



Atypical Employment and the Role of European PES

An exploratory paper

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EXECUTIVE SUMMARY

This brief study contains an overview of the way in which the traditional employment structure of full-time, permanent work is being replaced to a significant extent by atypical forms of work. There is a particular focus in the study on the radical new working relationships which have emerged in recent years through the creation of digital platforms and which are often referred to as the 'gig economy'.

An extensive literature has developed around the growth of atypical forms of work. This study explores one specific dimension of this trend - namely the impact which atypical forms of work will have on employment and skills.

One of the core instruments utilised by the European Union in its on-going efforts to match job-seekers with appropriate employment opportunities is the network of European Public Employment Services (PES). This study focuses in particular on how the PES can equip job-seekers with the skills required to successfully engage in these new atypical forms of work.

Based on an extensive literature review, the analysis in chapter two identifies the types of skills, including specific occupation-related technical skills, transversal skills and soft skills which will assume greater importance as a consequence of the growth of atypical working structures.

Some of the skills which will become increasingly important include cognitive skills such as problem solving and the ability to conceptualise how technology can enhance the quality of products and services. Quintessential human skills such as emotional intelligence and teamwork will become important marketable personal assets, while transversal skills such as digital literacy and language proficiency will be seen as essential for working in many occupations – especially digital literacy. Digital technology will become pervasive, and a basic technological literacy will become a requirement for everyone as it will become a core competence for engaging in even the most mundane, everyday tasks.

Redundancies and technological displacement of employment will occur more frequently as many routine tasks are automated. While this process will not necessarily result in less employment opportunities, it will result in more movement of workers within the labour market from tasks which can be performed efficiently by machines to tasks which require inter-personal skills. Crucially, to successfully make these transitions, workers will have to have intermittent access to vocational training programmes which can equip them with the skills to secure decent jobs regularly.

Chapter three of this report contains an assessment of the extent to which the European PES currently have the capacity to meet the training needs of workers in atypical forms of employment. This assessment is based on the responses of the European PES to a structured questionnaire which seeks answers to a range of questions covering issues such as the availability of training, course curricula, client profiles, skill needs identification and the use of technology in both the promotion and delivery of training.

The responses to these questions are for the most part disappointing. While the PES have to some extent adapted to the requirements of a more flexible labour market, much more needs to be done. Training courses, for example, are not available in the

evening in 11 out of 26 PES and only nine provide training courses at weekends. This is unsatisfactory in view of the fact that workers will require regular up-skilling during their career in order to stay ahead of the continuously evolving process of automation and skills obsolescence. Many of these workers will be in employment and may find it difficult to attend training courses during the daytime.

Transversal skills such as digital literacy and entrepreneurship, and soft-skills such as interpersonal skills will assume much greater importance as many workplace tasks become automated. However, the responses indicate that the number of PES who offer such training in soft skills and transversal skills to *all* job-seekers is extremely low.

It is important that the PES understand the fundamental changes which are occurring to the labour market and that this knowledge can only be obtained through research. Some PES, however, are still relying exclusively on employer surveys for skill needs identification. While most PES used new technology to promote training, the use of new technology to deliver training courses remotely was very low (9 out of 28 PES). This is unfortunate because PES-based e-colleges – where they exist - have been shown to be an effective method for updating the digital skills of the workforce.

In summary, the responses to the questionnaire indicate that the necessary adaptations to the traditional PES model have not been introduced by most PES. There are five adaptations which are identified in the analysis as 'critical'. They include more flexible availability of training; more broad-based course curricula; a more heterogeneous client profile; the use of research for skills needs identification and the use of technology to deliver flexible training remotely.

The recommendation of this report is that the PES should be encouraged to engage in a benchlearning exercise in which the PES, who have been identified in this report as exhibiting 'best practice' in one or more of these activities, would provide relevant information and support to PES who have not as yet introduced the relevant adaptations.

Examples of the PES who exhibit 'best practice' in these activities is provided in chapter four of this report.

1. INTRODUCTION AND BACKGROUND

1.1 Background

This brief report is one of a suite of studies commissioned by the European Commission which are designed to assist the EU Public Employment Services (PES) to benchmark their performance, both in terms of their own labour market and in respect of the performance of other PES.

This particular study explores the emergence of atypical forms of employment including the so-called gig economy; their impact on employment structures and skills and the current and future capacity of the PES to equip job-seekers with the competences and skills which are needed to engage successfully in this new employment landscape.

1.2 Structure of the report

There are many ways in which these new working relationships will impact on the European labour market. This brief study, however, is concerned solely with exploring the impact on employability and skills. Specifically, it seeks answers to four questions:

- How will the 'technological drivers' underpinning new atypical forms of work impact on and reshape traditional employment structures and relationships?
- What are the skills and competences required for workers to survive and prosper in these new employment structures and relationships?
- What are the European Public Employment Services (PES) currently doing to equip workers and job-seekers with these skills and competences?
- What more does the PES need to do to prepare job-seekers and workers for successfully engaging in atypical forms of employment?

The analysis in chapter two attempts to provide answers to the first two questions. An assessment of the current capacity of the PES to equip job-seekers with these skills is undertaken in chapter three. The final chapter recommends a bench-learning approach to assist more PES to introduce five core adaptations which the analysis shows are necessary to prepare workers for the new forms of employment, and which have not as yet been introduced by all PES.

1.3 Methodology

The methodology consists essentially of three components. These include an extensive review of the recent literature on the new technological developments which are underpinning the emerging atypical employment structures and their expected impact on skills demand. It also includes the responses to a structured questionnaire which was completed by virtually every PES in Europe.

The contrast between the emerging critical skills and the current PES skills delivery paradigm – as outlined in the response to the questionnaire – is the focus of extensive

analyses in chapters three and four, and the findings form the basis of the 'benchmarking' recommendation in the report.

2. THE DRIVERS OF ATYPICAL EMPLOYMENT AND THE IMPACT ON SKILLS

2.3 Introduction

In this chapter, we explore the main 'technological drivers' underpinning the growth of atypical employment in Europe in recent years and the impact on the relative demand for different skills. Our focus is on understanding the capacity of these new technologies to radically alter traditional working relationships and skills hierarchies. We examine this evolving skills hierarchy through the prism of soft skills and transversal skills as well as the technical skills associated with particular occupations. Our aim in this chapter is to build a profile of the type of skilled worker who will be best placed to successfully exploit the opportunities which this new technological revolution is creating.

2.4 Globalisation, intense competition and pressure on productivity

Before focusing on the 'technological drivers' of atypical employment, however, it is necessary to consider the wider economic context in which these technologies are being developed and introduced into business models.

One of the defining characteristics of the current economic context is the globalisation of markets. The reduction in transport costs and the widespread availability of cheap communication channels has opened up a huge global market to companies in Europe. These markets contain resources such as relatively inexpensive but skilled labour which have the potential to reduce costs and increase productivity for European companies. This potential is being exploited by companies through offshoring¹ activities which can be more efficiently performed in other countries, and by Governments in their quest to attract international talent.²

The impetus to reduce costs has also gained momentum in recent years through changes in the cost of substituting capital for labour in the developed world. The cost of capital – particularly information and computer related technologies (ICT) – has declined significantly over the period 1995-2005 and this has made it cheaper to substitute capital for labour. At the same time, the performance of these new technologies has increased exponentially through dramatic improvements in artificial intelligence, 3D printing and robotics. While it has been possible for some time to automate relatively routine tasks, recent technological developments enable machines to learn complex tasks such as navigating transport through heavily populated urban areas.

