

How to Design a Digital Skills Platform for Vulnerable Youth: *Lessons from the World Bank in Lebanon*

April 2025



This note is part of a series of [Solutions for Youth Employment \(S4YE\)](#) knowledge briefs to promote a culture of innovation, learning and evidence-based decision making among youth employment practitioners.

In the current context of the Fourth Industrial Revolution and the COVID-19 pandemic, digital skills have become crucial for the future of work. However, many individuals lack access to quality and affordable digital skills training that can enhance their employability and career prospects.

Digital skills training platforms (DSTP) typically offer online courses covering various skills needed for the digital economy – such as coding, data analysis, or digital marketing. They can be complemented by external job portal platforms that provide employment opportunities which may be scarce or unavailable locally otherwise. Though DSTPs are crucial in bridging the gap between education outcomes and labor market needs, they are particularly important for vulnerable youth, especially those living in fragile and conflict situations as they empower them with skills that enhance employability and income-generating potential. However, many challenges persist in ensuring such platforms are inclusive, accessible, relevant, and effective for all young people, especially those who are marginalized by conflict and instability.

This note aims to share the lessons learned and best practices from the development and implementation of [nammiskills](#), a digital skills platform. Nammiskills is an innovative platform that combines both market-relevant skills training and employment opportunities. The innovative approach of NS goes beyond conventional models by offering both skills training and job opportunities within a single platform as well as innovative features such as a skills assessment, matching profiles to the most relevant training. This integrated approach bridges the gap between the training and employment, providing a complete solution that caters to the diverse needs of users and employers. It helps youth identify the most in-demand job opportunities in the local, regional and global markets, and then guides them in selecting relevant training to acquire skills needed to be competitive in those job. This is achieved through assessing their skills and providing them with a matching score relevant to selected career. The platform offers courses in a range of digital skills, from low to advanced levels. In addition, it provides career guidance, linkages to job portals, and other support services. The platform is a joint WB-UNICEF initiative, implemented by a local NGO, Forward MENA.

The main goal of the platform is to upskill 5,000 young people, with a focus on women, and inclusive of refugees and persons with disabilities, by March 2025. At least 1,000 of these youth will receive industry-linked certification through partnerships with international organizations such as Microsoft, Amazon Web Services, LinkedIn Learning, Simplilearn, and Digital Opportunity Trust.

The note aims to support professionals, organizations, or any stakeholders interested in developing similar platforms for their own operations. It covers the following topics: (i) starting with the demand: identification of the right trainings and certifications for the jobs vacancies available currently in the market, (ii) integration of early warning systems and skills assessment framework, (iii) targeting strategy for inclusion, (iv) creating an effective user experience, (v) designing the user interface, (vi) leveraging private sector players, (vii) and embedding of impact evaluation, and monitoring and evaluation framework within the platform.

The note ends with suggestions on how the nammiskills platform can be replicated and scaled.

How to Design a Digital Skills Platform for Vulnerable Youth: *Lessons from the World Bank in Lebanon*

1. The context

1.1 Lebanon: A Country in Need of Digital Skills Development for Youth Employment

Lebanon is facing multiple crises and challenges that are impacting its labor market and economy. The educational system is not aligned with market-relevant digital skills which are increasingly in demand in the local, regional and global economy. The country faces significant challenges in closing the youth unemployment gap (currently estimated by the Labor Force Study (LFS) at 47.8 percent in 2022¹ for youth aged 15-24). Many Lebanese youth are struggling to find employment due to structural and personal barriers, leading some to emigrate. For example, around 18 percent of youth report that it is difficult to find a job in Lebanon without “*wasta*” (or connections) due to the country’s corrupted system based on favoritism². Vulnerable groups, such as women and refugees, face various obstacles that hinder their participation in the digital economy. In the digital sector, barriers include a lack of access to training programs that focus on digital skills, insufficient awareness of available opportunities, and limited capacity-building initiatives tailored to meet market needs. For those living in refugee camps or rural areas, additional barriers include poor internet connectivity, limited access to devices or good internet connectivity, which further restrict access to online training platforms. Additionally, in many cases, restrictive regulations and policies in certain countries limit refugees’ access to formal employment opportunities. The digital economy offers an alternative by providing flexible, location-independent work opportunities that can help mitigate these barriers and enable refugees to generate income and build livelihoods despite these challenges. While technology offers new solutions and possibilities for education and employment, it also requires some level of digital literacy, digital skills (Box 1), critical thinking, and soft skills. Nammiskills addresses these issues by providing an innovative platform that not only equips youth with essential digital skills but also navigates current labor market challenges. The platform also caters to users in low-bandwidth areas as it has been optimized by reducing the size of media assets, ensuring accessibility even in areas with limited connectivity. Plans are also underway to develop a more comprehensive version of the platform that will better address these connectivity challenges and expand its reach to underserved communities.

Box 1: What are Digital Jobs and Digital Skills?³

All work that uses, or is made possible by, ICT may be considered “**digital work**”—a broad definition that encompasses most jobs in advanced economies. “Digital work” is not just about careers within the ICT industry. There is also growing demand for highly skilled workers outside the ICT industry. **Digital jobs** exist across all industries, but they vary in how much they rely on technology. Broadly, there are three types of digital job:

- ✓ **ICT-intensive jobs** directly created through the ICT sector and intensively using ICT, such as mobile app development.
- ✓ **ICT-dependent jobs** that cannot be performed without technology, such as online freelancing work and customer call centers.
- ✓ **ICT-enhanced jobs** that use digital technologies but could be performed without ICT, such as accounting and graphics design.

¹ CAS 2022

² UNICEF 2022

³ S4YE (2018). *Digital Jobs for Youth: Young Women in the Digital Economy*. Washington, DC: World Bank

For youth to successfully perform digital work, they must develop digital skills which exist on a continuum:

- ✓ **Advanced Digital Skills:** necessary to create, manage, test and analyze ICTs, related to application development, network management, machine learning, big data analysis, among others.
- ✓ **Intermediate Digital Skills:** job-ready skills needed to perform work-related functions, such as desktop publishing, digital graphic design, or social media management.
- ✓ **Basic Digital Skills:** generic ICT skills required that relate to the effective use of ICT, including performing web searches, sending emails, or the use of professional online platforms. Additional work-relevant skills that youth need to succeed in the digital economy include: cognitive skills, socio-emotional skills, and foundational literacies.

