

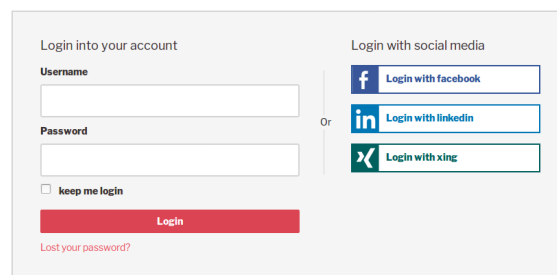
Smart Job Hub

Business Requirements

Roles

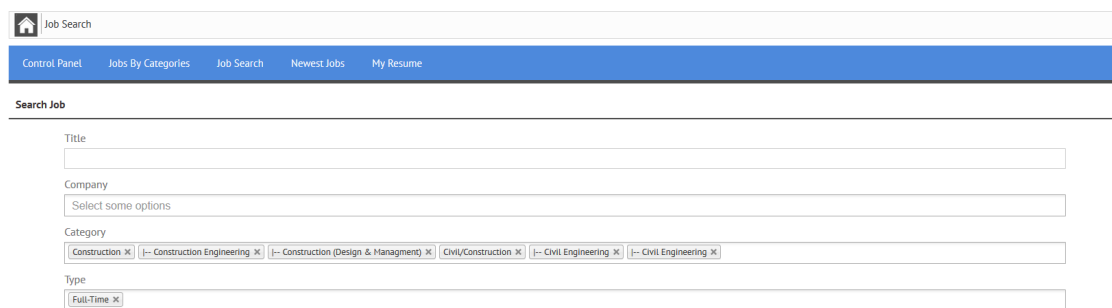
The platform would enable three different roles: **graduate**, **employer** and **academia** and each role would have different capabilities and different panels, as their needs and their goals are different. The employer (industry or start-up) mainly seeks for employees and secondly for educational programs with graduates equipped with skills that fit the demands of the available vacancies. The graduates follow a similar path, looking for jobs that fit their skills and for educational programs that cover the skills in demand from the employers, while the academia examines the needs of the market and designs accordingly educational programs capable to cover the skills gap. In the remainder of the section some more details of each role are presented.

Graduate (or job seeker), is the individual who enters the platform and she/he is looking either for the available jobs either for the available education programs. Another important functionality for the graduate is the creation of resume(s) and the capability to apply to different job posts. The user can alternatively register via her/his account on LinkedIn or Facebook (Figure 1), based on what she/he decides and browse recent posted jobs and search for jobs that meet some criteria (Figure 2).



The mockup shows a login interface with two main sections. On the left, under 'Login into your account', there are input fields for 'Username' and 'Password', a 'keep me login' checkbox, a red 'Login' button, and a link for 'Lost your password?'. On the right, under 'Login with social media', there are three buttons: 'Login with facebook' (blue), 'Login with linkedin' (blue), and 'Login with xing' (green). The interface is clean and modern with a light gray background.

Figure 1. Mockup of the log-in interface



The mockup shows a search job interface. At the top, there is a 'Job Search' header with a home icon. Below it is a navigation bar with links: 'Control Panel', 'Jobs By Categories', 'Job Search', 'Newest Jobs', and 'My Resume'. The main section is titled 'Search Job' and contains several input fields: 'Title', 'Company' (with a dropdown arrow), 'Category' (with a dropdown arrow), and 'Type' (with a dropdown arrow). Below these fields, there are six category buttons: 'Construction X', 'Construction Engineering X', 'Construction (Design & Management) X', 'Civil/Construction X', 'Civil Engineering X', and 'Civil Engineering X'. The interface is clean and modern with a light gray background.

Figure 2. Mockup of the search job functionality where graduate (job seeker) searches for available full-time jobs in the six given categories

Employer, the role of the employer is for the users who enter the platform aiming at finding new employees for their companies. The employer has four basic functionalities, creation of company (or companies), creation of the departments of the company (if applicable), posting job vacancies (Figure 3) that would be filled from the job seekers of the platform and search for the available resumes in the platform.