¹ Blinder (2009) for example estimates that 22% to 29% of jobs in the United States have either been 'offshored' or will be offshored within a decade or two. Such jobs do not have to be performed at a specific location nor do they require face to face personal communication.

² See for example "The Global Competition for Talent: Mobility of the Highly Skilled" OECD, September 2008

The capacity of machine learning to perform complex tasks has been further enhanced by developments in big data analytics. The creation of powerful algorithms, with analytical and predictive capacity, means that vast amounts of data can be interrogated more accurately and more efficiently than humans are capable of doing. Using this technology, patterns can be detected in human behaviour which have both commercial and security applications. The detection of fraud and the ability to predict the incidence and approximate location of crime are some examples of the latter. It is anticipated that over the next few years sensors will replace closed circuit television and will be commonplace on our streets and in buildings making the prevention and detection of crime much more efficient.

Major increases in efficiency will occur in many sectors. For example, in the retail and wholesale sectors, the capacity of data analytics to accurately monitor consumers' revealed preferences will enable a more accurate management of inventory; reducing waste and storage space while responding effectively to the consumers' needs.

Big data analytics will make a significant impact in all sectors where the efficient analysis of very large amounts of individual records can improve the quality of the services provided. The healthcare sector and the legal profession are expected to experience major improvements in efficiency over the next few years as it becomes possible to easily access the outcomes of hundreds of thousands of medical and legal cases.

2.5 The impact on occupation-related technical skills

There is considerable agreement among experts on what the impact of machine learning will be on skills demand. In general, it will not result in the elimination of entire occupations - the exception being white collar clerical and administrative functions. Millions of jobs in these occupations are expected to be lost within the next five years.³

However, for most occupations, the impact of machine learning will be the automation of a significant number of tasks within occupations rather than the elimination of the entire occupation. However, the skill hierarchy within at least a third of occupations will change radically. Indeed, most of the skill sets which will assume critical importance for best practice in most occupations over the next few years are skills sets which are not considered important today.

It is possible to catalogue existing work, particularly work that is routine and as such likely to be replaced or reconfigured by digital tools, and conversely to identify those skill sets which will be of critical importance in future years.

Frey and Osborne⁴, for example, apply certain statistical techniques to the US Bureau of Labour Statistics ONET classification of occupations to rank hundreds of occupations in terms of their relative susceptibility to automation.

³ The report on the 'Future of Jobs' published by the World Economic Forum in January 2016 expects 7.1 million jobs to be lost by 2020 in the countries covered by the report, two thirds of which are expected to be in clerical and administrative roles.

⁴ Carl Benedict Frey and Michael Osborne "the Future of Employment; How Susceptible are Jobs to Computerisation" Oxford Martin School Working Paper, September 2013

The 2016 World Economic Forum report commissioned an in-depth extensive survey of three hundred and seventy one leading global employers representing over thirteen million employees in an attempt to identify the skills and competences which would be considered most valuable in this new employment landscape. The skills sets which the respondents cited as being of most importance were data analysts and specialist technical sales representatives, although there was also considerable mention of media and entertainment related skills.

The need for data analysts is obvious. The sheer volume and complexity of the data which is, and will continue to be, generated on a daily basis means that workers with the capacity to manage and interrogate large data sets will be very much in demand. The ability to perceive the commercial potential latent in large data sets, and to generate innovative marketable services and products through creating socially useful applications, will be greatly valued by the marketplace and will command a high premium in terms of remuneration.

The selling occupations refer specifically to specialised products and services where excellent persuasive skills and language proficiency are required to effect successful transactions. In contrast, cashiers who are employed in outlets which retail mass-produced products are already being displaced by barcode technologies applied by the customer.

The most important skill sets mentioned by the respondents to the survey – with the exception of data analysts – all require quintessential human skills. Virtually every study conducted recently on the skills needs generated by the current technological revolution stress the increasing importance of soft skills.

For example, many commentators have mentioned the importance of skills such as emotional intelligence. These skills are critical in sectors such as healthcare, which, due to demographic changes, will expand its employment share in Europe over the next decades.

In general, while all routine tasks – and to an increasing extent even one-off complex tasks – will be performed by machines, the role of workers will be to configure the technology to produce and market products and services which have commercial viability. Typically, this will involve multi-disciplinary project teams working together to successfully conceptualise and deliver these products and services to the marketplace.

A recent innovation introduced on a pilot basis in a number of American cities illustrates how these technologies are coming together to provide solutions to difficult problems. For example, the consumer using 'smart glasses' would contact a driverless electronic car to pick him/her up at a specific location to be driven to a destination. The customer is automatically billed for the cost of the transfer by one of the ride-sharing companies operating from a digital platform such as Uber, Lyft or Blablacar. By *sharing* safe non-polluting vehicles, it is expected that this initiative will result in major reductions in traffic congestion, pollution and road accidents in just a few years without compromising either privacy or comfort.

This example illustrates one of the most dramatic consequences of the combined impact of new technologies on employment structures - the speed, where certain job profiles (e.g. taxi drivers) will disappear and new profiles will emerge, is accelerating rapidly.⁵

Thus one of the most urgent, major challenges confronting the European vocational training system is to identify and deliver the skill sets which will be marketable in this new employment landscape. While the acquisition of in-depth knowledge and technical expertise will continue to be fundamentally important, in-depth expertise in itself may not be enough to avoid job loss in the future if the tasks associated with such expertise are susceptible to automation.

The type of technical expertise which will sustain employment in the future will be expertise which is associated with potentially numerous different horizontal applications (the so called T-shaped skills). Such expertise allows the worker to switch to emerging niche markets if and when traditional markets become automated. It does assume, however, that there is a continuous training infrastructure available to the worker to update his or her skills throughout their working life.⁶

2.6 Digital platforms and the emergence of the gig economy

There is mounting evidence that the structure of employment, and in particular the nature of employment contracts, is undergoing radical change. Specifically, the share of temporary contracts is increasing.

This is not obvious from an analysis of the total employment stock in Europe; it has remained relatively modest and static at roughly 12% of all employee contracts over the last few years.

But an analysis of the contracts of younger workers shows a much higher share; the ratio rising to one in five for those aged under 40 years and to one in three for those aged under 25 years.

Furthermore, an analysis of movements from unemployment and inactivity into employment in recent years shows that the share of temporary contracts of new recruits is very high and rising.⁷

This trend is probably due to a combination of factors. It may reflect a reluctance on the part of many employers to carry permanent and costly overheads as a result of their experience in the recent severe recession in Europe.

Developments in technology, which have occurred in recent years, have resulted in the transfer of big data analytics to the 'cloud'. This development has created the potential to develop electronic marketplaces for the purpose of buying and selling a vast array of products and services, which can be assessed by billions of customers remotely. In recent years, a wide range of companies have been set up with the purpose of exploiting

⁵ The World Economic Forum report cites the widely used estimate that 65% of the children entering primary education today will ultimately end up in entirely new jobs that don't as yet exist.

⁶ For example, many electricians, in response to the emergence of modular housing developments with in-built circuitry, have learnt how to install and maintain smart homes technology.

⁷ For example, the analysis of transitions in Ireland in 2015 showed that only 45% of those who transitioned from unemployment to employment obtained a permanent job.

the commercial potential of these digital platforms. This commercial potential can take many different forms. In some cases, the companies act essentially as intermediaries, bringing people together for selling a product (e.g. Airbnb) or providing a service (e.g. Uber), and they take payment for making the marketplace available to those who undertake transactions in it. In other cases (social networks), the commercial potential is more indirect as companies gather vast amounts of data on potential customers, creating valuable resources for the world-wide advertising market.

