# WOMEN TECH HUB: SUPPORTING FEMALES TO ACCELERATE THE DIGITALIZATION OF THEIR START-UPS IN GEORGIA

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**ABSTRACT**

We are now living in a constantly changing context characterized by a high digital revolution that adds uncertainty and complexity to business managers and entrepreneurs around the world. Therefore, organizations are witnessing and leading many digital transformations that influence their strategies, policies and operations. Covid-19 has been a key driver for fast-tracking their digitalization journey. This study analyzes the role of digitalization in female-owned businesses operating in Georgia, and the barriers they face during their startup process. We focus our findings on data gathered from female owned star-ups in Georgia, and student participants from both Georgia and the UK who are taking part in a collaborative project, the Women Tech Hub, to support the digitalization of those start-ups. We found that females were often driven by intrinsic motivation and faced barriers related to the lack of financial resources, knowledge and training, and mentoring and coaching. The findings show there is a need for a change in education and society to break with stereotypes and change mindsets to welcome and support females in the entrepreneurial landscape. Besides, we can say that both students and start-ups welcome these kinds of initiatives but Higher Education institutions need to take a much more active role in re-thinking their entrepreneurship education related pedagogies.

**Keywords:** digitalization, entrepreneurship, start-ups, females, Georgia

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## INTRODUCTION

Although today the concept of digitization occupies an important place among professionals and academics, digitization and digitization of business are not new topics of interest. In 1935 one of the earliest applications of computing power in business was the computerized registration of 26 million US citizens' employment records by IBM equipment to support the Social Security Act. Similarly, the first conference on artificial intelligence was held at Dartmouth in 1956. Hence, topics such as big data and artificial intelligence have been discussed for decades and have therefore been fields of interest for both professionals and academics (Ritter & Pedersen, 2020).

New phenomena appear and seem to be more and more applied in big and well-known firms, such as Alibaba, Accenture, Facebook, and Airbnb. In such companies, new implemented systems and technologies, like the Internet of Things (IOT), machinery automation and learning, artificial intelligence, drone phones, numerical technologies, industry 4.0, connected clouds, robotization programs, or smart buildings, had proved to be effective tools for their development (Omrane, 2020).

Besides, as GEM report suggests in the majority of economies, new businesses are more likely to be started by men than women (Bosma et al., 2021). The fact is that gender stereotyping confines women to have qualities that are less likely to be associated with entrepreneurship (Hentschel et al., 2019) and this gender-based discrimination causes women to experience barriers for instance to acquiring financial capital in the form of loans (De Andréset al., 2021).

So, how do female-owned start-ups adapt to this new reality in a resource-scarce environment? This chapter will present literature around digitalization, start-ups, and female entrepreneurship, to then talk about the Women Tech hub, a collaborative project between UK and Georgia within the Creative Spark programme. We will look at how start-ups in Georgia are embracing their digitalization process and the barriers they are facing during that process, and how universities can support that process through collaborative projects.

## LITERATURE REVIEW

### Start-ups and Digitalization

Entrepreneurs are called upon to develop various forms of venture companies based on diverse experiences, expertise, new technologies, as well as creative ideas. Such start-ups are expected to offer new flexible business models which are more appropriate to customers' expectations and generate high profits (Kim & Kim, 2018).

Chatterjeet et al. (2022) studied the contemporary demography of SME entrepreneurship and the moderating roles and potentialities of entrepreneurs' age, gender, and education in adopting digital platforms. They found that entrepreneurs who

are already successful and who

are efficiently using digital platforms will be role models to start-up entrepreneurs. By understanding the success of other entrepreneurs who are using digital platforms, the start-up enterprises will be motivated to intend to use a digital platform. If the start-up entrepreneurs use the digital platform with their available resources, they are more willing to reach success.

If we consider the process of start-up and digitization in general, we will find many different definitions, but the most important thing in today's reality is that they are unimaginable without each other. Digitalization will be often seen as a way to change a business model and to provide new business opportunities but the definition of digitalization is still being discussed by academics, who are defining it as a social interaction too (Bloomberg, 2018).

In general, the word "start-up" means to start, but in the modern world, this word has acquired a different meaning. The start-up is also not necessarily associated with technology activities or funding. Growth is the most important thing for a start-up, and everything else comes from this process (Graham, 2012). Kopp and Ganz (2016) in their book "Valley Speaks" say that a start-up is different from a small business in the way that while a small business may be content to remain small, a start-up intends to grow into a large company.

Current SMEs are already having to adapt to digitalization and within many areas of business being highly competitive, overlooking digitalizing their business risks losing new opportunities, loss of productivity and the loss of creating better ways of operating (Parviainen, Tihinen, Kääriäinen and Teppola, 2022). In the 21st Century, there is increasing accessibility to software and technology reducing risk for current and new entrepreneurs and decreasing the gap between larger organizations and new start-ups, allowing digitalization to be widespread (Trittin-Ulbrich, 2021). A study within Germany showed a shortage of IT skills or staff is the most commonly mentioned obstacle to digitalization within SMEs (Zimmermann, 2016), so although software and technology are becoming increasingly available, without access to people with the skills, start-ups will struggle to digitalize and miss out on the internal and external benefits associated.

