



Developing Future Careers Through Personalised Guidance - guidEU

Career e-guidebook



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INTRODUCTION

The project **Developing Future Careers Through Personalised Guidance – guidEU** responds to the Europe 2020 priorities in the area of education and training, youth and early school leaving in the context of globalization, free cross-border movement of workers and labour market integration. The project's main aim is to prevent pupils' disengagement from schools through provision of easy-accessible, high-quality personalized guidance and tools to facilitate transition into the next stage of education and employment, while valuing diversity of labour market and international career opportunities. The guidEU is the answer for the detected needs.

The objectives of the project are:

- 1) reduce early school dropout through professionalized career guidance
- 2) overcome shortages of counsellors at schools
- 3) enrich scarce offer of free-of-charge and barrier free tools (including the ICT-based ones), for the recognition of students' career predispositions and interest to be used on their own
- 4) enrich scarce offer of career-oriented materials and free-of-charge tools for guidance counsellors, devoid of technological barriers to the computer use
- 5) improve career guidance services through engaging tools, methods, linking school curricula to international job opportunities
- 6) foster youth provision, equity on the labour market

The project sets up to build strong links between schools, training institutions, employers and parents, across countries, to best link curricula to international employment opportunities, reduce mismatches in skills and career choices.

The project consortium is a dynamic partnership engaging both private and public schools, organisations and institutions active in the field of education/training coming from four countries: Poland (OIC Poland Foundation - Project Coordinator & Zespół Szkół Ogólnokształcących), Cyprus (Eurosuccess Consulting & Highgate Private School), Spain (Instituto Secular "Hijas de la Natividad de María" - CPR Nuestra Sra del Carmen) and Turkey (Antalya İl Milli Eğitim Müdürlüğü).

This document presents the most-promising and long-standing career prospects. It was prepared based on available reports and publications.

1. THE MOST-PROMISING CAREER PROSPECTS

The labour market is changing rapidly. Demographic changes and technological advancements may lead to the net loss of 5 million jobs by 2020, according to a report published by the World Economic Forum¹. In total, the report estimates that a total of 7.1 million jobs could be lost, the majority of which will be white-collar office and administrative jobs. The report predicts that there will be some occupations that are more in demand. Below there is a look at some of the job categories that are expected to see the growth:

- Data analysts - will become increasingly more important in all industries by 2020 because people will need help making sense of all of the data generated by technological disruptions.
- Computer and mathematical occupations such as computer programmers, software developers, and information security analysts will grow.
- The demand for people skilled in architecture and engineering will continue to increase. This growth will be especially for engineers focused on biochemical, nanotechnology, robotics, and materials.
- More specialized sales people will also be needed. The demand for specialized sales people who can explain the company's offerings to a wide range of clients, including businesses, governments, consumers, as well as to new clients will grow.
- Senior managers will be also needed. Areas such as media, entertainment, and information will need a new type of senior manager to help companies navigate the rough waters of change.
- The demand for product designers will be observed. One of the most wanted skills by 2020 will be creativity. A lot of monotonous jobs can be automated but creative one will still require a human. Designers will be needed in commercial and industry to promote and develop products like cars, appliances, gadgets, and other manufactured goods.

¹ <https://www.weforum.org/agenda/2016/01/8-jobs-every-company-will-be-hiring-for-by-2020/>

- Human resources and organizational development specialists will be needed to retrain workers. Some jobs will disappear completely, other will be created. Some companies are going to train existing employees with new skill sets. So development specialists and human resource professionals will be needed not only for hiring in a competitive market, but they will also be needed to help employees develop new skill sets.
- Regulatory and government relations experts will continue to increase. As companies adopt and develop emerging technologies, they will also be looking to hire those familiar with how to navigate the legal side of things. For example, as traditional automakers and tech companies both develop driverless cars; they are also hiring people to understand the relevant laws and to work with government regulators in figuring out the best way to implement the technology.
- Health care, personal care and social assistance will demand more workers as registered nurses, home health aides and personal care aides. Taking into consideration that the world's population is ageing, these phenomena impacts on nearly all sectors of society, including labour and financial markets, the demand for goods and services, such as housing, transportation and social protection, as well as family structures and intergenerational ties. Every country is experiencing growth in the number and proportion of older persons in their population. Globally, the population aged 65 and over is growing faster than all other age groups.