Figure 3. Mockup of the posting job functionality, where the employer adds a new job with the title “Software Engineer” for the company “Smart Job Hub” previously created

A user registered as **Academia**, has four main functionalities, the creation of HEI(s) and their departments, creation of education programs and creation of events. For the last two functionalities, users registered as employers have the capability to approve an education program (if asked) and eventually be considered as co-creators of the program.

Entities

The roles of the platform indicate the different permissions and privileges each user would have into the system in order to enter a modified platform that satisfies their needs. The entities are created and modified from the users of the platform and indicate either organizations, functions or services. The entities of the platform are **companies, companies’ departments, jobs, resumes, HEIs, HEIs departments, education programs** and **events**.

Each role interacts differently with the available entities; hence graduates look for jobs and educational programs, build resumes and apply for jobs. The employers create companies and companies’ departments, post available jobs, look for candidates and education programs that fit their needs. The basic hierarchy and interactions between the entities are depicted in the Figure 4.

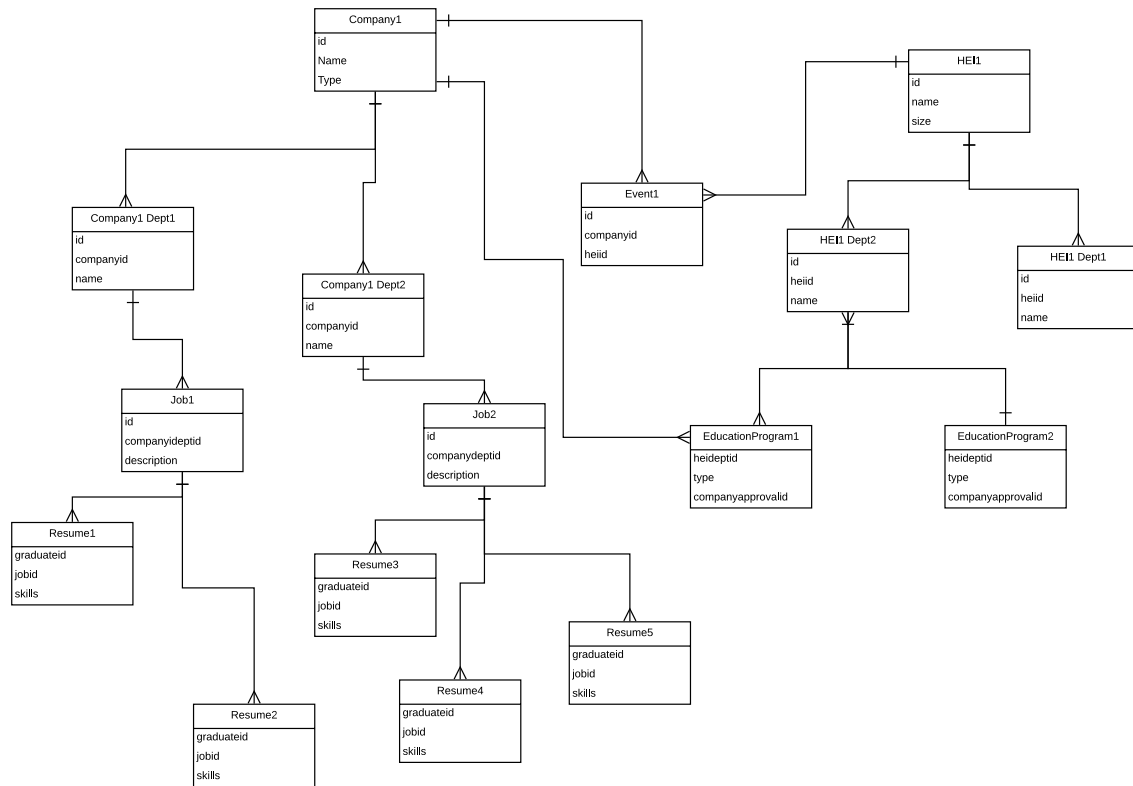


Figure 4. A class diagram showing entities of the platform and basic interactions amongst them

Mockup of the platform

The employer would have access to a control panel with the desired functionalities, such as add and modify the available jobs vacancies, create the profile and the structure of the company and search for the available resumes of the system. In Figure 5, a mockup of the employer's panel is depicted, offering the functionalities described above.