When looking at digitalization related areas there is a wide range of options start-ups can take. For instance, website building and having a virtual space is now an important factor of being a successful start-up, but depending on the depth of resources an organization has it will impact their choice of the best way forward; factors like skills in-house, the scope of work, and economic resources affects how a website and other technology is used. A fully insourced website that is owned by the business and operated by an entrepreneur is shown to be the most cost-effective, further amplifying the need for entrepreneurs to have access to those technical skills to improve productive efficiency (Louw and Nieuwenhuizen, 2019).

When looking at ways startups and their employees go about implementing

digitalization to start this journey, they typically prefer easy-to-implement technological tools that can adapt to quick changes regarding the business and its products/services (Giardino et al., 2014). With the lean methodology opted by many entrepreneurs and startups (Ries, 2011), having the appropriate easy-to-implement digital technologies and the skills needed to use these

technologies in place to deal with any early changes a business goes through is important forthe success of start-ups.

It is well-known that in the last few years the world has changed radically, and the development of technology and innovation has further accelerated the process of globalisation, where people from all over the world share emotions, culture, values, information, knowledge and more. This was followed by the development of information technologies, and the appearance of smartphones on the market, which made it possible to transfer various entrepreneurial and social activities to the virtual world.

This was one of the main reasons why standard businesses started digitising their product so that their product would always be available to consumers and they would not need to stand in long queues or travel long distances to buy the desired product or service. Customer needs and requirements are evolving and changing, as are business approaches. These processes haveeven led to the disappearance of some businesses.

IDC (2020) analyzed the situation of small businesses' digital transformation maturity after the Covid-19 crisis, across eight key nations around the world. The data showed that Covid-19 has had a significant role in the digitalization of start-ups and SME's with just under ¾ of the small businesses globally surveyed saying COVID-19 has been a key driver for fast-tracking their digitalization journey. During this period many businesses appeared that quickly adapted to the environment, and discovered needs and free spaces, which they tried to fill with their creative approaches and products. This was accompanied by the development of blockchain, crypto and NFT technologies, which provided additional leverage in the digital business in the form of smart contracts, enabling the storage of intellectual property in a unique digital format and their use for both commercial and collection purposes. Gamification (Gamify), EDufy, meta versions and various directions have been created to predict a fully digital world. Newly developed processes already in themselves push any start-up to digitise, as it makes the scalingprocess possible, which is one of the fundamental processes in a start-up.

The process of digitization has gradually become relevant for start-ups in Georgia as well. Thanks to digital technologies, start-ups have been allowed to scale, that is, to open up a larger area and opportunities to develop. Scaling is a structure that helps start-ups move to many countries and attract many people with one product and introduce new technology. The digitization process is making a big contribution to the introduction of this new technology, in which digital media also plays a very big role. Without digital media, these processes could nothave developed.

Georgia has been actively involved in the process that the modern world has been following for a long time-establishment of a start-up ecosystem, and further its promotion and development. GITA - Georgian Innovation and Technology Agency operates based on the Ministry of Economy of Georgia to develop this direction. Through fablabs and regional technoparks, the agency tries to maximise the public

interest in tech, creating new start-ups and their further development, which contributes to the process of digitization.

Since 2014, GITA has been trying to support start-ups, and give them resources and opportunities. It also often implements various awareness-raising projects aimed at better introducing and presenting the start-up ecosystem to the public. GITA actively offers start-up firms funding programs in which it provides various categories of grants for local technology start-ups and ecosystem development. One of the particularly supportive projects that helps Georgian start-ups to develop and grow is the GITA grant project. For several years now, there have been 30,000, 100,000 and 150,000 GEL grant programs, the direct target group of which are tech start-ups. For example, in 2022, 20 technology start-ups received funding of 150,000 GEL, which is the biggest step in the development of the Georgian tech start-up ecosystem (Aridi et al., 2019). Also interesting in this process is the process that these start-ups go through before they get funding. Constant training, development and refinement of ideas are underway to further create and develop start-ups. The accompanying process is digitization. New start- ups are gradually being created - platforms, applications, and innovative ideas, which will further contribute to the development of the country.

In addition, there are various types of accelerators and incubators in the country that help start-ups develop and acquire resources. This helps in the process of digitization and scaling. Acceleration and start-up incubator programs often have departments of Ilia State University itself, Zoomout and Fablab.

With all this in mind, Georgian start-ups have gained great development since 2014. 500 start-ups were rolled in locally and shared some very important experiences as well. Based on the accumulated knowledge and experience, Georgian start-ups were able to present themselves even in the international arena. 500 Start-ups is one of the most active global venture capital companies in existence since 2010. To date, the company has invested in more than 2,400 companies in 77 countries. One of the top 3 accelerators in the world entered the Georgian market and thus actually expressed confidence in the ideas, talent and perspective of start-ups in the country (Bank of Georgia, 2022).

In summary, the development of structural start-ups and the process of their digitalization in Georgia is developing properly and the progress and success are growing accordingly.

**Female Entrepreneurship**

Much of the literature on entrepreneurship argues that socio-cultural factors such as fear of failure, perceived opportunities or role models are the most important drivers of entrepreneurial behaviour (Ajzen, 1991), especially in the case of female entrepreneurship (BarNir et al., 2011).