2.1. Job opportunities in digital area

Analysis of the labour market needs confirms that the most promising occupations relate to disciplines collectively known as STEM (science, technology, engineering and mathematics). While the digital economy is booming, the demand for many traditional, professionals like lawyers, accountants, academics and middle management is decreasing. This doesn't mean that these jobs will disappear by any means but the competition is increasing rapidly in the traditional professions, which means that many people entering these professions are working more for less money. There are new industries that will drive the next economic boom and they require digital skills in the emerging industries of what's being called the Innovation

Economy. This new innovation-driven digital economy requires creative workers who are highly curious, adopt new technologies before everyone else and embrace the lifelong path of constantly improving their technical, creative and social abilities.

Digital areas where the demand in the next decade will outstrip the supply of people with the necessary skills and training according to DIY Genius²:

1. 3D Printing

The demand for craftsmen skilled in 3D Printing in the 2020s is going to be huge as on-shoring leads to the return of manufacturing to wealthy countries.

2. The Internet of Things (IoT)

The Internet of Things is the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data. This includes everything from smartphones, coffee makers, washing machines, headphones, lamps, wearable devices and almost anything else you can think of.

3. User Experience Design

User Experience Design (often referred to as UX or Interaction Design) is the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure provided in the interaction with the product.

4. Digital Marketing

Digital marketing demands storytellers and content creators that also have technical skills like analytical ability and strategic business thinking.

5. Robotics - Robotics Careers

While robots are replacing manual labor and service-industry jobs, the new employment opportunities are for people to design, build and service the robots. Robotics technicians or robotics engineers involve skills that are not easily mastered.

6. Cyber Security

² <https://www.diygenius.com/>

Cybersecurity is one of the fastest-growing industries in the world and cybersecurity involves protecting networks, computers, programs, and data from attack, damage or unauthorized access.

7. Big Data Science

With so much data being accumulated, cutting edge companies need data scientists with both analytical and social skills to make sense of the data to optimize business processes.

8. Artificial Intelligence

Robots took the jobs of factory workers. Artificial Intelligence (AI) will take the jobs of office workers. The new jobs will be understanding how artificial intelligence can be applied to business processes and social challenges and managing new AI systems that work more efficiently than humans.

9. Deep Learning

Artificial Intelligence, or more specifically a type of specialized AI called Deep Learning. It is part of a broader family of machine learning methods based on simulating neural networks and learning data representations, as opposed to task-specific algorithms.

10. App Development

2.2. New future jobs

With the constant innovation and major strides being made in technology, a large part of the world workforce will have to retrain for new jobs that will arise. Medium³, the largest active publication, presented data of the survey on *Careers of the Future*. Some of professions of tomorrow seem to be impossible at this time. It is expected that the following jobs will be created:

1. Data Detective - investigates the data generated by the "Internet of Things end points, devices, sensors, biometric monitors, traditional computing infrastructure, next-gen fog, mesh, edge, neural capabilities. Data detectives

³ <https://medium.com/swlh/careers-of-the-future-42-new-professions-of-tomorrow-5d3905f8513>

will have to identify and examine data sets from multiple sources, uncover new sources of data, mix, compare and analyze data sets from multiple data sources and write reports and present their findings to the company.