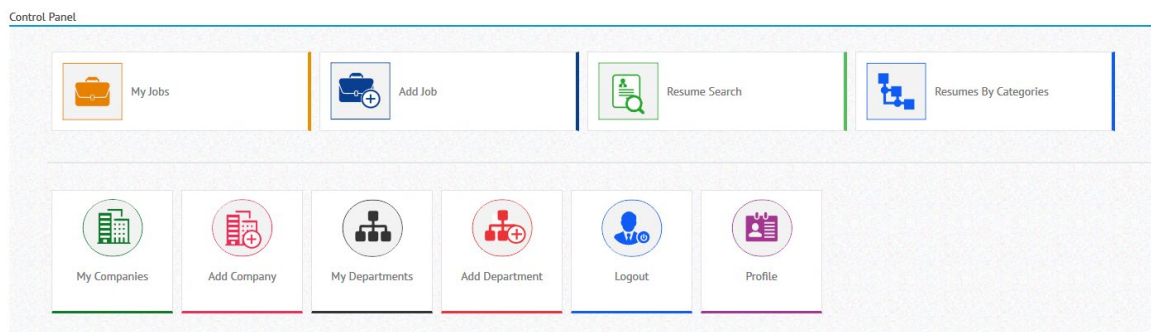


Figure 5. Mockup of the employer's control panel

Accordingly, each user of the platform depending on their role (employer, graduate, academia) would have a different control panel with the functionalities that fit their needs and their goals. For example, for the users registered as academia, would be able to add and modify the

available education programs, create the profile and the structure of her/his HEI, create a modify events and search for the available resumes.

Skills gap and visualization

One of the features the platforms would have is the identification of skill gaps between job posts, graduates and education programs. Thus, the homepage would have a dedicated part to illustrate the skills gap both with descriptive (Figure 6) and visual manner (Figure 7). The page including the feature of skills gap identification would be divided into three basic parts, each one addressing specific requirements from the proposal.

- The first part of the page is displaying statistics on the skills that the job posts require and the skills that are offered from the education programs. The desired outcome of the statistics is the identification of skill gaps.
- The second part of the feature would be devoted to the identification of ICT trends, crawling iteratively the skill that are required from the job posts. Thus, eventually the megatrends that exist in both industry and start-ups would be revealed. In combination with the revealing of megatrends in industry, the skills that are offered from the different education programs would also be illustrated. Ultimately, a graphic representation of skills gap through time would be depicted.
- The last part of this page would be devoted into the recently introduced education programs and events that cover the demands of the market and fight the skill crisis. In this part, the synergy between HEIs and industry would be promoted, as the capability of co-creation an education program (MSc, diploma thesis, PhD, etc.) between academia and industry is provided.

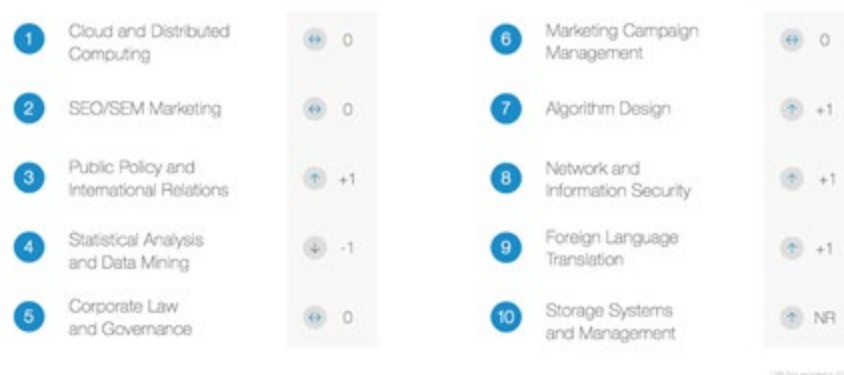


Figure 6. Mockup of the visualization of the top 10 trending skills that required from the industry in 2019