There is a lack of women in entrepreneurship, and this, therefore, affects social

capital and access to resources. Female business networks are sparse and are found to either be too competitive or male-oriented (McGowan et al., 2015). Thus, there is a lack of sufficient and beneficial mentoring for females. This is compounded by the notion that a young woman cannot be successful both entrepreneurially and domestically simultaneously (Sandberg, 2013).

Aspiring females are likely to have lower levels of self-efficacy. They are often dismissive of entrepreneurship as a viable career choice and will choose a different career path if they believe they have a stronger skillset elsewhere (Wilson et al., 2007). This causes them to develop a risk aversion and are less likely to take risky entrepreneurial decisions. However, it has recently been suggested that the risk-taking propensity of women exceeds that of men, as by knowing the barriers they may face but still engaging with entrepreneurship, they exhibit a higher willingness to take risks than their male counterparts (Castillo et al., 2017).

As a result, there is a perceived irrelevancy of female entrepreneurship as an option within the educational system – perceiving entrepreneurial endeavours as inappropriate for young women, thus stopping the self-confidence necessary for the development of an entrepreneurial career. However, the further women progress through the system, the more likely they are to possess entrepreneurial skills (McGowan et al., 2015). Thus, there is a need for an education system that encourages the development of business skills from the outset of education, to encourage the development of aspiring females from all educational backgrounds (Jones, 2014).

Over the past 40 years, there has been a significant change in the status and political weight of women entrepreneurs, as well as a rapid increase in interest and research on the subject. The first articles were published in the 70s, expanding to various disciplines, methods and countries (Minniti and Naudé 2010). As a generalisation, start-ups created by women are smaller and grow less than businesses developed by men (Minniti, 2009).

The topic of female entrepreneurship has gradually become a growing area of interest and has attracted more attention towards them. This is mainly due to 2 main reasons: first, female entrepreneurship can be considered a key source of economic growth, with different weights depending on the country and second, in different disciplines, female entrepreneurship has generally been an object of study (Ascher, 2012).

A growing number of women in recent years have decided to start entrepreneurial activities, which to some extent will have an impact on the entrepreneurial ecosystem and economic growth in the different world economies. According to a study from the World Bank, gender equality, which means that there are no differences between women's and men’s earnings in the workplace, would be the cause of enriching the global economy by around
$160tn (World Bank, 2018).

Georgia is no exception in this direction. Despite the high rate of women's involvement in business, politics and economics, the entrepreneurial sector remains a major challenge. In Georgia small businesses today face many challenges and these obstacles for business leaders grew even more complicated during the pandemic. One of

the main challenges is gender equality. Unfortunately, gender equality is still one of the most discussed issues in Georgian families, in political as well as in business spaces. Female entrepreneurship is affected by

existing stereotypes, which could be quite damaging as entrepreneurship is largely dependenton the environment, and society.

According to the National Statistics Office of Georgia, women entrepreneurs in the country have limited access to financial resources, which includes business and entrepreneurial loans, in comparison to men. The federation of business leaders "Women for Tomorrow "states that women have limited access to financial and information resources, which in turn poses great obstacles to their activities.

According to the Minister of Economy and Sustainable Development of Georgia, Natia Turnava, in 2015-2018, 9,380 people were funded under the Micro and Small Entrepreneurship Support Program, including 3783 women, which is 40% of the total number (Machitidze., 2020).

Encouraging female entrepreneurship is an important direction in the development of entrepreneurship, and in Georgia, different programs are doing this. For example, YES-Georgia is a program initiated by the White House Foundation and USAID, which significantly helps Georgian women entrepreneurs in their economic empowerment. The program creates economic opportunities and empowers young people and women in Georgia. By 2024, more than 2,500 women entrepreneurs will have better access to knowledge, finance and business services (US Embassy Georgia, 2020). USAID program in Georgia has been implemented since 2016. It should be noted special attention is paid to the regions of Georgia to involve as many women as possible from different locations.

Another exciting and supportive initiative for women entrepreneurs was the She's Next initiative, which was implemented in partnership with the Visa Business Leaders Federation Women for the Future and Forbes Woman Georgia. The She's Next initiative was launched inthe United States in 2019 and aimed to empower women entrepreneurs by offering them educational activities. This initiative was global.

Also, as mentioned before, one of the main supporters for female start-ups is GITA through its Grant programs, as in 2022, 20 start-ups gained 150000 funding programs and part of them were female-based start-ups (Georgian innovation and technology agency, 2022).

Due to these programs and support, the number of women entrepreneurs in Georgia and, consequently, their involvement in business has gradually become more significant in recent years. And since the onset of the pandemic, unfortunately, the number of enterprises and businesses has generally decreased, which has significantly hampered the strengthening of theeconomy.

## METHODOLOGY

## Methods and Participants

This research adopts a case study research strategy (Yin, 2009) and qualitative approach (Sunders et al., 2015) as it attempts to gain a deep understanding of the Why´s and How´s of a phenomenon in that particular context. Our study could be considered action research as "the authors are involved with members of an organization over a matter which is of genuine concern to them" (Eden and Huxham, 1996:75). Two of the co-authors are part of the organisations within which the research and the change process was taking place (Coghlan andBrannick, 2005).