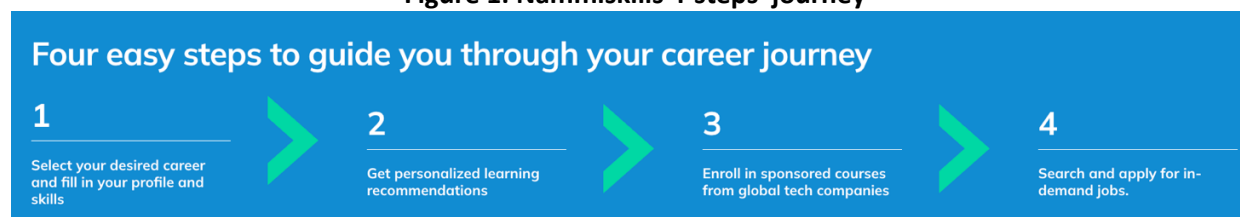
1.2 About the nammiskills platform

World Bank’s [Skilling Up Lebanon \(SUL\)](#) umbrella initiative⁴, is an innovative private sector-led skills development intervention supporting young people in Lebanon to increase access to affordable, market-relevant digital skills. Since 2020, the SUL has implemented various youth-targeted activities, reaching approximately 11,000 youth across Lebanon.

Under the Skilling-Up Lebanon (SUL) Initiative, the World Bank partnered with UNICEF to implement the “*Enhancing Youth Employment in the 21st Century Digital Economy*” project, financed by the Kingdom of the Netherlands’s Opportunity Fund. The World Bank provides strategic oversight and technical expertise, UNICEF plays a central role in engaging with youth and ensuring alignment with local needs, and the local NGO Forward MENA implements and manages the platform, on the ground both strategically and operationally to address critical employment gaps in Lebanon. Together, these entities collaborated to improve the employability of youth in Lebanon by equipping them with the digital skills needed to thrive in today’s continuously changing economy. To reach its intended objective, the project is funding the development, marketing, management, and evaluation of an innovative online digital skills platform called nammiskills⁵ (Box 2). This joint effort led to the successful [launch](#) of the platform on September 14, 2023.

Nammiskills's User Experience (UX) integrates four services into a user journey that caters to the skills gap in the digital economy (Figure 1). Users select a career, self-report their skills (including those relevant to the selected career) and receive a matching score that not only reflects their skills' alignment with the chosen job but also suggests three alternative job titles. The platform identifies skills gaps, recommends learning pathways, and the matching score evolves with course completion. In addition to the learning experience, employers can post jobs, review user profiles based on the skills needed, and assess rankings. A job listing page is also available and pulls positions from existing platforms, creating a comprehensive space for job seekers and employers.

Figure 1: Nammiskills 4-steps' journey



⁴ P176444

⁵ Nammiskills was previously called Forastech but underwent rebranding

Implementation Arrangements

The nammiskills project implementation arrangements are as follows:

1. Strategic and Coordinating Agencies	World Bank	Providing guidance and advice based on international best practice on the technical design of the platform and various features of the learning journey, establishing and negotiating partnerships with leading tech companies, designing and implementing an impact evaluation.
	UNICEF	Providing support for the strategic development of branding and communication, in coordination with World Bank, advising on technical and M&E aspects of the platform, co-owners of the platform’s source code. Building partnerships with local stakeholders including the private sector to ensure inclusive access of youth to the platform and to jobs (in Lebanon, including vulnerable), linking engagement through other ongoing programs.
2. Project Implementing Agency	<u>Forward MENA</u>	Project implementing agency, local NGO in Lebanon. Forward MENA (FM) and has been working on the WB SUL initiative since 2020 ⁶ . On nammiskills, FM is leading on the development, marketing, management and sustainability of the platform. FM is the co-owner, with UNICEF, of the platform’s source code
3. Platform Technical Development	<u>Zero&One</u>	Dubai- based private contractor procured to build the platform

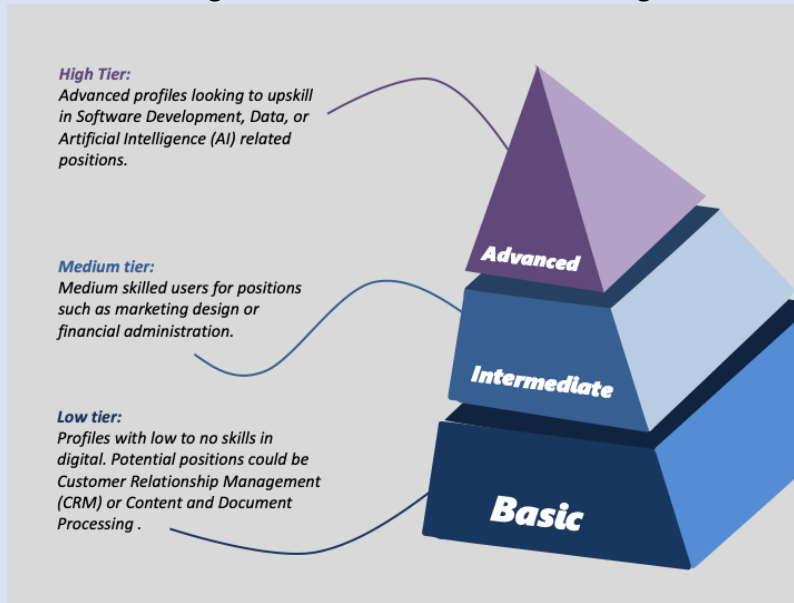
Box 2: Nammiskills: A Digital Skills Platform for the Future of Work

- ✓ [Nammiskills](#) (NS) is a digital skills platform that aims to empower youth from diverse backgrounds and skill levels to access affordable and relevant online learning opportunities linked to industry certification.
- ✓ **Linkage with demand side and other services:** The learning journey of youth starts with understanding the current job vacancies and corresponding skills needed (the platform aggregated job vacancies from various online platforms). It also provides career guidance, and support services.
- ✓ **Skills Development Through Partnerships:** It leverages the expertise and trainings resources of recognized technology partners such as Microsoft, Amazon Web Services, LinkedIn Learning, Simplilearn, and Digital Opportunity Trust (regularly updated content to respond to employers’ needs and updated tech products developed by those companies, certification, etc.).
- ✓ **Target Beneficiaries:** It aims to upskill 5,000 youth, providing industry-linked certification to 1,000 participants, of whom half will be women, 10% refugees, and 2% persons with disabilities, and support 200 of them in securing employment.
- ✓ **Range of Skills:** The platform offers *three levels of digital skills training* that cater to different user needs and career goals (Figure 2).
- ✓ **Results reached till date:** As of March 2025, nammiskills has registered over 390,000 visitors and 20,000 users' registrations. Additionally, 2,700 users got certified and 204 got an employment opportunity (short term contract, full time/part time employment, or freelancers).