It could be said that this part of the platform reveals the outcome of the entire project, as it reveals important information and covers in some extent all the requirements of the project. Recent technological challenges would be identified, and emerging, cutting-edge technologies would be highlighted as pinpointed by market innovators through job posts in the smart job hub.

HEIs have the capability to identify the skills required in labour market and train respectively high-qualified students in ICT specific topics. The synergy between HEIs, entrepreneurs and industry would address the competences and occupational profile the labour market demands.

This synergy would promote open links between Universities and industry, enhancing the relevance of higher education by supporting education programs in different forms, such as common Bachelor, Master and PhD theses supervision.

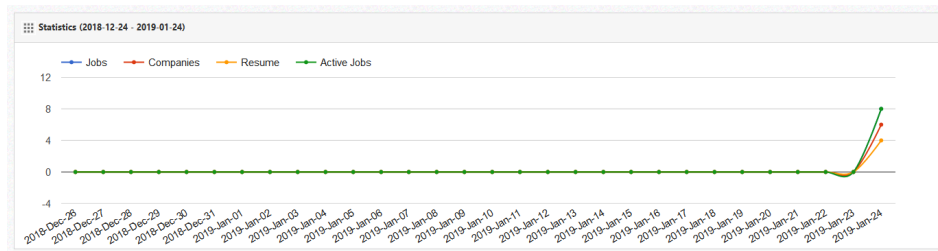


Figure 7. Mockup of the visualization in line chart format for the traffic on the platform

Activity diagrams

In this sub-section some indicative activity diagrams are illustrated, demonstrating some of the actions the user may take, when enter the platform. The first diagram (Figure 8) illustrates the user entering the platform, searching for a job either by browsing either by providing specific skills that are demanding from the job market, and eventually applying for the available job.