We collected the data in May 2022. We sent surveys to start-ups run by females in Georgia (4 responses). Besides, we gathered the student participants' views through a survey. This included students in Georgia (15 responses) and the UK who acted as team coaches in the process (2 responses).

A thematic analysis was adopted as a framework to analyse the data. The main concepts that emerged were identified and categorized into common themes by different researchers. Statements and quotes allocated to the themes were then used to present a textural descriptionof the qualitative and descriptive empirical data.

Table 1 shows the profile data of the start-up respondents. Specifically, the database of start-ups is made up of four women between 18-34 years old that started their businesses between 2018 and 2020.

**Table 1. Profile of women-owned start-ups**

| Code | Age | Gender | Education | Employment status | Creation date | Entrepreneur type | Sector of activity |
|---|---|---|---|---|---|---|---|
| S1 | 25-34 | Female | Postgraduate/ Master's | Employed | 2019 | Entrepreneur by creation | New technologies |
| S2 | 18-24 | Female | Postgraduate/ Master's | self-employed part-time | 2020 | Entrepreneur by creation | Other |
| S4 | 25-34 | Female | Secondary | Self-employed full-time. | 2018 | Entrepreneur by inheritance | Manufacturing |
| S5 | 25-34 | Female | Bachelors' degree | Employed by someone else that acquired our company | 2019 | Entrepreneur by creation | New technologies |

Source: Own elaboration

In terms of the highest level of education, 50% have a Postgraduate/ Master's degree, followed by 25% with Secondary and Bachelor' degrees. In regards to the statement that best describes their current employment status employed (50%) and self-employed 50%). Most of them (75%) started a business project from scratch and the 25% I continued a family business.

Regarding their Management experience, there are 75% of the respondents have experienceof between 1 and 5 years and the remaining 25% between 6 and 10 years.

The profile of the Georgian student participants is made up of fifteen women with different university degrees at Ilia State University, most of them between 18-24 years old. The highest level of education that they have completed has been a *bachelors' degree* (53,33%), next *secondary* (33,33%), followed by *postgraduate/ master's degree* and *vocational* with the same percentage (6,67%). Many of them are employed (46,67%), followed by *self-employed* (26,67%), and then *unemployed* (20%). Only a few were *self-employed and employed by someone else* both (6,67%).

**Table 2. Profile of 15 student participants from ISU, Georgia**

| Code | Age | Gender | Education | Employment status | Direction tech hub |
|---|---|---|---|---|---|
| P1 | 18-24 | Female | Bachelors' degree | Unemployed | Web-development |
| P2 | 18-24 | Female | Secondary | Self-employed | Web-development |
| P3 | 18-24 | Female | Bachelors' degree | Self-employed | Graphic Design |
| P4 | 18-24 | Non-binary / third gender | Secondary | Employed | Web-development |
| P5 | 18-24 | Female | Vocational | Employed | Graphic Design |
| P6 | 18-24 | Female | Bachelors' degree | Unemployed | Web-development |
| P7 | 18-24 | Female | Secondary | Unemployed | Graphic Design |
| P8 | 25-34 | Female | Bachelors' degree | Employed | Graphic Design |
| P9 | 18-24 | Female | Bachelors' degree | Employed | App-Development |
| P10 | 18-24 | Female | Postgraduate/ Master's | Self-employed and employed | Graphic Design |
| P11 | 18-24 | Female | Bachelors' degree | Employed | Graphic Design |
| P12 | 18- | Femal | Bachelors' | Employed | App-Development |

| | | | | | |
|---|---|---|---|---|---|
| | 24 | e | degree | | |
| P13 | 18-24 | Female | Secondary | Employed | Graphic Design |
| P14 | 18-24 | Female | Secondary | Self-employed | Social media |
| P15 | 18-24 | Female | Bachelors' degree | Self-employed | Web-development |

Source: Own elaboration

In terms of the area of specialization, they took within the Women Tech Hub most of them are working on *Graphic Design* (46,67%), then *Web-development* (33,33%), followed by *App-Development* (13,33%) and *Social media* (6,67%).

**Table 3. Profile of 4 participants from UWE, UK**

| Code | Institution | Level | Programme | Gender | Role in Women Tech |
|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| R1 | UWE, UK | 3 | Year Team Entrepreneurship | Male | 1 | Team Coach Team |
| R2 | UWE, UK | 3 | Year Team Entrepreneurship | Male | 4 | Team Coach Team |
| R3 | UWE, UK | 3 | Year Team Entrepreneurship | Female | 3 | Team Coach Team |
| R4 | UWE, UK | 3 | Year Team Entrepreneurship | Female | 2 | Team Coach Team |

Source: Own elaboration

All of these students from the University of the West of England (UK) that acted as team coaches were final year students that had previous experience as assistant team coaches within the programme and in other international projects. 50% of them were undertaking coaching training too. 50% were females and 50% males.