⁶ Among the different activities, Forward MENA initiated five pilot programs under Skilling Up Lebanon reaching a total of 1,804 beneficiaries, out of which 1,030 were women. These comprised a career guidance program; an internship program (that has helped place 215 interns, out of which 105 women, in 160 companies); and 3 digital skills programs reaching 173 youth aged 20-35 years old with trainings on the User Experience/User Interface (UX/UI), DevOps, and Digital Marketing. A Cost-Benefit Analysis focusing on the Economic Rate of Return (ERR) to the training component and using the results of a survey shared with the 173 beneficiaries, only 3 months after the completion of trainings showed (i) an increase of the employment rate equal to 18 percent and (ii) an average wage increase of USD 4,854 (94 percent increase of the average pre-training annual wage). The ERR result was equal to 50 percent, a sizable and positive result.

✓ **Pathway to impact:** The platform’s theory of change is built on the principle of bridging the skills-employment gap. By identifying labor market needs, providing targeted skills training, and facilitating job linkages, nammiskills enables youth to transition from training to employment in the digital economy locally, regional and globally (virtual migration). This approach directly addresses barriers such as skill mismatches, lack of career guidance, and limited access to certification. Over time, this pathway reduces unemployment rates and creates a more inclusive workforce in Lebanon.

Figure 2: Three levels of Skills Training



❖ **Intended Outcomes**

Medium Term/Intermediate Impacts	Long Term/Final Impacts
<ul style="list-style-type: none"> ✓ Improved understanding of available jobs, demand of skills ✓ Improved understanding of career and training options with increased likelihood of completing training/certification ✓ Higher earnings on the medium term and more satisfaction with jobs and employment 	<ul style="list-style-type: none"> ✓ Higher likelihood of being employed or engaged in income-generating activities ✓ Higher total monthly income (improved productivity) ✓ Increase in job stability ✓ Improved economic sustainability

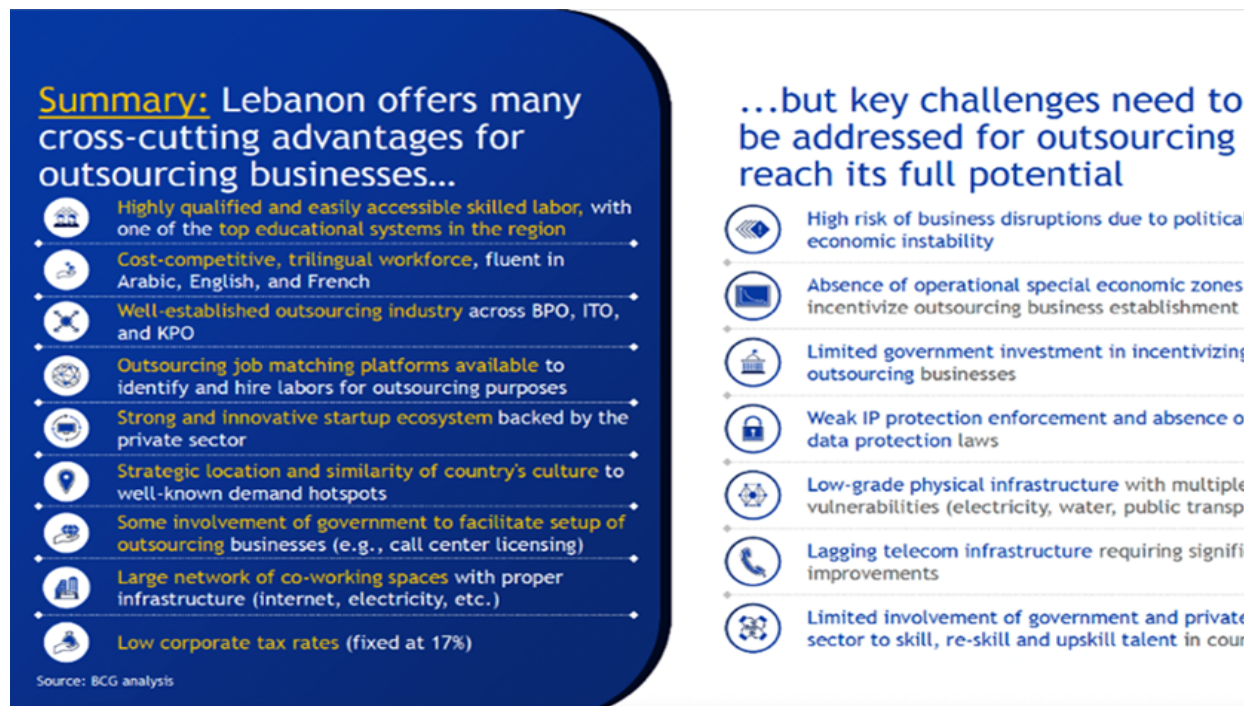
2. Practitioner Insights From Nammiskills: Ideas on how to design a digital skills platform

This section aims to share the lessons learned and best practices from the development and implementation of nammiskills to support professionals interested in developing a similar digital skills platform. It identifies **seven key actions** which any team should focus on and are listed in the next sections.

2.1 Start with the demand: current job vacancies as entry points to skills program

To design a digital skills platform for any country, a thorough analytical activity, research and a proper needs assessment are essential as a first step. It will help understanding the current situation, the

challenges, the opportunities (potential for jobs, most in-demand skills), and the gaps in the digital skills ecosystem of the country. It will also help tailoring the platform to the specific needs and demands of local, regional and global employers and adapt it to the target beneficiary. For example, the World Bank and FM partnered with various experts and organizations to conduct a series of analytical activities and research for Lebanon, including the Boston Consulting Group (BCG)⁷ and LinkedIn.⁸ FM partnered with BCG, *on a pro bono basis*, to identify the potential for outsourcing opportunities in tech and digital jobs for local talent in Lebanon and other MENA countries, as well as the corresponding training and certification required⁹. BCG analyzed the global demand and supply of tech and digital skills, the competitiveness of Lebanon and MENA countries, and the gaps and challenges in the current education and training systems. Key results are shared below.



Source: BCG, [MENA Talent Map](#), "The future of outsourcing and potential opportunities of emerging countries in the MENA Region", 2023

Analysis shows that skills needed, hiring trends, and skills gaps vary by country in the MENA region and careful analysis is needed. The World Bank team partnered with LinkedIn¹⁰ to analyze the skills demanded in various industries and occupations identified by BCG, leveraging LinkedIn's large data sets and analysis expertise. The analysis provided insights into the most market-relevant skills for digital training and employability in the MENA region and beyond, such as cloud computing, JavaScript or Python. Adapting training to the local needs of the private sector is of utmost importance to ensure successful results and impact. For example, LinkedIn analysis illustrates that Bootstrap, a specific programming language stands

⁷ The partnership with this global management consulting firm was with FM directly as a pro-bono work to a local NGO.