2. Ethical Sourcing Officer - exists for when corporations decide they want to have their decisions guided based on what is ethical and not what is profitable. As an ESO a person will "maintain the ethical footprint" of a company by making sure indirect expenditures are in alignment with the values of the shareholders. To be successful the ESO will undertake research and head a team of analysts to gather, examine and provide the information for the successful implementation of the shareholders values.
3. Artificial Intelligence Business Development Manager - with the development and growth of the AI sector, this job is for someone at a hypothetical AI-driven computing service company. The AI Business Development Manager will be a sales person, but for AI, because "selling AI (whether in its "raw" compute form or packaged into a business service) requires human input and effort."
4. Master of Edge Computing - will be responsible for overhauling the current internet infrastructure of a company into a decentralized one that uses edge computing. This will be needed as it will increase the processing capabilities of the massive data volumes that a company will have.
5. Walker/Talker - The world population is ageing and most countries in the world are experiencing an increase in both the number and proportion of older people in their population. As we live longer thanks to technology, in the near future there will be a need for senior citizens to talk to. The walker/talker job will be just that — talking to elderly in need of companionship, listening to them talk and taking the more mobile of them for a walk. This will be great for people that like to listen and interact with their fellow human beings.
6. Fitness Commitment Counselor - As a direct consequence from the problem of obesity the fitness commitment counselor position will emerge. Although we have a lot of technology to track and help with daily movement, such as fitbits, it still can't go the full length as it can't hold the wearer accountable for their health. In the future clients will not only wear an activity tracker, but also have a fitness commitment counselor to keep them motivated and on track to better health.
7. AI-Assisted Healthcare Technician – position is pretty much nursing updated. The skills required are the same health care skills but with an added tech

savviness to deliver them remotely, using in-home testing equipment and tools to diagnose and treat ailments, which will allow doctors to support these technicians and handle the harder cases directly. It will also be possible to perform surgery with the help of AI, with no medical degree needed.

8. Cyber City Analyst - As the number of smart cities increases, cyber city analysts will keep the tech up and running, much like electricians maintain the infrastructure of the power grid today. The data collected from the millions of sensors across such a city that keep the services working will need to be kept working and this is where the cyber city analyst comes in.
8. Genomic Portfolio Director - is the executive that will lead such a company and decide on what products need to be created. The individual in this position will have the task to create a strategy to market the new creations to the consumers and will have to ensure that the company keeps its foot on the gas.
9. Machine Teaming Manager - will have to figure out and combine the strengths of man (cognition, judgment, empathy, versatility, etc.) and machine (accuracy, endurance, computation, speed, etc.) to create the most productive worker team possible. Companies will be on the hunt for individuals that will be able to develop an "interaction system through which humans and machines mutually communicate their capabilities, goals, and intentions, and devising a task planning system for human-machine collaboration."
10. Financial Wellness Coach - will have to help people keep track of their digital transactions and make the most of their money. Keeping track of finances is hard now, but in the future, when cash becomes obsolete and electronic currencies such as bitcoin rule and automated loans and micro-payments are normal, it will be even trickier. There will be a lot of potential for "money leakage" and the fee structures of this new system will be far too complicated for the average person to understand.
11. Digital Tailor - will make use of cutting-edge technology to take customers' measurements, the clothes will then be produced and the tailors will return for a final fitting to ensure lower return rates through selling customers perfectly fitting clothes.
12. Chief Trust Officer - will be responsible for clearing suspicion and showing investors that the money they are putting into the company is used with the utmost integrity. Companies will need individuals with "the combined financial and regulatory acumen needed to deal in traditional and cryptocurrencies, with

the PR expertise to maintain a positive public image that upholds our organization's financial and public integrity."