**The Research Setting**

Georgia is located at the crossroads between Asian and European cultures in the South Caucasus region. Georgia holds a unique geographic, cultural and political significance. Long- standing unresolved political conflict with Russia over the occupied regions of Abkhazia and South Ossetia, a lack of inclusive and diverse economic models, and poor social inclusiveness/minority integration are all major contributing factors that hold the region susceptible to instability. In 2019, the UK and Georgia signed a Strategic Partnership and Cooperation Agreement. Developing resilience for citizens is a determining factor in creating a society in which people can thrive, with international expertise being crucial to achieving this. In Georgia, 33 government-authorised higher education institutions are offering three cycles of education, and 20 higher education institutions offer two cycles of education. Georgian education and culture system operates within Culture Strategy 2025 and United Strategy of Education and Science 2017-21. These policies and initiatives facilitate entrepreneurship within creative industries and vocational education. However, it is still not embedded as a priority within the government's overarching strategies (British Council, 2021).

**The Partnership**

The Women Tech Hub project is a collaborative project between the University of the West of England (Bristol, UK) and Ilia State University (Tbilisi, Georgia) as part of the Creative Spark Higher Education Enterprise Programme, a five-year initiative (2018 - 2023) funded by the British Council to support Higher Education and institutional partnerships with the UK to develop entrepreneurship and enterprise skills for students and young entrepreneurs.

As it is known, the Creative Spark Higher Education Enterprise Programme supports partnerships to develop enterprise skills and a creative economy across seven countries in Central Asia (Kazakhstan, Uzbekistan, Kyrgyzstan), South Caucasus (Azerbaijan, Armenia, Georgia) and Ukraine through UK support. These partnerships aim to support the following

areas: Skills development for students and young creative entrepreneurs; Supporting new business activation and incubation; Knowledge exchange. The programme has been developed in response to an underdeveloped creative sector and demand for entrepreneurship training in the programme countries, supporting wealth and job creation.

Within the programme Ilia State University collaborates with the University of The West of England in Bristol (UWE Bristol) and is sharing experience, working on delivering entrepreneurial education to the young generation.

The University of the West of England, Bristol (UWE Bristol) is a public research university, located in and around Bristol, England, which received university status in 1992. UWE can trace its origins to the Merchant Venturers' Technical College, founded as a school in 1595 by the Society of Merchant Venturers (UWE, 2022). UWE's strategy 2030 continues to look at Enterprise to "power the local economy" and as one of the universities' values. UWE wants "an enterprising culture throughout". Tiimiakatemia was developed in 1993 by Johannes Partanen at Jyväskylä University of Applied Sciences (JAMK) in Finland. Within Entrepreneurship Education, Team Academy (TA) is seen by some as an innovative pedagogical model that enhances social connectivity, as well as experiential (Kayes, 2002; Kolb, 1984), student-centred (Brandes and Ginnis, 1986) and team-based learning (Michaelsen et al., 2004). It also creates spaces for transformative learning to occur (Mezirow, 2006). "If you want to see the future of management education, you should see Team Academy" Peter Senge (2008) made this comment over a decade ago about TA and since its inception, educators and practitioners engaging in TA-based programmes have continuously pushed at the innovation boundaries of more traditional teaching approaches to education (Urzelai and Vettraino, 2022a, 2022b; Vettraino and Urzelai 2022a, 2022b). TA is often referred to as a model of entrepreneurship education (Sear and Norton, 2012) and the way it takes the learning through approach (Hytti and O'Gorman, 2004; QAA, 2018). UWE Team Academy (Team Entrepreneurship programme) is seen as the flagship programme for the University of the West of England (UWE) in terms of being enterprising and UWE TA has been recognized as a first and leading example of the TA methodology in the UK, achieving, beyond others, theCollaborative Award for Teaching Excellence from Advance HE in 2021.

Ilia State University (ISU) was established in 2006 and currently has 17000 students. ISU has successfully managed several international projects related to the development of new curriculums, STEM popularisation, the introduction of modern technologies in teaching, tech entrepreneurship, etc. During the last decade, ISU has implemented many activities in this direction by organising a yearly Science Picnic, working with the Young Scholars Network to help public school teachers in developing school STEM clubs, providing training in ISU Physics and Biochemistry labs and helping to establish such labs in regional schools, offering STEM Academies, having Fablab and Unilab offering extracurricular training, establishing Google Developer Club and organising Tech Hackathons. Other collaborations include work with GITA, Geolab, Innovative Education

Foundation, UNDP, and UN Women Georgia.

The achieved results from previous years with Ilia State University (Tbilisi, Georgia), UWE and Creative spark are meaningful in terms of knowledge and trained human resources who are ready to take a lead skewed towards the local side to implement the sustainability measures. The focus of this year's commitment will be on sustaining the engagement of female participants and building female tech education and training to get more women in tech and entrepreneurship. This complements well with previous attempts to build enterprise education and resources and is completely a new addition to our ecosystem and programmes in this area. Recently ISU has created Tech Entrepreneurship and Innovation Development Centre where it runs several programmes organises events and provides services to students and staff. In the 4th-year Creative Spark project, Women Tech Hub aims to support female students who wish to master new professions and develop their skills in technological and entrepreneurial directions.

As ISU and UWE continue to see community transmission of COVID-19 and the need to minimise its spread, a balance must be struck in how educational opportunities are offered. During the COVID 19 outbreak, when all the public and private institutions were forced to close, UWE and ISU managed to implement the forthcoming activities by fully transforming the face-to-face formal educational approach to online attendance.