However, these companies do not employ the people who use their digital marketplace for engaging in commercial or social activity. Furthermore, the contracts which are transacted with third parties on the digital platform are generally of a very short duration. The term which has become synonymous with this type of work – the gig economy – comes from the word ‘gigabyte’.

For some people, the type of work which can be secured through digital platforms is attractive because it is very flexible. Indeed, in some cases, the employment structure is more akin to the type of arrangements which were offered in bygone days when workers would assemble in specific places in the morning hoping to be selected for a day’s work. It is also reminiscent of the quasi-feudal ‘putting-out economy’ that existed before factories, when companies would ship materials to people to assemble items such as shoes, clothing, or firearms in their own homes.⁸

However, there are significant disadvantages associated with earning income from contracts obtained on the digital platform. The traditional employee job not only guaranteed a regular salary, it also provided paid holiday leave, maternity leave and sickness entitlements. Perhaps most significantly, the traditional employment contract provided a regular contribution towards the employees’ pension.

Typically, the contracts for work obtained through the digital platform do not contain any such entitlements. A worker whose income is largely based on work secured through the digital platform will have to make his or her own arrangements in respect of pensions, sickness cover and the funding of holidays et cetera.

In this sense, work obtained through the digital platform requires specific skills and competencies, such as self-reliance, organisation ability, and personal initiative.

It is difficult to estimate the magnitude of the gig economy in the European Union (EU). The share of self-employment in Europe has only increased for professionals, particularly for associate professionals and technicians, though there have been marked variations between countries. However, the definition of self-employment is not synonymous with work in the gig economy. Gig economy workers tend to be engaged in work of very short duration. The evidence suggests that the number of short term contracts has increased in the EU in recent years.⁹

⁸ See Kenny, Martin and John Zysman “the Rise of the Platform Economy” *Issues in Science and Technology* 32, no. 3 (Spring 2016) for a good analysis.

⁹ For example there were 3 million employees on contracts of less than 3 months in EU 28 in 2016 compared to 2.6 million in 2010. However, there was no notable change in the volume of contracts of under 1 months duration during this period (see Eurostat web site)

2.7 Conclusions

There are a number of features of the employment structures which are being created through the application of new technologies which are worthy of note.

A greater share of employment opportunities will be able to be performed in the home, and a considerable share of employment will be very flexible, facilitating those women and men who are seeking a better family and work balance than is usually provided in traditional employment structures.

The anticipated extensive diffusion of ICT technologies into all aspects of work may also increase employment opportunities for the physically disabled. Finally, the availability of very short and highly flexible project work could provide a stepping stone to encourage “discouraged” workers to re-enter the workforce.

A perusal of the type of skill sets which will ascend the skills hierarchy over the next few years illustrates the radical change which is about to occur in our understanding of which skills are important. A simple phrase contained in the report of the World Economic Forum perhaps embodies the essence of this new skills paradigm; ***‘technical skills will need to be supplemented with strong social and collaboration skills’***.

Some of the main skill-sets which will become increasingly sought after in the marketplace as a result of technological advances and subsequent changes in employment structures are summarised below. Just as atypical employment structures will mark a radical departure from the traditional employee/employer relationship, the skills-desirability pyramid which is being created from these technological developments, will differ greatly from the current skills hierarchy.

STEM skills¹⁰: everyone, whether their job specifically entails a proficiency in computer science, mathematics or engineering will have to have a reasonable level of digital literacy simply to conduct everyday actions or indeed to market and sell their products or services.

Proficiency in any of the STEM disciplines, but in particular a capacity to configure digital tools and envisage their potential to produce marketable products and services, will become a much sought after expertise in the labour market in the near future and beyond.

Technical knowledge and expertise with multiple horizontal applications in niche markets: such skills will protect workers from the automation of specific tasks within their occupation and ensure that the demand for their skills will be sustainable – albeit through regularly augmenting their basic expertise through engaging in continuous lifelong learning.

Language proficiency: this is becoming a key expertise in a marketplace that will continue to become more global as emerging markets with very large populations of potential customers play a larger role in world trade. In general, however, a very high level of proficiency will be required – including a knowledge of cultural norms of behaviour.

Selling skills: these skills will be the basis for a critical and highly marketable expertise. Selling skills combine knowledge and technical competences – including language proficiency - with soft skills such as persuasion and charm.

Personality and charm and creativity: ironically, while many activities will require a reasonable level of digital literacy, these technological advances are enabling billions of people to build and access their own media creations placing a commercial premium on quintessential human attributes such as charm, personality and creativity.

Entrepreneurial skills: technological advances are resulting in a contraction in the share of traditional employee contracts and a growth in 'quasi-entrepreneurship'. The share of permanent employment is expected to contract significantly. Many jobs will be project based and of short duration, and many workers will be obliged to regularly re-enter the marketplace and offer their expertise and in effect become autonomous mini entrepreneurs selling their expertise in a world-wide electronic marketplace. They will also have to fully fund their own pensions, holidays, maternity leave and so forth as entrepreneurs do currently.

¹⁰ Science, Technology, Engineering and Mathematics

3. CURRENT PES SERVICES AND ATYPICAL EMPLOYMENT

3.1 Introduction

In this chapter, we present an assessment of a range of current practices among the European Public Employment Services. These practices have been selected because they are considered to be relevant to the issue of enhancing the employability of PES registrants in a labour market which is increasingly characterised by atypical employment opportunities.

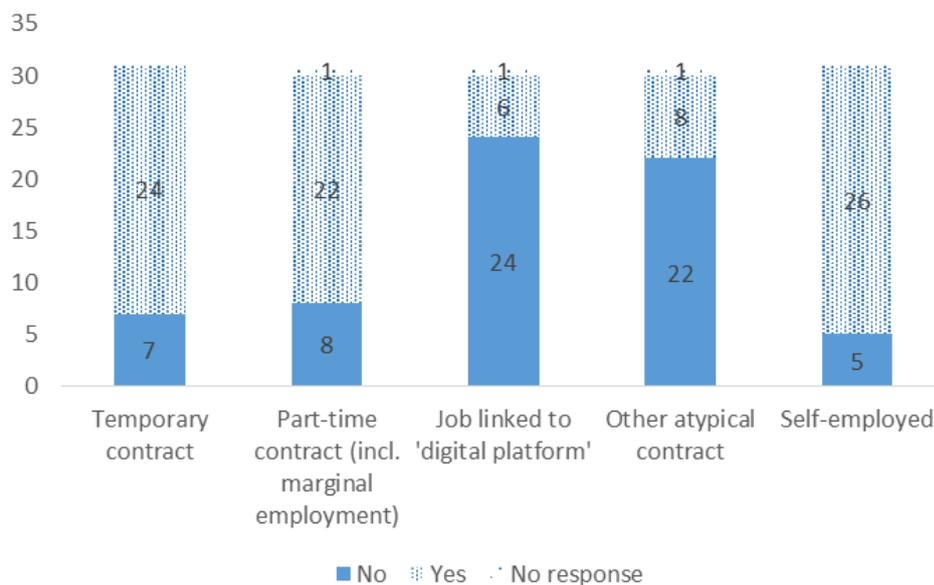
A questionnaire (Annex I) was circulated to a total of thirty-two European Public Employment Services. These included the PES of the twenty eight Member States, Iceland, Norway and the three Belgian regions. A total of thirty-one PES responded, but this figure includes two regional responses from the Swedish PES. Just two PES did not submit a completed questionnaire.

Four questions in the questionnaire related specifically to training provision, so the three PES that are not responsible for the delivery of training did not answer these questions.