⁸ The globally growing outsourcing industry is providing significant opportunities for employment in the tech and digital sectors, which Lebanon and the MENA region could tap into, but undertaking the opportunities and challenges is key. According to the 2023 Future of Jobs report from the World Economic Forum (WEF), it is estimated that 44 percent of workers' skills will be disrupted in the next five years, 83 million jobs will be displaced by 2025 while 69 million jobs will be created. The skill sets that are in high demand today did not exist five years ago and the pace of this trend is expected to merely accelerate.

⁹ BCG, [MENA Talent Map](#), "The future of outsourcing and potential opportunities of emerging countries in the MENA Region", 2023

¹⁰ TTIs can make such partnerships directly through the World Bank's Data Partnership portal with guidance from the Development Data Partnership team (contact: datapartnershipadmin@worldbankgroup.org). Typically, these requests involve submitting a concise 2-page proposal and responses within a two-week period.

out as the most characteristic skills found in Morocco, Lebanon, Jordan, and Egypt whereas Qatar and the United Arab Emirates rank Microsoft Azure, also known as Microsoft Cloud Computing, as the number 1 most found skill in the Software & IT Services Industry. It is important to note, however, that these results need to be verified to ensure accuracy as data may not fully reflect the latest skill landscape, rapidly changing. Furthermore, the LinkedIn hiring rate per country can also help inform the areas of high potential demand jobs in the outsourcing industry. For instance, Tunisia displays the steepest increase in the IT services and IT consulting sub-industry across the MENA region.

By adopting the strategic approach of working backwards from employers' needs to design effective training programs, the NS platform ensures an employer focused skill training development process.

The World Bank's collaboration with LinkedIn has laid the groundwork for identifying the key skills demanded in the labor market. From cloud computing to programming languages like Python or JavaScript, the analysis informed the design of tailored training programs crucial for enhancing employability. The platform's experience starts by aggregating existing jobs from external job portal platforms such as LinkedIn. Users select their preferred career and undergo a skills self-assessment so they can best be informed about the skills they lack to be better suited to apply for the job they chose; or any other job aligning with their profile.

2.2 Leverage private sector partnerships for skill development programs

Partnerships with the private sector can enhance the relevance, and thus, impact and effectiveness of the digital skilling platform in empowering vulnerable youth with market-relevant digital skills. Tech leaders such as Microsoft and Amazon Web Services (AWS) have the expertise to design the content of short-term digital skills courses that matches the needs of the private sector companies using their product (e.g. cloud services, software, etc.). Their course content is updated regularly, to ensure alignment with the latest development of their technological products used in the market. Such trainings and content coupled with certifications provided by such tech leaders are highly valued by employers¹¹ as an indication of relevant and up-to-date skills acquisition. Partnerships with tech leaders can also increase awareness, motivation, and opportunities for the learners to pursue digital careers.

As of March 2025, nammiskills has established partnerships with the following global, regional and local leading tech companies: Microsoft, Amazon Web Services, LinkedIn Learning, Simplilearn, and Digital.Opportunity.Trust (DOT). These partnerships provide support for a seamless learning journey and access to guaranteed job interviews with their network of partners. In the second phase of the platform development, the team will continue ongoing discussions with additional partners to widen the variety and scope of courses offered, e.g. the team is in discussion with the International Youth Foundation for a partnership to access their well-established and recognized soft and life-skills trainings: Passport to Success.¹² The team will continue the discussions to establish partnerships with other tech companies (e.g. Coursera, Google, etc.).

Besides partnering with prominent tech companies for training content and certification, nammiskills recognizes the importance of establishing partnerships with employers and job portals, to increase offerings on the most in demand jobs and identify the relevant trainings to meet the needs. Thus, the NS

¹¹ A market study was conducted by the implementing agency (FM) highlighted that certifications are valued during the hiring process - with some more than others (e.g., 72% of the 82 companies interviewed value a certification for the developer associate position whereas 36% value it for the solution architect associate position).

¹² <https://www.passporttosuccess.org/>

platform follows a *dual partnership approach*. Collaborating with global and regional job portal platforms provides more opportunities for youth to identify the career they aspire to, but also the training they would need to pursue. As of April 2024, NS has partnered with 4 job portals: [LinkedIn](#), [Forward MENA Career Portal](#) and [Jobs for Lebanon](#). Simultaneously, fostering direct partnership with local employers (like through a dedicated employer space page on the NS platform) but also chamber of commerce, association of private companies, amongst other firm groupings, allows to connect with local employer needs. The teams will continue establishing partnerships with employers and grouping of employers/job vacancies to provide more opportunities as entry points for the users' learning journey.

2.3 Integrate an Early Warning System and a strong skills assessment framework to help prevent dropouts

Identifying Early Warning Systems (EWS) and Early Warning Indicators (EWI) will help recognize the factors that affect students' dropout rates and integrate solutions to minimize them. Strategies to reduce dropout rates include selecting the right students based on their readiness/motivation, designing a user-friendly platform with limited glitches, providing a clear expectations and compatible courses, and maintaining transparent communication, highlighting realistic and achievable timeline/deadline for courses and certification and communicating clearly with beneficiaries. Integrating EWS¹³ into a digital platform enhances efficacy by offering actionable predictors of student challenges. EWS covers various aspects such as behavior, motivation, environment and skills. It identifies students at-risk and improves user experience. EWI can be measured through various tools such as [SkillCraft](#), a digital skills profiling tool, which provides an assessment and interactive skills report to users.

Skills Profiling and Training Readiness Assessments and Tools are available and can be integrated to support users in understanding and assessing their current skills, identifying gaps with the desired job and ensuring the right and most relevant training(s) is selected. Skills Assessment is a series of different assessments, cognitive (e.g. numeracy, literacy) and non-cognitive (e.g., behavioral) that provide individual-level results that are linked to defined measures of skills in technology-rich environments. For example, the OECD and the EU created the ESONline assessment (created by the EU and OECD) that links results to the [OECD Survey of Adult Skills \(PIAAC\)](#) measures of literacy, numeracy, and problem solving. Skills assessment works by comparing the actual performance of a skill with the usual standard of performance of that same skill and then evaluating whether that actual performance meets or exceeds the standard set. Another interesting example is [SkillLab](#), a profiling tool focused on employment-matching based on skills.

For the first version of the nammiskills platform, the skills assessment is self-reported, given various challenges encountered by the team. Resources constraints, specifically in embedding an existing profiling tool, were a significant factor. The team also faced constraints related to timeline (with the need to launch the Platform on a specific date) and encountered challenges associated with data collection stemming from complex tools. These factors collectively influenced the decision to prioritize a user-friendly approach for the first version of the platform. To ensure meaningful analysis, the team curated the job titles data into a single taxonomy of normalized categories or groups. ISCO (International Standard Classification of Occupations) and EU ESCO (European Skills, Competences, Qualifications and Occupations) occupation taxonomy was used for the normalization. Upon selection of a career, visitors

¹³ [OECD Digital Education Outlook 2021 on EWS](#)

are requested to report their existing skills, relevant to the career selected, against a list of pre-identified skills for the job.