13. Quantum Machine Learning Analyst - will be responsible for combining these for better and faster solutions to real-world problems. The end goal of these analysts will be to create a system that can learn from data and this role will be suitable for the most highly skilled individuals.
14. Personal Data Broker – will make sure their customers receive money from the companies they sell their data to. The person in this position will monitor and trade personal data on a newly created data exchange.
15. Personal Memory Curator - will use the experiences of people to create realistic simulations of their past. Curators will also be responsible for managing the "advance memory statement" before the onset of memory fail.
16. Highway Controller - will take on this mantle and will have to monitor, regulate, plan and manipulate both air and road space by monitoring and programming the AI platforms that control the vehicles. This position can be equated to an air traffic controller, but on steroids with an added bonus of even greater stress levels.
17. Genetic Diversity Officer - Technological advancement in the future will change the meaning of an equal opportunity employer from making sure they have a diverse group of employees of ethnic, gender and sexual orientation to making sure there is a good mix of people who have been genetically enhanced and those who haven't.
18. Data Trash Engineer - will be to identify unused data, clean it up and feed it into machine-learning algorithms to find hidden insights by not only increasing how much data is collected, but also improving the data quality. The end goal is to transform trash into treasure.
19. Cyber Attack Agent - will have to develop and deliver strategic cyber offenses against enemy infrastructure and public and private sector systems. Cyber agents will need to have a "track record of cyber hacking, "grey-hat-focused" software development or distributed denial of service attack experience."
20. Head of Business Behaviour - will analyse performance data, emotional data and interaction data, and create strategies that will improve employee engagement, productivity, well-being and workplace happiness. This position

will also require a vigilant oversight of the privacy and ethical concerns around the collection of behavioral data and preserve the employees' trust.

21. Smart Home Design Managers - will work closely with architects, engineers and clients to "design connected homes that cocoon inhabitants in a fully and seamlessly connected environment, using the latest integrated technology in an aesthetically and environmentally friendly manner." They will have to be on top of the latest technological trends and find original ways to integrate technology with both traditional and contemporary styles.
22. Algorithm Bias Auditor - will have to conduct a methodological and rigorous review new and existing apps and systems within the organization and establish an inventory system that logs and tracks each algorithm, its objectives, its input and output, related human value judgments and consequences. The position will also require the establishment of guidelines and compliance methodologies that can easily be understood and followed by employees in an organization.
23. Cyber Calamity Forecaster - will have to monitor, detect and forecast cyber threats and predict what their impact will be. Forecasters will also have to accurately map cyber uncertainties, make predictions to prepare for their occurrence and be able to distinguish between highly improbable and wildly impossible cyber outliers.
24. Tidewater Architect - will be responsible for the planning and execution of projects that work with nature - not against it. Excellence in hydro-engineering, civil engineering and architectural design derived from the principles of moats, floats, super-dikes and wetlands is essential to this role.
25. Virtual Identity Defender - will be capable of creating digital watermarks that can be authenticated and can prove the truth of something or someone and, conversely, signal an illegitimate intention in their absence.
26. Virtual Reality Arcade Manager - Virtual reality is expected to grow rapidly and VR arcades will be able to provide immersive, high-definition multiplayer experiences. A VR arcade manager will manage the physical arcade and will liaise with the central VR software developers to make sure the latest and greatest VR experience is available and operational at all times.
27. Vertical Farm Consultant - will tend to farms and advise communities on the best practices so people can eat healthier and source food locally. Consultants will work with community leaders and local governments to identify the

optimal locations for farming sites within neighbourhoods and train residents to operate the facility. Other responsibilities will be to create educational plans that advise people on the health benefits of plant-based diets and how best to prepare meals that meet their needs.

28. Machine Risk Officer - will have to manage the potential risks that can occur when intelligent machines fail. This position will also require the establishment of human-machine trust and will have to also protect a company's brand, reputation and finances by considering machine ethics issues.
29. Subscription Management Specialist – will construct a framework of linked subscriptions to establish and “advance customer familiarity, loyalty and a direct sales channel.” This position will be twofold — to investigate the “most suitable subscriptions for acquiring new customers, increasing the value of existing customers and reducing customer churn, while also undertaking micro-subscription service development by exploring opportunities to partner and develop a suite of micro-payment options for customers.”
30. Haptic Interface Designer - will use new materials and the ability to program responsive textures to maximize the impact of outreach campaigns. The role will also require the identification of which wearable and touch-surface platforms work best to combine and advertise a brand, product or service.
31. Chief Purpose Planner - will conceive, shape and launch dedicated purpose journeys for companies; to help clients define and articulate their contribution to society and their purpose for both customers and prospective employees. In this role a person will help clients build, maintain, manage and smooth out their purpose in the minds of an increasingly crowded market.

Partners



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