3.2 The classification of registrants

The first two questions on the questionnaire assess the extent to which the European PES record whether registrants had worked in atypical employment or if they aspired to work in atypical employment

Figure 3.1 Number of PES who record if registrants previous work experience involved specific forms of atypical employment



The responses show that most PES record whether the employment experience was part-time, temporary or indeed self-employment. Thus, of the thirty-one PES who responded, twenty four said that they recorded part-time employment, while twenty-two

said that they record temporary employment, and twenty-six said they recorded previous work experience which was self-employment.

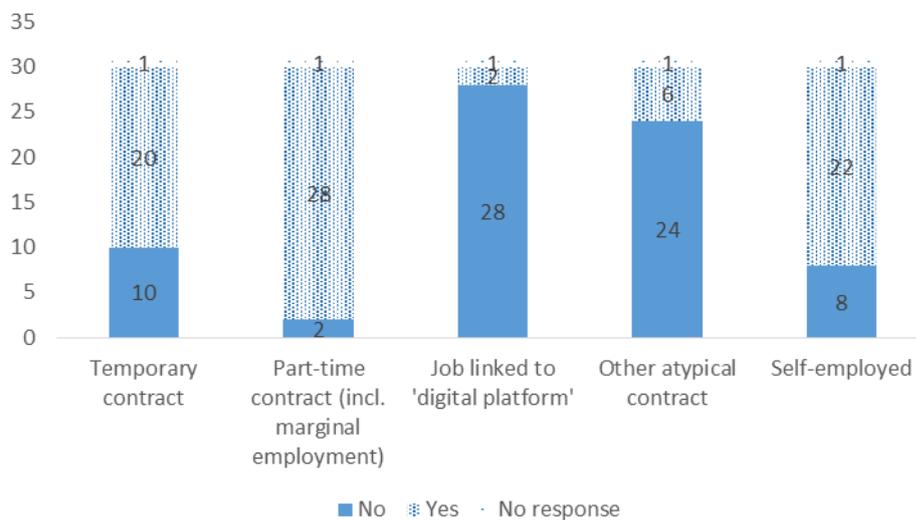
However, the situation is reversed when the PES were asked about recording previous employment which was linked to digital platforms or other forms of atypical employment such as zero contracts or mini-jobs.

This pattern was repeated when the PES were asked if they recorded cases where the registrant aspired to work in atypical employment (Figure 3.2). While the great majority of European PES recorded the employment aspirations of registrants in the case of part-time, temporary work and self-employment, very few PES classified the employment if it was linked to digital platforms or zero-hours or other forms of mini-jobs.

Many PES commented that atypical forms of employment, such as zero hours contracts, were illegal in their country and the PES were consequently excluded from any involvement which could be construed as legitimising such activity. Some PES emphasised that they were only permitted to mediate on behalf of the registered job-seeker in respect of jobs which had a minimum number of regular hours and remuneration.

It was also pointed out by a number of PES that a knowledge of a job-seeker’s employment history and their career aspirations, even where they involved new forms of atypical employment, would invariably emerge during the counselling process, even if it was not formally recorded during the registration process.

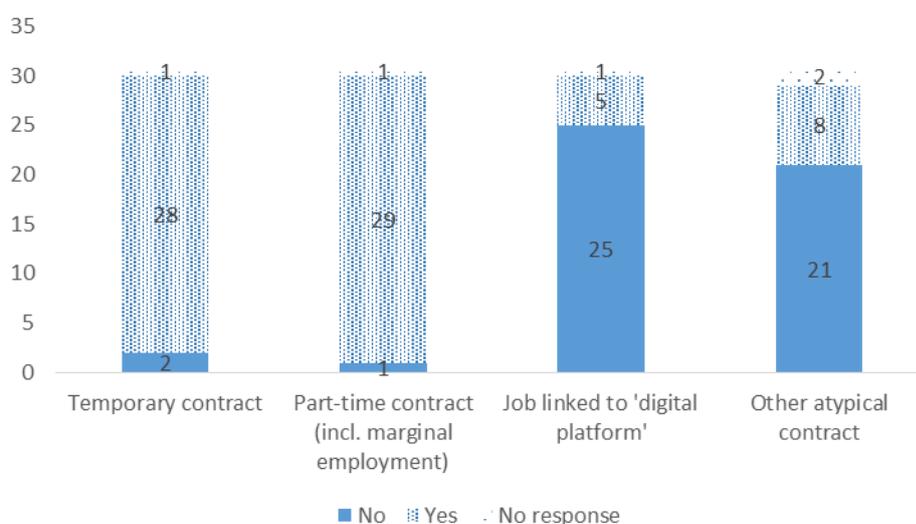
Figure 3.2 Number of PES dealing with registrants seeking atypical employment



3.3 PES Mediation

The legal constraints mentioned by many PES in respect of the information they could formally record is reflected in the type of atypical employment opportunities (i.e. in vacancies notified to the PES) where the PES is willing to mediate between the employer and the job-seeker. Virtually all PES would mediate in the case of part-time jobs but interestingly significantly less would mediate in the case of temporary employment contracts. Only five PES said that they would engage in such mediation in cases where the job was associated with a digital platform, while eight PES said that they would mediate for other forms of atypical employment.

Figure 3.3 Number of PES mediating in atypical employment



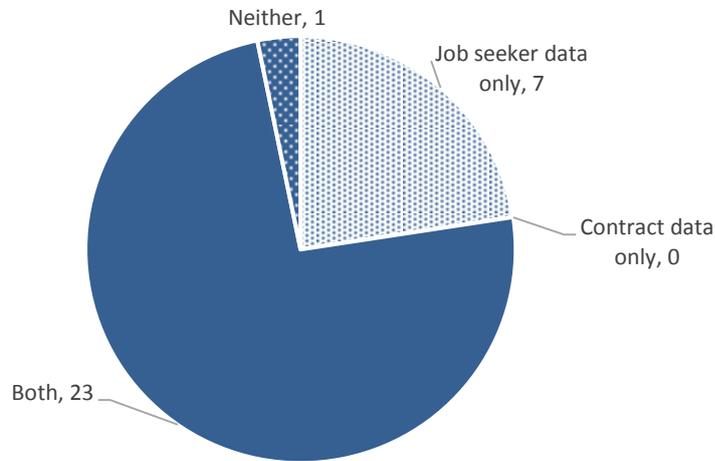
While it is accepted that many forms of atypical employment contracts are currently illegal in many European countries, this situation might change in the future. For example, it has recently changed in Denmark. In May 2017 the Danish government agreed on a new unemployment benefit system for self-employed and atypically employed, giving greater security to all - no matter how they are employed.

This agreement may enable the Danish PES to engage in the type of initiatives introduced recently by the Finnish PES. A pilot has been launched in May 2017 in the digital job market platform of the Finnish PES in order to offer (voluntary) opportunities of the new forms of work and entrepreneurship to clients (through a linkage to invoicing companies and digital job mediation platforms). This is one of the few examples of a PES actively exploring the job possibilities inherent in atypical forms of employment. (<http://tyomarkkinatori.fi/fi>).

3.4 PES course outcomes

In question five, the PES were asked what data they took into account when assessing their performance in terms of employment outcomes. Specifically, they were asked if the personal characteristics of job-seekers (i.e. age, gender, and educational attainment were recorded) and if the nature of the employment contract was recorded.