2.4 Have a clear targeting strategy with incentives for inclusion

A clear targeting strategy is essential for any digital skills programs. This enables the program to reach the groups that are most relevant and in-need of digital skills which will enhance its impact and effectiveness. The targeted strategy should define the specific demographics and groups the program aims to reach and ensure that no groups are excluded or discriminated against based on their gender, age, nationality, disability, or other factors. Inclusion can be incentivized by offering rewards or benefits (e.g., subsidized or free certification offer, guaranteed internships or employment upon graduation, free access to labs, etc.) tied to program participation, ensuring that the initiative attracts a diverse and representative cohort. It can also be enhanced by an adequate and strong marketing and communication strategy.

The nammiskills platform is open to all youth residing in Lebanon, aged 17 to 32 years old, with no background in digital but a minimum proficiency level in English and digital literacy. Given that the platform covers a wide range of digital skills levels, it allows to have three specific targeting levels (i.e., beginner, intermediate, advanced) making it broad targeting yet flexible and allowing for inclusive and accessible to all youth, including vulnerable ones. Furthermore, the platform gives priority for full subsidies (i.e., access to free training and certification to reduce affordability barriers) to all refugees residing in Lebanon and young people with disabilities as well as Lebanese users aged 17 to 32 through a lottery system. All other users outside the target group can still access training/certification at a reduced cost, benefiting from a partial subsidy. A clear and well-defined selection strategy (e.g., randomization, first come first served basis, scoring formula) as well as strong selection criteria¹⁴ (e.g., age group, area of residence) are crucial to reach and distribute certification to the targeted groups. In line with its inclusive approach, the platform project has set ambitious targets, aiming for reaching at least 10% refugees and 2% people with disabilities.

Although the targeting was flexible and broad to target different learning levels, the communication strategy should be targeted to specific target audience or population groups, with messages carefully crafted and communications channels well adapted. The primary focus of the nammiskills platform is on women, refugees and people with disabilities, therefore, the team incorporated visual representation in its campaign ensuring that they are inclusive and resonate with women, refugees or people with disabilities (such as featuring them in the communications campaign). This deliberate approach not only fosters a sense of inclusivity but also establishes a connection, making the campaign more relatable and impactful for the intended audience.

Engaging local businesses is also crucial for the success and sustainability of any digital skills program. To incentivize their participation and foster collaboration, the nammiskills platform has created an employer space directly embedded into the platform to connect skilled users directly with local businesses for internships or employment opportunities. This will not only benefit the businesses by tapping into a pool of well-trained and diverse talent but also provide users with valuable real-world experience. Additionally, the nammiskills platform could establish partnerships with local businesses to offer exclusive training modules tailored to the specific needs of the regional job market, ensuring that users possess skills that are directly relevant to local employment opportunities. By highlighting the mutual benefits for

¹⁴ <https://thedocs.worldbank.org/en/doc/737871575490458401-0160022019/original/SPJCC19SSND3S4TargetingConceptsandPractices.pdf>

both users and local businesses, this approach strengthens the overall impact and sustainability of the initiative.

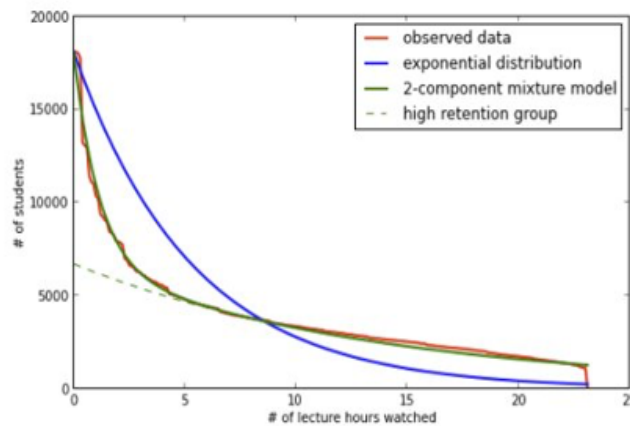
2.5 Invest in an effective user experience on the digital platform

Online platforms that offer learning opportunities for various skills are abundant globally. However, these platforms often face several (User Experience) UX¹⁵ challenges that limit their effectiveness and user satisfaction and therefore their impact (Box 3). While the flexibility of self-paced learning is attractive, it often translates into a higher likelihood of users not completing their certification. This can be attributed to various factors including the absence of a defined timeline, limited accountability mechanisms, distractions in an online environment or difficulties in staying motivated. As an example, for the typical Coursera e-learning platform, out of the average 50,000 students enrolled in the platform, approximately 5 percent completed their courses (Figure 3).

Figure 3: Decline in lecture video watching over duration

The MOOC "Retention Problem"

In 2012, the typical Coursera massive open online course (MOOC) enrolled between 40,000 and 60,000 students, of whom 50 to 60 percent returned for the first lecture. In classes with required programming or peer-graded assignments, around 15 to 20 percent of lecture-watchers submitted an assignment for grading. Of this group, approximately 45 percent successfully completed the course and earned a Statement of Accomplishment. In total, roughly 5 percent of students who signed up for a Coursera MOOC earned a credential signifying official completion of the course.



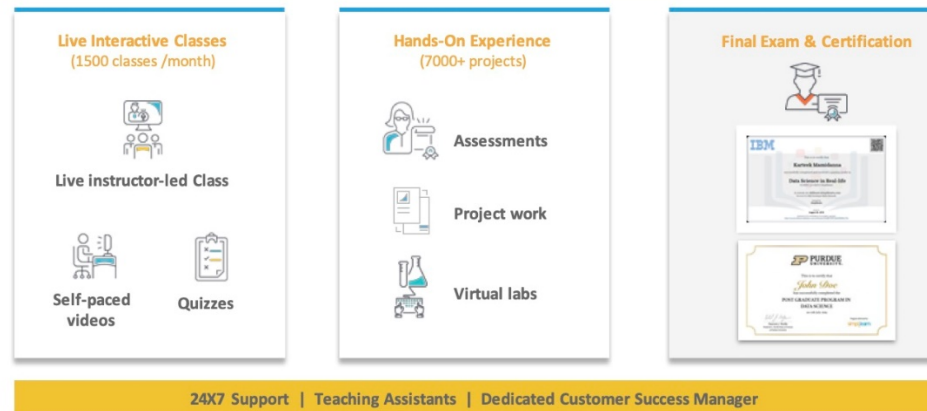
Source: Lecture-based retention from the Coursera course “Modern and Contemporary American Poetry”, September 2012. Full article can be found [here](#).