During these years Ilia State University (Tbilisi, Georgia), UWE (Bristol, UK) and Creative spark: trained human resources who are ready to take a lead skewed towards the local side to implement the sustainability measures; delivered enterprise skills training packages to students and creative entrepreneurs, ranging from pitching ideas and starting a business, to protecting intellectual property and securing financial support; Delivered an English Learning Programme with a range of new digital language learning content. This included online learning packs on the English Channel platform, online courses and new Massive Open Online Courses (MOOC) focused on English for entrepreneurship.

**Women Tech Hub Project**

The objective of this year's project (Women Tech Hub) is to train female students in digitalization-related topics (tech entrepreneurship, app development, computer design and social marketing) to then facilitate the matching of the trained students who will help start-ups founded by women, mostly by female ex-inmate and conditionally convicted to accelerate, develop and design their website, and apps if needed. During the process, the students get not only training but coaching and mentoring support. The program aims to accelerate and developdigital platforms for those start-ups.

On February 7th, 2022, a call was announced to receive applications for joining the Project- Women Tech Hub. The deadline was given till February 25th. The call was announced on Facebook pages of Ilia State University and Fablab Ilia university, also on Ilia State university's webpage. Information about the project was delivered to the students via E-mails and through other communication channels. In total 180

applications were received, from students of

different professions, who want to develop skills in various modern areas, such as tech entrepreneurship; web development; app development; social marketing; computer design.

At the end of the training period, a group of relevant participants will help the start-ups founded by women, mostly by female ex-inmate and conditionally convicted to accelerate, develop and design websites and apps for their businesses. At least 6 start-ups will be helped.

## FINDINGS

This section shows the main results of the surveys obtained regarding motivations to start a business, barriers that start-ups face and how the Women Tech Hub programme provided a solution for this.

### Motivations for Starting a Business

Below are the responses that women-owned start-ups gave around their reasons and motivations to start their ventures.

**Table 4. Motivations of start-ups to start a business (average values)**

| | Average |
|---|---|
| To have greater FLEXIBILITY for my personal and family life | 4.3 |
| To have considerable FREEDOM to adapt my own approach to work | 4.8 |
| To earn a larger personal INCOME | 4.3 |
| To have a chance to build great WEALTH or a very high income | 4.3 |
| To fulfil a personal VISION | 4.8 |
| To CHALLENGE myself | 5.0 |
| To continue a family TRADITION | 3.3 |
| To follow the example of a person I ADMIRE | 2.5 |

Source: Own elaboration

We can see that the reasons for starting a business with higher response are: to challenge myself, to fulfil a personal vision, to challenge myself and to have considerable freedom to adapt my own approach to work.

It is interesting that these reasons, as compared to those for males, are mainly linked to intrinsic motivations and internal rewards, rather than external motivations such as economic and income-related rewards. These results are confirmed in other studies carried over with entrepreneurship students in the UK (Urzelai, et al., in press).

### Barriers to women start-ups and their digitalization process

Table 5 shows the barriers and limitations women-owned start-ups faced when

setting up and running their ventures.

The main barriers to starting a business are: other (resistances and industry knowledge), limited access to financial support, low level of legal and economic knowledge, and lack of mentoring and coaching.

It looks like even if there are increasing initiatives to provide funding for start-ups in Georgia the female entrepreneurs still see this as the main limitation. Training and coaching are needs that start-up firms have. The Women-Tech Hub programme aims to cover these needs by training students to then transfer that knowledge to the start-ups and support them in their digitalization. Besides, these students are given coaching support that they can then use in working with those start-ups.

**Table 5. Barriers and limitations faced by start-ups (average values)**

| | Average |
|---|---|
| Gender stereotyping and the role of women in society | 3.6 |
| Limited access to financial support | 5.0 |
| Limited access to human resources | 3.4 |
| Limited Access to Training and Equipment | 3.4 |
| Lack of self-confidence | 2.8 |
| Differences in educational level | 2.0 |
| Discrimination and sexual harassment | 4.0 |
| Lack of mentoring and coaching | 4.4 |
| Lack of role models | 3.2 |
| Lack of networks | 3.6 |
| Lack of work-life balance | 4.0 |
| Lack of ambition for success | 3.4 |
| Personal attitude towards risk-taking | 3.2 |
| Not been taken seriously or been patronised | 4.2 |
| Low level of legal and economic knowledge | 4.6 |
| Lack of supportive digital technologies | 2.6 |
| Lack of self-efficacy (belief in your capacity to execute) | 3.8 |
| Family barriers (family members' disapproval...) | 3.6 |
| Cultural barriers (societal norms and traditions) | 3.0 |
| Fear of failure | 3.0 |
| Male domination in the industry/ sector | 3.4 |
| Other | 5.6 |

Source: Own elaboration

The Georgian student participants believed that the main barriers women-owned start-ups face when running a business are (ordered from highest to lowest frequency of response):

- Limited access to financial support (73,33%)

- Gender stereotyping (66,66%)

- Lack of self-confidence (60%)
- Family barriers (46,66%)
- Limited Access to Training (33,33%)
- Discrimination/ sexual harassment (26,66%)
- Limited access to human resources (26,66%)
- Lack of ambition for success (26,66%)
- Differences in educational level (20%)
- Lack of networks (13,33%)