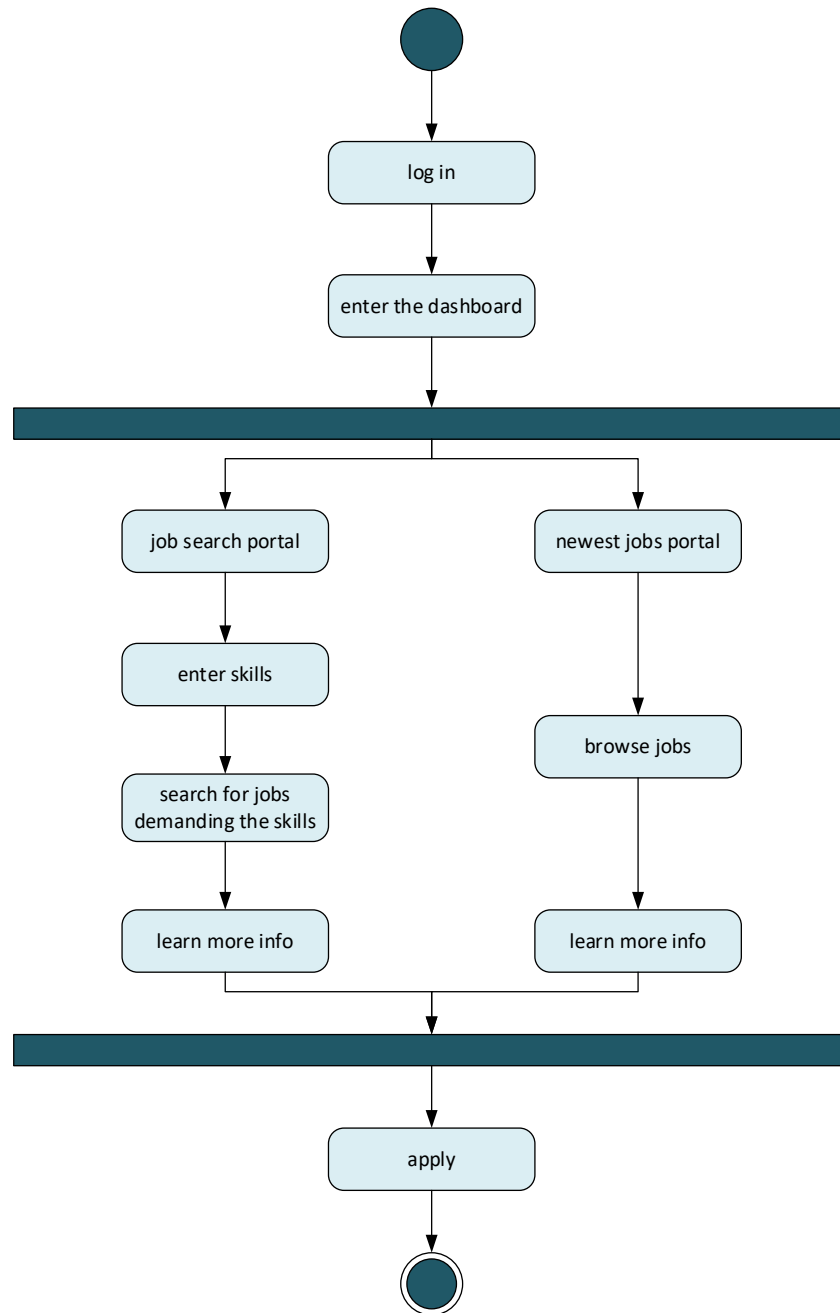


Figure 8. Activity diagram depicting the process of searching and applying for available jobs

In the second activity diagram (Figure 9), the rationale for creating an education program is depicted and reveals the connection that the industry can have with the academia. Browse the skills that are required in the market, identify the gaps between existing education programs, design the new education system with a possible synergy with the companies that exist in the platform and eventually provide the education program to graduates, that desire to keep up with the demands of the market.