The absence of direct peer and instructor interactions can also contribute to low completion rates, impacting the overall learning experience. One of the platform’s tech partners, [Simplilearn](#), addressed this challenge by offering a hybrid model allowing users to interact with live instructors at specific timing throughout their learning journey, resulting in a high percentage of completion rate (Figure 4).

¹⁵ User Experience (UX) refers to the user’s journey when interacting with a product or service. UX design is the process of creating products or services that provide meaningful experiences for users, involving many different areas of product development including branding, usability, function, and design. User Interface (UI) design, on the other hand, refers to the actual interfaces with which users engage. The UI design process may include buttons or widgets, text, images, sliders, and other interactive elements. Source: [Columbia Engineering](#)

Figure 4: Simplilearn’s official deck program presentation

Platform built to deliver **live interaction & high engagement at scale ...**

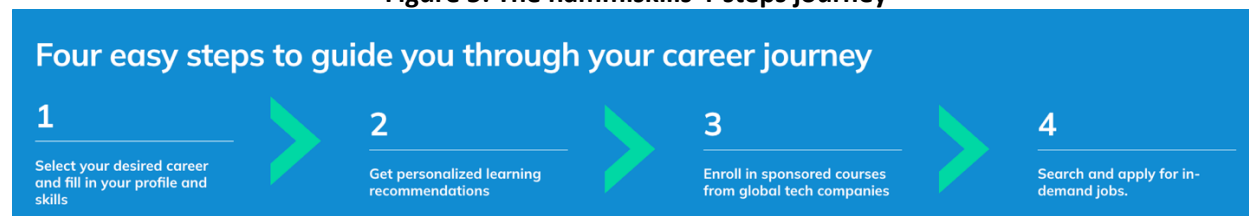


... resulting in industry leading 80%+ completion rates

simplilearn / 16

The nammiskills UX addresses these common challenges by integrating four different services (Figure 5) into a single user journey that responds to the skills gap and demand in the digital economy (Box 3). Upon selecting a career on the platform, users receive personalized guidance through a *matching score*. This score reflects the extent to which the self-reported skills match the skills demanded in the selected job. *The innovative aspect is that the matching score also provides results for three alternative job titles, for which the skills reported by the user closely matches to.* This enables the user to widen the type of job he/she can be looking for, some of which they might not have thought about. Based on the results of the matching score, the skills gaps are identified and listed on the platform and the corresponding e-learning pathways to follow to fill those gaps are recommended to the user (Figure 6). Throughout their learning journey and upon completion of relevant courses/certifications, this matching score evolves and increases. The platform also has additional features, such as a section for employers to post jobs and review users’ profiles. This section not only allows them to review candidates but also their ranking based on the chosen position. Moreover, the platform also integrates a job listing page where positions are pulled out from existing job platform.

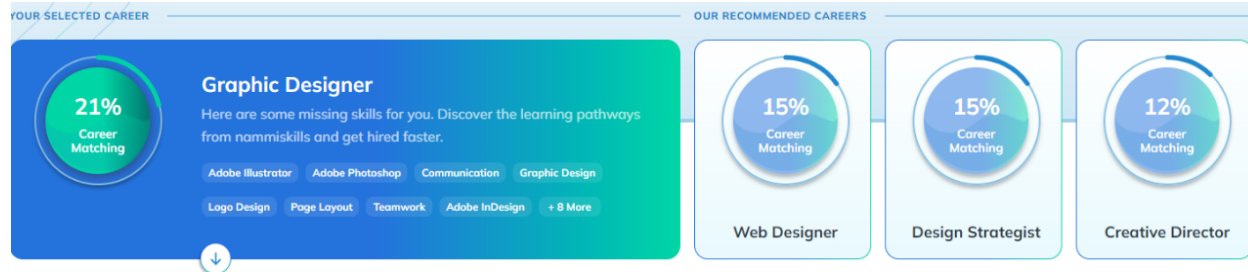
Figure 5: The nammiskills 4-steps journey



Box 3: Common UX challenges of Digital Skills Platforms

- **Lack of personalized guidance:** Many online platforms do not assess users' current skills and provide customized advice on the best learning options for their career goals. Users may end up choosing courses that are not relevant, suitable, or engaging for them.
- **Mismatch with labor market demand:** Many online platforms do not analyze the skills demand in the labor market and update their courses accordingly. Users may end up acquiring skills that are outdated, oversupplied, or irrelevant for their desired jobs.
- **Cost of certification:** Many online platforms offer certification of the skills acquired through their courses, but these certifications are often not free of charge. Users may face a financial barrier, especially for disadvantaged, low-income youth in lower- and middle-income countries, who may not be able to afford the certification fees.

76: Example of the matching score and recommended learning paths



Recommended Learning Pathways

The screenshot shows a learning pathway card titled 'Advance Your Communication Skills as a Tech Manager'. It features a 'BEGINNER' level badge, a LinkedIn logo, and indicates '6 Courses' and '5h 16m' duration. A list of skills includes Business Intelligence, Communication, Data Analysis, Data Analytics, Data Science, and IT Management. A 'Quick view' button is on the right, and a green 'Explore learning path' button with a right arrow is at the bottom.

Box 4: Nammiskills UX: A Four-in-One Solution for Digital Skills Development and Employment

- **Aggregates the available demand/job vacancies to identify the relevant skilling program:** The platform helps inform users about the available vacancies in related digital careers in Lebanon. The service has a job portal section that lists jobs in the digital economy sector in Lebanon or remotely. These jobs are pulled from existing online job portals (e.g., LinkedIn, Jobs for Lebanon, BDDBDD Portal). A section for employers was also developed allowing them to post directly on the platform their current opening and to review potential candidates.
- **Career guidance:** The platform provides personalized advice on the best career options and e-learning opportunities based on the user's skills and the market demand. The service uses a skills classification system based on the EU ESCO and the ILO ISIC/ISOC standards and shows the most-in-demand careers

from online job portals. For each career, the service gives a matching score and a list of recommended e-learning courses.

- **Online learning:** The platform enables users to access online courses in soft and tech skills related to the digital economy. The service has designed Learning Paths (LPs) that consist of multiple courses from different external providers (AWS, Microsoft, LinkedIn, Simplilearn, DOT). The service offers full or partial subsidies for eligible users to enroll in the courses and obtain certifications.
- **Certification:** The platform helps users validate their skills through online certification exams. The service provides certification on the respective online platforms (LinkedIn, AWS, MS) that take the form of quizzes or proctored exams. The service also offers full or partial subsidies for eligible users to take the exams.