The qualitative data from these students indicated that, apart from the financial difficulties, students that were self-employed thought that the main barriers were those related to more personal, psychological and societal barriers, such as fear of failing, lack of ambition or attitudes and stereotypes:

> *"I think, attitudes. Some people think that technologies aren't for women, becausethey need practical, technical knowledge/skills"(P10).*

> *"I think the main barrier is trust and financial problems, mentality towards women in our country is making them quit too fast, or making them not start at all" (P3)*

> *"I think lack of trust due to stereotypes hinders finding a team" (P2)*

> *"It is hard for me to say exact answer but my point of view that's education, there are few females in IT faculty, but day after day this trend changes and that's very pleasant. Also, there can be other factors such as the fear of failure, many females think too much and are scared to take another step, while males take it too fast and risk everything that they have, sometimes it's necessary to risk to win. Also, the main point can be money-sponsors, who will rely on this idea (P14)*

> *"Family barriers, lack of ambition for success" (P15).*

> *"The stereotypes as people think females are bad in tech and that digitalization isnot the field they know" (P4).*

There is a need for a change in education and society to break with stereotypes and changemindsets to welcome and support females in the entrepreneurial landscape.

**The Women Tech Programme as a Collaborative Solution**

In general, the expectations that student participants in Georgia had when joining the programme were, to have new knowledge, new experience, new chances, new perspectives (46,67%), find a suitable job after the course (46,67%) and don't have precise expectations yet(6,67%).

The main reason why they decided to join the Women Tech Hub it was mainly to have experience and knowledge in the business and tech field (35,72%), to improve their skills (14,29%), to learn about graphic design and start working in that field (21,43%) and to show interest in technologies. Besides, to have a good start app idea, to study programming and get practice in this field, to study web development and to try something in a different field (7,14%).

When looking closer at the reasons why they joined and the expectations they had, we identify three main areas:

*1)* Increasing their knowledge and learning in that discipline/ topic of technology:*"To gain more knowledge in this area and also to get more experience" (P6)"To learn about the graphic design and start working in that field" (P7)*

*"I'm interested in technologies, besides this, I have a good start app idea" (P10)*

2) students interested in just trying new things or improving other skills:

*"I wanted a new experience {…} better ability to contact business I'd like workwith and better potential for them to see in me"(P3).*

*"I wanted to improve my skills"*

*(P5)"to improve myself" (P9)*

3) students see this as an opportunity for their future both in education or the workplace:

*"My motivation is to gain some experience and knowledge in the business and tech field and I thought that it would be a great opportunity for my future plans. I hope that I will be able to get some practical skills during supporting the start-ups that will help me, in the future, become an experienced and competitive employee" (P1).*

*"This project is an excellent opportunity for me to move forward and take the next steps in this profession, which I would like to use I hope I will have an opportunity foran internship" (P2).*

*"I have a desire to study programming and get practice in this field" (P12)"I want study Web-development" (P15)*

4) the desire to help other start-ups or start their own business:

*"To get enough knowledge to help start-ups and also find a job in this field" (P4)"I hope that I will be able to get some practical skills during supporting the start-up" (P11)*

*"This program will give me the determination to start another one, get experienceand never stop" (P14).*

When asked about this last element on how they thought they will help start-ups

after the completion of the programme the participants mentioned they want to do the best with the knowledge acquired (66,67%), and they want to support start-ups by creating functional

websites for their business (26,67%). Others don't know yet how they will be able to supportthem (6,67%).

Besides, students seemed to have already identified areas they want to work with, organizations they want to work with or other elements of the start-ups that attract them:

> *"I am going to support start-ups by creating a website for their business" P4)*
>
> *(P1,"I think I can help start-ups with my program skills, I can make logo,*
>
> *poster for*
> *ad, etc." (P8).*
>
> *"I plan to create some app or web page for start-ups and help them to grow" (P12)*
>
> *"Someone at Women Tech Hub has already offered me to help with her start-up, which I agreed to" (P2)*
>
> *"I really love start-up culture, I think you grow the most with them, you're out of your comfort zone and trying your best. Right now, I'm working with Georgian start- ups and I'm hoping to have more and more interaction with people who try their best to succeed and make life better for all of us" (P3)*
>
> *"At the beginning of the course I had no knowledge of start-ups and no ideas but at the end of the course I will start thinking about my idea and then I will try to implement it slowly" (P6).*
>
> *"Helped me to understand the basics of marketing, how social networks actually work, all this information together will help me to start something new independentlyor help new start-ups" (P.14).*
>
> *"it'll be a start for my career in this field" (P7).*

In terms of what Georgian students intend to do to after the programme, they seem to have future plans regarding acquiring further skills around graphic design in order to provide their technical support (40%), to continue helping start-ups see the advantages of digitalization and help them become digital (53,33%). Some still don't know well how they will go with it after the programme (6,67%).

The learnings acquired from the programme show the students were developing their self- awareness and reflective skills and thinking about not only the knowledge they were gaining but also the connections they were making and the future they want to take:

> *"It helped me to find out more about how to pursue my profession after listening to the advice of people who are already experienced" (P2)*
>
> *"I think I better understand start-up culture now, I understand what they need from me, what I can give them and on what I can work to be a better fit for*

*any companyI want" (P3).*

*"I have found more about my abilities and what could I do" (P11). "I will be experienced and more confident in my field" (P5).*

> *"The main thing I gain from training/trainers is that they show us possibilities, give us motivation and channels, we can use to execute our ideas" (P10).*

The students reflected on how the knowledge gained in the programme will help them in the future, and they recognized that they could expand their knowledge about graphic design and that it'll be a start for their career in that field (33,33%). They were also able to understandbetter start-up culture.

