- To examine how big data can be used to best effect – especially in the areas of skills planning, investment and delivery.
- To understand how other governments and countries are using advances in these areas and to what degree have they been successful in influencing action.

**Research methods**
- We are open to suggestions on the methodological approach. However, it is anticipated that this PhD will have a strong quantitative / data science focus.

**Benefits and outcomes for SDS**
- SDS gains practical and theoretical insights on the benefits of AI in improving our labour market intelligence and its utilisation.
- SDS understands how we compare to other countries in the area of LMI and AI.
- SDS is better able to identify the benefits of AI and machine learning...