Figure 3.4 Data used to measure outcomes (number of PES)

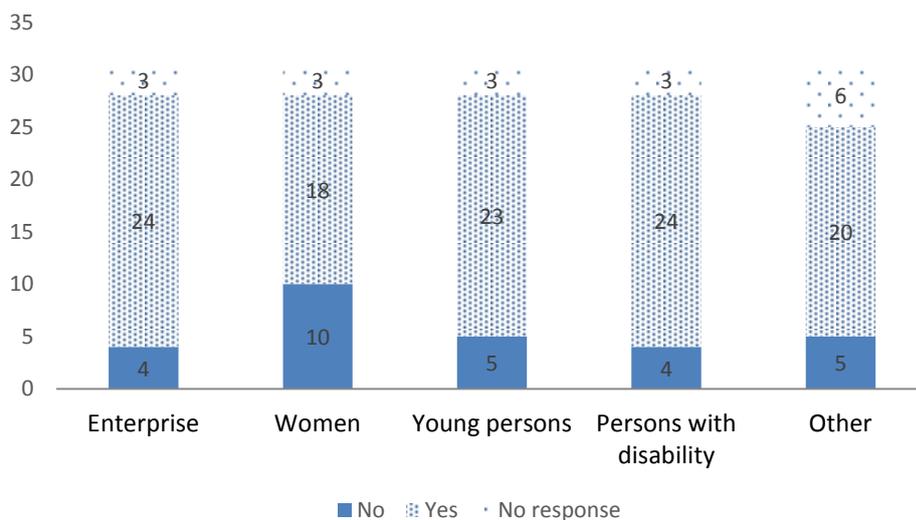


This question was asked to assess if data was potentially available from the PES on the characteristics of those who enter atypical employment contracts.

A total of twenty three out of thirty-one PES said that they took both the personal characteristics of job-seekers and the nature of the contract of employment into account when assessing employment outcomes.

3.5 PES client profiles

Figure 3.5 Number of PES by client profile



In question six, the PES were asked about the extent to which they provided training courses for certain categories of job-seeker; specifically persons ready to start their own business, women, young people and the disabled.

While the responses to the question were relatively positive in respect of entrepreneurs (twenty-four out of twenty-eight respondents), young people (twenty-three out of twenty eight respondents) and persons with a disability (twenty-four out of twenty-eight respondents), the response was notably weaker in the case of courses specifically designed for women (eighteen out of twenty-eight respondents).

While the course provision should not be necessarily gender specific, it is important that all PES provide adequate training opportunities for women returning to the workforce. .

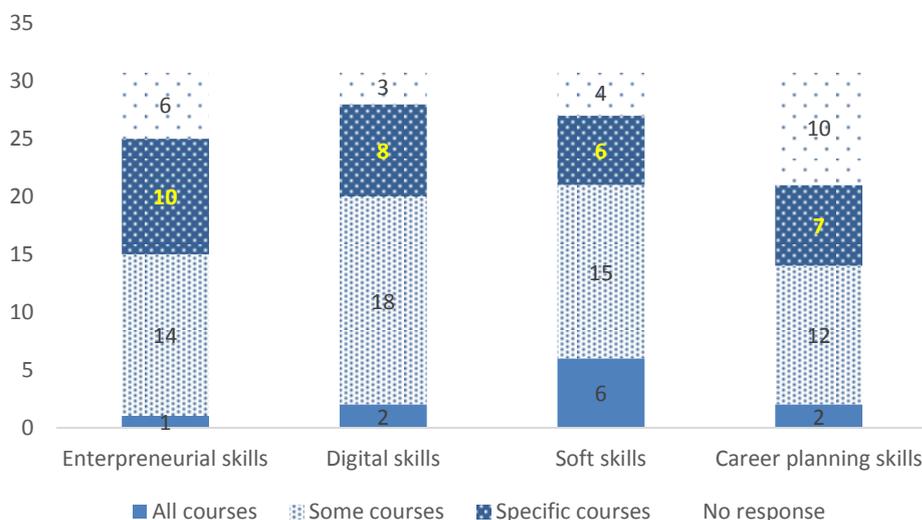
The anticipated pervasive presence of new technology across the occupation spectrum is also expected to attract more people with a physical disability into the workforce. While only four PES are currently not providing training for disabled job-seekers, these four PES should review their lack of provision in this area in view of the anticipated increase of persons with a physical disability in the labour force.

3.6 Course curricula

Perhaps the most striking finding of the review of the literature on new forms of employment is the increasing importance of transversal and soft skills, in sharp contrast to the increasing vulnerability to automation of many technical skills.

For this reason, the PES were asked about the extent to which critical transversal and soft skills were included in their portfolio of training courses. The results give cause for concern.

Figure 3.6 Inclusion of transversal/soft skills in course curricula (number of PES)



While the number of PES who offered training in these transversal and soft skills on some courses was quite high (an average of fifteen out of an average of twenty five PES) the number of PES which provided such training as an integral component of every course was very low. Thus, while all twenty-five PES provided training in entrepreneurial skills, only one provided this training as part of every course. Only two PES provided digital skills training or training in career planning on every course. While the provision of soft skills training was higher, nevertheless only six PES provided such training on every course.

While the inclusion of modules on transversal and soft skills will increase both the duration and cost of training programmes, the requirement for these skills is expected to rapidly embrace large sections of the European workforce within the next few years.

Consequently, there is a compelling case for the PES to make such training available to every job-seeker.

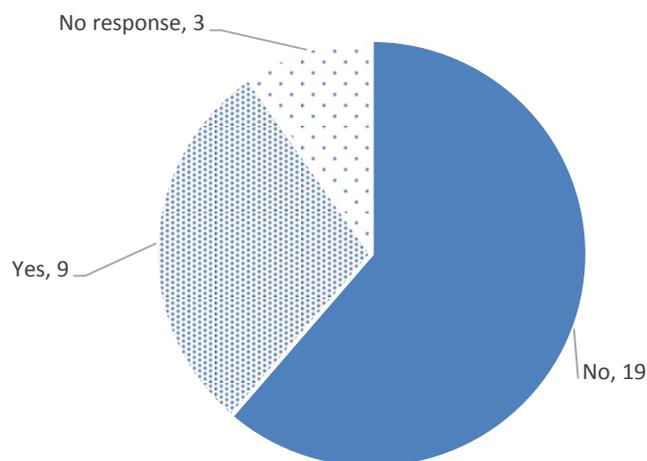
3.7 Use of IT in delivering training

The literature review of the impact of technological developments on the structure of employment pointed to the increasing incidence of short-term employment projects. More workers will find themselves regularly looking for new work assignments, and may be obliged to upgrade their skills to secure the projects on offer.

In summary, continuous training will feature much more prominently for both employed and unemployed job-seekers in the new employment landscape which is emerging. Such training will be particularly important for workers who need to upgrade their digital literacy skills.

In recent years, there have been significant advances made in the capacity of technology to deliver quality, certified training to persons in their homes – especially training in the application of information and communication technologies.

Figure 3.7 Use of internet to deliver courses (number of PES)



Question eight was designed to elicit information on the number of PES who have embraced this technology to provide continuous training opportunities - especially in ICT. The response is disappointing. A total of nineteen out of twenty-eight PES do not use technology to provide e-learning opportunities.