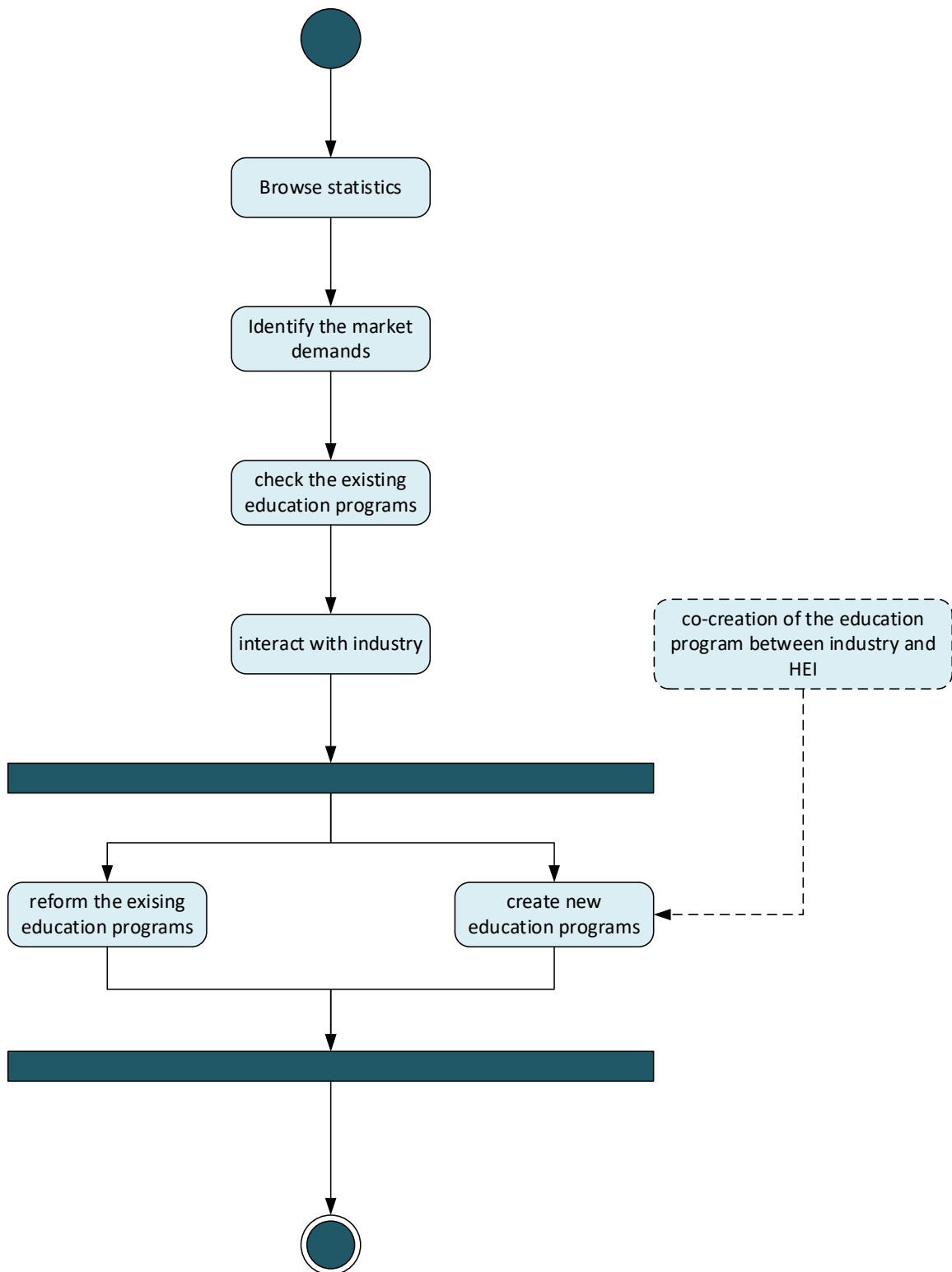


Figure 9. Activity diagram revealing the rationale for creating or modifying education programs

Smart core engine

The analysis of the data collected from the users in the platform would take place with the aid of the smart core engine, where machine learning algorithms and data analysis methods would be implemented. Apart from the basic data analysis, the smart core engine would try to better interpret the data generated in the platform and eventually predict future skill gaps.

Apart from the data generated in the platform, the smart core engine would also include data derived from other resources, such as Facebook pages from local communities (<https://www.facebook.com/groups/startupcyprus/>, <https://www.facebook.com/groups/hackcyprus/>, <https://www.facebook.com/CypriotEnterpriseLink/>, <https://www.facebook.com/StartupWeekendCyprus/>, <https://www.facebook.com/GDGCyprus/>, <https://www.facebook.com/spaceappscy/>, <https://www.facebook.com/StartCyprus/>, <https://www.facebook.com/startups4peace/>) and news platform such as investing.com. The goal of the smart core engine is to convert raw data into knowledge and provide information for the upcoming trends in industry.

interconnection APIs and interfaces

An important part of the platform is its interconnection with existing APIs and its interaction with other social platforms. The platform would enable the connection with Facebook and LinkedIn and the automatic sharing of any job post to the aforementioned social networks.

Apart from the log-in and sharing capabilities offering from the platform, a Facebook crawler would enhance the input of the smart core engine, in order more data to be received as input to the statistical methods and machine learning algorithms that would be potentially applied. Thus, the algorithms that would be applied, they will receive data from the platform and the appropriate Facebook pages.