The UK-based students who acted as the participants' team coaches throughout the project identified a pedagogical gap in the participants' home institution in terms of having a more self- managed and student-led programme that builds on their confidence and experiential learning.

> *"My experience of coaching a team of women training within the field of digitalization-related topics (tech entrepreneurship, app development, computer design and social marketing), I saw a lack of confidence, and a reluctance to test their skills with a fear of failure being a huge factor. A way a university can support these individuals is to provide a safe space to test their skills and apply their current knowledge to projects. By doing so within teams with a team coach to support the process it should increase the risk-taking of the individuals and reduce the fear of failure. Another alternative is to provide opportunities with limited risk and consequences for students to explore and engage with, applying their knowledge and learning by doing" (R1).*

It seems that students are very passionate about what they are doing and have entrepreneurial intentions, but coaching and mentoring could be needed within the educationalsystem:

> *"In terms of how Universities can help with the digitalisation of businesses and empowering females to do so, I think a massive help is education. With Universities in Georgia offering their students a chance to learn these skills, I have noticed a real passion to succeed from my students, and a willingness to build their websites or apps by themselves, with little external guidance. The difficult thing with entrepreneurship is the feeling of not knowing how or when to start, but this education, it can really give them the tools and confidence to just give it a go. I noticed three main challenges: capacity to build a team, confidence to go out and find the right people, and portraying their idea simply and clearly for others to understand and get behind it (R3.*

They also detected reluctancy to test their skills and a need to ensure gender isn't seen as aproblem in Georgia.

> *"What I observed coaching them is that there is a need to ensure gender isn't seen as a problem. This could be done by using female success stories in parallel*

*to male success stories, promoting discussions around Georgian economic success, etc. I noticed cultural beliefs influenced their thinking around whether females could be successful leaders, CEO's, founders, etc. Potentially more needs to be done to generalize awareness of these individuals. The programme provided them with the*

*opportunity to learn and practice. The students were naturally very academic but lacked exposure to practice (as this did not come naturally to them) so more opportunities to do so is definitely needed" (R2).*

## CONCLUSIONS

There is no doubt that digitization and digitalization of business are very popular topics in today's world, and that it is helping start-ups, as well as businesses in development. In the process of globalisation, with the rapid development of information technologies, it has become possible to implement global start-up activities in the virtual space. It can be said that in the development of technology start-ups, digitalization has played a special role. The spread of the Internet, the increase of information, and the introduction of various technological innovations, helped the start-up ecosystem to develop rapidly. Despite the challenges caused by Covid 19 and the pandemic, the majority of start-ups were able to develop and innovate, and create new products which were adapted to the market's main needs. With this process, digitalisation was the key. This is true, especially in regard to the Georgian ecosystem.

As for female entrepreneurs, it is true that nowadays their number is gradually increasing and more women are trying to start their ventures. However, there are still obstacles that are related to various factors. Some of the main reasons preventing them to grow and develop are the limited access to financial support, the lack of mentoring and their limited legal and economic knowledge. Discrimination and family problems are also important issues. This causes obstacles not only in Georgia but also in different countries, which needs special attention to find solutions.

Role models are important when it comes to female entrepreneurship, and even more when we talk about tech entrepreneurship, as many stereotypes impose barriers and limitations on females in this sector. These individuals need to build their self-confidence to become more ambitious and determined to follow their entrepreneurial dreams. The fact is that female-owned start-ups are often driven by intrinsic motivations, such as the need the have to fulfil their personal visions or to be challenged. These are important factors that help them build their entrepreneurial mindset, which is one of the main important things that drive a person to succeed.

Also, a very important part of promoting start-ups is acknowledging that young generations need personal growth and development in the workplace and are willing to learn new things and develop lop their our futures. Students from the "Women Tech Hub project" are studying different degrees but they are all motivated in helping start-ups to digitalize their products. With the acquired knowledge (web development, app development, graphic design and social media), that has been recognized to be missing in the system, they are going to support women start-ups in different digitalization directions. For newly developed start-ups this would be a huge help, as they are in an early stage of development. So, programs like these would benefit a lot more female-

owned start-ups and encourage them to continue working on what they

believe, and help students acquire transversal skills and cross-cultural competencies for theirfuture careers.

One of the main reasons why they joined the program was to get practical experience, something that we found was not embedded enough in their programs. The Higher Education sector needs to focus much more on providing enterprise and entrepreneurship training that is fully integrated into all types of university degrees. The Women Hub Tech is an example of extra-curricular activities students can take to develop these skills, but it is not enough to offer these if they cannot continue being fully engaged in practice. Experiential and practice-led learning pedagogies need to shape the current programme designs and assessments. Georgia already has various initiatives and programmes to encourage female entrepreneurship, but unless these students develop a higher level of self-awareness and build their confidence, they will not fully engage as active agents in that dynamic entrepreneurial ecosystem.

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