2.6 Develop a User Interface that is appealing to targeted users

While developing a skilling platform, the User Interface (UI) and the User Experience (UX) hold equal importance. To ensure a visually appealing and user-friendly interface, the team conducted focus group discussions with the profile of beneficiaries targeted for the platform. A carefully selected and experienced agency then materialized youth's aspirations. The team regularly sought input and feedback from the platform's primary users at different stages of the UI development (Box 5). Engaging with young individuals allowed the team to gain valuable insights into their preferences and aspirations. This collaborative approach in UI development ensures that the platform not only delivers a seamless UX but also effectively attracts its target audience.

Box 5: Youth feedback on nammiskills UI

The platform engaged with youth at the initial development stage through email surveys and focus group discussions. Key feedback received from youth which was incorporated in the main design included:

- **The platform's goal and mission are unclear:** what does this platform offer and why? The participating youth advised to develop the messages around providing support to youth in finding a job (without overpromising), being close to youth, being here to help youth, e.g.: "Let us help you".
- **The main landing page displays too much information which is confusing.** More tabs could be added to the main menu on the upper toolbar including one that displays all courses and certifications that could be filtered by industry, and one for the FAQ.
- **More testimonials would be motivating for youth** as well as highlighting the profiles of educators, universities, tech partners and prospective employers.
- **Adding reviews and ratings for the courses** could help in the selection of training (to be implemented in the next phases)
- **The wording "Future Career" is not well chosen** as it makes youth feel that the career is not for them or seems very far. Suggestion to change the wording to "Most-in-demand jobs"

2.7 Embed Impact Evaluation and Monitoring & Evaluation in the design of a digital skills platform

By embedding a Monitoring and Evaluation (M&E) and an Impact Evaluation (IE) in the platform design, evidence-based insights and feedback can be regularly generated that can inform decision-making, improve performance, and enhance accountability. M&E can help evaluate the platform's features and services by measuring numbers and conversion rates of relevant indicators such as completed registrations, completed courses, certified users, female and male ratio, percentage of refugees and so

on. Teams can also attempt to measure the change in certain outcomes among beneficiaries that is attributable to the platform by embedding a counterfactual impact evaluation. For this purpose, the evaluation design incorporates a control group to create the counterfactual. However, this control is not a pure control (i.e., youth not using any platform) but instead, it is based on youth receiving a reduced or alternative version of the intervention. This approach allows us to isolate the impact of specific features, such as the matching algorithm and subsidy provision to inform potential improvements to the platform and better understand which interventions drive the most value for users so we can ensure that resources are effectively allocated. The IE allows to provide evidence, quantifiable metrics and best practices, all of which can be helpful for scale up. Moreover, an impact evaluation can provide the information needed for an ex-post cost-benefit analysis. In the case of nammiskills, the team decided to evaluate the impact of two specific components of the program – the matching algorithm and the provision of subsidies (See below).

Monitoring & Evaluation (M&E)

The nammiskills team has implemented robust monitoring within the platform, enabling real-time data collection on various indicators throughout the entire learning journey. The main indicators, referred to as “Funnel Conversion Rates” are monitored in real-time on the platform. The funnel conversion rates refer to the proportion of users who move from one stage to another in the platform experience, such as from visiting to signing up, from signing up to enrolling in a course, from enrolling in a course to completing it, etc. Integrating M&E within the platform eliminates the need for external data collection as critical insights such as user engagement or certification attainment, are automatically tracked during platform use. This real-time integration allows for continuous adaptation to improve user experience, enhances data quality, adapt the platform design and features as well as ensures that stakeholders can access timely and reliable information to support decision-making

Currently, these indicators are tracked to identify conversion rates at each stage. If a conversion rate falls below expectations, the team promptly investigates the cause and takes corrective action. For example, during the stage of registration, a notable low conversation rate was observed between completing Form 1 (personal details) and Form 2 (skills reporting). The investigation revealed a UI issue, specifically the non-visibility of the “next” button to initiate the skills reporting process. The team quickly addressed this matter, resulting in a turnaround with the current conversion rate exceeding 95%. Additionally, these indicators also play a role in understanding the target audience, enabling the optimization of marketing campaigns for maximum reach and impact.

Figure 7: Snapshot of the nammiskills M&E system



Impact Evaluation

The nammiskills team has come up with a *mixed methods* IE design and implementation plan, summarized in the table below (Table 1).

Table 1: Impact Evaluation Design and Implementation Plan

Key evaluation questions	EQ1: What is the impact of providing personalized advice on career and learning choice based on in-demand job opportunities?	<i>These EQs are relevant and important for assessing the effectiveness and efficiency of the platform’s features and services. They can also help identify the causal mechanisms and pathways through which the platform influences user behavior and outcomes.</i>
	EQ2: What is the impact of offering access to fully subsidized certification upon course completion?	
Design	The IE uses a randomized controlled trial (RCT) design. The plan uses an 80/20 split between treatment and control group, which means that 80% of the users will receive the full intervention and 20% will receive the different or reduced intervention. This split can be revised after two months based on the observed data and mutual agreement between all parties	<i>This split is chosen to maximize the number of users who can benefit from the full intervention, while ensuring sufficient statistical power and precision for detecting meaningful effects. However, it also implies that a larger sample size is needed to achieve the minimum detectable effect size (MDE) for each EQ.</i>

Allocation in treatment/control group	For EQ1, the allocation is done when visitors access the landing page for the first time. The control group will receive a randomized order of recommended learning activities, while the treatment group will receive a personalized order based on their skills and career goals	<i>This allocation strategy allows for testing the impact of personalized advice on user engagement and retention on the platform, as well as on their learning and career choices. However, it also introduces some challenges for measuring user characteristics and preferences before exposure to the intervention, as well as for controlling for potential spillover effects between treatment and control groups.</i>
	For EQ2, the allocation is done when users are registered to the platform. The control group will get an offer for partial subsidy for certification, while the treatment group will enter a lottery to receive a full subsidy voucher.	<i>This allocation strategy allows for testing the impact of full subsidy on user motivation and performance in completing the courses and certification exams, as well as on their job-search behavior and outcomes. However, it also raises some ethical concerns about fairness and transparency in distributing the subsidies, as well as some operational issues in implementing and monitoring the lottery system.</i>
Measuring Impact	The plan measures the impact on three outcome categories: (a) user behavior on the platform, (b) job-search behavior and success, and (c) labor market outcomes. These outcomes will be tracked using data from the platform, surveys, and administrative sources. Results will be shared with stakeholders through regular progress reports and knowledge-sharing sessions. They will also be leveraged used to inform future iterations of the platform, including improvements of it features and content to better meet user needs and enhance overall impact.	<i>These outcome categories are comprehensive and relevant for capturing the short-term and long-term effects of the platform on user welfare and well-being. However, they also require a robust data collection and management system that can ensure data quality, validity, reliability, and timeliness.</i>

Two important lessons learned from the nammiskills experience are described below:

Partner alignment: Conducting an IE requires close coordination across all partners, which can sometimes reveal to be challenging when goals or priorities are not aligned. Partners might focus on their own targets, which do not always align with the IE design and timeline. For example, the nammiskills platform set ambitious KPI targets under a short timeframe, while simultaneously aiming to implement an IE that could potentially impact those KPIs in the expected timeframe. Open discussions and a clear plan with clear timeline and key milestones, contribute to alignment across partners and help keep everyone on the same page as well as ensure the IE can measure the program’s impact effectively.