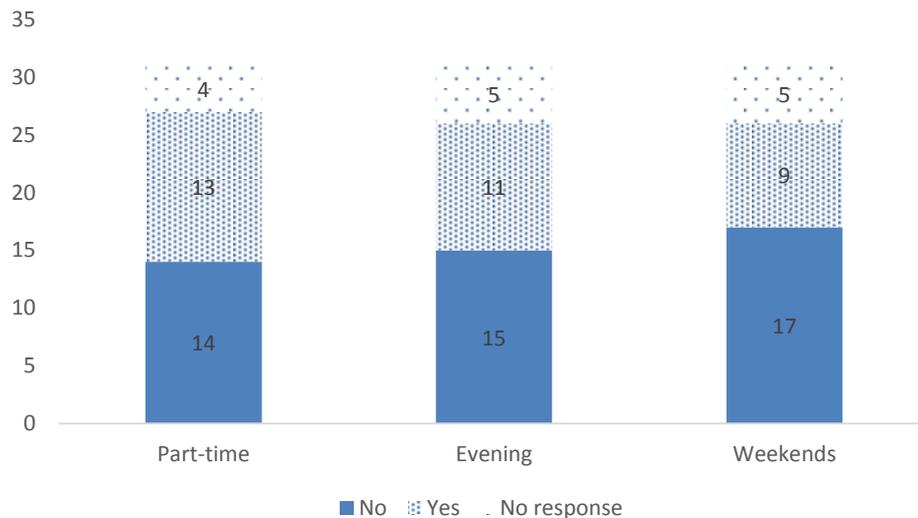
3.8 The availability of training

As already stated, continuous training will become more important over the next few years as the share of permanent, life-time employment contracts and the share of project-based work of relatively short duration expands. Unlike with initial vocational training, those who participate in continuous training are often in employment, and

engage in continuous training to obtain higher quality employment or because their current job is temporary or both.

The extent to which the PES can currently facilitate continuous training opportunities was explored by eliciting information on the availability of their training courses. The results are disappointing. Of twenty-six PES currently provide training courses, only nine provide training courses at the weekends while only eleven provide it during the evenings. Only thirteen of twenty-seven PES provide part-time training courses.

Figure 3.8 Flexible training delivery (number of PES)



3.9 Methods of identifying skill needs

One of the important findings from the literature review is that the type of skills which are becoming important in the new, emerging employment landscape – with the notable exception of digital skills - are not widely understood.

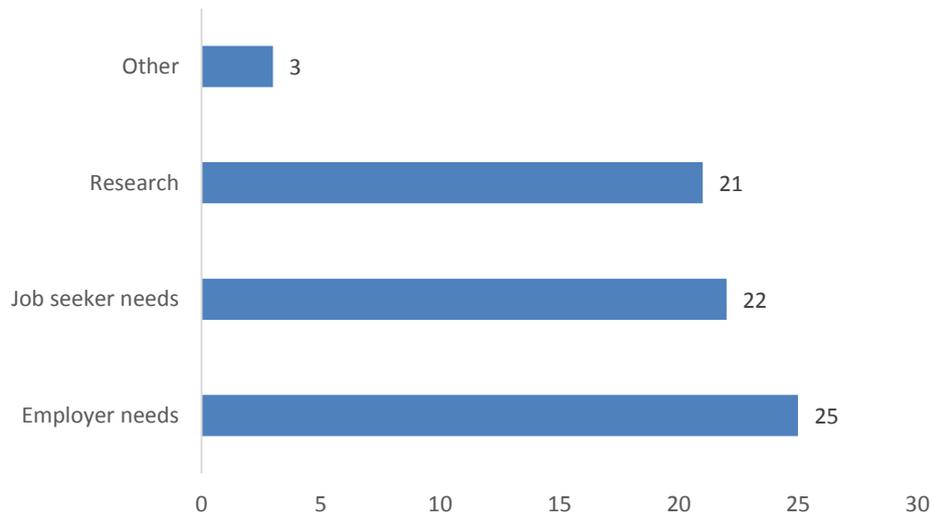
This is not surprising. The traditional education and training paradigm is built around the concept of imparting a technical skill or a specific quantum of knowledge. The student or trainee is then assessed on the extent to which they can execute a technical task or demonstrate that they possess specific knowledge of a subject.

The employment structures which will emerge in the next few years will significantly alter our perception of which skills and knowledge are valuable. In general, interpersonal, creative and cognitive skills will assume much greater importance, while at least some forms of knowledge will become redundant as machines will embody the knowledge required to execute many tasks.

This radical change in the skill hierarchy requires an equally radical change in how skill needs are identified. The traditional method used by the PES were employer-based surveys. The answers to the questionnaire show that this is still the case. Of the twenty-six PES who responded to this question, twenty-five of them based their knowledge at least partly on what employers were telling them through surveys and other means.

This method, while useful, will not be sufficient to identify the range of skills which will be required to ensure that job-finders can regularly access decent employment. Fortunately, there is some evidence from the survey that many PES are aware of the limitations of employer surveys as twenty-one of the twenty six PES who responded said that they also used research findings as a means of identifying skills needs.

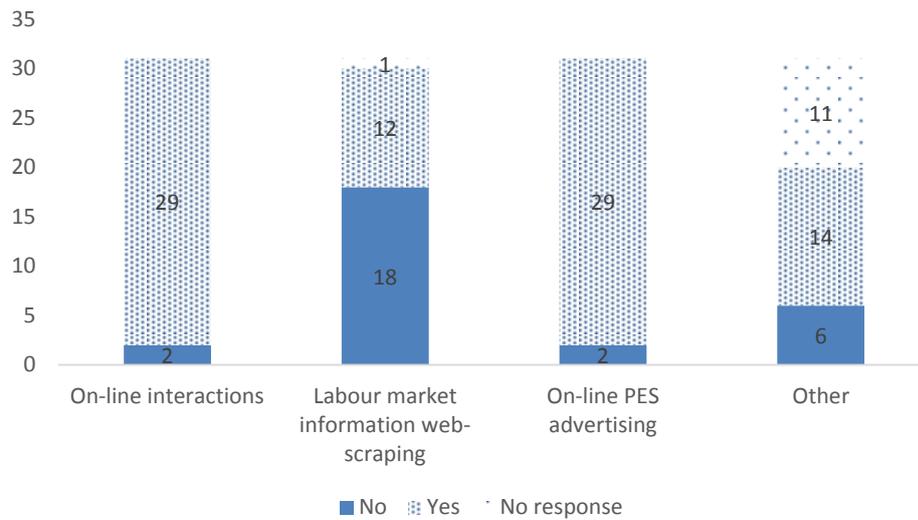
Figure 3.9 Source of information on skills needs (number of PES)



3.10 Use of digital platforms

The use of technology to promote the services of the European Public Employment Services online, and to engage interactively with clients and stakeholders, is quite pervasive with only two out of the thirty-one PES surveyed stating that they did not use new technology in this manner.

Indeed, the examples of the use of digital platforms presented by many PES such as Austria, Denmark and Sweden are very impressive. However, the number who used digital platforms to enhance their knowledge of their local labour market was low as eighteen out of thirty PES said that they did not engage in scraping the internet for labour market intelligence.

Figure 3.10 Use of digital platforms (number of PES)

This relatively low usage by the European PES may reflect the fact that the digital platforms with the most valuable labour market intelligence such as LinkedIn cater mainly for professional and associate professional occupations. In addition, in some countries, there are data protection and legal issues involved in, scraping for example vacancy data from specific company sites.

3.11 Conclusions

Some of the activities which many European PES are not currently involved in, such as the recording of certain types of atypical employment (e.g. zero hour contracts; jobs linked to digital platforms) or the scrapping of web sites may have associated legal issues and as such it would not be appropriate to recommend that the PES become involved in such activities.

However, when the responses to the questionnaire are contrasted with the skills profile which emerges from the analysis in chapter two, it is clear that there are many adaptations which are clearly required to the PES traditional structure to assist job-seekers and indeed the employed to engage successfully with the new atypical employment contracts.