Communication strategy for control group: Clear and strategic communication is essential to manage the control group without compromising the IE. For example, participants in the control group may not receive all benefits compared to the treatment group (e.g., free certifications). To maintain transparency and minimize potential concerns, communication on the platform should be well thought (e.g., framing this distribution as part of a “lottery” or other impartial selection method). This approach helps maintain

participant engagement without revealing the evaluation's details, preserving the integrity of the control group while avoiding misunderstandings.

3. Replicating nammiskills in other countries: *What will it take for professionals to implement a similar digital skills platform?*

Professionals interested in leveraging and replicating the nammiskills model in their contexts have several options to consider, depending on their needs, preferences, and resources (table 2). These options range from a fully centralized and standardized platform that offers the same experience to all users, to a fully decentralized and customized platform that offers different experiences to different users. The following are some of the possible models that WBG country teams can choose from.

Table 2: Table comparing the different models for replication

Models	Platform	Hosting (Database)	Application (Frontend/Backend)	Time needed to deploy	Pros	Cons
Model 1	Multi-Tenant SAAS	Centralized Content, Separate Users [Same Content, Database users hosted on public cloud]	Shared	3 to 6 months	Can be easily replicated, High customization of website, Readiness for frequent platform improvements, ability to leverage FM content partnerships, low maintenance and hosting costs.	May require significant adaptation to comply with local data privacy requirements, potentially leading to delays or extra costs.
Model 2	Multi-Tenant SAAS	Centralized Content, Separate Users [Same Content, Database users located in country]	Shared	6 months	High customization of website, Readiness for frequent platform improvements, ability to leverage FM content and partnerships, easier to adapt to local data privacy requirements	Maintenance and hosting costs could be medium to high. Anticipated length of deployment might be prolonged due to customization needs and potential compliance issues.
Model 3	Stand Alone	Separate Users, Separate Content [Both Content and Users are separated] .	Split per Country	Dependent on country	Source code provided for free through Transition Agreement of UNICEF Digital Solutions to a Host Government. Full customization and ability to adapt to local data privacy requirements.	Maintenance and hosting costs might be relatively high due, no readiness for the frequent platform improvements (dependent on country). Depending on the extent of customization, the anticipated length of deployment could be longer. Limited information on leveraging FM content partnerships

The cost of replication will vary depending on the model selected. Models that share more components with the original platform, nammiskills would be cheaper than models that require more customization or development. At the same time, models that share simpler components with the original platform may also have less flexibility and adaptability to the local context and needs. Countries should consider their

budget constraints, data privacy laws, regulations and preferences in the country of interest, and available resources, as well as their desired level of customization and adaptation.

Cost related to the operationalization of the platform should also be considered. Those costs depend on the local pricing structure. Discussion should be held on country-by-country basis but should include:

1. Platform team (program manager, partnerships officer, communication officer, fiduciary team, safeguard team, training coordinator, M&E team etc.)
2. Marketing, communication and user acquisition costs
3. Content localization costs (most in-demand jobs in the country, learning path adaptation, localized success stories, etc.)
4. Classes costs, including hybrid (200\$+ per learner), certification costs and potentially LinkedIn costs (for Vendor agnostic material + soft skills)
5. Ongoing platform maintenance and support costs
6. Contextualizing and adaptation of the matching score tool
7. Infrastructure and data hosting costs (varies depending on the scaling model selected and number of users)

Ensuring robust data privacy and responsible usage is crucial. The World Bank team must ensure the highest compliance with national data security and local privacy laws. The team should also discuss with the internal data officer appointed by each unit. In addition to confirming conformity with local Lebanese laws, the FT platform is actively working towards achieving compliance with the [General Data Protection Regulation](#) (GDPR). This regulation is specifically designed to safeguard personal data within the European Union (amongst the best type of compliance globally). Ensuring GDPR compliance for the nammiskills platform, although not legally mandated in Lebanon, can be a strategic advantage for online platforms. Achieving GDPR compliance encompasses many advantages: (i) it fosters trust, protects users' data, and paves the way for sustainable growth and success in the digital age; (ii) it signals a commitment to global data protection and increase credibility at the international level; (iii) it attracts and retains users as well as enhances its brand image as it works with international brands to source educational courses and jobs and; (iv) it minimizes legal risks, potential penalties and facilitates international expansion by aligning with best practices in data protection. Implementing GDPR requirements often leads to better data management practices, enhancing data security and reducing the risk of breaches.

Cybersecurity is of critically equal importance for any platform including NS, particularly as it hosts personal data in the form of personally identifiable information and resumes. Breaches and attacks can have devastating consequences, so robust cybersecurity measures are essential. As part of cybersecurity enhancement efforts, it is important to ensure that all collected data remains not only GDPR compliant but also anonymous, minimizing the risk of potential cyber-attacks on the platform and safeguarding user privacy. Data owners are expressly prohibited from transferring or sharing any personal information or data with third parties unless such sharing is conducted in an anonymous format and solely for the purposes of monitoring and evaluation, or impact assessment. Any platform should aim at employing advanced encryption techniques, multi-factor authenticator or any other means to ensure the platform not only meets regulatory requirements but also mitigates risks by ensuring a secure environment for users. A robust cybersecurity will prevent from the following potential attacks:

- Data breaches: Attackers attempt to steal sensitive user data stored on the platform. To mitigate it, it is required to implement strong data encryption, access controls, intrusion detection systems, and vulnerability management programs.
- Malware and ransomware attacks: It is quite common for malicious hackers to inject software to infect platform systems, disrupting operations or encrypting data, and then demand ransom for decryption. To prevent it is required to possess up-to-date antivirus and anti-malware software, patch systems promptly, and regularly back up data.
- Flooding the server rendering it unusable to the public through Denial-of-service (DoS) attacks: These attacks flood the platform with traffic, overwhelming its resources and making it unavailable to legitimate users. This is why it's important to implement traffic throttling such as the use of Captcha.
- Impersonation and Phishing: These are deceptive tactics to obtain user credentials or access sensitive information. This can cause malicious players to pose as administrators of NS which then hurts its reputation and causes major damage to users. Therefore, it is important to implement two-factor authentication, and use email filtering and anti-phishing tools.
- There are also insider threats where authorized users can steal data from the platform when not given proper access controls. For such threats, it is important to implement access controls, monitor user activity, and conduct regular security audits.

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