There are five such adaptations which are critical. These are: greater availability of training courses; a broader based course curriculum; a more heterogeneous client profile; the flexible on-line remote delivery of training courses and a greater use of research in the identification of skills needs.

A process of the introduction of these adaptations to all European PES forms the basis of the recommendations in chapter 4.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Introduction

The focus of this brief study is identifying the employment structures and skills which are associated with the emergence in recent years of various forms of atypical employment contracts – especially those associated with digital platforms and the so-called ‘gig economy’. An extensive literature review has been undertaken to identify the key technological developments which underpin the spread of atypical employment structures and which create radical changes in the relative importance of different types of skills.

A detailed assessment - using a structured questionnaire - of the capacity of the European PES to equip job-seekers with the skills, which are assuming greater importance in this new and emerging employment landscape, has been conducted in thirty European PES.

4.2 Conclusions

The response of the European PES to the questionnaire shows that for the most part, they are ill prepared for the task of equipping job-seekers with the skills which they will require to engage successfully in these atypical forms of employment. In the case of not maintaining records on the number of registrants who either have engaged in, or wish to engage in, atypical forms of employment, their response is justified. For the most part, the reasons why specific PES do not engage in this activity is because the contracts in question are illegal in their country.

In addition, the PES in general score very well on some critical activities, such as the use of new technology to promote training and to interact with clients and stakeholders.

However, there are at least five major areas of activity where the PES for the most part are not prepared for the radical changes in the workplace which atypical forms of employment will give rise to.. These areas of activity are course curricula; PES client profiles; the availability of training; the identification of skills needs and the use of new technology for remote training delivery - especially of ICT training modules.

4.3 Recommendations

The recommendation in this report is that those PES, which are not involved in one or more of the five core activities, should engage with those PES that currently do provide them to gain an understanding of both the costs and the benefits of introducing these activities.

The list of activities and the PES who - according to the responses of the questionnaire - exhibit good practice in these activities are outlined in Table 4.1. It is emphasised, however, that this list is not exhaustive. Instead, it provides examples of the kind of activities PES are involved in to support job-seekers who are entering a new labour market. While less secure than the traditional labour market, the new labour market offers many potentially interesting and lucrative atypical employment opportunities.

Table 4.1 PES services for atypical labour markets – examples of best practice

<p>PES should offer a broad course curricula embracing soft skills, entrepreneurship, technical skills and career development on most courses</p>	<p>VDAB have commenced a course in partnership with the Ministry of Education which is designed to enhance the digital skills of the most disadvantaged.</p> <p>UK PES has modules on soft skills, career planning and digital literacy on all courses.</p> <p>Portugal PES provides basic skills training – including digital literacy – for adults</p>
<p>PES should use technology more extensively particularly to provide modularised, certified training in digital skills remotely.</p>	<p>Spanish PES provides an extensive range of on-line training which is available outside of standard hours.</p> <p>Ireland has national VET e-college facility which provides certified, modularised training to employed and unemployed.</p> <p>Luxemburg and Le Forem PES provide a range of courses on-line targeting roughly 5% and 9% of trainees respectively.</p>
<p>Employers' surveys should be augmented by research as the new skill requirements are qualitatively different from the type of skills which have dominated the workplace to date. For that reason, an exclusive reliance on employers' surveys may not provide the PES with an understanding of the type of adaptations it needs to introduce to support job-seekers working in, or seeking work in, atypical employment structures.</p>	<p>The Spanish PES, responding to recent legislation, has developed an observatory of skills needs identification which provides both quantitative and qualitative information on skills needs.</p> <p>The Irish PES also informs training providers (i.e. employment and education boards) of the results of research on emerging skills needs.</p>
<p>Training courses should be available outside standard hours, including at weekends, evenings and part-time.</p>	<p>The Finnish PES offers training courses on a part-time basis, during the evenings and also at weekends.</p> <p>VDAB offer training at weekends and during the evening but currently only for employed clients</p>
<p>PES should ensure that adequate training opportunities are available for specific job-seeker groups, such as persons returning from home duties, the disabled and formerly 'discouraged' workers. Research shows that such groups may be attracted to aspects of the new forms of atypical employment.</p>	<p>An initiative organised by the Croatian PES could assist marginalised groups to successfully reintegrate to the world of work. The PES organises, in partnerships with other stakeholders, different professional rehabilitation programmes and activities – so called "Work Centre" and "Virtual workshops". The Work Centre is a six-month vocational rehabilitation programme aimed at improving knowledge, professional and transferable skills needed in certain occupations.</p>

ANNEX I

Questionnaire on atypical employment and the European PES

The emergence of big data and cloud computing has created a new industry structure which is radically changing our traditional employer and employee working relationships.

The development of new algorithms with powerful explanatory and predictive capacities has dramatically enhanced the efficiency with which businesses can be managed, while cloud computing has created platforms where transactions between potential sellers and buyers can be conducted more effectively and efficiently than ever before.

The combination of powerful software tools providing the possibility of more direct communication from any location between millions of people for business and social purposes has both positive and negative dimensions. On the positive side, it should enhance productivity as costly permanent overheads and intermediate agencies are dispensed with, and a vast increase in knowledge sharing (e.g. Wikipedia) is created for the common good. However, there are also potential negative consequences which reflect the fact that the 'protective envelope' (e.g. pensions, healthcare, holiday entitlements, standard working hours etcetera) provided through the standard employer/employee working contract will disappear from many service and manufacturing activities. Some industries will be particularly adversely affected (e.g. hotels from AirBNB) while many routine jobs will be automated.

The worker of tomorrow will have to be much more self-reliant, incorporating skills which protect him/her from being displaced by the new technologies (e.g. problem-solving; conceptual reasoning; emotional intelligence etcetera). Ironically, the security of their income stream will depend less on a particular company or even a particular industry; rather they will depend on a strong entrepreneurial capacity capable of exploiting the new technologies to offer quintessentially human skills to a world-wide electronic marketplace. Working arrangements will become much more flexible and project-based – hence the new buzz word to describe these new relationships – the GIG economy.

The European Commission has been to the forefront in commissioning studies on many aspects of the new economy and EUROFOUND in particular has published many studies on this subject in the last couple of years. The focus is now moving to the PES – their role in matching the competences of job-seekers with the requirements of an evolving marketplace give the PES a critical and pivotal role in preparing the worker of tomorrow for the skill needs of tomorrow.

This initial study is relatively short. It is designed to assess the extent to which the PES is in a position to respond to the emergence of these new working relationships. The questionnaire attached is very simple; comprising exclusively of closed questions with yes/no answers and a PES officer with knowledge of PES activities should complete it in 10 minutes. Your co-operation in completing this questionnaire is greatly appreciated.

Queries: For any queries that may arise while completing the questionnaire, please contact **John McGrath** by email at Kilboy@indigo.ie or by telephone on +353 872754620 or through the PES functional e-mail address.

Deadline: Please send the completed questionnaire by Tuesday **16th May 2017** at the latest to: PES-BL-team@icon-institute.de

Completed questionnaire should also be copied to: EMPL-PES-SECRETARIAT@ec.europa.eu

Questionnaire on the approach of PES to atypical employment

Question 1: Do you formally record *if the previous employment* (where relevant) of those registering with your PES was other than the standard full-time, permanent employment contract (please tick appropriate box and add comments if you consider it useful)?

Type of work	Yes	No
Temporary contract		No
Part-time (including marginal employment) ¹¹		
A job linked to the so called 'digital platform' ¹²		
Other atypical contracts (e.g. zero hours)		
Self-employment		
Comment		

Question 2: Do you formally record if the job *which the registrant is seeking* is other than the standard full-time permanent employment contract (please tick appropriate box and add comment if you consider it useful)?

Type of work	Yes	No
Temporary contract		
Part-time (including marginal employment)		
A job linked to the so called 'digital platform'		
Other atypical contracts (e.g. zero hours)		
Self-employment		
Comment		

¹¹ There are a significant number of workers in the EU labour market who are employed for very few hours. These are often referred to as 'mini-jobbers'.

¹² Jobs linked to the digital platform are those where transactions are not based on the traditional employer/employee relationship but rather occur directly between potential buyers and sellers in the 'cloud' sometimes through an intermediary (e.g. Airbnb; UBER). Such transactions do not occur within the 'envelope' of standard employer/employee contractual relationships.

Question 3: Do you attempt to match job-seekers with vacancies for atypical jobs if and when such vacancies are notified to your PES?

Vacancies for jobs on;	Yes	No
Temporary contracts		
Part-time (including marginal employment)		
Jobs linked to the 'digital platform'		
Other atypical contracts (e.g. zero contracts)		
Comment		

Question 4: If the answer with respect to any contract in question 3 above is no, please explain why you don't engage in matching activities to fill such vacancies (e.g. zero contract jobs are illegal in our country)

Type of contract (e.g. temporary contract; hour's contract etcetera)	(e.g. zero contract)	Comment on why your PES does not seek to match job-seekers with vacancies based on such contracts (e.g. zero contracts are illegal in our country)

Question 5 When your PES measures the effectiveness of their placement outcomes, (i.e. clients finding employment) what type of information is recorded (more than one box may be ticked)?

Type of information recorded	Yes	No
The main characteristics of job-seekers who found employment (i.e. women; young job-seekers; long-term unemployed etcetera)		
The type of employment contracts (part-time; temporary; self-employment etcetera) associated with the work the job-seekers found.		
<i>Both the characteristics of job-seekers and the type of contract are recorded so that the main job-seeker groups may be cross-referenced with the type of contracts (e.g. number of women who found part-time jobs; number of young people who found temporary jobs etcetera)</i>		
Other relevant information (please specify)		
Comment		

Question 6: Does your PES provide the following training courses on an annual basis?

Type of training course	Yes	No
Enterprise type courses (e.g. Start your own Business)		
Courses to assist women who wish to return to the workplace		
Courses designed to assist young people who are inactive to integrate into the workforce		
Courses to assist disabled persons to acquire a marketable skill		
Other courses designed to assist marginalised groups to integrate into the workforce (please specify)		
Comment		

Question 7: Are modules on 'entrepreneurial skills' or 'digital literacy' (e.g. European Computer Driving License) or 'soft skills' or 'career planning' an integral component of the training courses offered by your PES?

Type of competencies	Yes; such modules are included on all training courses	Yes; such modules are included on some training courses	Yes; but only on specific computer related or enterprise or personal development courses
Entrepreneurial skills			
Digital literacy			
'Soft Skills' (e.g. teamwork; communication skills)			
Career planning (information on pensions, personal healthcare)			
Comment			

Question 8: Does your PES have an extensive e-college facility (i.e. use internet technologies to deliver training courses to remote locations (e.g. the job-seekers home) with on-line access to tutors etcetera...). If yes, roughly what percentage of trainees participate on such courses annually?

Method of delivery	Yes	No	If yes, roughly what % of trainees participate on such courses annually
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Courses are provided to remote locations (e.g. job-seekers residence) via the internet, with electronic access to tutors etcetera)

Comment

Question 9: Does your PES deliver a significant number of courses to job-seekers outside normal working hours such as on a part-time basis; or during evenings or at weekends

Method of delivery	Yes	No
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Some training Courses are provided on a part-time basis

Some training courses are provided in the evenings

Some training courses are provided at weekends

Comment

Question 10: The portfolio of skills training courses offered by your PES may have to change somewhat in response to the emergence of jobs related to the digital platform and increasing automation. Therefore we would like to know how you currently identify the type of skills training (e.g. welding; carpentry; java programming etcetera.) you offer to job-seekers (you may tick more than one answer)

Method of identification	Yes
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The choice of skills training courses is based on the needs of employers as reflected in enterprise based surveys conducted by our PES or by a third party or both

The choice of skills training courses is based on the preferences expressed by job-seekers (e.g. waiting lists) during registration or during interviews with PES councillors

The choice of skills training courses is based on the type of occupations which research has shown are associated with decent, sustainable employment.

Other criteria (please specify)

Comment

Question 11 The technology associated with digital platforms can also assist in a more general way in enhancing the effectiveness of the services provided by your PES. Do you for example use digital platforms (e.g. Linked-In; Facebook) in the following ways to enhance the performance of your PES. Please use the

'comment' section to refer to any other ways in which your PES exploits digital platforms.

Use of digital platforms	Yes	No
Does your PES have a webpage where you invite job-seekers and employers to interact with you in respect of a range of issues?		
Do you use digital platforms as a qualitative source of labour market intelligence (e.g. Linked-In)?		
Do you use the internet as a platform for advertising PES services (e.g. training courses)?		
Other uses of digital platforms?		
Comment		

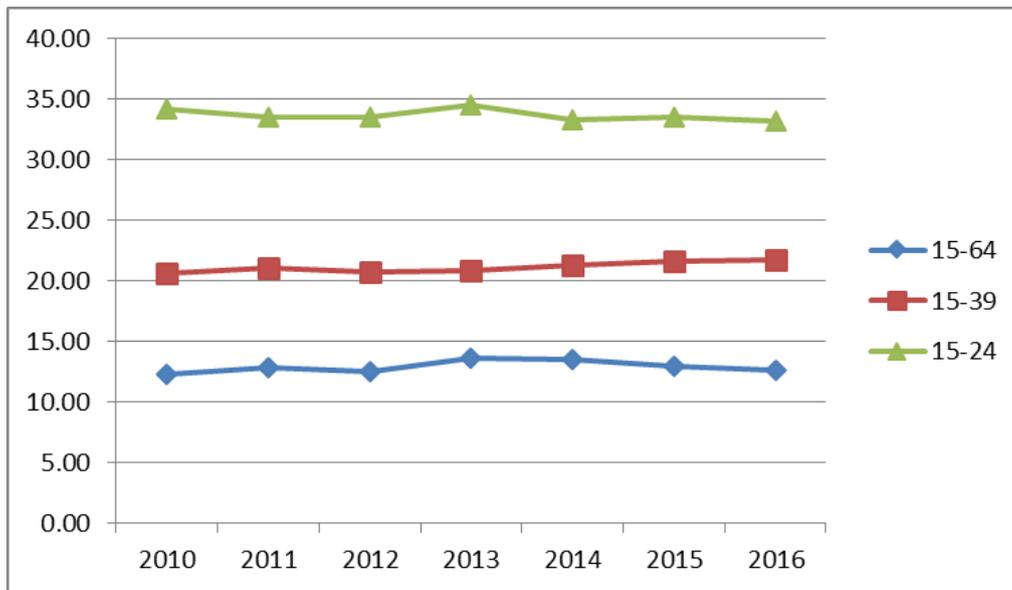
Finally, we finish not with a question, but with an invitation to you to make any comments you wish regarding the approach of your PES to the growth in atypical employment contracts.

Thank you for taking the time to complete this questionnaire – I look forward to reading your responses.

John

ANNEX II

Figure A1 Percentage of employees on temporary contracts by age, EU 28



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